Tough application, ingenious solution.
Innovations from Bosch Rexroth
The right solution: Innovation from Bosch Rexroth

The word “Innovation” means something different to each of us. To many it is technology driven: performance pure and simple—“faster, higher, more powerful.” To others, innovation is about practical problem solving: Using the right technology for a design focused on pure functionality, to complete a task with the fewest possible resources. Rexroth knows that the right solution comes only from an appreciation of both of these meanings. That’s how we create the innovative components, systems and services you need: Remembering that it is about helping you solve the problems you face every day—locally, and on a global scale.
At Rexroth, our regional teams work in close collaboration with their international colleagues. This unique combination of customer inputs and ideas within a global/local development network results in innovations that help our customers reach the top of their industries every day, all over the world.

We invest substantial sums of money and the creativity of thousands of engineers in research and development. Our R&D quota has been above the industry average for years. More than 2100 specialists work at Bosch Rexroth on new products, solutions and services.

Their focus is to design products that help our customers meet their short- and medium-term technological needs, while at the same time advancing new technologies to anticipate, and meet, long-term requirements. If a new approach is required, we are there, because our customers tell us to be. For us, innovation is always multi-dimensional and averse to trade-offs. It’s not enough that a Rexroth solution saves energy, for example; a Rexroth solution must also increase productivity.

Inside, you can learn about some of our innovations. For more information about the products in this brochure, please visit www.boschrexroth-us.com/innovations or contact your local Rexroth salesperson.

04       Hydraulics
          05       IAC-R 2X control valve
          06       EMA(G) electromechanical drive
          07       M4 control block
          08       CDL2 cylinder
          09       Enduroq surface technologies
          10       A15VLO axial piston pump with impeller
          11       A1VO axial piston pump
          12       A4VG variable axial piston pump
          13       A6VM motor
          14       MV037 series high torque vane motors
          15       Hägglunds CBM direct drive
          16       CHoose configuration tool
          17       A-VBC/S load controls
          18       63 FLDK (N) duplex filter
          19       Fit4Filter smartphone app
          20       Series 30 hardware
          21       IndraMotion MLC for hydraulics

05       Electric Drives and Controls
          22       IndraMotion MLC control system
          23       IndraControl S67 I/O modules
          24       IndraControl S20 I/O modules
          25       IndraMotion MTX micro
          26       SafeLogic safety technology
          27       EFC 3600 frequency converter
          28       IndraDrive Mi decentralized servo drives
          29       IndraWorks engineering framework
          30       EasyWizard commissioning assistant
          31       Open Core Engineering

33       Linear Motion Technology
          34       CKL compact modules
          35       PLSA planetary screw assembly
          36       EMC-HD electromechanical cylinder
          37       Online screw drive configurator

38       Assembly Technology
          38       EcoShape tubular framing system
          39       TS5 heavy duty conveyors
          40       Workplace layout
          41       MTpro with Layout Designer

42       Multi-technology
          42       Variable speed pump drives Sytronix
          43       Sytronix SvP 7000
          44       Sytronix DFEn
          45       RexPak hydraulic power units
          46       GoTo Focused Delivery Program
Hydraulic innovations: For the next level of productivity and efficiency

Whether it’s more torque in a smaller direct drive, new benchmarks for control valves, high pressure transmission units, dynamic cylinders, energy saving pumps, integrated engineering tools or “fit for duty” electronic controllers, Rexroth system expertise can be seen in every detail of our advanced industrial and mobile hydraulic components. Local experts are ready and waiting to help you apply these innovations to your projects. Call on us today!
IAC Multi-Ethernet control valve: Open, scalable and consistently easy

The new generation of 4WRPDH-2X valves with integrated axis controller (IAC) benefits from many years of application experience at Rexroth: The valve is now even more robust and user-friendly. It supports all important bus systems in the field of industry automation, is individually scalable and impresses with hydraulically optimized controller structures. It offers intuitive operation for fast project planning, commissioning and diagnostics with IndraWorks software.

Robust, best-in-class hydraulic controllers
Due to the different communication and sensor interfaces, this new generation of control valves can be integrated flexibly into higher-level control networks. Complex engineering and hardware adaptations are no longer required – this saves time and money. The combination of tried and tested control valve technology and intelligent electronics enables customized solutions for hydraulic drives which are precise and functional with minimal cost. Together with the IndraWorks engineering framework, more integrated engineering is possible – and you can react quickly and economically to requirements.

Advantages resulting from special product features
- Hydraulically optimized, scalable controller structure for highly dynamic control systems
- Open communication: Supports all common Ethernet bus systems
- Integrated engineering with the IndraWorks engineering framework: Simple and fast commissioning of all components
- Flexibly scalable: Large selection of valve types for more flexibility for use with minimal cost
- Robust and reliable: Extended temperature and vibration range
- The integrated control electronics of the valve allow the deactivation of a channel in accordance with EN 13849-1

Key technical data
- Bus connection/service interface: (sercos, EtherCAT, EtherNet/IP, PROFINET RT)
- Max. operating pressure: 315 bar, flow: 100 l/min
- Sampling time: 0.5 ms for force controller, 1 ms for positioning controller
- Directly actuated control valve in servo quality
- Integrated digital axis control functionality
- 2 x configurable analog sensors (current/voltage)
- 1 x linear positioning sensor (SSI, EnDat 2.2 or 1 Vss)
EMA(G) electromechanical drive with hydrostatic transmission: Wear-free, easy to handle efficiency

The electromechanical drive supplements the hydraulic valve operating mechanisms for the control and fast-acting shut-down function of process control valves. With the hydrostatic transmission and the spring-supported fast-acting shut-down function, it works wear-free and is especially easy to handle. This significantly reduces commissioning and maintenance costs and increases efficiency in the power plant.

The secure plug-and-play solution
The compact positioning drive for direct assembly onto valves replaces hydraulic only solutions. At the same time, it is a wear-free alternative to electromechanical drives with a ball screw assembly. The drive is particularly suitable for assembly on valves which are used to control the flow of fluids, gases and steams with a safety integrity level of SIL 3.

EMA(G) is a pre-configured system of tried and tested components which only have external electrical and mechanical interfaces. Parameterization is therefore simple and the control system is clear, which minimizes the costs of commissioning. The resistance to vibration as well as its high performance design make the drive ideal for use in power plants and other process control functions that require large forces and strokes. An additional feature is that the drive is designed to require minimal maintenance as well as have a long service life and maximum safety potential.

Advantages resulting from special product features
- Stand-alone solution without installing a hydraulic system
- Compact design
- Pre-configured system for easy parameterization, low commissioning costs
- Tried and tested components with excellent performance
- Robust and safe: Minimal maintenance costs and long service life, SIL 3 compliant configuration

Key technical data
- Electrical interface for power and signal transmission
- Positioning using a controlled synchronous motor and hydrostatic transmission
- Combined fast-acting shut-down due to a spring-supported closing function
- Limitation of the max. closing speed during the fast-acting shut-down
- Integrated damping function
- For additional information, see data sheet RE 08120
Multi-talented load-sensing M4 control block: Now more flexibility with our Rapid Production Program

The Rapid Production Program is intended to provide quick delivery response for standard assemblies in custom arrangements to the marketplace in ten working days. The available options selected are intended to provide flexibility to fit most applications and allow for field adjustments where possible.

The multi-talent for the highest standards
Thanks to their modular and compact construction, Rexroth M4 control blocks are used in the most diverse applications. They can be used to control travel drives in open circuits as well as for precise and stable control of work movements. The M4 valve block is giving you furthermore the option of actuating single consumers proportionally and with high sensitivity, depending on the requirement mechanically, hydraulically and also electro-hydraulically. The M4 module is so flexibly constructed that all types of actuation are possible individually or combined.

The M4 configurator at www.boschrexroth.com/M4-configurator
The modular assembly of the Rexroth M4 control block allows for a flexible and easy configuration. The interactive M4 configurator allows your individual control block in M4-12 or M4-15 series to be designed within a few minutes. The direct access to 3D models, hydraulic circuit diagrams and installation drawings saves valuable development time.

