Thinking ahead. Driving forward. Leading the way.
Product innovations in 2016
The perfect solution: innovation by Rexroth

There are different notions of "innovation" across the globe: In developed nations, it is usually driven by technology and focuses generally on faster, higher, farther. In other areas, it is solving a problem with sophisticated technology, as few resources as possible and a purely functional design – only those who understand the local demands and work with researchers and developers to create custom solutions can do justice to the individual ideas of innovation in an interconnected world.
This is why, at Bosch Rexroth, regional developers work closely together with their network of international colleagues. The result is innovation in virtually every field of application and in every sector. They set global benchmarks and assist customers on site every day.

This is why we invest heavily in research and development each year, and not just with money, but with the creativity of thousands of engineers. Our R&D quota has been above the industry average for years. More than 2,100 specialists work at Bosch Rexroth on new products, solutions and services. They identify long-term megatrends that indicate changes in markets, society and legislation. For instance, the "Internet of Things" has been in the spotlight for years. We use this to systematically formulate short-term and middle-term requirements that we meet using developments based on well-known technology.

At the same time, we continue to develop existing solution concepts for the long term or look for new approaches. For us, innovation is always multi-faceted, and always means improvements for machine manufacturers and users. This is why Bosch Rexroth, itself, also consciously acts both as a supplier and a user in the field of machinery automation for example. In 2014 one of its assembly lines won the Industry 4.0 Award for the best networking of people, machinery, and processes. The key lies in consistent Open Core Engineering, appropriately equipped components and an optimal production network. Offering continuously improved modules every step of the way – this is the goal of Bosch Rexroth. A commitment to innovation that we, as the global market leader, also have in your sector.

Discover some of the most important innovations from the previous and next six months here.
Overview

From the latest hydraulics solutions to special interfaces for Open Core Engineering, to convenient online linear technology configuration wizards – this brochure provides an overview of substantial innovations at Bosch Rexroth. Detailed descriptions of completely new developments and significant improvements. Technical highlights to help you increase productivity and reduce operating costs. Permanently. Get inspired.

In order to help you with the steadily growing networking required for Industry 4.0, we at Bosch Rexroth have developed a connectivity strategy called "Sercos & Multi-Ethernet". With Sercos®, we combine the i4.0 requirements for real-time, efficiency, multi-protocol capability and IT integration independent of the manufacturer. With Multi-Ethernet, we ensure the simple integration of controllers and components using the most common supplemental communication protocols. For a seamless i4.0 world.

Multi-Ethernet refers to the multi-protocol capability of networkable Rexroth products. Combining Sercos with other common communication protocols (PROFINET, EtherNet/IP, EtherCAT, POWERLINK, VARAN) allows for de facto uniform integration of all automation components.
Comprehensive web services using QR codes on products

Hydraulics

CA10 to CA40 Hägglunds drives
CCe 400 Hägglunds drive
VT-HMC hydraulic motion controller
IndraMotion MLC motion logic control for hydraulic drives
IAC Multi-Ethernet control valves
2WFCE built-in throttle valve
Z2DB and Z3DR sandwich plate valves
4WRLE-4X directional control valves
HEDE10-3X pressure switch
A4CSG ATEX high-pressure variable pump
HPC hydraulic pump controller
210/250 LD duplex filters
50FLDK duplex filter
ABPAC Basic standard power unit
CytroPac Multi-Ethernet power unit
SHA40 servo-hydraulic linear axis
SYHDFE pressure and flow control system
CIMSmart measuring system

Electric drives and controls

Open Core Engineering
Open Core Interface for controls
Open Core Interface for drives
WebConnector communication interface
IndraWorks engineering software
IndraMotion MLC motion logic system
IndraMotion MLD motion logic system
IndraMotion MTX CNC system
IndraMotion MTX micro CNC system
IndraControl XM12 control
IndraControl XFE extension modules
IndraControl FM control
Sercans Sercos master module
IndraControl VEP embedded PC
IndraControl VAM15/VAM21 machine control panels

