



VarioFlow *plus* & Co.

Smart helpers for

faster-moving

consumer goods

VarioFlow *plus* chain conveyor system

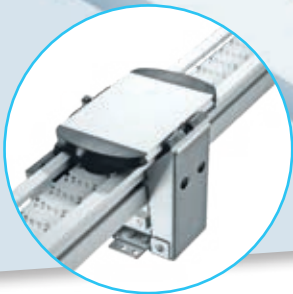


ActiveShuttle autonomous transport system



FROM COMPONENTS TO COMPLETE SYSTEMS – BOSCH REXROTH MAKES IT EASY

WE MOVE. YOU WIN.



Workpiece pallet loop in the VarioFlow *plus* system



Smart Function Kit for Pressing mechatronic subsystem

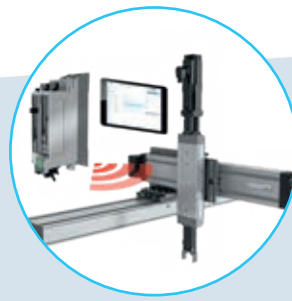


ActiveCockpit communication platform

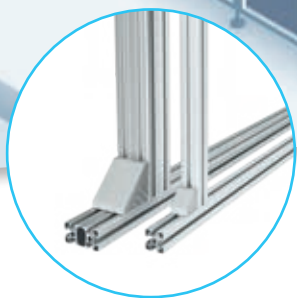
From the initial idea and the planning of whole factories to commissioning. From the primary packaging to palletization. From individual components to turnkey complete solutions – at Bosch Rexroth everything is available from a single source.

When it comes to automating your material and information flow in a highly efficient manner, you will find a complete range of drive and control technologies, smart mechatronics, flexible transport systems and engineering tools here. With a single automation partner at your side, you can quickly achieve greater productivity in your FMCG production – and pave the way to the Factory of the Future.

Smart Function Kit for Handling mechatronic subsystem



APAS collaborative robot



Modular aluminum profile system



Automation platform ctrlX AUTOMATION





Proven technologies plus i4.0 components from the market leader

More variants and more sustainability, batch sizes of one and quick product switchovers, with full connectivity if possible – as the world-leading automator of consumer goods and packaging, we are confronted by the sector's problems every day. And we offer the solutions. With our proven technologies, we integrate more and more smart helpers too.

The **VarioFlow plus** chain conveyor system as the central transport artery is now backed up by the **ActiveShuttle** autonomous transport systems, the **APAS** collaborative production assistants, **Smart Function Kits** for linear motion technology solutions and the fully open **ctrIX AUTOMATION** platform – all of which can be fully integrated into your IT infrastructure.

With the knowledge gained from around 280 Bosch Group plants around the world and countless i4.0 customer projects, we make your material flow easier, quicker and more digital.



Factory of the Future

Now. Next. Beyond.



Fully connected and highly collaborative: with APAS and ActiveShuttle, you can achieve your intralogistics 4.0 vision



THE BENEFITS FOR YOU

- + **Everything from a single source:** one automation partner, optimally tailored components
- + **Shorter time to market:** significantly reduced engineering outlay from the planning phase to commissioning
- + **High flexibility:** smart system solutions allow modular machine concepts which can be adapted quickly
- + **Digital excellence:** a key user and supplier for Industry 4.0 – unique know-how in the Bosch Group
- + **Global on-site service:** a presence in over 80 countries
- + **Proven Rexroth quality:** maximum precision and reliability for maximum system availability

In use at the biggest FMCG producers

Over the decades, successful projects at virtually all large international FMCG companies have made Bosch Rexroth a leading system supplier for the transport of all types of consumer goods – from chocolate bars and fresh fruit to headache tablets. Take advantage of our wealth of experience.

Factory of the Future? It is coming!

Our aim is to take into account all aspects of a modern, lean and scalable production design. This results in holistic solutions that not only meet your current requirements – they open the door to the Factory of the Future too. With smart solutions and a global network, we are there for you anywhere in the world. Reliable, sustainable and highly mobile.

