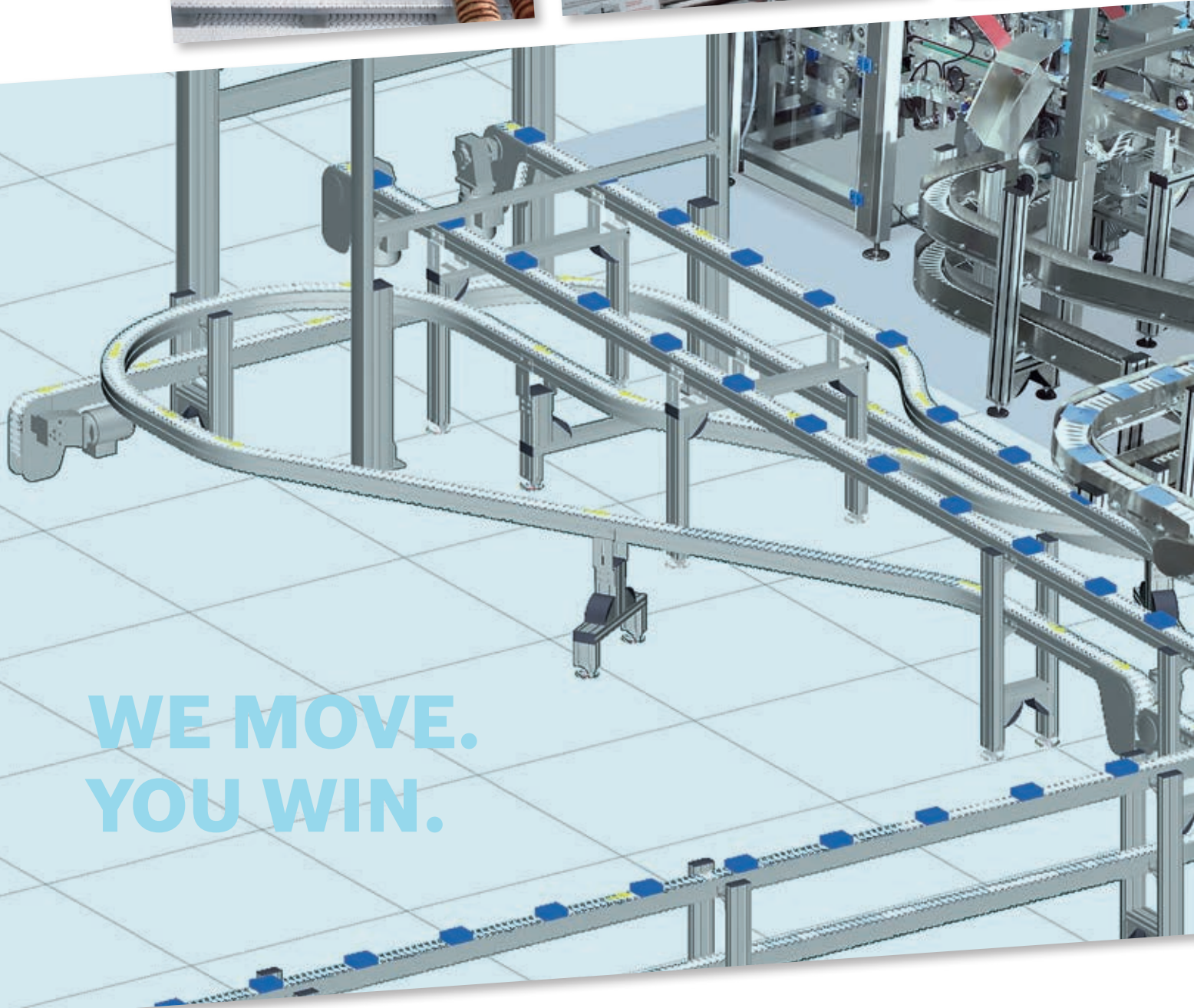
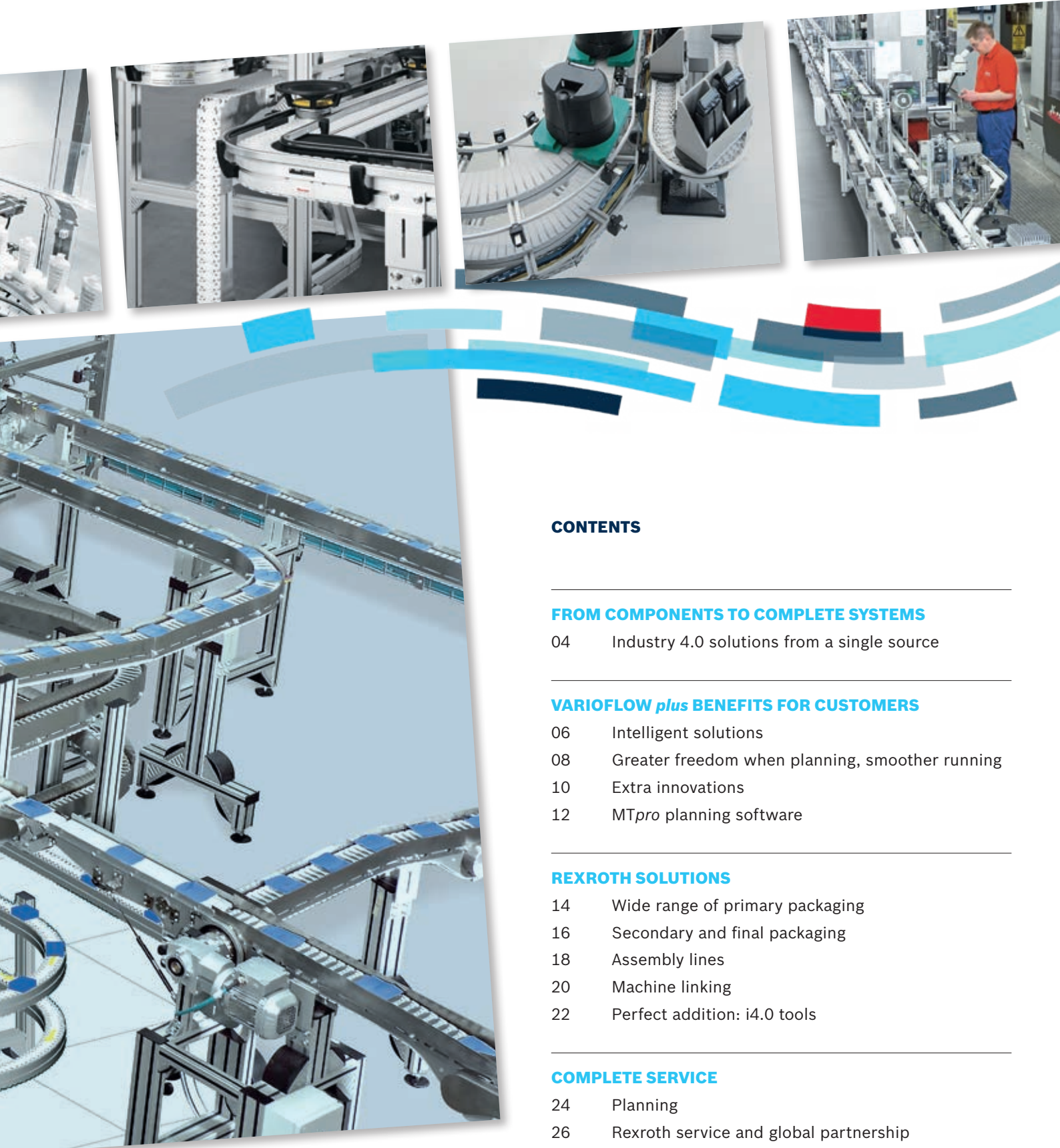