NY4114 high-performance multi-axis controller
LMS linear motion system
IndraControl S20 for Safety I/O modules
IndraDrive drive technology with SafeMotion
IndraDrive ML drive system – for high power
IndraDrive Mi cabinet-free drive system
EFC 3610/5610 frequency converters
IndraDyn S MS2N servo motors
Nexo cordless nutrunner system
Process Quality Manager control management
PRC 7300 medium-frequency welding controller

IMS-A integrated measuring system
EMC-HD electromechanical cylinder
EMC electromechanical cylinder
LinSelect selection and sizing tool
Online screw assembly configurator

ActiveAssist worker assistance system
ActiveCockpit interactive communication platform
VarioFlow plus chain conveyor
ActiveMover short-cycle transfer system
TS 5 transfer system
Ergonomics app

Overview of variable-speed pump drives
SytronixSize sizing tool
Sytronix FcP 5020 and DRn 7020
Sytronix SvP 7020 and EPn 7020
Sytronix DFE

Drive & Control Academy
Industry 4.0 qualification package

This brochure also contains product announcements. See your sales contact for more detailed information on availability.
Brilliantly simple: access to product information, web services and tools

Access to all product information, start-up wizards, hotlines, spare parts and even order requests at any time directly on the machine – would be nice, right? Rexroth makes it possible: by adding QR codes to our components and linking them to comprehensive online services. Everything you need to know about your product will be available with a click. Directly on your smartphone or tablet, automatically in six languages, and across every subject field. So you can make a decision faster. "Service 4.0" – it couldn’t be simpler!
Get all the information on a product more quickly
This new service by Rexroth does not look like much – just a small QR code, sometimes just 7 x 7 mm in size, but it opens a door to an entire world of information. Looking for your nearest service contact? Need a manual? Or product data? Information about commissioning? Simply use your smartphone or tablet to scan the QR code and you’ve got all the relevant information about the product immediately to hand. In the language version that you want.

Your key to our unique online services
The QR code therefore gradually becomes the master key providing easy access to an unrivalled range of online services and tools which Rexroth already offers, and is constantly expanding. Thousands of device numbers have already been incorporated into the system and linked up. More are added every day. Linking your catalog to the mobile pages of your service department will make you even more flexible, even faster and even more capable. Simple and highly efficient.

Your benefits
▶ Faster access to product data, documents and catalogs in your language, and contact information near you
▶ Works with standard smartphones and QR code readers
▶ Even easier access to Rexroth online services and tools – across all divisions (hydraulics, control technology, drive technology, linear motion technology, assembly technology)
▶ QR code reader function incorporated into product-related Rexroth apps
▶ Automatic commissioning operations can be carried out using apps
▶ Links to eCatalog and eShop will allow for even faster action

Product QR codes are placed on the nameplate of the component or directly on the front of the device for visibility. This allows them to be easily scanned with a smart device

Scan the adjacent code and find out even more about the QR code service concept by Rexroth
Hydraulics innovations: for better performance and consistent Industry 4.0-compatible engineering

From compact multi-speed drives, highly dynamic pilot-operated control and sandwich plate valves, the world’s first small ATEX high-pressure pump, the revolutionary CytroPac all-in power unit or consistent motion logic engineering tools – the system expertise of Rexroth can be felt in every detail of the latest hydraulic components. Intelligently perfected and completely networked to be future-proof. Why not experience the benefits yourself?
CA10 to CA40 Hägglunds drives: Small but highly efficient power packs

Smaller, lighter, more powerful: the new Hägglunds radial piston motors feature extremely high power density and in a small size. With an optimal power-to-weight ratio and a wide speed range, you now have more ways to improve your machines using a proven technology platform. And the best thing of all: the next expansion stage is already in progress.

