

Technology from Bosch Rexroth

Tough applications,
Ingenious solutions } Exactly



We are Bosch Rexroth. The Drive & Control Company.

In a world of constant motion, we are driven to reach new goals, achieve new results. That is where Bosch Rexroth excels: We are The Drive and Control Company. We are the world leader in the drive, motion and control technologies that power today's most advanced manufacturing systems. We combine a passion for solving your complex engineering challenges with unmatched applications expertise across a broad range of industries and automation systems.

No one can match the range of products and solutions we offer. We are the one company able to choose from a portfolio of industrial and mobile hydraulics, electric drives and controls, tightening tools and linear motion and assembly systems—world-class technology that gives us the freedom to select the perfect combination of products that, time and again, solve every challenge we undertake.



No matter how complex or simple the challenge, our people are passionate about applying their expertise and our technology to find the right solution for you.

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Four markets. One right solution.

Mobile Applications

Whether it's for construction, materials handling, agriculture, forestry or equipment for road vehicles, mobile machine manufacturers count on us to help them engineer compact, energy-efficient equipment that can effectively deliver a full day's work, while satisfying the increasingly strict regulations for reduced emissions.



Machinery Applications and Engineering

For industrial plants, marine and offshore installations and bulk materials handling, we are a global specialist for constructing the most complex plants and unique infrastructure projects. Our extensive, hands-on expertise designing high-powered hydraulic motion and control systems enables us to regularly undertake large-scale projects, as a project partner or lead project manager.



Factory Automation

The world of factory automation encompasses myriad applications: machining and machine tools, automotive production, assembly and handling, semiconductor and electronics, packaging, printing and processing—and much more. Every day, we provide the advanced systems and engineering expertise to help build these and countless other automation platforms that make our modern world possible.



Renewable Energies

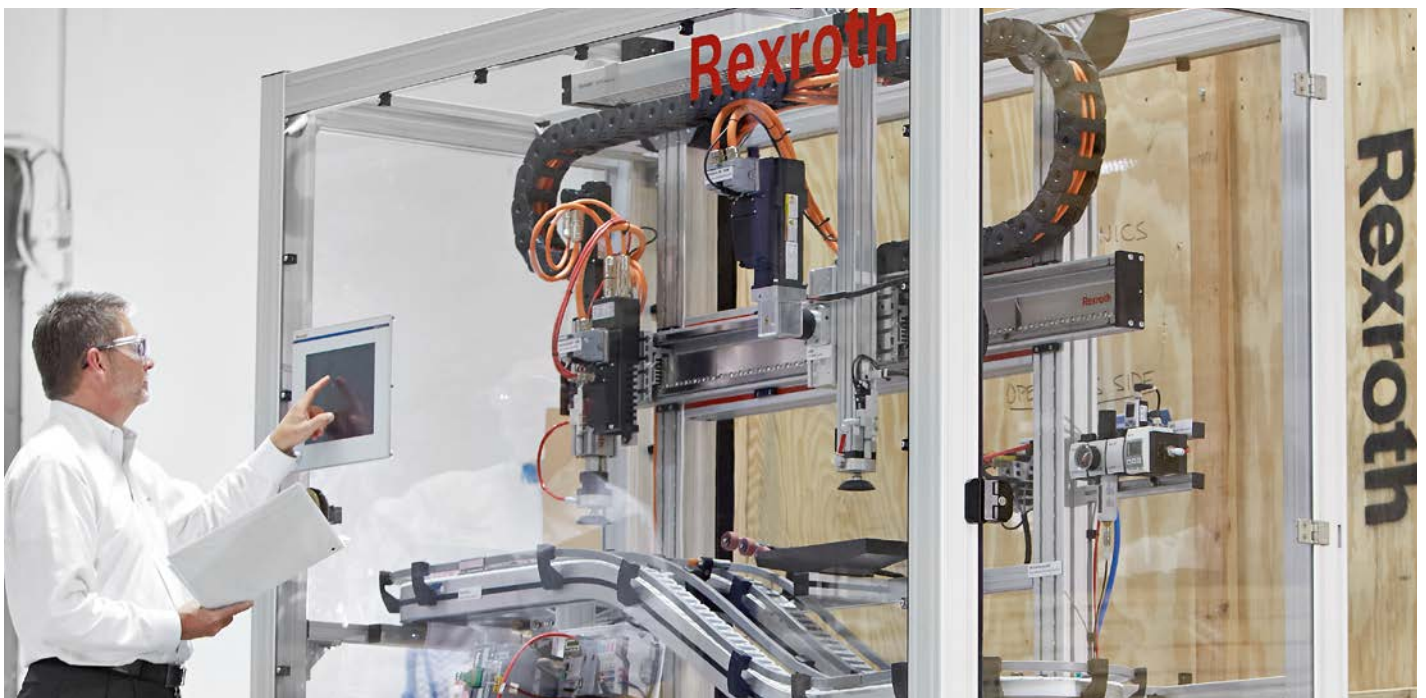
The wind and the ocean are always in motion—and since the 1980s, we have been at the forefront of developing technologies to reliably, cost-effectively capture that perpetual motion and harness it for clean, sustainable energy production.