VarioFlow *plus*
The innovative
chain conveyor system

VarioFlow plus – efficient, individual parts transport



**WE MOVE.
YOU WIN.**



CONTENTS

FROM COMPONENTS TO COMPLETE SYSTEMS

04 Industry 4.0 solutions from a single source

VARIOFLOW *plus* BENEFITS FOR CUSTOMERS

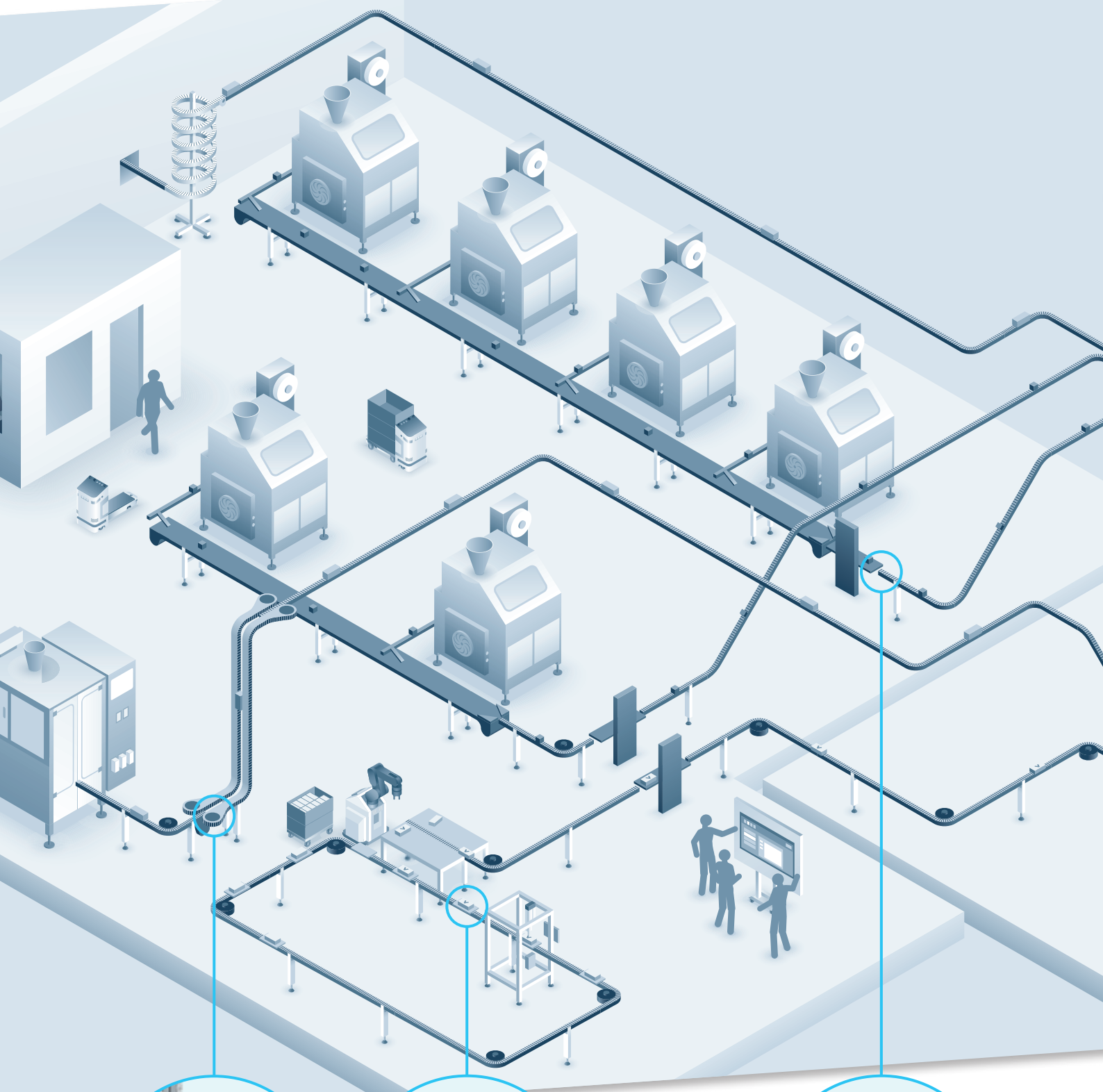
06 Intelligent solutions
 08 Greater freedom when planning, smoother running
 10 Extra innovations
 12 MT*pro* planning software

REXROTH SOLUTIONS

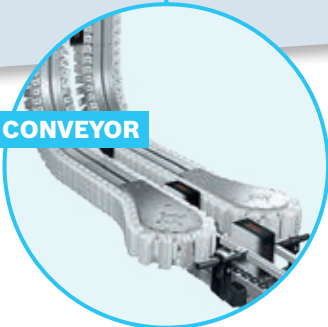
14 Wide range of primary packaging
 16 Secondary and final packaging
 18 Assembly lines
 20 Machine linking
 22 Perfect addition: i4.0 tools

COMPLETE SERVICE

24 Planning
 26 Rexroth service and global partnership



WEDGE CONVEYOR



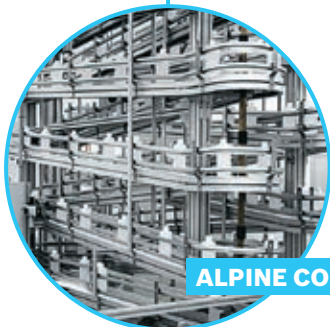
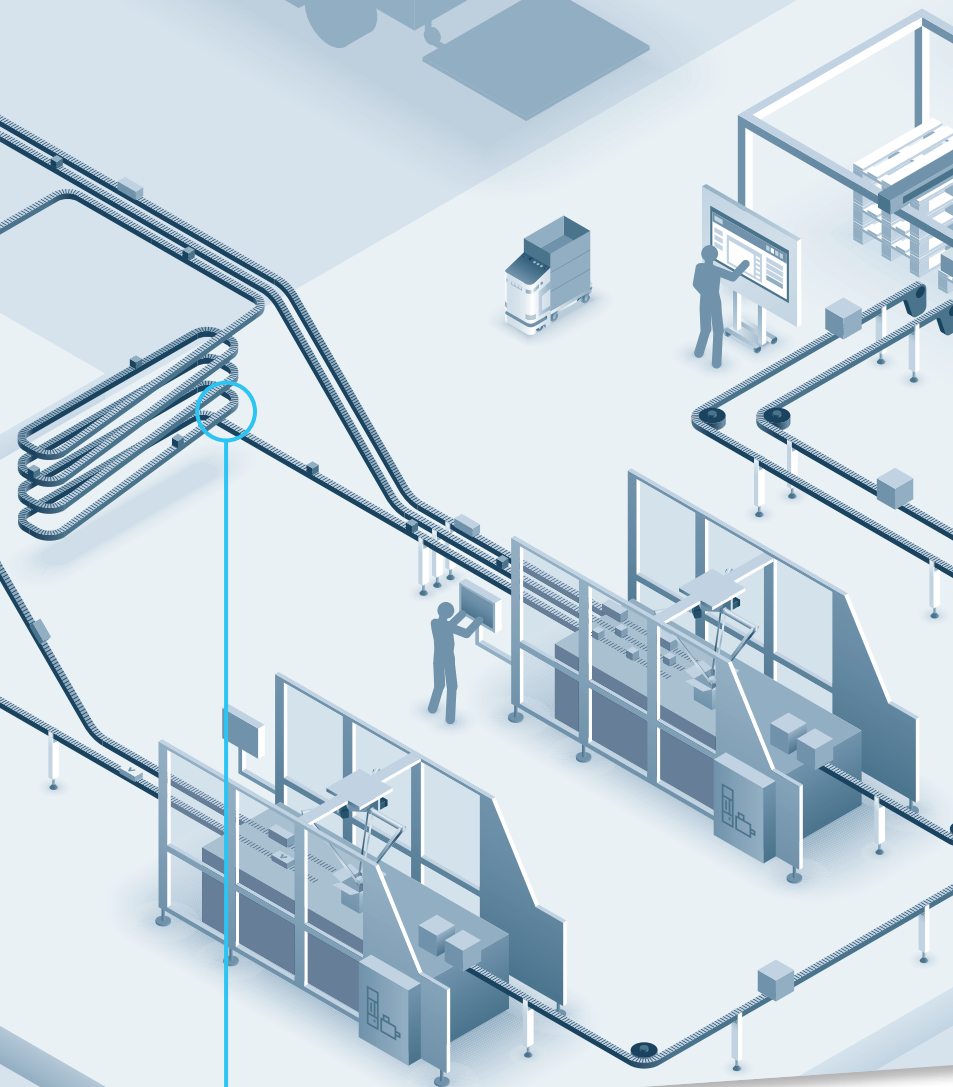
WORKPIECE PALLET SYSTEM