Less weight, more torque, more flexibility
The new compact Hägglunds hydraulic motors rely on a technology that has proven itself in the rigors of industrial operations, and they have been continuously enhanced to keep pace with the latest market developments. The result is power packs with unrivaled flexibility and an extremely wide range of applications: smaller than comparable motors but with a wider torque range from 8 to 40 Nm/bar, these highly efficient Hägglunds motors can be ideally adapted to your application. You will be hard pressed to find higher power density in a smaller space.

Benefits resulting from special product features
▶ Minimal weight
▶ Wide speed range
▶ Trusted technology, low service life costs
▶ Optimal power-to-weight ratio for greater efficiency
▶ High level of torque with small size
▶ Compact design

Key Technical Data
▶ Specific torque characteristics:
  8 Nm/bar (CA 10) – 40 Nm/bar (CA 40)
▶ Displacement: 503 cm³/rev to 2,513 cm³/rev
▶ Speed: 280 to 350 rpm
▶ Max. operating pressure: 250 bar
▶ Connections:
  DIN 5480 N70 x 3 x 30 x 22 (CA10, CA20)
  DIN 5480 N100 x 3 x 30 x 32 (CA30, CA40)
CCe 400 Hägglunds drive: true multi-speed drive in compact form

Wherever a small, robust drive with true multi-speed is needed, the new Hägglunds radial piston motor can show off its strengths. With a wide displacement range and practical configurability for a variety of loads, whether radial or axial. You have the freedom to design your machines to be simpler and smaller. And work at high efficiency.

Smaller, lighter, more efficient
The goal in developing the new, robust Hägglunds hydraulic motors was to cover more areas of application through the multi-speed feature. Highly flexible due to their stable design that can absorb axial and radial forces, they unlock every possibility for you to design your machines to be simpler and more compact, even in the toughest of conditions. The CCe motor can be perfectly adjusted to your application and power requirements thanks to switchable displacement. We call this practical multi-speed.

Benefits resulting from special product features
- True multi-speed thanks to stroke adjustment
- Robust: designed for axial and radial loads
- Powerful: high torque with small size
- Flexible: compact design, minimal weight

Key technical data
- Displacement range: 7,550 to 25,100 cm³
- Max. continuous power: 1,350 kW
- Max. continuous torque: 130,000 Nm
- Max. speed: 100 rpm
VT-HMC hydraulic motion controller: optimal control of electro-hydraulic axes

The new VT-HMC motion controller is a digital control system featuring a built-in axis controller and IEC61131-3 programming. A motion logic system specially optimized for electrohydraulic axes – accessible programming and interfaces, future-proof scalability and consistent ease of use.

Best in Class: simple, open, scalable
"Simple" is the keyword with the VT-HMC: simple, highly dynamic control in all aspects (position, speed, pressure/force control, alternating control [position/pressure/force] and state feedback). Simple, seamless engineering. Simple communication and programming via open interfaces and commonly used bus systems for control, servicing and diagnosis. Simply better control of electro-hydraulic axes.

Benefits resulting from special product features
- The axis interface bundles PLCopen motion function modules into an easy-to-use interface for drive functionality: less programming code and more powerful commands speed up application development
- Practical initial parameterization wizard: menu-based drive start-up, including setting of controller parameters for faster hydraulic axis start-up
- Multi-Ethernet now includes POWERLINK
- Support for additional positional transducers: analog position transducers (current/voltage), binary SSI encoders, rotary encoders (incremental or SSI)
- Simple connection to higher-level PLC: new PLC function modules for Siemens S7 (Step7, TIA Portal) and Beckhoff (TwinCat) for drive-controlled positioning

Key technical data
- Connectivity with Sercos, Multi-Ethernet (PROFINET, EtherNet/IP, EtherCAT, POWERLINK) and PROFIBUS
- IEC 61131-3 programming
- Extended temperature range: −20 °C to +60 °C
- Extensive hydraulics libraries
- Scan time: 0.5 ms for force controller/1 ms for positioning controller
- Actual value detection: 4 analog inputs 1x linear measuring system (SSI, incremental or EnDat 2.2)
IndraMotion MLC: motion logic control for hydraulic drives