Electric Drives and Controls

Flexible and open solutions for advanced automation.

Multi-axis interpolated motion sequences. Tight factory floor footprints. Control of energy consumption. More flexibility and faster changeovers, in response to rapidly changing market demands. The right technology can equip today's automation systems with these essential capabilities—drive and control technology that Bosch Rexroth is uniquely able to deliver.



With technologies like our IndraDrive Mi motor-integrated drive systems, manufacturers, design engineers and OEMs count on Rexroth for smarter drive and control products and automation control systems.

With one of the industry’s broadest portfolios of electric drives, motors, controllers, HMIs and other automation technology, Rexroth offers a single source of multi-technology solutions that give OEMs and end users greater choices as they engineer production platforms to satisfy their unique requirements. We continue to create innovative drive and control breakthroughs that will be the building blocks for the next generation of automation:

- ▶ **Open Core Engineering** delivers new levels of automation programming freedom
- ▶ **Safety on Board** technology to efficiently protect workers and machines
- ▶ **Rexroth 4EE** systemic approach to improving energy efficiency

The Rexroth Difference

- ▶ Broad, industry-leading product offering
- ▶ Innovations such as motor-integrated drive systems and compact CNC platforms
- ▶ Focused product development that anticipates next-generation technology demands
- ▶ Active support for industry standards such as Sercos III and IPC
- ▶ Expanding vision for open automation controls platforms with Open Core Engineering
- ▶ Easily integrate with other Rexroth technologies: linear motion, hydraulics and more

Electric Drives & Controls Products

- ▶ Servo Drives
- ▶ Motors
- ▶ Cabinet Free Drive Technology
- ▶ Frequency Converter
- ▶ Sytronix Variable Speed Pump Drives
- ▶ PLC
- ▶ CNC
- ▶ Motion-Logic
- ▶ I/O Systems
- ▶ Software Tools
- ▶ HMI
- ▶ Industrial PCs
- ▶ Resistance Welding



CNC confidence

IndraMotion MTX micro CNC chosen for next-generation gantry router which targets small- and medium-sized woodworking shops. Read the case study. goo.gl/o7rXBf



Industrial Hydraulics

Intelligent hydraulics for demanding requirements.

High speed plastics production. Stamping presses producing hundreds of parts per hour. Steel mills fabricating rebars for construction. Machine tools milling components to the tightest tolerances.



As it has for decades, Bosch Rexroth continues to drive innovation in industrial hydraulics technology, improving energy efficiency, integrating safety and helping create more compact and efficient systems.