ACTIVE BRIDGE



BOSCH REXROTH MAKES IT EASY: FROM COMPONENTS TO COMPLETE SYSTEMS – WITH VARIOFLOW PLUS



ALPINE CONVEYOR

More variants and greater sustainability, lot sizes of one and quick product switch-overs with full connectivity if possible. As a global market leader for automation in numerous sectors, we are confronted with material transfer problems every day. And we offer solutions – from individual components to turnkey systems. With our proven technologies, we integrate more and more i4.0 components as smart helpers too.

Smart: Proven systems plus i4.0 components

The VarioFlow *plus* chain conveyor system as the central transport artery is now complemented by autonomous vehicles (ActiveShuttle), collaborative robotic systems (APAS), smart mechatronic systems and the fully open ctrlX AUTOMATION platform. Everything can be fully integrated into your IT infrastructure.

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

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.

Factory of the Future

Now. Next. Beyond.

Flexible planning and fast commissioning thanks to intelligent solutions



The clever drive solution allows a great degree of planning freedom: so much so that the motor mounting position can be selected on site.

Smart connection technology saves time during assembly and allows for easy conversions and system extensions.

MARKET REQUIREMENTS

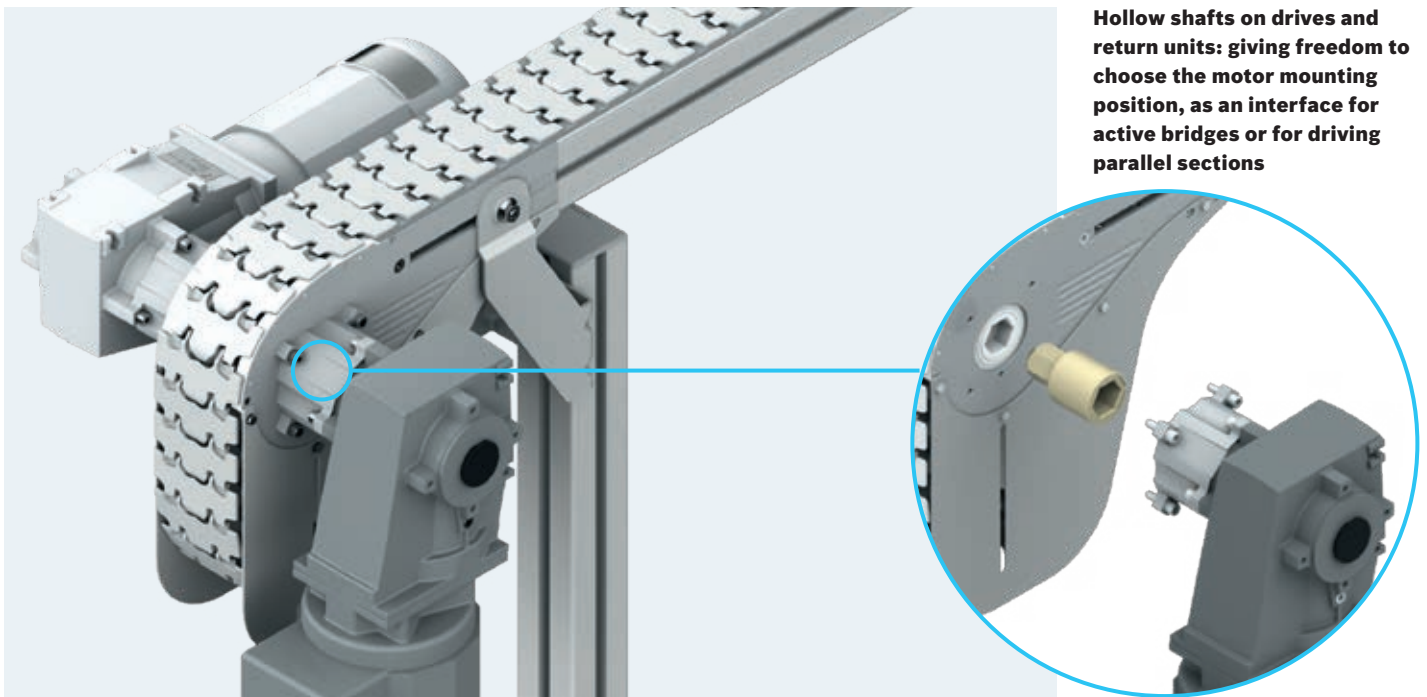
- ❗ High flexibility and planning freedom during configuration
- ❗ Easy assembly and commissioning