The new and improved IndraMotion MLC is a motion logic system which is not only optimized for hydraulic drive tasks but can also be used to operate electric, hydraulic and hybrid drives. With open programming and interfaces, as well as scalable hardware and software, it is consistently easy to use and can reduce your engineering workload by as much as 50%. A function toolkit designed especially for hydraulic drive tasks is just one of the many helpful features.

Quick programming, project planning, and commissioning
Every detail of the new IndraMotion MLC is the result of the know-how obtained from many of applications: intuitive control of every drive; S20 module support for incremental encoders; easy, wizard-supported configuration; open controller interfaces; or custom-scalable product range – a single tool gives you cross-technology control of your drives. You save time in programming, project planning, and commissioning, as well as in the traceability and corrective actions of faults.

Benefits resulting from special product features
- New hardware support: XM21, XM22, CML75 controllers; VPx industrial PCs; S20 2-axis module for connecting hydraulic axes to the MLC
- Auto-tuning and automatic path identification for quick hydraulic axis start-up for the position control
- The axis interface bundles PLCopen motion function modules into an easy-to-use interface for drive functionality: less programming code and more powerful commands speed up application development
- Enhanced synchronization functionality
- Rotary axis support (SSI/incremental encoders)

Key technical data
- Central control of up to 32 hydraulic axes
- Extensive hydraulics libraries
- PLC programming to IEC 61131-3 standard
- Connectivity with Sercos, Multi-Ethernet (PROFINET, EtherNet/IP) and PROFIBUS
- Scalable control system based on IndraControl L and XM hardware
- Flexible, hydraulic-specific I/O axis in a modular or block design
IAC Multi-Ethernet control valves: open, simple and individually scalable

Rexroth has expanded its IAC Multi-Ethernet product range with new pilot-operated control valves with integrated axis controller. IAC Multi-Ethernet valves are robust and user-friendly, support all key bus systems using the "Sercos & Multi-Ethernet" connectivity strategy (including POWERLINK), are individually scalable and feature hydraulics-optimized control structures. The IndraWorks DS engineering environment offers intuitive control for fast and easy start-up, parameterization and diagnostics.

4WRPDH/4WRLD IAC Multi-Ethernet
Rexroth has acquired specialized know-how when it comes to understanding the correlation between hydraulics and motion control technology. This is the basis on which the control strategies for hydraulic and hybrid drives are optimized and translated into ready-to-use software. The result: highly precise, highly flexible, best-in-class hydraulic controllers. With a wide range of valve and axis control functionalities, you can individually address the needs of your applications. Maximum precision and functionality minimize your technical risk while reducing start-up costs. It doesn’t get much more efficient.

Benefits resulting from special product features
- Integrated digital axis control functionality with position, force and pressure control, plus alternating position/pressure or position/force control
- Consistent engineering with the IndraWorks DS engineering tool: faster and easy start-up, all components and support from a single source
- Flexible scalability: large selection of different valve types for greater operational flexibility
- Rugged and reliable: extended temperature and vibration ranges
- Wizard-supported configuration (with recommended values)

Key technical data
- Connectivity with Sercos, Multi-Ethernet (PROFINET, EtherNet/IP, EtherCAT, POWERLINK and VARAN)
- Max. operating pressure: 350 bar
- Max. flow: 1,500 l/min
- Sizes: 6, 10 (direct-controlled), 16, 25, 27, 35 (pilot-operated)
- Safer stopping with 24 V signal and 24 V valve feedback
- 2x analog I/O also configurable
2WFCE built-in throttle valve: more pressure, more power, more applications

With newly integrated digital electronics, the compact 2-way proportional throttle valves open up entirely new possibilities: with pressure resistance up to 420 bar, extended temperature range and optimized controller structure, you can now have greater power, dynamics and control quality in your applications. All with proven design and precision.