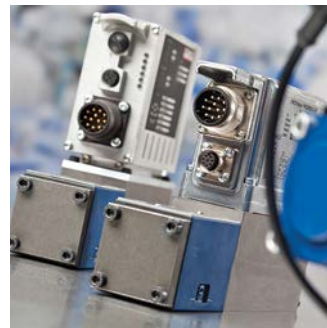
Wherever heavy-duty industry needs the power and performance of hydraulics technology to drive the most demanding manufacturing systems, Bosch Rexroth has the industrial hydraulics solutions engineered to serve the toughest challenges. Bosch Rexroth sets the industry standard for performance, reliability and accuracy in industrial hydraulics. Across the broadest range of demanding industrial environments and applications, our technology combines new levels of intelligent control with the long-lasting value necessary to deliver maximum productivity and lower total cost of ownership.

The Rexroth Difference

- ▶ Broadest spectrum of proven products configurable to your unique requirements
- ▶ Unique ability to integrate controls technology for more precise process control
- ▶ Improved availability of in-demand standard products delivered in market-best lead times
- ▶ Single source for virtually all key industrial hydraulics components
- ▶ Unmatched applications engineering expertise to help ensure our solution works right for you

Industrial Hydraulics Products

- ▶ Accumulators
- ▶ Cylinders
- ▶ Electronics & Controllers
- ▶ Filters/Fluid Monitoring
- ▶ Manifolds
- ▶ Hydraulic Motors: Gear, Radial Piston, Vane, Axial Piston
- ▶ Power Units
- ▶ Hydraulic Pumps: Gear, Radial Piston, Vane, Axial Piston
- ▶ Proportional & Servo Valves
- ▶ Standard Valves
- ▶ Variable Speed Pump Drives



Improving blast furnace performance

Rexroth hydraulics powers a new distributor for iron blast furnaces that dramatically improves endpoint accuracy and control. Read the case study.

goo.gl/ByNwM7



Hägglunds Drive Systems

More torque in a compact package. Mining. Metal and waste recycling. Minerals processing. Bulk materials (cement, grain, stone) handling. The world's most demanding material movement applications feature punishing environments and demanding operational requirements.



With its extreme torque-to-weight ratio and compact design, the Hägglunds CBM hydraulic direct drive is able to handle a very broad range of tasks in rugged operating environments.

Production demands are growing. And time frames are shrinking, along with the energy and resources to get the job done. For these applications, staying ahead is easier with the Häggglunds CBM direct drive systems from Bosch Rexroth.

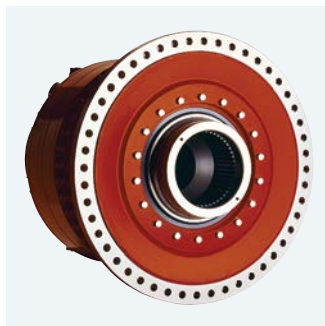
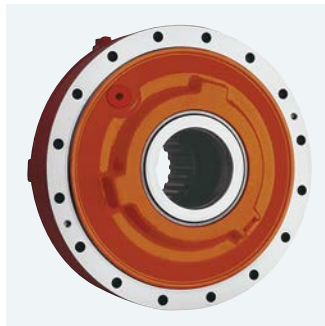
The Häggglunds CBM packs 50% more torque into a motor that's smaller and 50% lighter than its predecessor. Yet it gives you all the advantages of a direct drive. Full torque from zero, protection from shock loads and four-quadrant operation are part of the same small package.