OUR SOLUTIONS

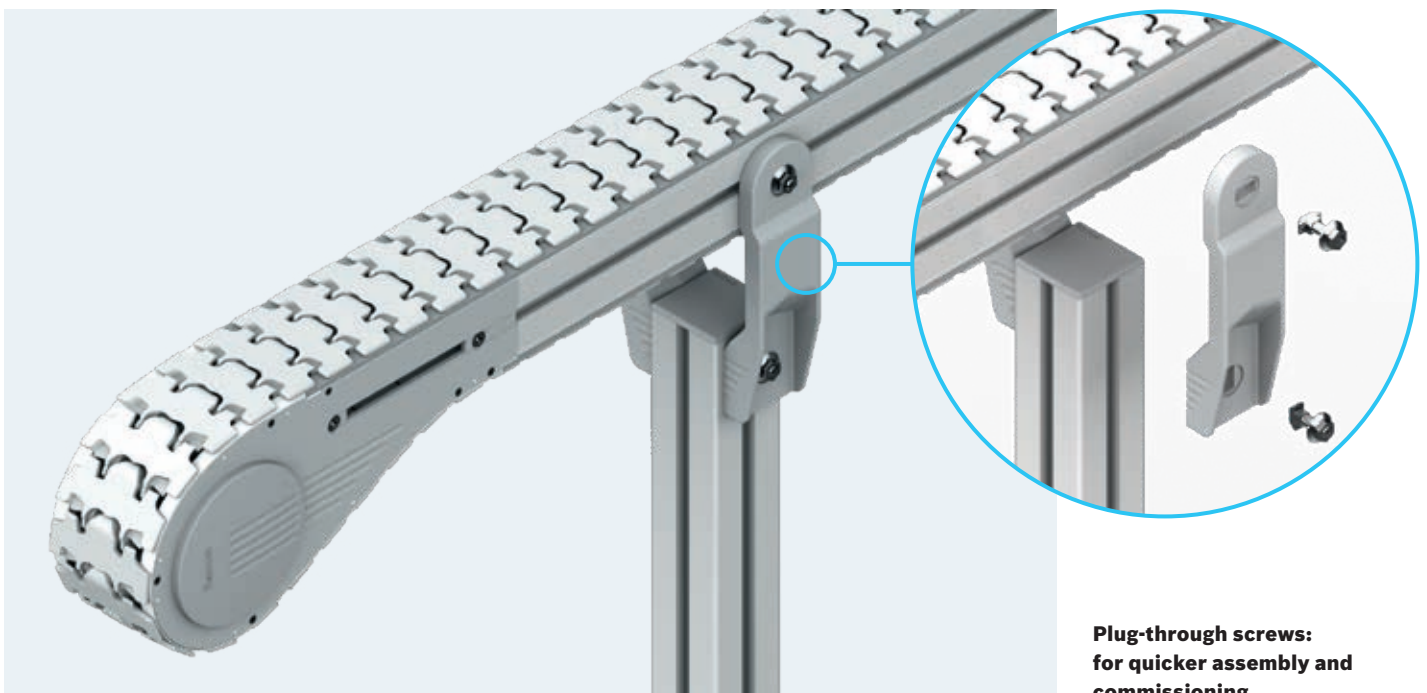
- ✔ Universal basic units with separate drive kits
- ✔ Hollow shafts on both sides of the drive and return unit
- ✔ Lateral mounting of the sliding rail
- ✔ Optimized connection technology thanks to plug-through screws

YOUR BENEFITS

- ⊕ Numerous combination options thanks to a modular system
- ⊕ Free choice of the motor mounting position on site
- ⊕ Additional transmission interfaces (active bridge)
- ⊕ Drives and curve wheels can be coupled
- ⊕ No time-consuming machining of the gliding surfaces
- ⊕ Minimized noise emission and wear
- ⊕ Time savings thanks to fewer screw connections



Hollow shafts on drives and return units: giving freedom to choose the motor mounting position, as an interface for active bridges or for driving parallel sections



Plug-through screws: for quicker assembly and commissioning

Optimum working conditions thanks to smooth running and easy maintenance



The maintenance-friendly VarioFlow plus transport system ensures optimum working conditions.

Improved sliding characteristics and low-friction materials result in a quiet working atmosphere.

Fewer joints and rolling friction in the horizontal curves ensure low wear and high system availability.

MARKET REQUIREMENTS

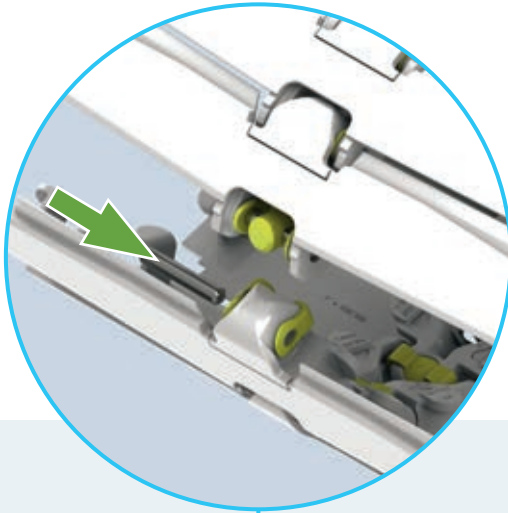
- ! Smooth-running conveyor system
- ! Wear-optimized, maintenance-friendly conveyor system

OUR SOLUTIONS

- ✓ Optimized sliding characteristics for the chains and sliding rail
- ✓ The sliding surface requires no machining as the sliding rail is mounted laterally
- ✓ Fewer joints and low-friction materials
- ✓ Decoupling of chain links using various materials
- ✓ Rolling friction for all track widths in the horizontal curves

YOUR BENEFITS

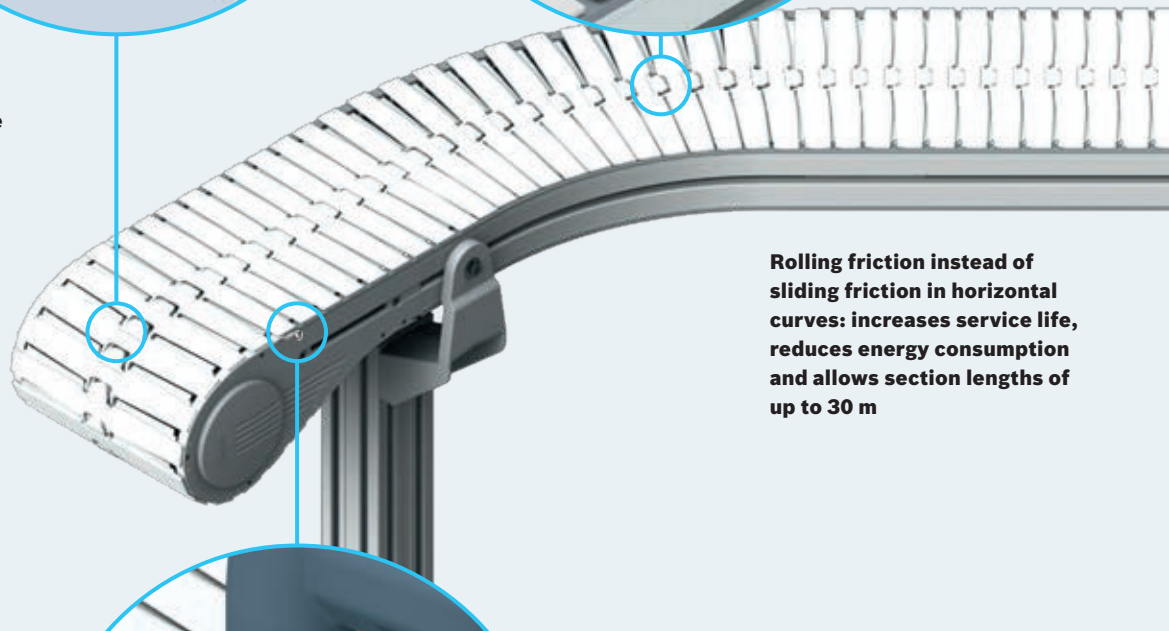
- + Best-possible working conditions thanks to minimal operating noise
- + Reduced downtimes and higher machine availability
- + Longer service life



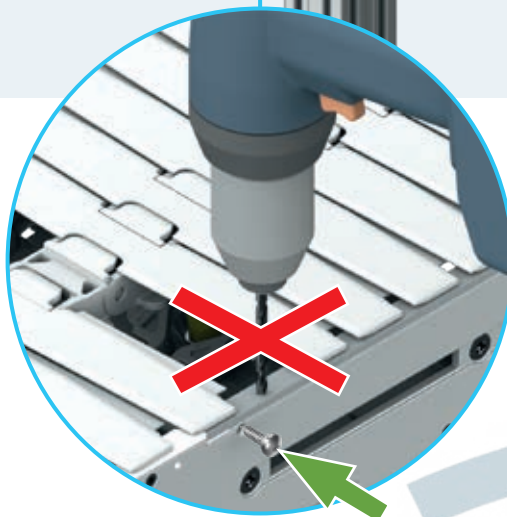
Decoupled chain links and use of various materials: for minimal operating noise