Complete, calibrated unit with the latest electronics
Next to the unique pressure resistance of 420 bar, the many optimized features make the latest 2WFCE throttle valve very practical. You get a fully configured, compact unit, calibrated at the factory, FEM-optimized, with integrated electronics and electrical position feedback. Optimize your controller parameters or output status information with ease, ensure the highest control quality, greater power density, shorter cycle times and the flexibility for new, extended applications – especially in systems that require greater power in a smaller space.

Benefits resulting from special product features
▶ Integrated electronics for better control and signal quality, and less hysteresis
▶ Increased pressure resistance for extreme power density, smaller system components, more applications
▶ Improved valve dynamics for greater control quality, shorter cycle times
▶ Proven compact design as a complete unit for quick practical application and reliable signal processing

Key technical data
▶ Max. operating pressure: 420 bar
▶ Max. ambient temperature: +60 °C
▶ Max. rated flow: 1,600 l/min at 5 bar Δp
▶ Hysteresis: < 0.1 %
▶ Response sensitivity: < 0.05 %
Z2DB/Z3DR sandwich plate valves: more power, more possibilities, fewer costs

The new direct-controlled pressure limitation and pilot-operated pressure reduction valves are the new benchmark in sandwich plate valves: with better performance (max. pressure up to 350 bar) and more applications (ATEX-compatible). These new valves are also highly responsive, quiet and stable, even with increasing flows.

350 bar max. pressure, increased productivity

With these vertically stackable pilot-operated or direct-controlled valves, Bosch Rexroth brings a new generation of sandwich plate valves to the market. They feature not only improved performance data, but also more application opportunities – ATEX compatibility means special types are no longer necessary; the anti-corrosion version means additional rust protection is also no longer required. Two or three selectable adjustments, measuring ports in Channel A, B or P, ISO 4401-03-02-0-05 connection diagram. The valves are highly responsive, operate quietly and are largely leakage-free. Integrated shock absorption creates extremely stable operation and low pressure build-up with increasing flow. All at a very attractive price.

Benefits resulting from special product features

- More power: 350 bar max. pressure for increased productivity
- Safer: approved for use in ATEX zones with ignition risk analysis (no special types necessary)
- More rugged: optional corrosion protection
- More cost effective: attractive price/performance ratio

Key technical data

- Sizes: 6 and 10
- Max. pressure: 350 bar
- Flow: max. 60 l/min (size 6) and 120 l/min (size 10)
- For fluids: HL, HLP, HFC, HDFR, HEPG, HEES, HETG, etc.
- Approved for use according to ATEX Directive
4WRLE-4X directional control valves, sizes 10/35: powerful and dynamic control

Total electrohydraulic control: the latest pilot-operated control valves are ideal for all moderate- and high-dynamics application – including the most demanding tasks as well as position, speed, pressure and force control. With high flow and a max. pressure of 350 bar, they are designed for a wide range of practical applications.

High volume, maximum pressure, extreme dynamics
The latest from Rexroth are pilot-operated 4/3-way control valves with highly dynamic properties. Greatly improved product features allow them to master even demanding control tasks with ease. With a high flow of up to 4,700 l/min and a max. pressure of 350 bar, they guarantee fewer pressure drops, faster motion sequences, greater power density, and greater stability and control quality. You get increased energy efficiency, more productivity and use less space. All with maximum control.