VarioFlow *plus* makes transporting products more economical, quicker and quieter

As a transport artery, the tried-and-tested VarioFlow *plus* chain conveyor system ensures the economical transport of individual parts with very low noise.

Whether it be shampoo bottles, four-sided sealed pouches with coffee powder or soy beans in a maize starch bag: VarioFlow *plus* adapts to all tasks and ensures that the products are transported, distributed and brought together safely. The system also transports secondary packaging of various sizes and types safely, quickly and in a trouble-free manner – in the tightest of spaces and with minimal friction.

▼ The system ensures that consumer goods of all types are transported, distributed and brought together safely.



Thanks to the building block principle, individual components and modules can quickly be reconfigured to create new lines – with downtimes of hours rather than days. The complete product range includes designs in aluminum and stainless steel as well as fully FDA-compliant materials.

- ▶ **Stainless steel version:** clean, robust, FDA-compliant
- ▼ **Curves:** with patented narrow-radius ball bearing technology, less friction
- ▼ **Active belt bridge:** safely bridges transport gaps
- ▼ **Wedge conveyor:** for safe vertical transport and easy planning

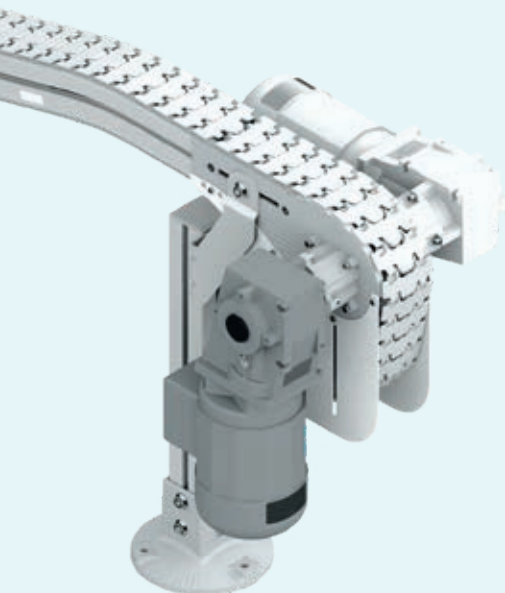
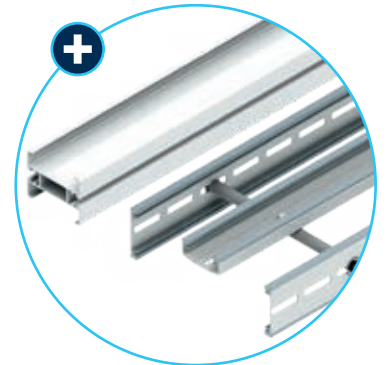
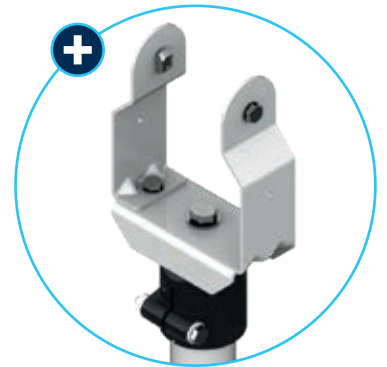
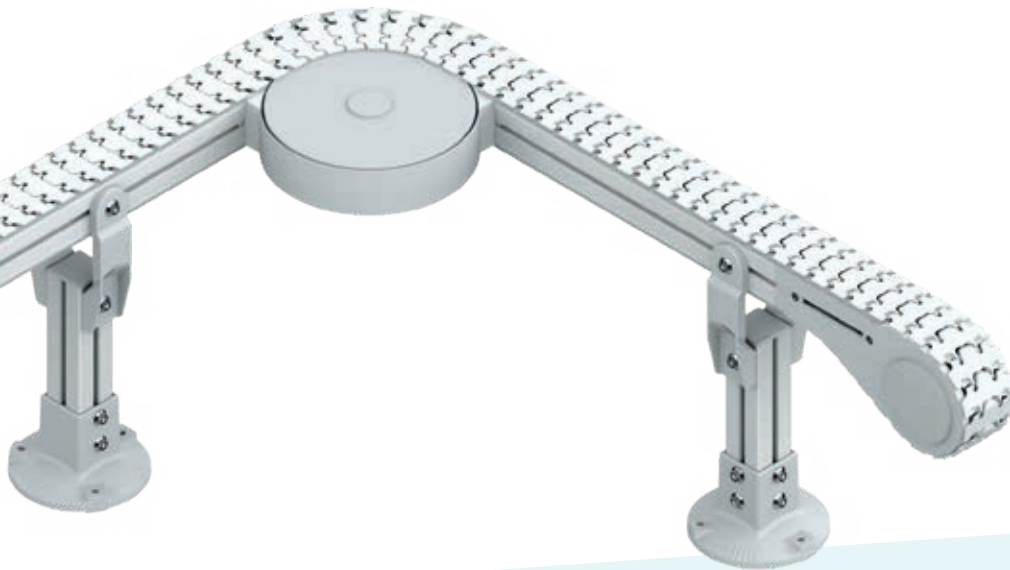