Advantages resulting from special product features
- The flexibility of the M4 series control block combined with the M4 Configurator and the response of the Rapid Production Program provides a powerful combination.
- Even the most demanding applications can move from concept to realization on the most aggressive project schedules with confidence.

Key technical data
- Size: control block M4-12
- Max. nominal flow: 140 l/min
- Operating pressure: up to 420 bar
- Size: control block M4-15
- Max. nominal flow: 200 l/min
- Operating pressure: up to 420 bar
- For additional information, see data sheets:
  M4-12 Full Range: RA 64276; M4-12 RPP: RA 64272
  M4-15 Full Range: RA 64283; M4-15 RPP: RA 64273
CDL2 hydraulic cylinder: The compact design for 2 million load cycles at 160/250 bar

A new series, cost-optimized and, for the first time, with clearly defined limits of use:
The CDL2 hydraulic cylinders are designed specifically for industrial use at a nominal pressure range of 160/250 bar and for up to 2 million load cycles. You can configure the compact cylinders online according to your specific needs.

Cost-optimized and customized for industry
The CDL2 series features a round hydraulic cylinder in a welded design, which has been developed and tested specifically for use in industrial systems.

Find this and our other popular hydraulic cylinders online at www.boschrexroth-us.com/cylinders. There you can link to online configuration tools for mill type and tie rod cylinders.

Advantages resulting from special product features
▷ Clear limits of use: For max. 2 million load cycles at 160/250 bar
▷ User-friendly online configuration for easy and fast design and project planning (online tool includes CAD drawings, documentation, accessories and spare parts)
▷ Flexible scalability: 2 nominal pressure stages in one series as a cost-effective, customized solution
▷ Compact design: Small installation space and area

Key technical data
▷ Nominal pressure: 160/250 bar in one series
▷ Piston: Diameter 25 to 200 mm
▷ Piston rod: Diameter 14 to 140 mm
▷ Stroke length: Up to 3,000 mm
▷ 4 types of mounting, 2 seal designs
Enduroq surface technologies: Improving uptime while reducing total cost of ownership

One of the most essential parts of hydraulic installation is the large hydraulic cylinder’s piston rod surface. The right combination of surface technology, seal concept and hydraulic medium defines the eventual uptime and total cost of ownership. Rexroth is a pioneer and trend setter when it comes to developing in-house technologies for just about every industry and application. Enduroq is an integrated concept that can select, engineer and produce the best surface technology in any industry or application.

Improving uptime while reducing total cost of ownership

The right combination of surface technology, seal concept and hydraulic medium defines the eventual uptime and total cost of ownership. Rexroth is a pioneer and trend setter when it comes to developing in-house technologies for just about every industry and application.

During analysis, important elements are considered such as the kinds of impacts that will influence the performance and lifetime of a large hydraulic cylinder and which surface technology will best suit that cylinder. The impacts vary from corrosion and wear to the influence of mechanical impact, chemicals and temperature.

Advantages resulting from special product features

- Always the best surface technology for your application
- Saving costs through the reduction in the total cost of ownership, extension of lifetimes and high quality
- High reliability through in-house development & full support

Key technical data

- Enduroq 2000 Series (Thermal sprayed surface technology) single layer and dual layer
- Enduroq 3000 Series (Welded overlay surface technology)
- Extreme corrosion protection
- Zero permeability
- Longer lifetimes
- Minimum downtime
- Tribology interaction between surface technology, seal technology and fluid technology

Exposed Environments

<table>
<thead>
<tr>
<th>Surface technology</th>
<th>Non-corrosive environment</th>
<th>Mild marine atmospheric open zone</th>
<th>Marine atmospheric sheltered zone</th>
<th>Seawater submerged, marine splash zone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chromium</td>
<td>·</td>
<td>·</td>
<td>·</td>
<td></td>
</tr>
<tr>
<td>Ni/Chromium</td>
<td>·</td>
<td>·</td>
<td>·</td>
<td></td>
</tr>
<tr>
<td>Enduroq 2000</td>
<td>·</td>
<td>·</td>
<td>·</td>
<td></td>
</tr>
<tr>
<td>Enduroq 2200</td>
<td>·</td>
<td>·</td>
<td>·</td>
<td></td>
</tr>
<tr>
<td>Enduroq 3000</td>
<td>·</td>
<td>·</td>
<td>·</td>
<td></td>
</tr>
<tr>
<td>Enduroq 3200</td>
<td>·</td>
<td>·</td>
<td>·</td>
<td></td>
</tr>
</tbody>
</table>

www.boschrexroth-us.com/innovations
A15VLO (A11VLO mobile version) axial piston pump with impeller: 20% more power without higher costs

Unrivaled on the market: The A15VLO & A11VLO are the only axial piston pumps available with an integrated impeller. The pump output can be economically increased by approximately 20% – with the same nominal pump size and without additional installation costs.

From 2,100 rpm to 2,500 rpm
The tried and tested Rexroth axial piston pumps have a turbocharger with an integrated impeller: With the same nominal size of 210, the maximum speed can be increased by the infeed via the impeller and the pump output can therefore be increased by approx. 20%. At an additional price of just 5% and no additional installation costs at all, this pays off. This is an extremely economical option for increasing output or installing a smaller pump. The impeller is integrated directly into the port plate. No additional installation space is required, and it is possible to operate the pump with a frequency converter.

Advantages resulting from special product features
- Fluid inlet via the impeller enables a higher maximum speed
- Cost-effective increase of pump output by approx. 20%
- No additional installation costs
- No additional installation space required
- Possible to operate with a frequency converter

Key technical data
- Nominal pressure: 350 bar
- Peak pressure: 420 bar
- Sizes available: 145, 175, 210, 280
- For additional information (mobile), see data sheet RE 92510
- For additional information (industrial), see data sheet RE 98100
Axial piston pump A1VO, series 10: High control quality even for low budgets

More power for the money was the objective during the development of this compact series of pumps for medium-pressure applications. The result: Without compromising on quality, this small powerhouse produces optimum performance values and excellent control quality – an energy-efficient alternative for fixed displacement pumps.

Excellent price-performance ratio
As it was developed specifically for price-sensitive applications and markets, the new A1VO requires no compromises regarding efficiency and power density. The cost-optimized design not only provides an especially compact design, but is also impressive due to its high energy-efficiency despite the constant drive speed. The pressure is controlled without bypass losses, so that cooling capacity is greatly reduced or is not needed at all. The series is designed for displacement from 11 to 35 cm³ and an operating pressure of up to 250 bar.

Advantages resulting from special product features
- Cost-optimized design: Extremely energy-efficient, the ideal alternative to fixed displacement pumps
- Compact design
- Adjustable displacement with high control quality
- No bypass losses: Cooling capacity is greatly reduced or not needed
- High efficiency and power density
- Low noise levels

Key technical data
- 35 cm³ displacement (11/18/28 cm³ in preparation)
- Pressure control (hydraulic/electro-hydraulic)/flow and pressure compensator
- Operating pressure: Up to 250 bar
- Permissible drive speed: Up to min. 3,000 rpm
- For additional information, see data sheet RE 92650

www.boschrexroth-us.com/innovations
Variable axial piston pump A4VG, series 40: Higher pressure, increased efficiency

A4VG Series 40 variable pumps give you greater power density and a wider range of nominal sizes for greater flexibility. With rated pressure now increased by 50 bar – to 450 bar – and peak pressure at 500 bar, for matched nominal sizes, you get an energy-efficient and power-optimized system configuration. That means reduced fuel consumption and fewer harmful emissions.

Improved functionality and flexibility
The new, high-performance travel drive from Rexroth provides increased power with reduced overall costs. The travel drive consists of the new A4VG Series 40 variable pump and the new A6VM Series 71 hydraulic motor, for a special emphasis on energy efficiency and concern for the environment.

The new Series 40 gives you added convenience, too. A new, reworked pump housing provides improved functionality and flexibility – and a new flange design reduces the number of seal points and optimizes the arrangement of high-pressure ports.

That means high performance, lower mobile equipment fuel consumption, and reduced harmful emissions. With its extended performance range, the drive helps manufacturers of construction equipment, agricultural and forestry machinery, material handling equipment and road vehicles meet the most challenging emissions standards.