Benefits resulting from special product features
- Reliable: proven and robust design
- Secure: main valve control spool spring-centered in neutral or offset position
- High quality: pilot control valve control spool and sleeve in servo quality
- Versatile: suitable for the position, speed, pressure and force control
- Precise: high response sensitivity and low hysteresis
- Fast: shorter cycle times, greater productivity
- Flexible: with GoTo coverage for immediate delivery of preferred types

Key technical data
- Max. operating pressure: 350 bar
- Max. rated flow: 1,500 l/min
- Max. flow: 4,700 l/min
- Ambient temperature range: −20 °C to +60 °C
- Improved dynamic properties
  (jump response time and frequency response: -90 °)
HEDE10-3X pressure switch: handles 60 million load changes with ease

The electronic pressure switches operate not only quickly and precisely, but also reliably – the compact switch was tested with 60 million load changes without one single issue. While this increases both service life and operational reliability, you benefit from cost-effectiveness.

Key technical data
- Pressure ranges: 0 to 100/250/400/600 bar
- Characteristic curve deviation: < ±0.5 %
- Ambient temperature range: -20 °C to +80 °C
- Signal rise time: < 3 ms
- Hydraulic port with female (G1/4i) or male thread (G1/4a)
- IP67 rating

Compact, fast, accurate
The new pressure switches are used to measure pressure in hydraulic systems. And they do this with speed and accuracy: with extremely fast response times under 3 ms and characteristic curve deviations of less than 0.5 %. They also come in an extremely compact housing, which saves you space. Even under adverse conditions: these rugged switches have the IP67 rating and guarantee low failure rates across a long switch life.

Benefits resulting from special product features
- Efficient: tested in up to 60 million load changes for long service life and high operational reliability
- Fast: extremely fast response time for rapid control and better production quality
- Precise: thanks to low temperature sensitivity and minimal characteristic curve deviation
- Rugged: IP67 rating for low failure rates
- Simple: compact design saves space
A4CSG variable pump, sizes 40 to 180: the world's first small ATEX high-pressure pump

There has yet to be an ATEX model like this: small, powerful, closed-circuit high-pressure pumps in sizes 40 to 180 cm³. This completes the one-of-a-kind Rexroth platform of small, explosion-protected axial piston pumps for up to 500 cm³, whether 2G or 3G. For new areas of application, for precise control of entire ATEX systems with compact and efficient units.

Saves energy, saves money
Proven technology meets greater safety: the latest generation of small ATEX or IECx high-pressure pumps is setting the standard. With a highly efficient design, any mechanical-hydraulic adjustment is possible, even in explosive environments; EP controller also available for electrohydraulic adjustments. An optional position transducer allows you to control entire ATEX systems precisely and efficiently, improving safety standards. This saves you money.

Benefits resulting from special product features
- Flexible: complete range of small ATEX pumps in the device group II (2+3)G bck IIB T4 under Directive 94/9/EC
- Precise: control entire systems with precision using AWXFE004D01 position transducer
- Universal: mechanical-hydraulic and electrohydraulic adjustments (with EP controller) possible, ATEX- and IECx-compatible
- Proven technology: rugged, precise, energy-efficient – and reliable

Key technical data
- Max. nominal pressure: 350 bar
- Sizes: 40, 71, 125, 180 cm³
- Max. speed: 1,800 rpm (higher speeds during testing)
- Through-drive with 100 % torque for tandem pumps
- Optional: EP controller (ATEX or IECx) and ATEX position transducer
HPC hydraulic pump controller: more intelligent control – simple, open, scalable

Better control quality, better hydraulic energy efficiency – with the new cabinet-based HPC control electronics, these are now standard. The best-in-class pump controller gives you one tool for every engineering task: simple, open for networking via numerous bus communication interfaces and flexibly scalable for your needs. In short: intelligently future-proof.

Multi-Ethernet connection: simpler control of A4 axial piston pumps

Automation made easy: the best-in-class HPC pump controller can be incorporated into any structure using a Multi-Ethernet interface – for creating open, future-proof machine concepts. Planning, visualization or diagnostics, you can do it all with the cross-technology IndraWorks engineering environment. You have never had easier access to your digitally controlled pumps. With these intelligent HPC controllers, you can even reduce installed power, peak loads in power consumption and even average energy consumption. Could it get any better?