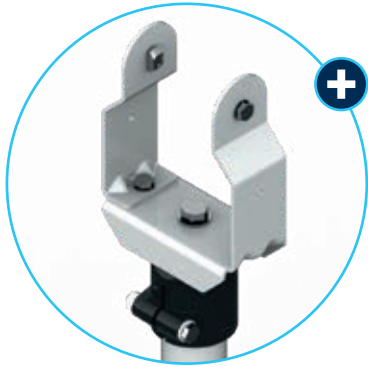
Rolling friction instead of sliding friction in horizontal curves: increases service life, reduces energy consumption and allows section lengths of up to 30 m



Lateral mounting of the sliding rails without drilling: minimizes operating noise and reduces wear, assembly times and downtimes



Extra innovations



- ▶ Easy to clean thanks to draining surfaces



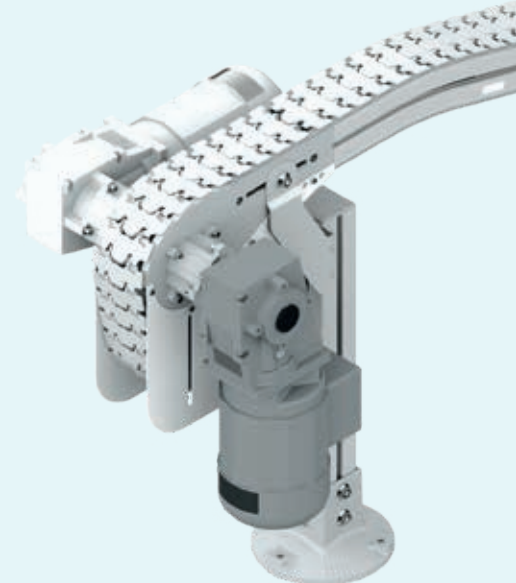
- ▶ Complete product range in aluminum and stainless steel, in the sizes 65, 90, 120, 160, 240, 320 mm
- ▶ Standardized components with universal applications



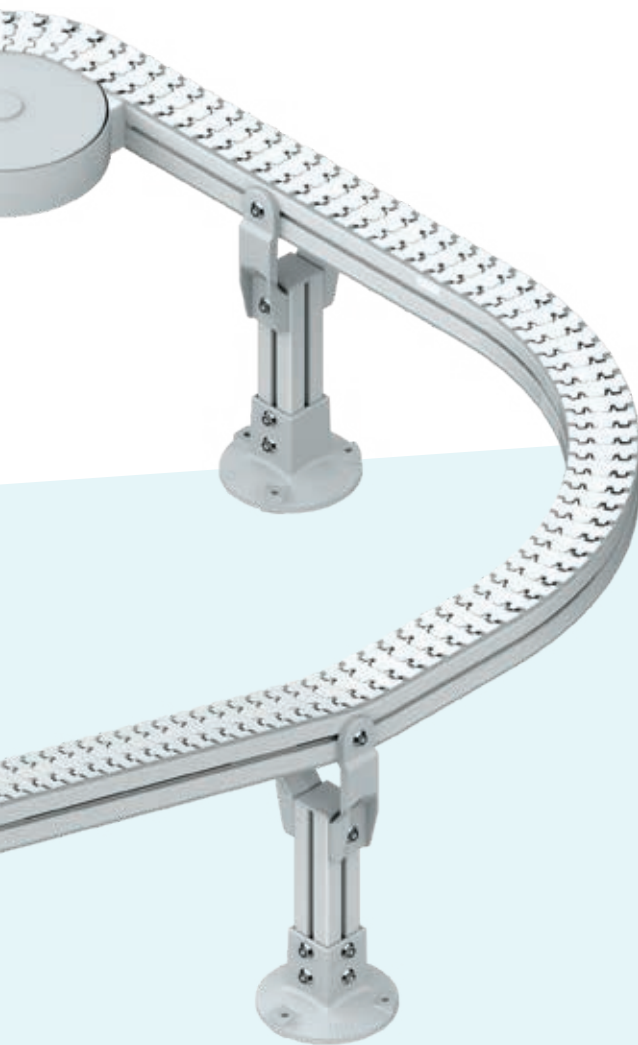
- ▶ FDA-compliant materials are used in components that are subjected to constant friction
- ▶ Stainless steel ball bearings sealed on both sides and with FDA-compliant special grease



- ▶ Large number of chain types to suit different applications
- ▶ Low-vibration transport of small parts and accumulation operation possible thanks to covered chain links
- ▶ Easy-to-exchange chain plate from size 160 mm



Many years of experience, robust products and innovative technology are all characteristic of Bosch Rexroth's material flow systems. In-stock, standardized components help to ensure fast delivery times. Modular elements that can be used universally offer a wide variety of solutions that are both individual and customizable. The result: high flexibility, numerous combination options and low spare parts requirements.



- ▶ Smart design thanks to the use of a support profile from a size of 160 mm (instead of a center profile)



- ▶ Upwards and downwards inclined sections can easily be achieved thanks to a holder with break-off centering studs
- ▶ Centering aid for additional holes to fasten drip trays, safety devices, etc.



- ▶ Configurable drive kit with standard gear motor or with customer-specific interface
- ▶ Multi-track systems/alpine conveyors can be realized thanks to drives/curve wheels with standard components that can be coupled
- ▶ Reverse operation possible



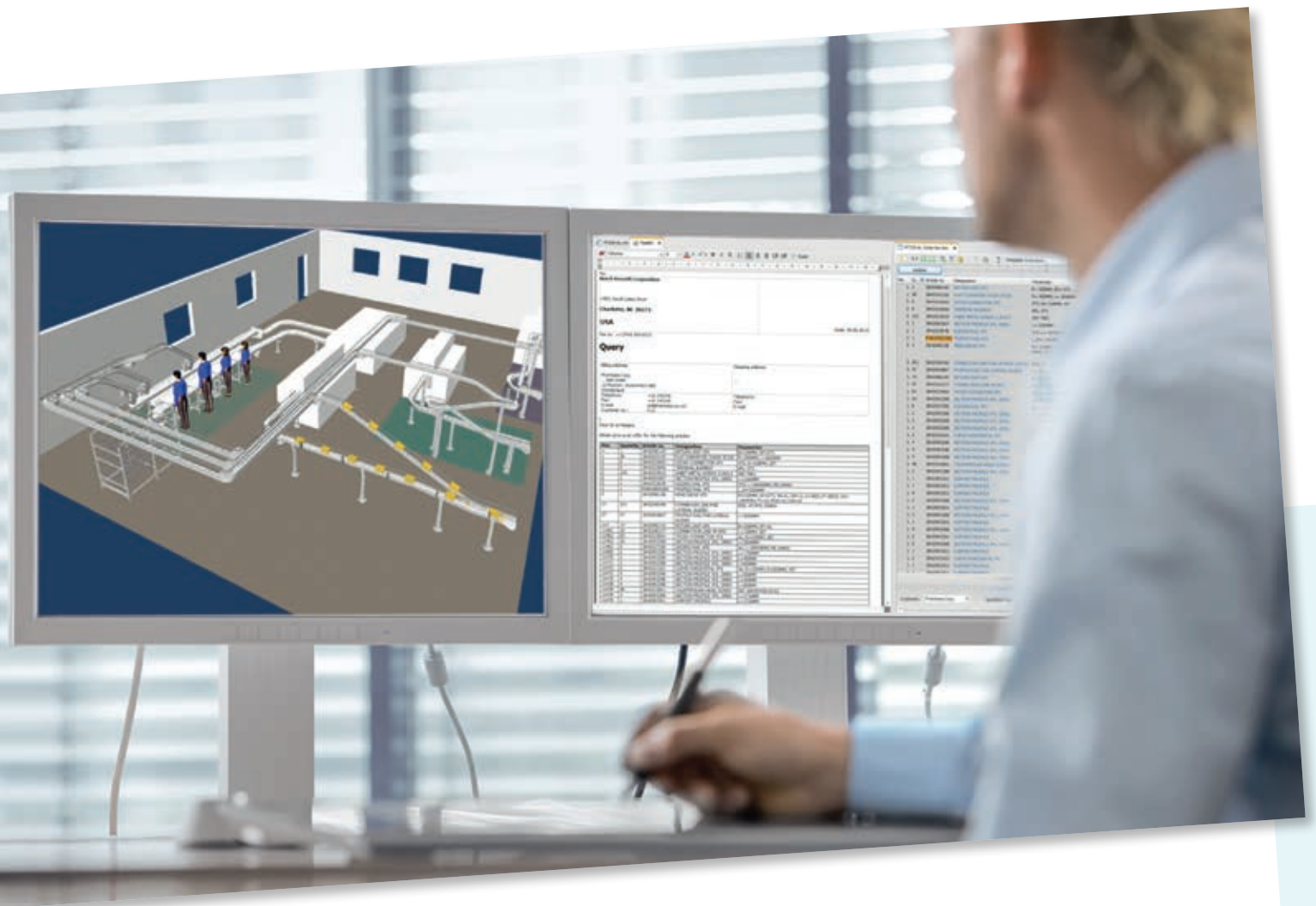
Functional units quickly adapt to your tasks