Advantages resulting from special product features
- Increased pressure range
- Reduced noise emission
- New flange design reduces sealing points
- Optimized installation length for each nominal size
- 100% through-drive with defined flange location
- No torque restriction when installing additional pumps

Key technical data
- Displacement sizes: 45, 65, 85, 110, 145, 175, 210, 280
- Nominal pressure: 450 bar
- Peak pressure: 500 bar
- Control types:
  - HP – Hydraulic proportional
  - HW – Hydraulic, mechanical servo
  - HT – Hydraulic, direct
  - DA – Hydraulic, speed related
  - EP – Electric, proportional
  - EZ – Electric two-point
  - EV – Electric proportional, direct
- For additional information, see data sheet RA 92004
Variable motor A6VM, series 71: Reliable, long-lived and extraordinarily efficient

A6VM series 71 variable motor offers higher rated pressure and maximized power density. The higher power density comes from a strong combination of increased rated pressure, higher speed, and increased displacement—all features making the motor ideal for hydrostatic travel drives in mobile equipment.

Key technical data
- Nominal sizes: 60, 85, 115, 150, 170, 215, 280
- Nominal pressure: 450 bar
- Peak pressure: 500 bar
- Control types:
  - HP – Hydraulic proportional
  - HZ – Hydraulic two-point
  - HA – Automatic, high-pressure dependent
  - EP – Electric, proportional solenoid
  - EZ – Electric two-point
  - DA – Hydraulic, speed related
- For additional information, see data sheet RA 91610

Power from any position
The bent-axis variable piston motor is designed for smooth running over the entire swivel angle range, giving you power in any position. That’s a big advantage at low rotational speeds—and you also get a lively motor startup response. The efficiency of the new nine-piston design is noticeably improved, particularly with small swivel angles, further enhancing smoother low running-speed operation at very low output speeds over the entire range. The motor’s zero swivel capability offers advanced traction drive functions like traction control (TCS), plus high-performance braking—both from Rexroth.

The motor also features redesigned threaded ports with O-rings. This ensures greater leakage protection, even after servicing. Cross-port leakage has also been optimized, making the A6VM especially valuable in high-performance drives. Improved temperature response and lower housing pressure work together to reduce wear and increase service life.

Advantages resulting from special product features
- Increased pressure range
- Zero swivel-capable variable motor
- Greater efficiency and power density
- O-ring seal and threaded ports
- Large housing ports
- Higher rpms and speeds
- Optimal cross-flow scavenging

www.boschrexroth-us.com/innovations
MV037 series high torque vane motors: Unique vane-crossing-vane design provides maximum versatility

This motor is created around the patented “vane-crossing-vane” design, a leading-edge concept in fluid power transmission, which allows for low speed/high torque and high speed/high torque. With over 50 displacements combined with a variety of optional features, this is one of the most versatile hydraulic motors in the world.

The power difference – vane-crossing-vane patented technology

The vane-crossing-vane motor is a bi-rotational power converter utilizing working vanes in the rotating member (rotor) and sealing vanes in the stationary member (stator). With 10 rotor vanes working in four cavities, the motor provides an uninterrupted output torque regardless of angular position. This equates to 40 power strokes per revolution, delivering higher average torque with low torque ripple.

The stator vanes function as seals between high- and low-pressure ports within the stator. This allows for more displacement in the stator, giving the motor an optimum power-to-weight ratio.

With this patented technology, the motor produces improved mechanical and volumetric efficiencies—the Power Difference.

Advantages resulting from special product features

- Double stack motors using two ports with displacement from 64 in³ to 74 in³ (1049 cm³/rev to 1213 cm³/rev)
- Starting and stall torques up to 94% of theoretical torque
- Speed to 1000 RPM continuous
- Up to 450 HP (336 kW)
- Can conform to SAE ‘D’ mounting specification
- Customizable for direct drive applications

Key technical data

- Max operating pressure: 3000 psi (Code 61)
- Max operating pressure: 4500 psi (Code 62)
- Six fixed displacement rotating groups ranging from 12 in³ to 37 in³ (197 cm³/rev to 606 cm³/rev)
- 4-port motors from 24 in³ to 74 in³ (393 cm³/rev to 1213 cm³/rev) capable of two-speed operation with external valving
- For additional information, see data sheet RA 10550
Hägglunds CBM: The most powerful direct drive on the market

The new Hägglunds CBM motor produces 50% more torque in a smaller space: The robust, lightweight motor is mounted directly on the drive shaft and opens up completely new applications to you thanks to its reduced dimensions and enormous performance. The machine and the housing have become smaller, lighter and simpler.

50% more torque, 50% less weight
The newly developed CBM motor is a contemporary answer to the market requirement for increasingly higher power, more compact design and reduced weight. The core of the closed drive system is a slow-turning hydraulic motor which is mounted directly on the drive shaft and enables maximum torque, even at minimum speeds. Direct installation means that gears, belts, chains, etc. are not required. The design principle makes optimum use of the advantages of hydraulics. The power can be controlled precisely and made available across the entire power range. For maximum productivity.

Advantages resulting from special product features
- 50% more torque for higher productivity in a very small space
- 50% less weight
- Compact design
- Optimum power-to-weight ratio for high efficiency
- All-purpose system for flexible use

Key technical data
- Max. torque: 2,000 kNm
- Max. rotational speed: 53 rpm
- Displacement range: 75.8 to 380.1 l/rev
- Max. pressure: 350 bar
- Max. power: 2,200 kW
- For additional information, see data sheet R999000202

www.boschrexroth-us.com/innovations
CHoose: Compact hydraulics configuration tool

Speed in creating circuit solutions, whether complex or simple, is essential in meeting today’s market demand for ever faster machine development. CHoose software, the Bosch Rexroth Compact Hydraulic circuit and design configurator, accelerates the progression from concept to hardware.

Compact Hydraulic concepts quickly click toward reality
With only a few clicks of the mouse, CHoose software allows its user to create a hydraulic circuit, assembly design concept and a price estimate. Estimates indicate a 60%+ time savings over traditional means of achieving these first steps in bringing a CH solution to reality. Hydraulic Integrated Circuits (cartridge valve manifolds) and Compact Bankable Directional Valve components can be mixed and matched to bring the perfect solution to life.

An easy to use library structure allows the user to view datasheets and select component options while creating the hydraulic circuit using standard functional symbols. In a simple, 3D drag-and-drop environment, a preliminary manifold or bankable valve assembly concept is laid out to enable the customer’s instant participation and feedback. Once a valid configuration is achieved, the software is able to provide a sales price estimation giving an immediate and real value to the user’s concept.

Key technical data
- Product libraries containing cartridge & bankable style valves
- Component model code creation from drop-down menus
- Drag and drop circuit design with standard symbols
- 3D preliminary designs of manifolds
- Export to common 2D and 3D CAD files
- Price indication feature
- For more information, visit www.oilcontrol.com/website/oc_applications_5.html

Advantages resulting from special product features
- Greatly decreases time from concept to quote
- Flexible, hybrid solutions of cartridge & bankable valves
- Technical support through embedded datasheets
- On-the-spot design and quotation ability
- Quickly create multiple versions of a solution for evaluation
- A fun and engaging solution for daily circuit work!
A-VBC/S load controls: Gravity helps lower the boom on inefficient valve operation

Rexroth’s family of gravity-lower load-holding valves increases machine speed and efficiency in an increasingly fuel-conscious world. Safety and reliability are key criteria in motion control applications and Bosch Rexroth Compact Hydraulic elements introduce new value beyond traditional solutions by increasing performance and reducing energy consumption.

Energy savings and safety with enhanced control
Using the force of gravity instead of engine power to retract a lift cylinder, Bosch Rexroth Compact Hydraulic load holding elements decrease power consumption thereby saving fuel and cutting emissions. These solutions can eliminate traditional counterbalance valve installations where engine power is required to “push” the cylinder down against a restrictive valve.

While enhancing overall efficiency, these valves provide increased stability and smoother start and stop of motion by eliminating the “cross-piloting” required of counterbalance valves. In addition, gravity lower technology can greatly reduce pump flow to the boom when lowering, making more flow available for faster execution of simultaneous movements and reducing machine cycle times. Combining overload protection, precision motion control, and increased efficiency, Bosch Rexroth load holding solutions bring out the best in machine performance and safety.