The Häggglunds/Rexroth Difference

- ▶ The most powerful and trusted hydraulic direct drive available
- ▶ 50% more torque and up to 50% less weight equals outstanding torque-to-weight ratio
- ▶ Pioneer in development and evolution of hydraulic direct drive technology
- ▶ Hydraulic direct drives are completely gearless and allow for infinite speed variations to fine-tune processes
- ▶ Four-quadrant operation allows forward or backward turning in either driving or braking mode
- ▶ Unique single source for a complete solution—CBM motor, pump drive and motors and controls

Rexroth Häggglunds CBM Direct Drive Systems

- ▶ CBM 2000
- ▶ CBM 3000
- ▶ CBM 4000
- ▶ CBM 5000
- ▶ CBM 6000



50% more
performance

See how the power of Häggglunds CBM drives new levels of productivity for applications across the globe. Watch the video. goo.gl/JwCvLN



Mobile Hydraulics

Efficient solutions for your success. Cranes, loaders, dozers, pavers, telehandlers or road rollers—today’s hard-working mobile machines must deliver better productivity, reliability and flexibility. With rising energy costs and new emissions rules, it’s time for tougher, smarter mobile technologies.



As mobile machine builders seek to satisfy strict new emissions standards without sacrificing performance, Rexroth mobile hydraulics products offer more performance in compact packages to help meet the need.



Mining a miracle

Learn how a mobile drilling rig equipped with Rexroth hydraulic pumps freed 33 Chilean miners trapped underground. Read the case study. goo.gl/m1GX7K



Faced with these tough challenges, Bosch Rexroth has the proven drive and control solutions, applications expertise and service and support resources to help move your mobile machine performance forward. As one of the world's leading suppliers of mobile hydraulics systems and components, we can help increase machine efficiency, reduce emissions and create custom-configured drive and control solutions to fit your needs.

The Rexroth Difference

- ▶ Reliable components and application expertise provide more machine up-time, long life and increased energy efficiency
- ▶ Powerful, effective hydraulics combine high-performance hydraulics technology with advanced electronic controls
- ▶ World-class portfolio of products proven in thousands of applications worldwide
- ▶ Focused on creating solutions that optimize energy efficiency and assist in environmental compliance in mobile machines



Mobile Hydraulics Systems

- ▶ Axial Piston Units
- ▶ External Gear Units
- ▶ Radial Piston Units
- ▶ Mobile Controls
- ▶ Compact Hydraulics
- ▶ Gear Drives
- ▶ Electronics

Linear Motion Technology

Compact precision for better machine performance.

Today's linear motion technology needs to deliver new levels of performance: components designed for long-lasting, precise and high efficiency operation; modules that pack more power into compact packages and integrate with ease; and more options engineered for diverse new mechatronics systems.

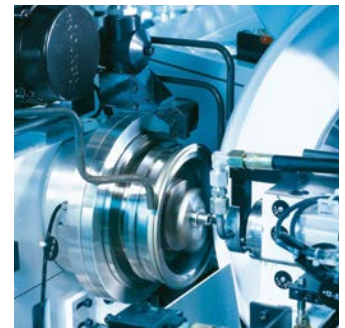


Whether it's ball rails developed specifically for use in industrial robots and machine tools, or linear modules that offer both high rigidity and precision, Rexroth linear technology is engineered for automation excellence.

Whether you need to move heavy loads at high speeds and repeatedly stop precisely at endpoints, transport products through precision assembly operations at high throughput rates or develop leaner, more efficient and eco-friendly workstations and machine enclosures, Bosch Rexroth has the proven portfolio of linear motion products tailor-made to give machine builders the full range of options you need to create the right solution for your target application.

The Rexroth Difference

- ▶ Precision-engineered for smooth, quiet, long-lasting performance
- ▶ Higher dynamics and load capacities in compact packages
- ▶ Comprehensive portfolio provides industry’s broadest range of linear guide rail, linear module and ball screw assembly options
- ▶ Long-life lubrication and superior sealing reduces maintenance requirements and machine downtime
- ▶ All linear modules utilize core Rexroth-fabricated components to ensure highest quality performance in these pre-engineered solutions
- ▶ From individual components to complete subassemblies and solutions
- ▶ EasyHandling solutions integrate full servo motor, drives and controls for the most complex motion demands
- ▶ Extensive suite of free design and configuration software tools and CAD models