- ▶ Automatically adjustable lateral guide
- ▶ Universal diverter
- ▶ Adjustment unit for wedge conveyors
- ▶ Active bridge



Easier and quicker planning with MTpro

MTpro is an intuitive software program for planning conveyor systems. It assists you when selecting, configuring and ordering components.

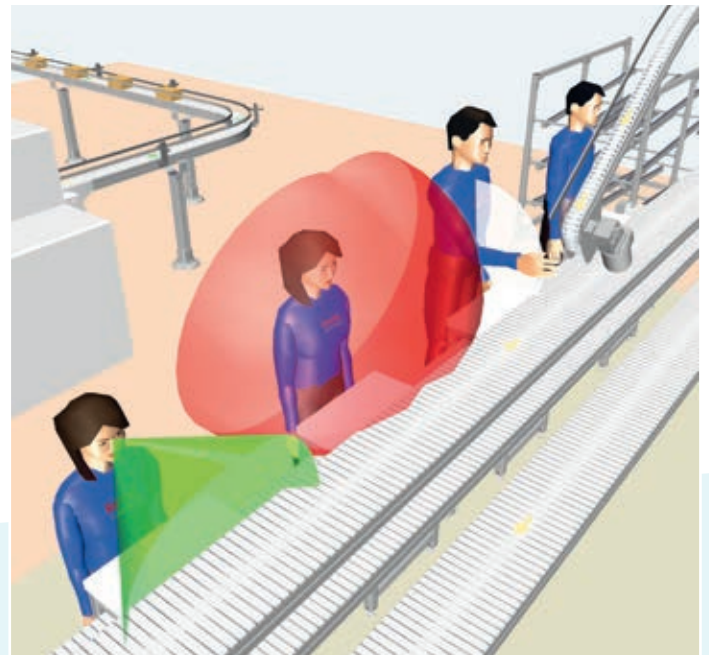
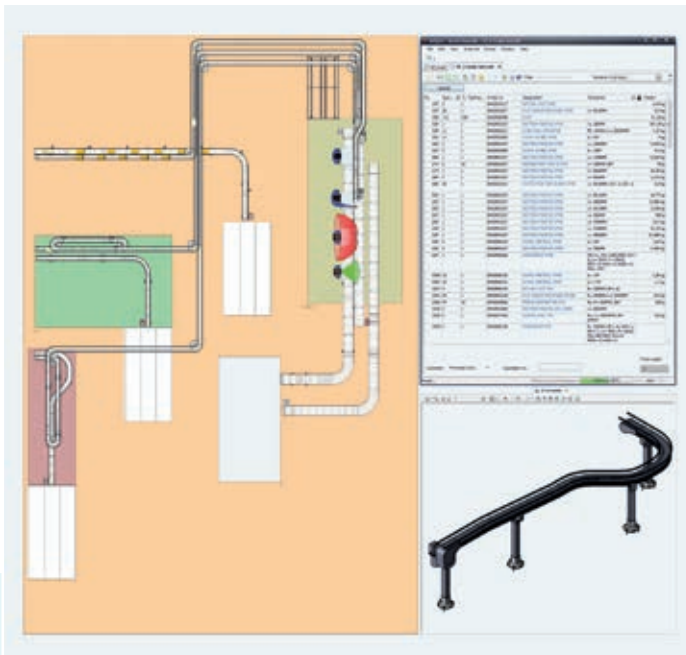


Design optimum conveyor systems

Components can be selected from the range via drag and drop and put together 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 safety fence systems for your manufacturing – the intuitive operating concept of the layout designer allows you to draft even complex constructions and system layouts in next to no time.



+ Benefits

- ▶ Everything at a glance: Technical data, order information, assembly instructions, CAD models and spare part views
- ▶ Intuitive combinations of components to create systems using the drag & drop and snap functions – without the need for a CAD system
- ▶ Optimum solutions thanks to integrated planning and calculation aids such as the innovative Man-Model function
- ▶ Complete parts lists, including small parts and accessories, at the press of a button and with an electronic link for ordering
- ▶ Easy further processing of the layout, CAD data and order data