Key technical data
- Pressures to 420 bar (6000 psi)
- Flow rates to 700 L/min (185 gpm)
- Flow regeneration in lowering mode
- External pilot control
- Customizable metering characteristics

Advantages resulting from special product features
- Increased speed and efficiency
- Reduced energy consumption
- Precise and stable motion control
- Hose burst safety
- Reduced testing and development time

www.boschrexroth-us.com/innovations
63 FLDK (N) duplex filter: Better filtration using less space

Duplex filters can be integrated directly into pressure lines. Thanks to the compact design, optimized flow pattern (Cyclone Effect) and modular design, your hydraulic systems remain simple and easy to service. Modular, easily-combined parts allow for design changes at a later date.

**Key technical data**
- $P_{\text{max}} = 63$ bar
- $Q_{\text{max}} = 250$ l/min
- Port types from 1" SAE 3000 PSI to 4" SAE 3000 PSI
- Either pedestal- or wall-installation
- Cyclone effect

**Minimum pressure loss, high flow rates**
Filters are critical for hydraulic systems to function as designed and to operate reliably. Filters are often overlooked so keeping the design simple, easy to service and maintain is important to ensure they are properly maintained. The new duplex filters are designed with this in mind: A small number of high quality components are combined to give the maximum flow rate with the minimum pressure drop. In addition, they are easy to handle, and can be easily reconfigured if the filtration needs change in the future. The optimized flow path design generates a cyclone effect allowing smaller filters to be selected. This results in better filtration and extremely compact outside dimensions, helping to simplify the hydraulic system.

**Advantages resulting from special product features**
- Compact design: Makes a slimline construction of the hydraulic system possible
- Optimized flow design: Generates an effective cyclone flow path. The cyclone effect allows designers to chose smaller filters and save space
- Modular installation: By changing a few components, the filter can be modified to meet changing filtration needs
- Well-thought-out details: Ensure service- and user-friendliness, as with the gas-tight ball valve changeover switch and magnetic drain screw as standard
Fit4Filter smartphone app: Find crossover filter elements quickly and easily with this handy reference tool

Search the Rexroth filter element product offering for common crossover filter elements—we put the best quality products at your fingertips. US customers can place orders via Amazon for convenience.

Key technical data
- Fit4Filter is available now in the Apple App Store and the Google Play™ Store.
- To find links to the App and to see Rexroth’s other useful Apps for iOS and Android, please visit www.boschrexroth-us.com/Apps

Simplified ordering of filters
Bosch Rexroth’s newest digital offering, the Fit4Filter smartphone app, allows customers to cross reference and replace their existing hydraulic filter elements with the corresponding Rexroth filters. The app is available for both Apple® and Android™ devices and is an outstanding tool for upgrading filter elements on hydraulic power units in virtually any application—plastic injection molding machines, offshore drilling equipment, machine tools, metal stamping machines, steel making equipment, and more.

Fit4Filter includes cross references to thousands of filter elements, and a unique “sync-on-demand” feature allows users to update the app with new filter elements and other data with just a few finger taps. Connecting with the appropriate Rexroth contact person is easy with built-in e-mail links and one-touch dialing.

For U.S. users, the app also indicates whether the selected Rexroth filter is part of the company’s GoTo Focused Delivery Program, as well as a link to specific Rexroth filter elements available on Amazon.com.

Advantages resulting from special product features
- Support in English and German languages
- Contact information for Rexroth filter support personnel in 20 countries so that customers worldwide may inquire locally about replacement filters

www.boschrexroth-us.com/innovations
Series 30 hardware: Powerful new Rexroth controllers are *Fit-For-Duty*

Engineered for today’s market, the new series 30 controllers have more of what the market is demanding. More powerful processors, more I/O capabilities, and more built-in software features than ever before! *Fit-for-Duty* means that Bosch Rexroth controllers are built for the real world.

**Key technical data**
- High performance 32-bit TriCore technology
- Inputs include digital, analog, frequency, and temperature
- Closed-loop control of solenoid currents, i.e. not dependent on voltage and temperature
- Four independent CAN bus 2.0B interfaces
- Supply voltage, permissible range 8 to 32 V
- Fault detection in the event of cable break and short circuit
- For additional information, see data sheet RE 95203 and RE 95204

**Modular, flexible, reliable**

BODAS controllers are the powerful backbone to the BODAS system. On the one hand they receive and process signals from operator panels and sensors. On the other they calculate and generate the output signals to pumps, motors, valves and auxiliary devices. In the BODAS hardware building set, several robust variations of the controllers and one extension module are available. This makes your machine reliable and efficient.

**Advantages resulting from special product features**
- Sealed diecast aluminum housing free from potting compound
- Robust construction: resistant to salt and dirt, watertight housing and connector with IP65
- High temperature resistance for use in extreme conditions (-40°F to 185°F) without reduction in performance
- Vibration- and shock-resistant to 25 g
- Interference immunity through high electromagnetic compatibility (EMC) to 100 V/m

**Controller properties**

<table>
<thead>
<tr>
<th></th>
<th>RC12-10</th>
<th>RC20-10</th>
<th>RC28-14</th>
<th>RC36-20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proportional Outputs</td>
<td>12</td>
<td>20</td>
<td>28</td>
<td>36</td>
</tr>
<tr>
<td>Switched Outputs</td>
<td>10</td>
<td>10</td>
<td>14</td>
<td>20</td>
</tr>
<tr>
<td>Frequency Inputs</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Temperature Inputs</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Analog Voltage Inputs</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Digital Voltage Inputs</td>
<td>32</td>
<td>32</td>
<td>32</td>
<td>32</td>
</tr>
<tr>
<td>Current Inputs</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>CAN Interfaces</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>
IndraMotion MLC for hydraulics: Control hydraulic components and systems with a platform optimized for hydraulic drive tasks

IndraMotion MLC is a motion logic platform that can be used to operate electrical, hydraulic, and hybrid drives and components. With best-in-class motion control from Rexroth combined with our vast experience in hydraulics, you are sure to get the best solution possible and benefit from reduced engineering costs and effort — up to 50%.

Fast programming, planning, and commissioning
Users of the new version of IndraMotion MLC will notice the benefits of Rexroth’s experience with hydraulic systems. Associated motion control software covers the special aspects of hydraulics and separates drive physics from the automation. The control system is complemented by devices from Rexroth designed for bus communications such as our IAC-R control valves.

Advantages resulting from special product features
► High-performance motion logic run-time system
► Hydraulic specific functions already built in, such as central control for hydraulic axes synchronization control, central control for hybrid axes, alternating control for positioning, position dependent braking, and more
► Open communication and programming, supports all common Ethernet bus systems (sercos, EtherNet/IP, PROFINET RT)
► Simplified programming of motion sequences and high transparency through sequential programming
► Automatic code generation thanks to GAT template
► Wizard-supported configuration

Key technical data
► Motion control axis: Decentralized up to 64, centralized up to 32
► 1,000 instructions (combined) 35 to 5 µs
► Number of functional modules: 2 to 4
► Min. sercos cycle time: 1 to 0.25 ms
► Up to 512 local I/Os
Innovations in electric drives and controls: Maximum flexibility and improved efficiency

Safety, energy efficiency, and breakthrough motion control and automation concepts. These are the building blocks for flexibility and efficiency in automation. From Safety-on-Board technology to our groundbreaking IndraMotion MTX micro CNC control and our advanced IndraDrive Mi decentralized drives, Rexroth’s latest innovations inspire our customers’ next-generation machine designs. And now, with our award-winning Open Core Engineering concept, designers can take advantage of all-new degrees of freedom in the integration of smart devices and IT technologies.
IndraMotion MLC: Motion, robot and logic control in one innovative system solution

Let us help you create cost-optimized and future-proof automation concepts. Meeting global software standards & offering a wide range of functions, Rexroth’s IndraMotion MLC provides you with all the freedom you expect of state-of-the-art machine automation.