Benefits resulting from special product features

▶ Simple: take on any engineering task with a single tool (IndraWorks)
▶ Fast: easier start-up, better dynamics
▶ Open: Sercos and Multi-Ethernet connection to existing control architecture, simple diagnostics, quick service thanks to Ethernet-based TCP/IP service interface
▶ Flexible: scale functionality and communication with ease in the software

Key technical data

▶ Connectivity with Sercos, Multi-Ethernet (PROFINET, EtherNet/IP, EtherCAT, POWERLINK) and PROFIBUS
▶ TCP/IP service interface
▶ Pressure and swivel angle controller with torque limiter
▶ Extended temperature range: –20 °C to +60 °C
▶ CE mark as per Directive 2004/108/EC
210/250 LD duplex filters: highly efficient 250 bar with pressure equalization

The new 210 and 250 series duplex filters now utilize the patented Cyclone Effect – for extremely effective filtering within the smallest space. Practical one-handed changeover with integrated automatic pressure equalization gives you easy and reliable control of operating pressures up to 250 bar.

Six sizes from 40 to 400: for smaller, lighter, more flexible filtering
The patented Cyclone Effect is also being used in the series for pressures of 250 bar. Highly effective, state-of-the-art filtration of microparticles and extensive contamination: efficient, compact and inexpensive with more time between replacements. The automatic pressure equalization integrated in the stop-cock changeover makes one-handed operation extremely easy and reliable. And the numerous ports give you the utmost flexibility.

Benefits resulting from special product features
▶ Highly effective and powerful: better filtration, better collection, more time between replacements with the patented Cyclone Effect
▶ Compact: smaller, lighter – saves space and lowers costs
▶ Practical: one-handed operation with automatic pressure equalization
▶ Flexible: broad selection of ports and fasteners

Key technical data
▶ Max. operating pressure: 250 bar
▶ Max. operating temperature: 100 °C
▶ Three sizes: 0040, 0063, 0100; with 2 ports: G1 and SAE 1" – 3,000 psi
▶ Three sizes: 0160, 0250, 0400; with 2 ports: G1 1/2 and SAE 1 1/2" – 3,000 psi
▶ Filter with SAE 1 1/2" port (max. operating overpressure: 210 bar)
▶ Patented Cyclone Effect
50FLDK duplex filter: ultra-compact and mega-clean thanks to Cyclone Effect

You can see from the outside what they filter out: the new 50FLDK duplex filters are highly effective in a very small space, due to the cyclonic flow path (patented Cyclone Effect). This keeps the overall design very compact, especially with the integrated pressure equalization which eliminates additional piping. You have never kept hydraulic fluid cleaner with a lighter and more compact filter.

Small, light and with numerous ports
The latest generation of 50FLDK filters deliver high performance in the smallest space. The state-of-the-art, patented Cyclone Effect filters out microparticles and extensive contamination with outstanding effectiveness. You can work more efficiently, save more energy, save more space, go longer between replacements and lower your costs. Standard pressure equalization saves you additional piping and the variety of ports and standard wall bracket keep you flexible at all times. This is how hydraulics filtration is done.

Benefits resulting from special product features
- Highly effective and powerful: better filtration, better collection, more time between replacements with the patented Cyclone Effect
- Compact: smaller and lighter to save space and lower costs
- Flexible: broad selection of ports; wall bracket included, base optional

Key technical data
- Max. operating pressure: 50 bar
- Max. operating temperature: 100 °C
- Three sizes in DN65 to DN100: 0400, 0630, 1000; with 5 ports: SAE 2 1/2", SAE 4" and DIN flange available
- Three sizes in DN100: 2000, 2500; with 3 ports: SAE 4", DIN PN40/DN80, DIN PN63/DN80 and DIN PN40/DN100
- Patented Cyclone Effect
ABPAC Basic – the smart standard power unit: configurable, modular, connected

Intelligently customized: With the new standard, mid-sized power unit series, you can achieve individual solutions faster and more cost effectively than ever before. Easy online configuration, extensive documentation and communication via open interfaces. Upgraded sensor technology for intelligent condition monitoring. Energy-saving in day-to-day use. Readily available through the GoTo program. Now with an even wider range of pumps.