Linear Motion Products

- ▶ Linear Guides
- ▶ Linear Modules
- ▶ Cartesian Systems
- ▶ Screw Assemblies
- ▶ EasyHandling Solutions



Driving linear motion improvements

Discover six keys to better precision in linear motion control applications. Read the technical paper. goo.gl/754GxL



Assembly Technology

Flexible and productive manufacturing flow. Industries must respond to global competitive forces such as mass customization, shorter innovation time frames and product service lives with production systems that can quickly adapt to changing market demands—and Rexroth’s assembly and material flow technology is engineered to deliver that flexibility and productivity across multiple applications.



Rexroth assembly technology includes both chain conveyor and pallet-based transport systems to give you the best option for your needs.

Rexroth’s TS Series of pallet-based transfer systems offer a broad range of proven conveyor technologies, capable of handling loads ranging from 3 kilograms up to 300 kilograms, with specialized offerings for cleanroom and solar cell manufacturing. Our VarioFlow single-strand flexible chain conveyors provide a cost-effective, highly adaptable material transport solution engineered for quick system design, installation and virtually uninterrupted operation shift after shift.

The Rexroth Difference

- ▶ Unique range of material transport systems able to serve virtually any manufacturing application
- ▶ All components engineered for smooth, energy-efficient movement, with minimal friction and lowest wear-and-tear
- ▶ Designed from the ground up for modularity, scalability and quick changes to make fast planning and design a reality
- ▶ Ability to implement virtually any configuration or solution utilizing a few standard TS or VarioFlow modules
- ▶ Advanced design and configuration software—including downloadable CAD models and other online resources
- ▶ Global sourcing—enabling design and delivery of material handling products to markets worldwide
- ▶ Total lifecycle support—including design tools and service and repair programs



Assembly Technology Products

- ▶ TS Assembly Conveyors
- ▶ VarioFlow Chain Conveyors
- ▶ Workstations



Case Study:
Ophthonix

Rexroth VarioFlow transport system and aluminum structural framing transforms lens manufacturing facility. Read the case study. goo.gl/sGpKPI



Aluminum Structural Framing

High-performance profile system. Rexroth's aluminum profiles offer the industry's most comprehensive range of products, using our unique T-slot design. Combine anything in the system with ease to fit any application: Economical light profiles, heavy-duty standard profiles, closed slot profiles for better cleanliness and our EcoShape system offer easy connections between square and round elements.



Rexroth's aluminum structural framing provides the flexible and versatile core of our ergonomic Manual Production System workstations. Featuring easily reconfigurable material transport components, flow racks and a complete range of bolt-together workstation elements, they provide the perfect platform for lean, demand-driven assembly solutions.

The Rexroth Difference

- ▶ Widest range of profile sizes
- ▶ Combine anything in the system with ease
- ▶ Easy, fast configuration with planning software
- ▶ Snap-together assembly requires no special tools or training
- ▶ Fully machined, corrosion-resistant surfaces
- ▶ Available worldwide through global network of expert sales partners

With over 500,000 potential combination options, Rexroth's Aluminum Profile System makes it possible for you to save countless working hours and time configuring the solution you need.



MTpro with Layout Designer

Powerful tool for optimizing assembly system design.