✓ Key technical data

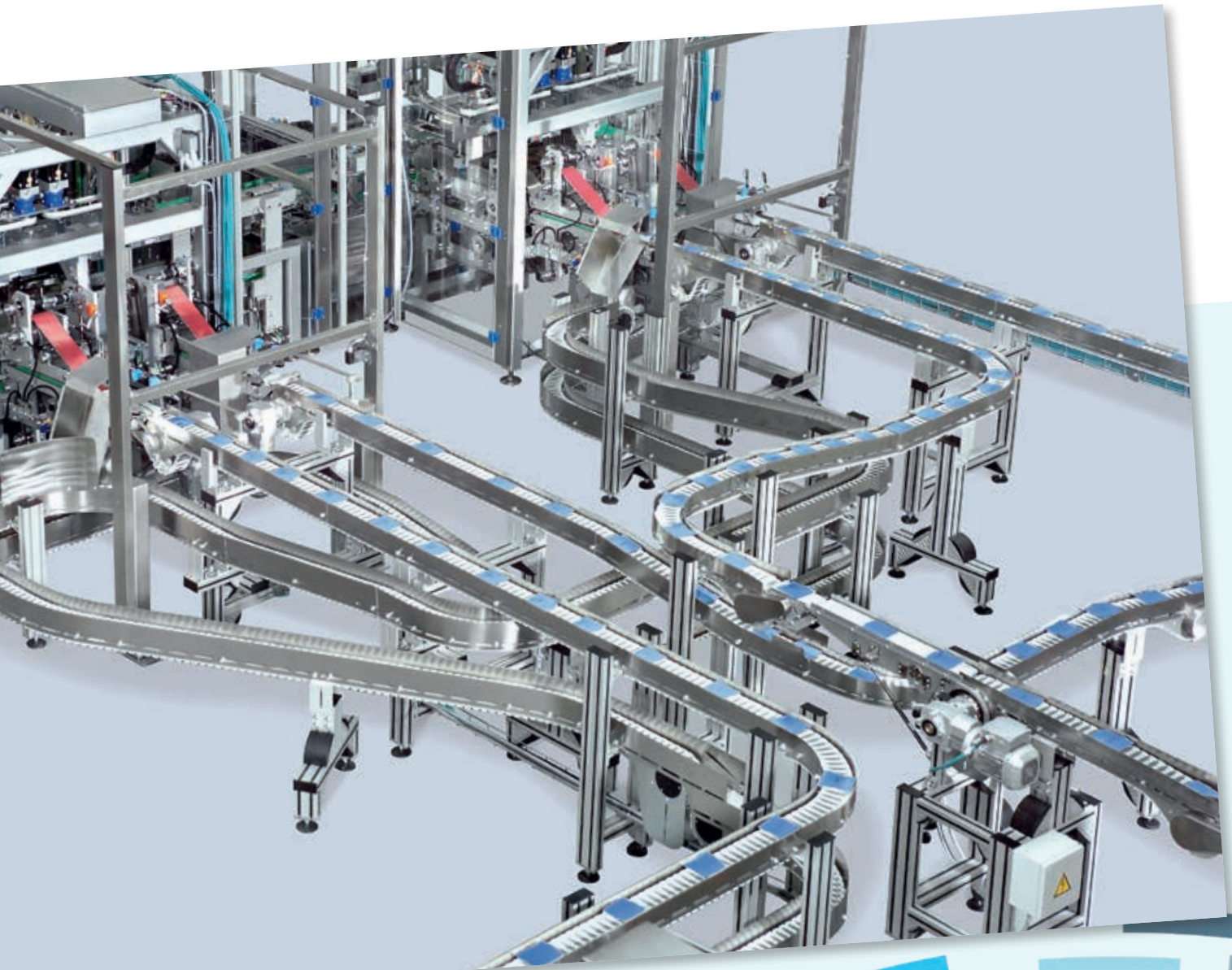
- ▶ Electronic catalog for products and spare parts
- ▶ Product configuration and CAD library with direct interfaces to all common CAD programs
- ▶ Layout Designer to plan frames, work systems and assembly systems with parts list calculation
- ▶ ManModel: Human model for simulation of gripping spaces and fields of view in ergonomic workstation design

☆ Customer applications

- ▶ Construction of frames and enclosures from basic mechanical elements
- ▶ Planning and ergonomic design of manual production systems
- ▶ Layout planning for chain conveyors and transfer systems

The conveyor solution for a wide variety of primary packaging designs

With the VarioFlow plus conveyor system, Rexroth provides a solution for a broad spectrum of primary packaging designs that is low-maintenance, reliable, flexible and offers fast throughput times. Standard components allow the system to be adapted to even the tightest of spaces. Technical challenges, such as safe transition points for extra small products, can be easily mastered with connecting assemblies.



The forms, dimensions and geometries of primary packaging are a direct reflection of consumer behavior and preferences. Marketing picks up on these needs and translates them into a primary packaging design. Whether it be conically extended shampoo bottles or four-sided sealed pouches with coffee powder: *VarioFlow plus* adapts to all tasks and ensures that the products are transported, distributed and brought together safely.



- ▶ Intersections possible in extra-tight spaces
- ▶ Use standard components from the product catalog or modified components for the optimum layout solution
- ▶ Bridge transport gaps safely
- ▶ Use solutions even for the smallest product dimensions
- ▶ Install powered transitions on drives or return units on the *VarioFlow plus*



The conveyor solution for secondary and final packaging geared to the needs of the market

En route to and from packaging machines, it is important to ensure reliable, fast and trouble-free transport of different sizes and types of secondary packaging. VarioFlow *plus* offers a variety of components for seamless and robust process chains including final packaging and palletizing. Transitions for the general flow of materials during production are created by ascending, wedge or alpine conveyors.



With traditional systems, large or bulky products require sliding curves with a large radius and high friction coefficient. Rexroth offers an alternative: rolling friction through the curve with ball bearings. This means less friction and wear, as well as lower energy requirements and higher loads.

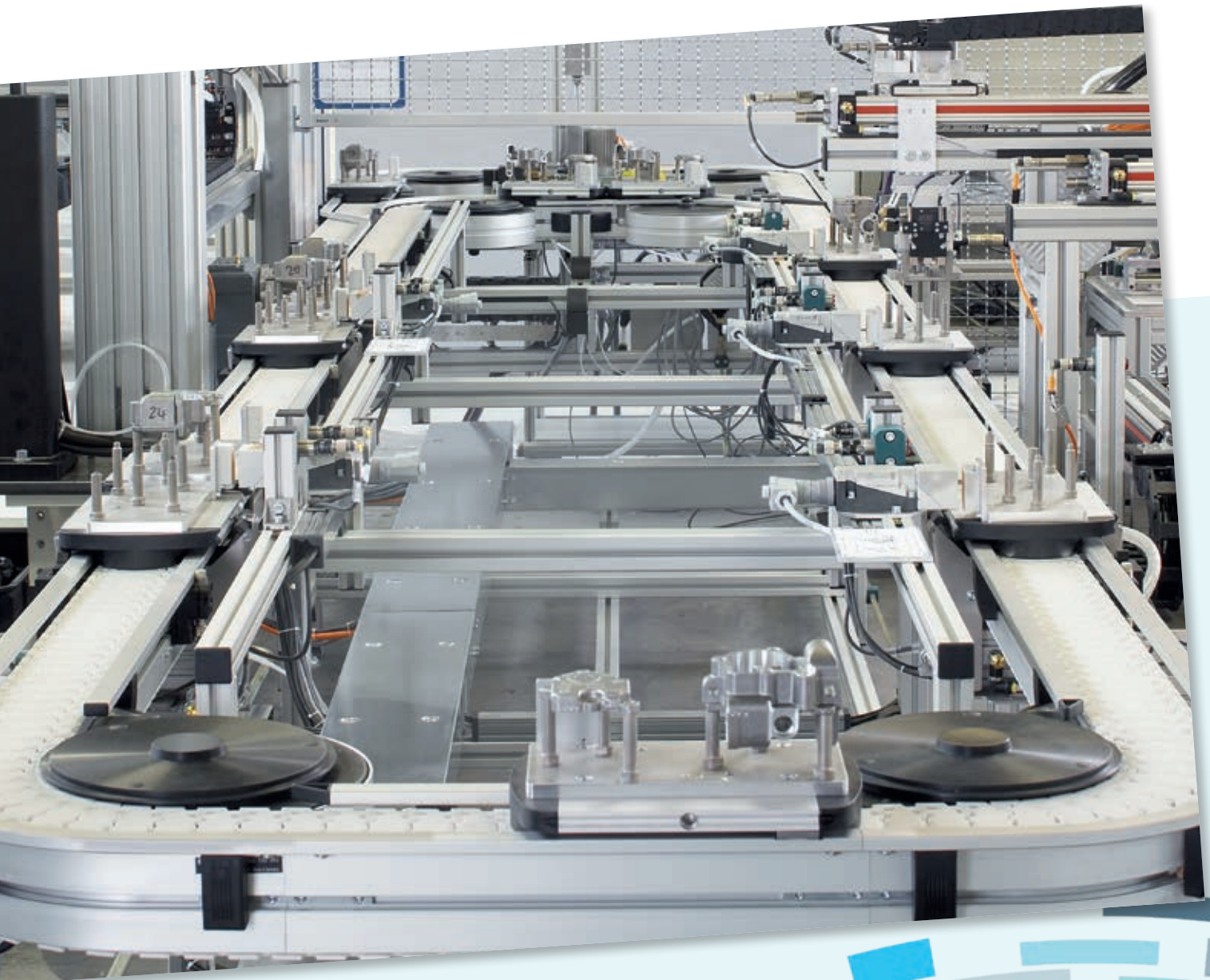


- ▶ Suitable chains for damage-free product transport or accumulation
- ▶ Achieve speeds of up to 60 m/min without added lubricants
- ▶ Stepless regulation thanks to integrated frequency converters and potentiometers

- ▶ The patented ball bearing technology enables high-volume products and heavy loads to be transported even when using curves

The highly efficient solution for assembly lines

VarioFlow plus ensures precise transport – directly on the chain or on a workpiece pallet. The workpiece pallet conveyor systems can be supplemented with the RFID system for identification, data storage and material flow control.