THE BENEFITS FOR YOU

- ⊕ **Easy assembly:** quick and reliable system set-up
- ⊕ **Quiet when operating:** optimized gliding properties, few drives – for maximum energy efficiency
- ⊕ **High flexibility:** clever drive solution allows greater planning freedom
- ⊕ **In-depth FMCG knowledge:** automation market leader for the manufacture and packaging of consumer goods

VarioFlow plus: one system – numerous advantages

- ▶ Easy to clean thanks to draining surfaces
- ▶ Complete product range in aluminum and stainless steel, in the sizes 65, 90, 120, 160, 240, 320 mm
- ▶ Standardized components with universal applications



- ▶ FDA-compliant materials are used in components that are subjected to constant friction
- ▶ Stainless steel ball bearings sealed on both sides and with FDA-compliant special grease
- ▶ Complete functional units for quick changes
- ▶ Wide variety of combinations, few spare parts required
- ▶ Large number of chain types to suit different applications
- ▶ Low-vibration transport of small parts and accumulation option by covering the chain links
- ▶ Easy-to-exchange chain plate from size 160 mm
- ▶ Uphill and downhill sections, multitrack systems and alpine conveyors can easily be achieved



Easier and quicker planning – with MTpro

MTpro is a piece of intuitive software for planning conveyor systems, shelving systems and manual work areas. It supports you step by step – from the selection and configuration process to ordering the components.



Design optimum conveyor systems

Components can be selected from the range via drag and drop and assembled quickly and easily using the snap function. Thanks to automatically calculated parts lists and electronic order links, you can keep control of costs and minimize your ordering outlay. Numerous interfaces allow planning data to be used by other departments, such as Design, Purchasing and Service.

Planning conveyor systems the easy way

With MTpro, you can plan, calculate and document your material flow systems in just a few steps. Whether it be a chain conveyor system, a transfer system, a palletizing system, manual sorting stations or protective fence systems for your FMCG production – the intuitive operating concept of the layout designer allows you to draft even complex constructions and system layouts in no time.

+ BENEFITS OF MTpro

- ▶ Everything at a glance: technical data, order information, assembly instructions, CAD models and spare part illustrations
- ▶ Intuitive assembly of components to create systems using drag and drop and the snap function – with no need for a CAD system
- ▶ Optimum solutions thanks to built-in planning and calculating aids such as the innovative ManModel function
- ▶ Complete parts lists including small parts and accessories at the push of a button with electronic order links
- ▶ Straightforward further processing of layout, CAD and order data