**Fast programming, planning, and commissioning**
Thanks to the segmented profiles provided by FlexProfile you will be able to enjoy undreamt of flexibility in your machine processes. Logic control conforms with PLC standards IEC 61131-3 and PLCopen offers more than 100 function blocks for programming your applications. For 3D motion control you can count on ready-to-use kinematics and transformations for numerous applications provided by the innovative robot control. With IndraMotion MLC and the engineering framework IndraWorks you can handle all your engineering tasks in a consistent software environment.

**Advantages resulting from special product features**
- Logic control – powerful, IEC-compliant PLC core module
- Motion control – high-performance motion core module for all motion controller functions
- Robot control – unique motion core module for multi-axis interpolation kinematics and transformations
- Extensive library of ready-to-use functions covering everything from loop, tension, and cross cut control to 3D path movements
- Automatic code generation thanks to GAT template
- Wizard supported configuration

**Key technical data**
- Motion control axis: Decentralized up to 64, centralized up to 32
- 1,000 instructions (combined) 35 to 5 µs
- Number of functional modules: 2 to 4
- Min. sercos cycle time: 1 to 0.25 ms
- Up to 512 local I/Os

www.boschrexroth-us.com/innovations
IndraControl S67: Fieldbus I/O with no compromises – modular, robust, and ready for the real world

The I/O system with protection category IP67 fulfills technically challenging requirements from all industries in automation engineering efficiently and with long-term reliability, even in the most extreme environments. Thanks to the modular design and easy handling, you can react quickly and flexibly to a wide range of challenges.

React quickly and flexibly. Anytime and anywhere.
The IndraControl S67 provides you with the latest and most powerful I/O system with IP67 on the market: The robust design with high EMC protection enables you to use it in even the most extreme ambient conditions. And the well-thought-out modular design facilitates especially quick and easy installation, short commissioning times and simple integration into your system. This is the best solution for a variety of requirements, both technically and economically.

Advantages resulting from special product features
► High-performance and intelligent system bus with optimized data communication for various applications
► Robust design with IP67 with high EMC protection for use even under the most extreme conditions
► Modular system design with intelligent fieldbus couplers
► Quick and tool-free installation using M8 and M12 connectors and a ready-made cable

Key technical data
► Protection category: IP67
► Fully encapsulated for tough ambient conditions
► Fieldbus interface connections for Sercos III, PROFIBUS, PROFINET and EtherNet/IP
► Up to 64 I/O modules/520 channels per station
► Up to 50 m gap between two modules, up to 500 m total length per station
► Extended temperature range from −25 °C to +60 °C
IndraControl S20: The fastest I/O components of all time

The full performance and function of the fastest I/O technology with protection category IP20 on the market is available to you, for even the most challenging applications, via the Ethernet-based automation bus sercos. Rexroth and our solution providers help you achieve optimum system integration so you can enjoy the benefits of sercos, even while allowing for other bus technologies in your systems.

Advantages resulting from special product features

- Real-time properties on sercos
- Fast signal processing with short update times on the system bus
- High resistance to EMC interferences
- Reduced emissions
- Easy station installation and device replacement thanks to tool-free installation
- Long-term reliability thanks to maximum power reserve
- Extended diagnostics

Optimum system integration

With IndraControl S20, the I/O system with protection category IP20, real-time requirements with short cycle times can be carried out easily. In conjunction with the high-performance automation bus sercos, extremely short I/O reaction times can be achieved for efficient production cycles. This facilitates the most challenging applications, even under extreme conditions, due to the optimized design.

Thanks to its flexibility, the modular I/O system optimally links together with various different control topologies. In conjunction with the new IndraControl XM21 control system, the full functionality and efficiency is also available as a high-performance I/O expander.

Key technical data

- Protection category: IP20
- Fieldbus interface connections for Sercos III and PROFINET
- Cycle times of 250 µs
- Short module reaction times of 1 µs per module
- Extended temperature range from -25 °C to +60 °C
IndraMotion MTX micro: The most compact and high-performance CNC control in its class

This comprehensive CNC system from Rexroth is the most powerful, profitable, yet simple CNC solution for the most demanding applications. Consisting of a custom HMI interface, compact multi-axis drive controller, and PLC, IndraMotion MTX micro offers flexibility and efficiency without sacrificing performance. As an additional benefit, Rexroth offers a free of charge download of the MTX micro trainer software so you can learn how to operate and create custom CNC programs for the MTX micro system.

Profitability with complete functional range
The current market for CNC machine tools is very diverse with low-cost drive and control solutions needed for standard turning and milling machines. IndraMotion MTX micro is an exceptionally affordable solution with features not normally available in the market.

Now you can learn easily how to operate and create CNC programs for MTX micro using the free training software provided by Rexroth. The machine-like representation of the operator panel and user interface presents a realistic environment for the best learning experience. Debug programs, test changes and fixes, or simply gain valuable knowledge independent from your production machinery with this handy training tool.

Advantages resulting from special product features
- Ultra-high reliability and production accuracy, to the smallest nanometer
- Fast, easy commissioning of the turnkey system
- High-performance 32-bit processor minimizes machining time
- Small installation space in control cabinet required to accommodate compact multi-axis drive controller
- Direct connection to 200-500V, 50-60Hz supply mains without a transformer
- User-friendly training and support software, free of charge

Key technical data
- Multiple technological functions for complete machining
- Compatible with standard, performance, and advanced IndraMotion MTX versions
- Controls up to 6 axes
- Integrated IndraLogic PLC
- Comprehensive tool management
- High-level programming language
- High-resolution processing of command and actual positions ensures precision machining down to the nanometer
SafeLogic: More safety, better engineering

The new SafeLogic and SafeLogic compact safety controllers round off the portfolio of safe logic processing solutions as an optional expansion of the standard control system. SafeLogic is efficient, can be programmed freely and enables integrated engineering – perfect for machines and interlinked, extensive systems with comprehensive safety machinery.

The option for safe machines and systems
Increase your engineering efficiency and make it consistently safe. With the new SafeLogic safety controller, you can connect a wide safety portfolio via SERCOS III and PROFI safe using the multi-safety master function. For small to medium sized machines, the compact option allows for maximum flexibility and simplicity. As there is no reaction between the standard control system and the safety technology, you can expand the system optionally without any problems. In this way, variants of series machines are significantly easier to create. You can use SafeLogic extremely efficiently as an integrated part of the standard control systems to make your machines and systems safer.

Advantages resulting from special product features
- Multi-safety master – CIP Safety Originator and PROFI safe host
- Modular system design thanks to optional safety function module
- No reaction between standard control system and safety technology
- Secure communication for integrating the decentralized safety machinery
- Integrated engineering of the standard control system and the safety technology with IndraWorks
- Standardized safety programming with PLC open safety

Key technical data
- Complete safety PLC as a function module with an overall width of 20 mm
- Safety solutions up to Cat. 4 PL e (EN ISO 13849-1) or SIL 3 (IEC 62061)
- Integrated system expansion with max. 96 secure participants
- Digital input/output modules
- Relay modules with internal evaluation of feedback contacts
EFC 3600 variable frequency drive series: Ultra compact and simply practical

For universal usage in a wide range of applications, we have introduced the compact VFD series EFC 3600. Easy to install, and without additional peripheral devices, the EFC 3600 series offers dynamic adjustment of the V/Hz characteristic curve and a removable operator panel that speeds parameter uploads to multiple units.

Saves time and space – and adds more quality
The new variable frequency drives (VFD) are packed with intelligent features like Proportional Integral Derivative (PID) and sequence control system, allowing energy-efficient operation of equipment and machinery at their optimal operating point thus providing energy savings, lowering CO2 emissions and extending motor service life.

High intermittent overload capacity of up to 200 percent, as well as high initial torque of up to 150 percent, means that the new variable frequency drives can be adapted for a wide variety of applications.