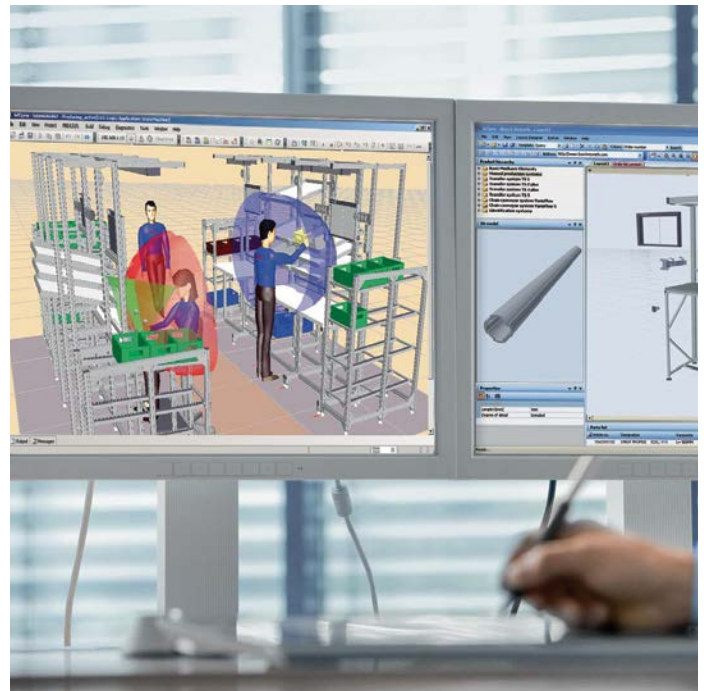
MTpro is the intuitive software for planning assembly systems. It assists you at every step, from selection, to configuration, through to ordering products from Rexroth. The Layout Designer function allows you to plan and construct complete frames and conveyor systems without the need for a CAD system, automatically generating a bill of material.

Using simulation, MTpro facilitates the ergonomic design of work systems as early as the planning phase, complete with automatic order list generation. Using the intuitive operating platform of the Layout Designer, you can quickly create complex designs and system layouts yourself.

The ManModel function significantly facilitates the design of ergonomic workplaces, even with a wide range of user groups: The man models are displayed with clear simulation of reaching distances and visual fields and can be used in both the Layout Designer and in any CAD system.

The Rexroth Difference

- ▶ ManModel: standardized models of human forms for men and women in three sizes
- ▶ Standardized positions: sitting, standing, walking
- ▶ Automatic placement of work chairs
- ▶ Angles of all joints in the body are individually adjustable
- ▶ Display of different reaching distances and visual fields
- ▶ Possible to use in Layout Designer, and to export to CAD systems



Tightening Systems

Maximum productivity for your production line. Increasing cost pressures, demands for more intelligent assembly systems and tight safety regulations call for new fastening tools and platforms. Rexroth Tightening Systems, featuring the Rexroth Nexo cordless WiFi nutrunner, meet those demands, delivering maximum freedom and process reliability.