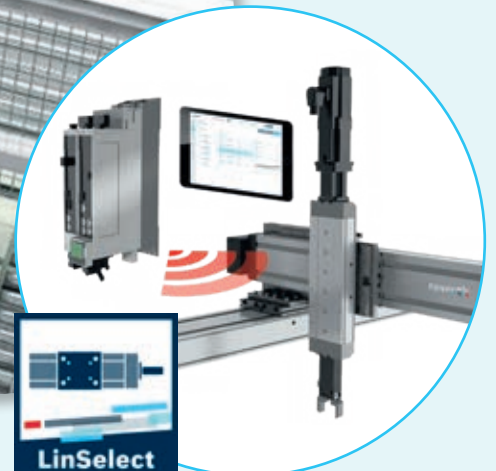
Handle, transport and palletize the most complex final packaging

Rexroth systems cater to all palletizing requirements. For example, cartons and trays can be picked up securely by portal axes with servo drives and then arranged and stacked in exact positions in accordance with a programmed layout. Or an APAS, a smart, automatic production assistant can do this – without a protective fence and in a highly collaborative manner.

- ▼ The modular ctrlX DRIVE system saves up to 50% of space in the control cabinet



- ◀ Handling axes as an i4.0 ready system: Plug & Produce, zero programming
- ▼ Quick engineering with LinSelect



www.boschrexroth.com/lineselect

There are many different types of final packaging depending on individual requirements. In the food retail sector, easy-to-handle packaging is required. In the wholesale trade, large-volume units in large numbers are preferred. VarioFlow *plus* packs them all. Together with Bosch Rexroth's intelligent, sensor-controlled mechatronic solutions (see page 13), completely new possibilities in the area of system planning and process control are opened up – highly flexible and adaptable systems which can be commissioned quickly and are easy to maintain.

- ▶ **Even sections with complex requirements, e.g. cartons with attached lids and flaps, are not a problem.**
- ▶ **Optionally, palletizing is possible with the APAS collaborative robot – with no need for a protective fence**



Automate systems more intelligently, with new scope for machine designs

Software and the Internet of Things are increasingly determining the productivity and flexibility of food and packaging machines. If goods are to be transported, handled and palletized in a clever manner, smart helpers which ensure that processes run smoothly are needed. This is where a real “game changer” comes into play: ctrlX AUTOMATION. With a modern software architecture and the entry into app technology, the first consistently flexible, scalable and 5G-capable automation platform simplifies programming and opens up a completely new scope for innovative solutions – with maximum openness on all levels and interfaces. For more information visit www.ctrlx-automation.com



DEPARTURE INTO A NEW AUTOMATION WORLD

ctrlX AUTOMATION surmounts the classic boundaries between machine controls, the IT world and the Internet of Things. With a Linux real-time operating system, consis-

tently open standards, app programming technology, web-based engineering and a comprehensive IoT connection, ctrlX AUTOMATION reduces components and engineering costs by 30 to 50 %.



ctrlX CORE

THE ULTRA-COMPACT CONTROL PLATFORM

ctrlX CORE breaks down the boundaries between the IPC, embedded system and drive-based platforms. The 64-bit multicore CPUs offer significantly higher computing power than previous control platforms in the same space. With its fully open architecture, ctrlX CORE is ready for future requirements in FMCG production.



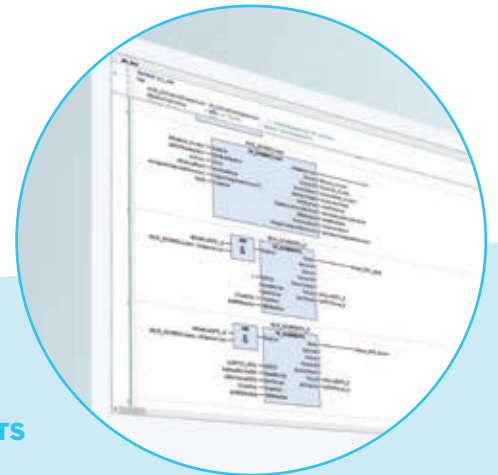
HIGHLIGHTS

- + More productivity**
 - ▶ Unlimited performance thanks to 64-bit multicore processors
 - ▶ Optimum distribution of applications to the CPU cores
- + Fewer components**
 - ▶ Flexible extensibility with performance and I/O functions
 - ▶ Robust hardware design (fanless, wear-free, EMC-resistant)
- + Less engineering**
 - ▶ One control system for all platforms