Advantages resulting from special product features
- Compact and complete: Space-saving side-by-side installation, pluggable I/O terminals with integrated brake chopper and mains filter – for easy installation and integration
- Simply practical: Removable operating panel for simple parameter input with copy function to save time and improve quality during series commissioning and without need of a PC, harmonized parameters across the entire series

Key technical data
- 1 AC 200-240 V, 0.4 to 2.2 kW (0.5 hp to 3 hp)
- 3 AC 380-480 V, 0.4 to 4 kW (0.5 hp to 5 hp)
- High overload capacity: 200% for 1 s, 150% for 60 s
- 50 °C (122 °F) ambient temperature without derating
- Motor temperature monitoring (NTC/PTC)
- Integrated brake chopper and mains filter (EN 61800-3 C3)
IndraDrive Mi: The most advanced and flexible decentralized drive technology

The leader in decentralized drive technology has raised the bar. We took our “cabinet free” integrated motor drive Mi family, including the KSM servo drive, and added multi-Ethernet technology, hybrid cabling, and enhanced safety on board functionality. Next generation machine designs can be even more energy efficient, compact, and safe with the help of Rexroth.

Many advanced industrial features in one package
With IndraDrive Mi, you are completely flexible. The integrated motion logic combines drive, motion control and processing logic, so that you can carry out complex motion sequences just on the drive level without higher level control. The multi-protocol capability means that it can be used universally with all leading Ethernet bus systems.

The compact, clean designs of the decentralized units are complemented by connectivity via new hybrid cables — carrying DC bus voltage in addition to communications. Smaller control cabinets with less associated cooling, fewer cables to the drives, longer chains of drives, and the ability to operate in Smart Energy Mode when combined with Rexroth power supplies — these benefits and more can be realized with the Mi drive family.

Advantages resulting from special product features
- Multi-protocol capability: Compatible with all relevant Ethernet protocols and also all common control products
- Integrated safety technology: Flexibility to create multiple independent safety zones — increasing productivity while maintaining safety (Cat. 4 PL e certified in accordance to EN ISO 13849-1 and SIL 3 in accordance with EN 62061)
- Integrated motion logic: For carrying out complex motion sequences without higher-level control
- Energy-efficient power supply

Key technical data
- Up to 20 drives on a hybrid cable up to 200 m long
- Multi-Ethernet – Sercos III, Ethernet/IP, Profinet, EtherCat
- Safety technology – Safe Torque Off and Safe Motion
- Integrated motion logic according to IEC 61131-3
- Integration of machinery by uncoupling the control communication
- Onboard digital configurable I/Os and optional additional fieldline I/O extension

www.boschrexroth-us.com/innovations
IndraWorks: The universal tool for efficient software engineering

With IndraWorks, Rexroth is a market leader in engineering motion logic applications with comprehensive wizards and powerful toolboxes. Therefore, you save a significant amount of time, money and programming effort, with increased quality.

The integrated engineering tool for motion logic
As part of the range of Open Core Engineering solutions, IndraWorks is the universal engineering framework for automation systems from Rexroth. It offers centralized project management as well as all tools for project planning, programming, commissioning, visualization and diagnostics. Complete basic functions for all tasks and powerful toolkits ensure fast and efficient implementation of your automation tasks.

Advantages resulting from special product features
- Uniform software framework: Uniform engineering of all control systems, from the small control system to highly complex motion applications
- Complete basic functions: Project planning, parameterization, programming, diagnostics, visualization
- Consistent operation: Intuitive interface based on current Windows technology with centralized project management and wizard support
- Generic Application Template: Predefined modular program and project structure for developing reusable applications
- Application-orientated functions: Technology libraries, control of hydraulic axes
- Comprehensive diagnostics: Trace, oscilloscope, pre-compile, tooltips, context-sensitive help

Key technical data
- PLC and motion logic programming with object-orientated language extensions
- Function packages such as Generic Application Template, CamBuilder and technologies
- Integrated Safety Manager for programming safe logic functions up to Cat. 4, PL e or SIL 3
- Standardized integration interfaces such as FDT/DTM, team engineering and Automation Interface
EasyWizard software engineering: Ready to start in three minutes

EasyWizard is an extremely fast commissioning assistant within the IndraWorks DS engineering framework. It guarantees easy and error-free commissioning of the drive controllers in conjunction with linear motion systems in the EasyHandling modular system.

Fast, easy and reliable commissioning
Commissioning the IndraDrive Cs compact drive has never been faster, but is still safe. The commissioning time has been reduced from the previous time of 90 minutes to around three minutes. The linear motion system data can now be entered easily and intuitively; it is even possible to read in the mechanical data using QR codes. A type plate adapted for the assistant on the linear motion system makes commissioning easier than ever before.

Advantages resulting from special product features
- Simple, fast and intuitive commissioning of drives
- Extremely short commissioning time of around three minutes possible
- Reading in of mechanical data also using QR codes
- Text-based and graphical online help for individual input fields
- Incorrect parameterization is minimized by homogeneous arrangement of data on the type plate and the Wizard input screen
- Plausibility check during free data input
- Suitable for all linear motion systems from Rexroth
- For system optimization, the axes can be run in test mode after parameterization has been completed

Key technical data
- Input of the linear motion system mechanical data
- Optional input of the maintenance period for the linear motion system
- Setting the absolute values
- Setting the limit values
- Call up the Easy Startup Mode

www.boschrexroth-us.com/innovations
Open Core Engineering: Redefining freedom and efficiency

Open Core Engineering not only simplifies your software engineering, but also gives you more freedom and flexibility. Now you can choose between various standard languages for programming, integrate smart devices into your automation solution and carry out individual software functions in real time.

**Unique flexibility in programming**
Open Core Engineering combines the previously separate PLC and IT worlds in one integrated range of solutions based on open standards, software tools, function packages and the Open Core Interface to enable new freedom. This bridge combines classic IEC engineering with the new possibilities of standard language programming. Furthermore, from enhanced access to the control core, individual real-time control functions can be implemented quickly and independently. The result: More flexibility, individuality and long-term reliability for machine manufacturers and end-users.

**Advantages resulting from special product features**
- **Flexible:** Standard-language programming in parallel with classic engineering in IEC 61131-3
- **Innovative:** Integration of smart devices and IT technologies in the automation application
- **Individual:** Fast and economical implementation of individual real-time control functions
- **Efficient:** Simplified engineering using preprogrammed function packages and efficient software tools
- **Reliable long-term:** Reliable operation using tried and tested solutions based on open standards

**Key technical data**
- Standard-language programming: C/C++, C# (.NET), Visual Basic, VBA (Office), LabVIEW G, Objective-C, Java
- Development environment: MS Visual Studio, LabVIEW, Eclipse, Xcode, Wind River Workbench
- Smart devices: Supports Google Android and Apple iOS operating systems
Innovations in linear motion and assembly technology: Precision, efficiency, and ergonomics

Whether you need to move heavy loads accurately at high speeds, transport them through precision assembly operations or develop leaner, more ergonomic work environments, Rexroth’s newest linear motion and assembly technologies offer numerous economical, productive solutions. Take advantage of our process expertise, too, including our easy-to-use, intuitive simulation and planning software, MTpro, which makes it easier than ever to design aluminum framing or conveyor applications.
CKL compact module: Combines the speed of a belt drive with the accuracy of a ball screw

With the CKL Compact Module, Bosch Rexroth is expanding the modular EasyHandling system with highly dynamic axes integrating a direct linear motor. This gives OEMs and systems integrators a wide range of possible applications and flexible system solutions.

**High power density with ultra-precise motion & accuracy**

The compact, powerful and versatile CKL Compact Module with ironless linear motor offers a unique linear motion solution for applications where high dynamics and excellent positioning accuracy are required. The CKL Compact Module supports high load ratings and high rigidity; by integrating the ironless linear motor into the module, no mechanical elements are required to execute movement, making for a wear-free and zero-backlash drive that enables ultra-precise positioning.

The module integrates two ball rail systems for zero backlash, allowing optimal tracking at high load ratings. As a key option in the Rexroth EasyHandling platform for faster engineering and commissioning of a wide range of handling systems, the CKL Compact Module is ready to install, available in a variety of pre-configured lengths up to 5500 mm. This flexibility extends to the linear motor power ratings: the combination options allow system designers to select the appropriate module size and linear motor to meet a wide variety of requirements on the axes.