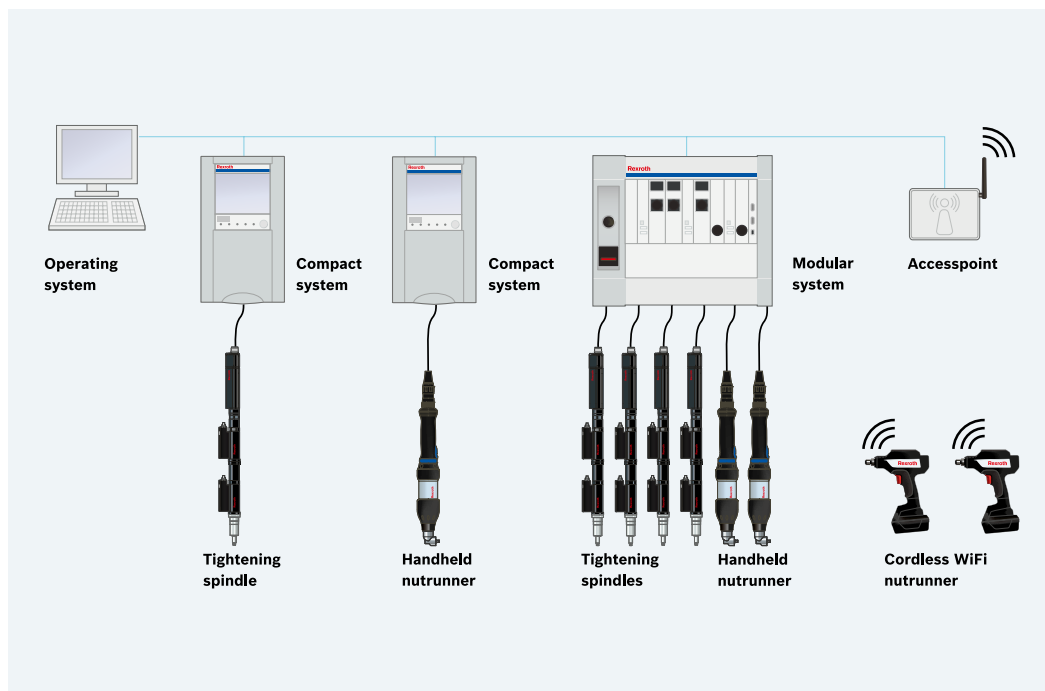


The Rexroth Nexo cordless WiFi nutrunner combines intelligent design, proven ergonomic principles and smart assembly tool intelligence and control to enhance assembly quality and repeatability.

Whether you're assembling automobiles, dishwashers or wind turbines, every connection must be secure, reliable and accurate. Rexroth Nexo is the first cordless WiFi nutrunner with both power electronics and controls integrated into the tool. The integrated controller temporarily stores the tightening results and transfers them wirelessly to the controller station, eliminating the need for an additional control with no loss of cycle time or data when working in silent zones.

The Rexroth Difference

- ▶ Designed for the highest reliability, uptimes and durability
- ▶ Industry-leading warranty: two years/unlimited cycles
- ▶ Completely maintenance-free technology—no motor tuning or tool recalibration required
- ▶ Nexo's ergonomic design and maximum freedom of movement improve productivity
- ▶ Nexo reduces capital costs due to elimination of additional control hardware



Bosch Production Tools

The accurate, durable, energy-efficient EXACT family of cordless screwdrivers, wrenches, high-frequency grinders and other tools from Bosch Production Tools delivers reliable precision for sustained use. Learn more. goo.gl/YFvJ7x



Tightening Systems Products

- ▶ Nexo Cordless WiFi Nutrunners
- ▶ Tightening Spindles
- ▶ Hand-held Nutrunners
- ▶ Control & Power Electronics
- ▶ Interface Modules
- ▶ Cabling
- ▶ Software

Genuine Rexroth Service

Full lifecycle support for your drive and control technology. Maximum equipment availability and high efficiency during the lifecycle of your machines and plants: these key factors help determine your operation's productivity. Rexroth offers a comprehensive spectrum of services to maximize the availability of your machines, through engineering support, service and genuine Rexroth parts.



Bosch Rexroth is expanding its global network of Certified Technology and Service Centers, delivering a range of repair, maintenance and engineering programs to match local requirements.

At the heart of our Rexroth service offering is our expanding global network of Certified Technology and Service Centers. Created to deliver a consistent level of “global service expertise with local support,” all Bosch Rexroth Service Facilities are fully certified from our lead plants to carry out repairs and warranty service on Rexroth drive and control technology, along with support for Field Service capabilities in many locations.

We are committed to delivering true lifecycle support, including programs that specialize in repairing legacy hydraulics and electric drives and controls products (including Indramat products), many of which have delivered years of reliable performance. We can also help you plan cost-effective service life extension, retrofits and modernization plans to match your long-term needs.