For parts transport between manufacturing processes, whether it be semi or fully automatic stations, ESD-sensitive areas or linked manual workplaces – the workpiece pallet conveyor system is the most effective solution. It makes no difference if the modular workpiece pallet system is provided by the customer or by Bosch Rexroth.



- ▶ Expandable thanks to standardized modular units
- ▶ Maintenance-friendly thanks to easy replacement of expendable parts
- ▶ Harmonized components such as positioning units, diverters, stop gates and guides
- ▶ Standardized workpiece pallet platform with widths of 135 mm and 160 mm and in any required length up to 500 mm
- ▶ Positioning accuracy ± 0.15 mm

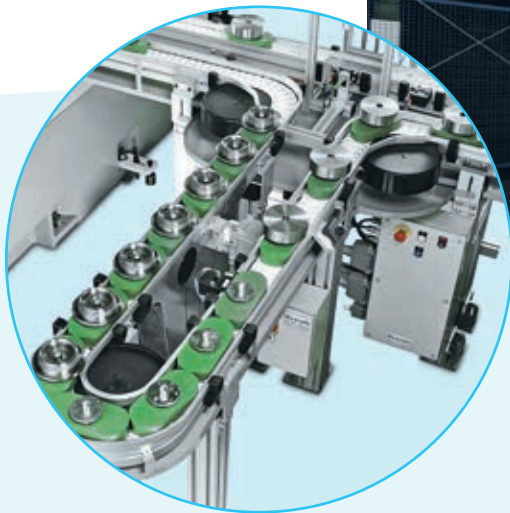


Link machines, connect work stations: for smoothly flowing workpieces

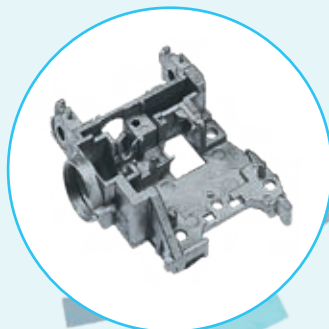
In nearly chip-free and modern machine tool linking, VarioFlow plus is adaptable, reliable and maintenance friendly thanks to the use of largely media-resistant components. Use in the lower load range is inexpensive and economical compared to previous, heavy systems.



To make sure that everything flows, whether it be materials or information, Rexroth provides a full range of components for intelligent, scalable linking in production and logistics – these are described in brief on the following pages and in detail on the Rexroth website at **www.boschrexroth.de**. Find out more!



- ▶ Low-noise conveyor system
- ▶ Reliable
- ▶ Expandable thanks to standardized modular units
- ▶ Easy to maintain and clean
- ▶ Harmonized components such as positioning units, diverters, stop gates and guides
- ▶ Can be supplemented with RFID system



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

Intralogsitics 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





ActiveAssist ASSISTANCE SYSTEM

Install variants safely – modular, connected, interactive

The web-based software makes installing numerous different variants much easier. Information is available to employees at all times and errors are flagged. As a result, lot sizes of one cost no more than mass production.

+ Benefits

- ▶ Interactive step-by-step guidance
- ▶ Modular, future-proof structure
- ▶ Web-based intuitive configuration tool
- ▶ Hand tracking via 3D camera
- ▶ Economical “one-piece flow”



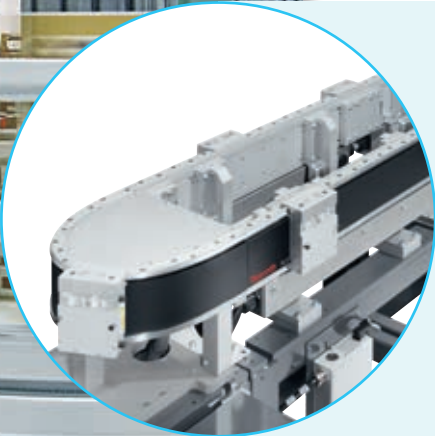
AUTOMATIC PRODUCTION ASSISTANT (APAS)

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



ctrlX AUTOMATION AUTOMATION PLATFORM

ctrlX AUTOMATION breaks down the classic boundaries between machine control, the world of IT and the Internet of Things

ctrlX AUTOMATION cuts component and engineering outlays by 30% to 50% with the help of the Linux real-time operating system, fully open standards, app programming technologies, web-based engineering and a comprehensive IoT connection.

+ Benefits

- ▶ Hardware and software components from a single source
- ▶ Greater productivity, fewer components, quicker engineering
- ▶ Maximum performance across all topologies
- ▶ The most open and future-proof automation system available on the market

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

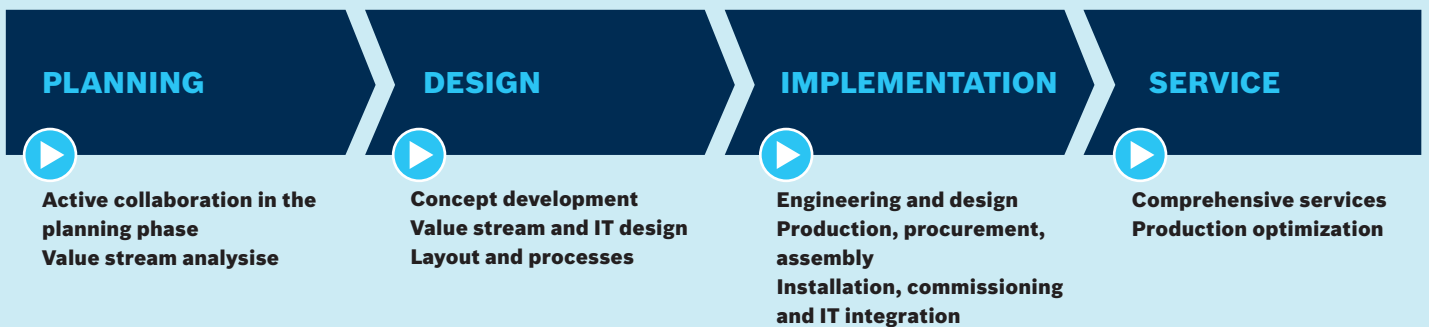
When developing the most cost-effective and productive solutions, we rely on our field-tested digitization/Industry 4.0 technologies and innovations. As mentioned above, these include collaborative robotic systems and intelligent software solutions, e.g. for staff management and support, performance 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 design of your 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.



Bosch Rexroth AG

Post box 30 02 07
70442 Stuttgart, Germany
www.boschrexroth.com

Further information online:



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



The data specified above only serve to describe the product. Due to the continuing development of our products, no statements concerning a certain condition or suitability for a certain application can be derived from our information. The information given does not release the user from the obligation of own judgment and verification. It must be remembered that our products are subject to a natural process of wear and aging.

R999000201 (2020-12)
© Bosch Rexroth AG 2020
Subject to revisions!