**Advantages resulting from special product features**

- High power density at cost-effective price
- Integrates ironless linear motor and two ball screws
- Precise, highly dynamic positioning and enhanced synchronization
- Same outside profile dimensions as the rest of the Compact Module (CKx) family of linear components

---

**Key technical data**

- Ready to install with EasyHandling interfaces
- Travel velocities up to 5 meters/second
- Acceleration up to 150 meters/second
- High load ratings and high rigidity
- Perfect tracking, high positioning and repeatability accuracy
- Available with controller and control system
- Contactless drive—no moving parts
- Low maintenance costs due to wear-free motor and central relubrication options
PLSA planetary screw assembly: High movement speed, heavy bearing load, low costs

With the newly developed planetary screw assemblies, Rexroth has expanded the range of uses of electromechanical applications to include the fast movement of heavy loads – with the same performance data and competitive price-performance ratio.

Key technical data
- Numerous large contact surfaces
- No feedback and no contact between the planets
- Guided planets using synchronization
- Compact design
- Rolled spindle

Compact, robust, economical
Rexroth uses its experience gained from cost-efficient roller processes when manufacturing spindles, so that they can offer the planetary screw assemblies at a lower price than that of their competitors, with the same performance.

A higher load-bearing capacity than that of ball screw assemblies can be achieved in the same amount of installation space. The numerous large contact surfaces also ensure a high level of rigidity, long service life and a high level of efficiency. And because there is no feedback and no contact between the planets, significantly higher movement speeds can be achieved.

Advantages resulting from special product features
- High load-bearing capacity and rigidity thanks to numerous large contact surfaces
- Small installation space thanks to increased power density
- Quiet operation due to guided planets
- Different nut types available
- Reduced lubricant consumption due to effective seals
- Economic solution thanks to rolled spindle
EMC-HD electromechanical cylinder: The energy-efficient alternative to hydraulic cylinders

The robust electromechanical cylinder has been developed for use in heavy load applications. Designed as a completely modular system with integrated planetary or ball screw assemblies, it is designed for cost-efficient work, even under tough conditions.

The robust completely modular system
The new electromechanical cylinders have been created to provide long service life under tough conditions: With perfect sealing and without leakage, a high IP protection class and a high level of corrosion protection can be achieved. The precision-rolled screw drives position accurately and powerfully, but at the same time are characterized by a high level of cost effectiveness with low operating costs and high energy-efficiency. The configurable servo drive can be programmed freely, and process parameters can be changed easily – you can therefore also carry out complex processes accurately and adapt them at any time.

Advantages resulting from special product features
- Simple, robust assembly for long service life, even in tough environments
- Complete modular system and great variability
- With precision-rolled screw drives for high power with maximum cost-effectiveness
- Complete system ready to install and use
- Configurable electromechanical servo drive solution for free programmability and carrying out complex processes

Key technical data
- Dynamic load rating (Cdyn): 50 to 470 kN
- Axial force: Up to 290 kN (tension/pressure)
- Max. travel speed: 1 m/s
- Stroke: Up to 1,700 mm
- Protection category: IP65
Ball screw assembly configurator: Available online at any time

Rexroth presents our online configurator for ball screw and planetary screw assemblies: Ready 24 hours a day, 7 days a week. You can design your specific solution and request a quote for your design quickly and easily.

Configured easily, delivered quickly
Once again, Rexroth is one step ahead: The new online configurator provides an unbeatable fast and easy way to specify and request quotes. You can view standard components directly or be guided through the configuration process interactively. With images and guidance at every step, getting exactly what you want is easy. No matter what you specify, 2D and 3D data is available to download in common formats.

These new configurators are integrated into the Rexroth eShop at www.boschrexroth.com. Follow the eShop links to the linear portion of the catalog and choose Screw Assemblies. North American customers may use the “Request quotation for selected products” option.

Advantages resulting from special product features
- Easy and fast design using image-guided configuration
- Intelligent and comprehensive, encompassing everything from precision to preload
- Available 24 hours a day, seven days a week
- 2D and 3D data available to download in all common formats
- Available online anytime and anywhere

Key technical data
- Complete range of sizes shown
- End processing customized for customer requirements or according to the catalog
- All configuration options available

www.boschrexroth-us.com/innovations
EcoShape: Easy³ – versatile, simple, efficient

Manufacturers require the ability to adapt quickly and become more lean in their processes. With EcoShape’s smart design, you can implement all of your ideas with just a few components – from material shuttles and flow racks to entire assembly islands. The system is based on aluminum components, so say goodbye to paint chips and rust. Design and planning is easy too, with MTpro with Layout Designer.

Unmatched versatility
EcoShape is unmatched in its versatility: It makes an almost unlimited number of designs possible with just a few components. The only tubular framing system of its kind, it is T-slot enabled and fully compatible with the profiles in Rexroth’s Modular Aluminum Framing System and Manual Production Systems. This system truly allows you to build everything from simple to complex structures for many different needs.

Strikingly simple
It’s child’s play to create new solutions or expand existing ones with EcoShape: The connection elements allow for variations in tube length, making cutting and assembly possible with hand tools. Additionally, the MTpro Layout Designer allows you to interactively design multiple EcoShape structures without a CAD system, and still output a BOM and cut list.

Advantages resulting from special product features
- Unique flexibility and versatility for the widest variety of combinations
- Achieve high stability with aluminum tubes and ingeniously engineered connector technology
- Poka-yoke design saves time and eliminates mistakes during the assembly process
- No paint or rust – easy to reuse or recycle
- MTpro planning software – fast, reliable planning
- Design variety – with only 19 standard components
TS5: Bear heavy loads with careful handling and support the changing landscape in your production facility

TS5 conveyors extend Rexroth’s industry-leading TS family of modular conveyors into applications requiring load capacities up to 300 kg (660 lbs). TS5 is designed for a wide range of flexible assembly and material transport applications, and can be integrated with both automated and manual assembly operations. All components are modular, pre-assembled and can be combined as needed allowing for easy system expansion or reconfiguration in the future.

Driven by high-quality technology: the king shaft
The TS5 transfer system with king shaft offers you considerable advantages compared to the usual chain drives.
- Absolutely maintenance-free – no oil or lubrication!
- Noise-free operation
- High energy efficiency through effective performance with low drive force requirements
- The chainless drive gives you exceptional planning freedom, with branches available to both sides of the main line as an example.

Fast, cost-effective system planning and expansion
All components of the TS5 system can be found in Rexroth’s MTPro planning software. There, production staff can envision and plan the system in the user friendly MTPro Layout Designer, while engineers can obtain CAD models of all relevant components for further design and integration. The TS5 is an economical choice thanks to low purchase, start-up, and operating costs throughout the life of the system.

Advantages resulting from special product features
- Reliable construction and fast commissioning: Industrially manufactured modular system with standardized components, resulting in short delivery times
- High system uptime thanks to the maintenance-free king shaft drive concept. No need for lubrication and greasing.
- Sturdy design: Suitable for particularly harsh production environments and heavy loads
- Easy ordering thanks to compatibility with the entire assembly technology product range

Key technical data
- Transports loads of up to 300 kg
- System widths of 455 mm, 650 mm, and 845 mm
- Fully assembled base pallet (impact protection, guide components, exciter plates)
- Plate and base pallet are connected via positioning bushings
- Sizes for workpiece pallet bases: edge lengths ranging from 455 mm to 1240 mm are available
Workplace layout: Ergonomics designed in detail

Whether it is proper seating in the new dynamic swivel work chairs, predictable grasping of parts with grab containers for lean racks, or making it easy to reach and retrieve with standardized tool holders, Rexroth improves the ergonomics in the workplace in every detail and supports you with well-thought-out optimization for an aging society.

Optimized work

Rexroth develops optimized workplaces according to the rules of ergonomics or Methods Time Measurement (MTM):

A series of chairs for dynamic seating with perfect lumbar support, tactile feedback for predictable grabbing and ergonomic tool holders for short and defined movement sequences.

In this way, users can guard against medical conditions which can arise due to incorrect posture and static strain. This not only improves ergonomics, but also the processes, and not least the health of employees.

Advantages resulting from special product features

- Synchronous technique and weight regulation for swivel work chairs promotes dynamic sitting, so that employees sit in a healthier way
- Standardized tool holders keep tools available in defined places for fast reaching, grabbing and retrieving actions
- Grab container with dividers can be adapted to the customer’s individual system, and therefore reduces costs according to lean and MTM principles

Key technical data

- Swivel work chair: Four design versions – textile, PU, artificial leather, ESD
- Chair with synchronous technology, weight regulation and perfect lumbar support
- Ergonomic tool holders with space for lettering
- Standardized components in accordance with MTM
- All components are conductive for safe use in EPAs (Electrostatic Protected Area)
MTpro with Layout Designer: Assembly system with ergonomically optimized 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 materials.