ctrlX PLC

THE FORWARD-LOOKING PLC SOFTWARE

ctrlX PLC offers a high-performance PLC control solution and combines the advantages of classic PLC automation with the communication and functional requirements of the Internet of Things. It ensures high cost-efficiency in distributed architectures too.



HIGHLIGHTS

- + More productivity**
 - ▶ Openness and standards eliminate hardware dependencies
 - ▶ Future orientation by design
 - ▶ New degree of freedom with ctrlX Data Layer
 - ▶ Increased efficiency thanks to unrestricted choice of programming language
- + Fewer components**
 - ▶ Ultra-compact control platform with optimum performance and minimum variance
 - ▶ Ultimate functionality and flexibility
 - ▶ Savings on logistics, hardware and assembly costs
- + Less engineering**
 - ▶ Know-how development through integration of own applications
 - ▶ Free choice of programming language

Smart IoT helpers ensure a flow of materials without limits

Build your Factory of the Future step by step: with clever Rexroth assistants, you manage your systems' complete value stream – from factory gate to factory gate, from individual packaging to company IT. Ideally, they should be integrated into a higher-level IoT software portfolio, e.g. NEXEED from Bosch. Everything is transparent, comprehensible and controllable at all times. Take advantage of Bosch Rexroth's know-how as a leading supplier and user in the i4.0 world.

ActiveCockpit COMMUNICATION PLATFORM

Real-time production data processing and visualization

Complete transparency improves production processes on a permanent basis: ActiveCockpit allows quick, seamless access to all data and key figures. For quick reaction times and minimal outlay.

+ Benefits

- ▶ Direct back-end connection: less time, fewer errors
- ▶ Customer-specific web applications can be integrated
- ▶ Can be used by employees on all levels
- ▶ Structured and documented team sessions
- ▶ Intuitive web configuration
- ▶ Automatic logging function



ActiveShuttle AUTONOMOUS TRANSPORT SYSTEM

Intralogistics 4.0 – quick start-up, safety on the move

ActiveShuttle is quick to implement via Plug & Go and without any need to adapt your existing factory infrastructure. It is intuitive and easy to operate, fully connected and safe for use around people!

+ Benefits

- ▶ Fully automatic loading/unloading
- ▶ Highly flexible job management with manual and automatic entries
- ▶ Straightforward configuration of logistics scenarios
- ▶ Quick return on investment (ROI)
- ▶ Designed for 24/7 use
- ▶ Standard interface for connection to third-party systems





Smart Function Kit MECHATRONIC SUBSYSTEM

Complete Plug & Produce package – get started intuitively, start producing more quickly

A modular system comprising mechanics, electrics and software. For a wide range of tasks, e.g. joining, pressing or handling. Everything from a single source. Intuitive commissioning, process configuration and operation – without any programming.

+ Benefits

- ▶ Easy product selection
- ▶ Plug & Produce
- ▶ Zero programming
- ▶ Intuitive operation



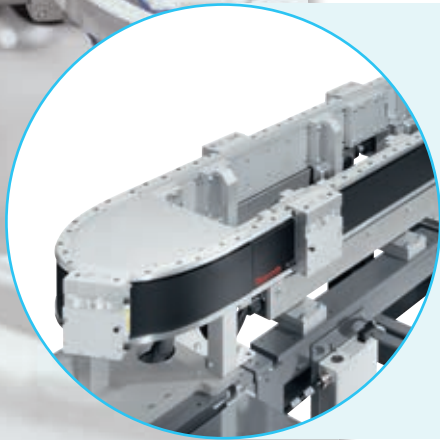
AUTOMATIC PRODUCTION ASSISTANT (APAS)

Contactless interaction without a safety fence

A highly collaborative robot – for error-free production and an end-to-end material flow. Perfect for loading and unloading pallets. And together with the ActiveShuttle, a first step towards automated intralogistics.