The Rexroth Difference

With Genuine Rexroth Service, we support you with a unique array of capabilities:

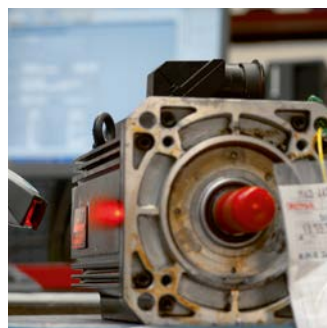
- ▶ Service center-based repair, warranty and maintenance programs
- ▶ Experienced, responsive network of field service technicians in select locations
- ▶ Common certification and quality programs that set industry standards
- ▶ Genuine Rexroth spare parts—the latest technologies, not just what fits
- ▶ Expert application development support, drawing on world-class Rexroth engineering resources
- ▶ Programs supporting remanufacturing, preventive maintenance and spare parts supply



The Drive & Control Academy

Take advantage of our expertise: Our Drive & Control Academy includes programs for on-site training at your location, online eLearning modules and complete modular training systems. Learn more.

goo.gl/SHnjuN



How To Buy

Resources focused on your needs. We continually invest in new resources and work to streamline existing processes to make working with and buying from Bosch Rexroth faster, easier and more efficient than ever. We are committed to do all we can to satisfy and delight our customers with the world's best drive and control technology, backed by the support and service you expect.



GoTo Focused Delivery Program The Products You Need, When You Need Them

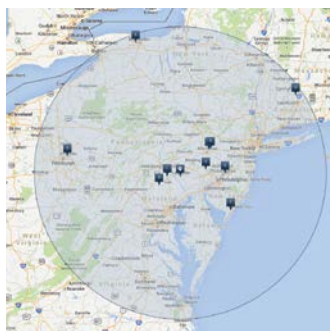
Our industry-leading GoTo Focused Delivery Program provides faster order response and market-best lead times for our high-demand drive and control products. We are building on the program's success with:

- ▶ Continued growth in the number and range of products offered
- ▶ Improved lead and delivery times
- ▶ Competitive pricing, customer-focused delivery terms and expert applications support
- ▶ Updated web and print catalogs with the latest product information

GoTo Products Apps

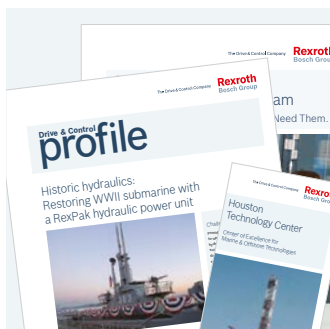
For fastest service, download our GoTo Products app for iPhone, iPad and Android devices. It's the simplest, easiest way to stay up-to-date with GoTo. Get the latest product additions, build and submit wishlists, use shopping carts, find your nearest Rexroth distributor—put the power of GoTo at your fingertips, wherever you are.





Contact Locator

Our user-friendly online Contact Locator tool gives you quick access to contact information for your Bosch Rexroth Sales Partner/Distributor, as well as information on Bosch Rexroth headquarters, sales, service and training locations.



Request Information

Use our online request form for a full range of direct inquiries with Bosch Rexroth: requests for quotes, product information, technical and application support and more—we're ready to help!



Aluminum Framing Shop

Our Aluminum Framing Shop makes ordering Rexroth aluminum framing as easy as using it. Browse products by type, size or part number. View catalog pages for aluminum framing, lean workstations, accessories and more. Get native 3D solids or CAD files to speed your design. And when you place your order, it goes straight to your local aluminum framing distributor for immediate processing.



Order Online: eBusiness@Rexroth USA

Use our eBusiness@Rexroth USA portal for a range of online services through one convenient, secure portal. It gives you access to useful tools such as:

- ▶ Online shopping
- ▶ Product availability
- ▶ Order tracking
- ▶ Product and technical information

How to buy
from Bosch
Rexroth?

All your tools
are here.

goo.gl/GyBlmL



Bosch Rexroth Corporation

Headquarters
14001 South Lakes Drive
Charlotte, NC 28273
Telephone (800) REXROTH
(800) 739-7684
info@boschrexroth-us.com
www.boschrexroth-us.com

Bosch Rexroth Canada

Headquarters
490 Prince Charles Drive South
Welland, ON L3B 5X7
Telephone (855) REXROTH
(855) 739-7684
info@boschrexroth.ca
www.boschrexroth.ca

Find your local contact person here:

www.boschrexroth-us.com/contactus