Perfect simulation as early as the planning phase
Using simulation, MTpro facilitates the ergonomic design of work systems as early as the planning phase, complete with calculation of bill of material. Using the intuitive operating concept of the Layout Designer, you can create complex designs and system layouts yourself in a short period of time.

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 systems.

Advantages resulting from special product features
- ManModel: Standardized models of human forms for men and women in three sizes – small, medium and large
- 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

Key technical data
- Electronic product catalog for assembly technology
- Product configuration and calculation of order lists
- CAD library with direct interfaces to all common CAD systems
- Layout Designer for planning frames, work systems and assembly systems
- Man models for simulating reaching distances and visual fields in CAD systems and the Layout Designer

www.boschrexroth-us.com/innovations
Energy savings, noise reduction, fast delivery: System and process innovations with immediate benefits

Reduce energy use by up to 80% and noise by up to 20 dB (A) with our Sytronix variable speed pump drive—the combination of robust hydraulics and efficient electronics. Pre-configured systems offer immediate payoff in both new machines and retrofits. RexPak hydraulic power units accelerate quoting and delivery of high performance systems. Fast delivery also applies to the thousands of drive & control products available through our GoTo Focused Delivery Program. GoTo streamlines selection, ordering and delivery of our most popular products.
Sytronix SvP 7000: Dynamic, compact, energy-efficient

The comprehensive portfolio of pre-configured Sytronix SvP 7000 complete sets has been expanded with direct-coupled MPA01 motor-pump assembly groups. Take advantage of the benefits offered by these customized, compact solutions which can be easily installed: In small spaces, you can not only be sure of less noise, but above all of greater dynamics with an energy saving of up to 80%.

High-performance – finely scalable, highly efficient
The SvP 7000 system consists of a pump which is optimized for variable speed operation, a highly dynamic synchronous servo motor and a compatible servo inverter, along with accessories. A completely modular system with finely scalable performance levels, which have been extended to a maximum of 480 l/min (127 GPM) and can be optimally adapted to a wide range of requirements. SvP 7000 drives work in an open circuit or can provide 4-quadrant operation in a closed circuit. When interconnected in cascade systems, they are suited even for extremely high performance in plant manufacturing. For maximum performance with optimum efficiency.

Advantages resulting from special product features
- Lower noise levels and lower weight
- Compact, as additional couplings, bell housings and pump supports are not needed
- Improved motor cooling thanks to optimized heat transfer from the motor to the pump
- Improved energy efficiency and dynamics due to reduced moment of inertia
- Practical: Ready-to-install pre-assembled motor-pump assembly group
- All-purpose: Liquid-cooled motor also available in stainless steel

Key technical data
- System performance of pre-configured sets extended from 60 l/min to 480 l/min (16 GPM to 127 GPM)
- Finely scalable performance levels – economy, standard and advanced
- Up to 150 mm (5.9 inches) shorter installation length: 25% more compact in the upper power range
- Various combination possibilities for optimum scaling
- Nine motor installation lengths, eleven nominal pump sizes

www.boschrexroth-us.com/innovations
Sytronix DFEn 5000: Energy efficient variable speed hydraulics

Sytronix DFEn 5000 variable speed pump system is based on proven axial piston pump designs. In combination with a VFD drive, the DFEn provides optimal energy efficiency, high dynamics, flow and pressure control. Easy to install and configure, it provides the efficiency advantage of Sytronix Drives.

Advanced performance, highly efficient and reliable
The Sytronix DFEn 5000 closed-loop pump system consists of a variable displacement axial piston pump driven by an asynchronous motor-VFD drive combination. Digital on-board electronics calculates the most efficient drive speed and pump swivel angle. When pressure holding, the pump is swiveled to a reduced displacement and the drive speed is lowered to maximize drive efficiency.

Sytronix DFEn 5000 is available for open loop hydraulic systems and provides system pressure and flow control. It covers power ranges up to 850 HP and is ideal for use in the press, plastics, wood processing and metallurgical industries.

Advantages resulting from special product features
- Direct control of VFD speed by the DFEn pump
- Ideal as a retrofit for existing designs
- Minimal design effort
- Suitable for a wide range of systems
- Low installation and start-up costs
- Low operating noise

Key technical data
- Integrated electronic pressure and flow control
- Advanced interface to PLC machine control
- Available on A10 and A4 series pumps
- Power to 850 HP
- Pressure up to 5000 PSI
- Available in SAE and ISO versions
RexPak: Unique designs and fast delivery by streamlining the engineering process

High quality hydraulic power packs manufactured within days are a reality with Bosch Rexroth’s RexPak design configurator software. The RexPak hydraulic power unit bridges the gap from standard market products to engineered-to-order, custom power units for a variety of industries from machine tool applications on the shop floor to marine and offshore work miles from land.

Unique designs with unmatched options
RexPak has been designed to industrial standards and features a wide range of fixed and variable displacement pumps along with an unmatched choice of options and accessories to meet your application needs. At the heart of all RexPak units are the same high quality components found on all Rexroth power units. Every component has been preselected and tested by Rexroth’s applications engineering specialists. RexPak is optimized to yield the smallest footprint possible without sacrificing functionality and durability.

Quick, dynamic quotes and fast delivery
With comprehensive documentation and a highly streamlined process, the RexPak system opens a broad range of high-performance, small-footprint power units, built and delivered with exceptionally short lead-times: for certain configurations, delivered in four to eight weeks.

Advantages resulting from special product features
- Manufacturing expertise and the highest design standards with an available 3 year warranty
- RexPak Design Engine: Custom designs with off-the-shelf efficiency and quotes in 24 hours!
- Accessories matching a variety of configurations, applications and industries
- Learn more by visiting www.boschrexroth-us.com/RexPak

Key technical data
- Up to 200 U.S. gallon reservoir, includes baffle, cleanout cover and optional drain valve
- Drip tray, 1.5” or 110% reservoir capacity
- Up to 65 U.S. GPM
- Up to 3200 PSI working pressure
- Up to 75 HP motor (single-phase & three-phase with many voltage/frequency options)
- For additional information, see brochure RA 51310

www.boschrexroth-us.com/innovations
GoTo Focused Delivery Program: Changing how we serve your needs

From advanced front-end ordering and configuration technologies (such as our GoTo Products Apps) to expanded production facilities and regional distribution, we continually invest in optimizing the GoTo Program to give you the product selection, ordering and delivery experience that aligns with the best consumer-driven fulfillment models.

The Products You Need, When You Need Them

In today’s ultra-competitive manufacturing marketplace, every second is vitally important. Bosch Rexroth is ready to help: our GoTo Focused Delivery Program puts the technologies you need at the ready—to help you sharpen, and maintain, your competitive edge. We created the GoTo Program not just to improve our ability to serve your needs—we created it, and continue to improve it, to enhance your ability to deliver the products and solutions your customers need—faster than ever.

With our GoTo Program, we’ve streamlined everything to make sure you have the world-class drive, motion and control products you need when you need them. And we continue to expand the GoTo Program, adding more products in more categories to meet the demands of today’s rapidly changing marketplace.

Backed by a proven process, the GoTo Program consistently sustains an on-time delivery record of over 95%. So whatever your needs are—prototype development, need for spare parts or faster time to market—count on the GoTo Program to contribute to your success.

Advantages resulting from special product features

- Faster prototyping and systems integration
- Improved ability to commit to deadlines
- Minimize downtime and maximize productivity
- Enhanced local sales and service support
We are Bosch Rexroth. 
The Drive & Control Company.

It takes more than superb technology to create intelligent motion. Every day, we share with our customers a passion for engineering excellence – this is what drives us. Our investment in innovation includes our commitment to solve the unique challenges local markets present, across the globe. Each product and solution must satisfy the requirements for that one-of-a-kind market – nothing less will do.
The data specified above only serve to describe the product. As our products are constantly being further developed, 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.