+ Benefits

- ▶ Can be easily integrated into existing systems
- ▶ Maximum safety (PL d, Cat. 3)
- ▶ Allows innovative interaction between people, robots and machines
- ▶ Compact, no safety fence



ActiveMover TRANSFER SYSTEM

The new standard in short-cycle applications – more accurate, quicker, stronger

The ActiveMover allows shorter cycle times and exact positioning with its integrated measuring system. With freely programmable and controllable workpiece pallets with loads of up to 10 kg, you can transport products more flexibly and economically. This includes delicate products too.

+ Benefits

- ▶ Maximum speed and acceleration for short WP changing times
- ▶ Asynchronous, synchronous and reverse mode
- ▶ Any control systems can be connected, carriers can be freely programmed and quickly modified



Smart Flex Effector SENSOR-SUPPORTED COMPENSATION UNIT

Maximum precision in six degrees of freedom – entirely new areas of use for robots and Cartesian systems

The compensation module with integrated sensor system records deviations in the position of the work piece and converts these into active correction movements. The innovative tactile technology reduces errors and saves time and money during commissioning.

+ Benefits

- ▶ All in one – locking, sensor technology with flexible module
- ▶ Maximum flexibility and versatility
- ▶ High travel speeds and cycle times
- ▶ Efficient thanks to reduced downtimes and increased productivity
- ▶ Future-proof and retrofittable at any time

Everything from a single source: from customer-specific solutions to turnkey projects



From initial consultation and installation acceptance to staff training: Rexroth supports you anywhere in the world when planning and carrying out your factory automation projects – with an emphasis on connected production and logistics processes. From the primary packaging to palletization. Take advantage of the experience our certified project managers gained during numerous reference projects.

CUSTOMIZED AND APPLICATION-ORIENTED

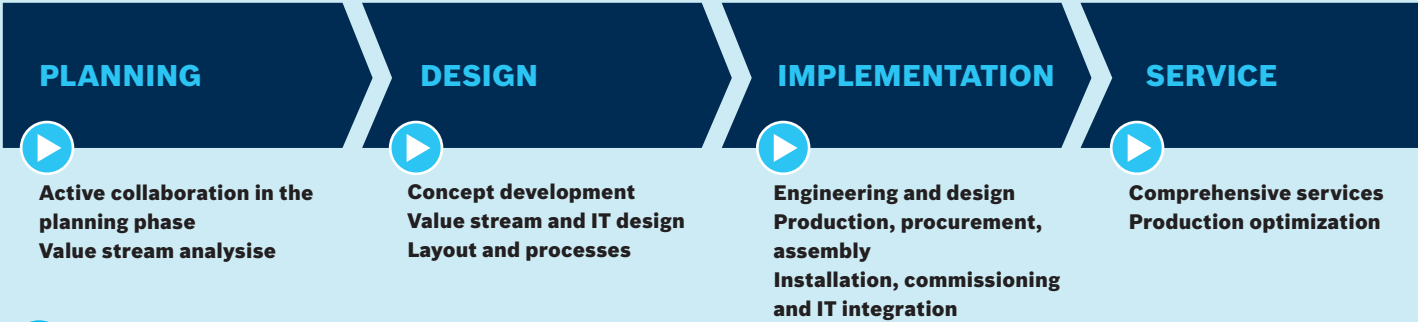
When developing the most cost-effective and productive solutions, we rely on our field-tested digitization/Industry 4.0 technologies and innovations. As mentioned above, these include collaborative robotic systems and intelligent software solutions, e.g. for staff management and support, performance management and quality assurance. To accomplish this, we also integrate systems into your IT infrastructure and ensure interfaces are designed to be effective (e.g. for connecting MES and ERP systems). At Bosch Rexroth, Industry 4.0 is already a living reality:



not only are we the leading provider and the market-leading supplier of components and systems, we are also a leading user at over 280 Bosch plants around the world. Benefit from our extensive expertise and the wealth of experience that makes its way into our products and your projects.

The advice that we offer customers is shaped by this understanding. It takes into account all aspects of modern, lean and scalable FMCG production. Our services result in integrated solutions that meet all of your needs and will continue to do so into the future. With our global network, we will always be at your side as a reliable, long-term partner.

OUR SERVICES - OUR APPROACH



THE BENEFITS FOR YOU

- ▶ Everything from a single source, turnkey assemblies
- ▶ Total project planning and management across all assemblies
- ▶ Value stream-optimized layout based on extensive production experience
- ▶ Reliable partner with an international presence
- ▶ Subassembly delivery based on project progress
- ▶ Transparent quality management/documentation including a safety assessment for the entire system
- ▶ Transfer of risk at destination on request
- ▶ Project-specific warranty and service agreements

Rexroth service – your key to higher productivity



With our modular service portfolio, we reduce the complexity and thus the costs of maintenance and repair for your production equipment. Our qualified technicians are guaranteed to be ready to assist rapidly. With our expertise in drive and control technology, we fulfill your needs quickly and reliably. We ensure precise diagnostics and rapid spare part delivery. At the same time, we reduce costs through standardized processes and testing methods, as well as through the potential connection to our online services for status-based maintenance at the highest level. All this possible thanks to our highly qualified personnel in 80 countries.

Highly efficient – for the entire life of a machine

If you wish, we can maintain your machines over their entire operating life and increase their efficiency in line with the latest standards. We work with you to analyze the potential of modernization and retrofit measures and then carry out the necessary work. Your operating costs will drop dramatically thanks to higher productivity, greater energy efficiency and ideal safety standards. Increase the productivity of your machines and systems on a permanent basis with Rexroth as your service partner.

Maximum system availability and efficiency throughout the life cycle of your machinery and systems: these key factors determine the productivity of your production processes. Rexroth provides comprehensive services that allow you to achieve these goals – globally, across sectors and independently of machines.

Put together your individual service package – from a simple supply of spare parts to online diagnostics with the Digital Service Assistant. We are there for you.



Repairs

Analysis, standard, emergency and urgent repairs, cost control



Spare parts

Unlimited global supply of spare parts from the OEM



Field service

Technical support on location, short downtimes, customer-specific service packages



Product overhauls

Maximum availability, increased productivity



Retrofitting

Machine overhauls



Training

Assembly and commissioning, planning and carrying out maintenance work, damage analysis

ctrlX AUTOMATION service guarantee: at least 10 years after purchase + extended service to over 25 years possible
www.boschrexroth.com/ctrlx-automation



You will find detailed information about Bosch Rexroth's service at
www.boschrexroth.com/service



A global partnership knows no bounds

Rexroth bundles together the resources of a global partner for you. You have access to our sector specialists in Europe, America and Asia who are familiar with the special requirements of each region. In addition, we allow you to take advantage of local value creation thanks to our international production network.

Even after commissioning, we remain by your side. Thanks to our dense service network, we are never far away and can react quickly in the event of a problem. With innovative services, we help machine manufacturers and users to further increase the availability of automation systems. Take advantage of a global partnership with Rexroth over the entire life cycle of your automation solutions.



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Find your local contact person here:

<https://addresses.boschrexroth.com>



Rexroth media directory

Promotional media and technical documentation are available for downloading around the clock at: www.boschrexroth.com/mediadirectory



Assembly Technology

Assembly technology from Bosch Rexroth for customized, future-proof production: www.boschrexroth.com/assembly-technology



ctrlX AUTOMATION

Enter a new world of automation: www.boschrexroth.com/ctrlx-automation



Smart MechatroniX

Find out more about our smart mechatronic solutions: www.boschrexroth.com/smart-mechatronix

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