Key technical data
- Tank volume: 100 to 1,000 l
- Max. flow: 200 l/min
- Max. operating pressure: 315 bar
- Multi-functional block
- FcP 5020 and SvP 7010 Sytronix drives optional
- Integrated dampening function
- Simplified, flexible steel construction using the Rexroth basic mechanical elements

Tailor-made economy, intuitive control
All-round cost-effective and future-proof: these modular standard power units allow for agility when it comes to the demands of the market. An online configurator enables you to put together the motor-pump assembly, the control blocks, and the filters and accessories in a fully customized manner. With everything fully documented, including a stated, fixed price. Supported by open interfaces and the possibility to use remote services and condition monitoring via smart devices. A user-oriented introduction to Industry 4.0. The latest generation is suitable for far more areas of application thanks to an extended pump range, higher motor ratings, two motor-pump groups and country-specific acceptance. It all saves money – and energy during operation. And also time – selecting from the GoTo program ensures super-fast delivery schedules.

Benefits resulting from special product features
- Online configurator for the entire power unit
- Optimized tank volumes
- Extended pump range: A10 series 32, A4, V7
- Enhanced sensor technology as the basis of condition monitoring
- User-oriented, platform-independent visualizations on smart devices
- Connectivity via WiFi and open interfaces
- Upgraded motor rating to 75 kW
- Country-specific acceptance of memory, frequency and voltage
CytroPac hydraulic power unit: everything you need, fully networked

Lack of installation space is no longer an excuse to skimp on hydraulics power: Rexroth has radically redesigned power units up to 4 kW. Packed with everything you need for quick installation in a small space – including an economical Sytronix drive, completely wired frequency converter and Industry 4.0 interface. Just connect power, fluid and data interface, and that’s it. It doesn’t get more efficient.


Simply revolutionary: with CytroPac, every function is integrated in the smallest of spaces and packaged for low noise. And high efficiency: the variable-speed Sytronix drive always adapts to the desired power. This saves energy – between 30 % to 80 %! This reduces CO₂ emissions and allows you to lower your operating costs while complying with EU Directive 2009/125/EC. The integrated frequency converter acts as the control center: ready for use with the wired pressure, temperature, fill level, contamination and flow sensors, it provides all data to the machine controller via a Multi-Ethernet interface. This gives you an overview at all times, and allows you to control and monitor everything in real-time.

Benefits resulting from special product features

- Compact: space-saving, quiet design concept, ideal for machine tools
- Highly efficient: variable-speed Sytronix drive for on-demand power; latest heat pipe technology for water cooling
- Networked: completely wired frequency converter with Sercos and Multi-Ethernet interface; saves space and can even completely eliminate the control cabinet
- Practical: extensive sensors provide preventive condition monitoring in real-time; easy integration and start-up
- Future-proof: designed for use in i4.0 concepts

Key Technical Data

- Max. pressure: 100 bar
- Max. hydraulic power: 4 kW
- Max. flow: 35 l/min
- Max. reservoir volume: 20 l
- Compliant with EU Directive 2009/125/EC
- Connectivity with Sercos and Multi-Ethernet
SHA40 servo-hydraulic linear axis: self-sufficient, modular and optimally scalable

When Rexroth creates a new control axis using proven hydraulic and electric serial components, something great happens: a self-sufficient, completely pre-assembled servo-hydraulic linear axis for a variety of uses up to 2,500 kN. Modular design and practical scalability. Quickly installed and easily started up thanks to a single power socket and a single communication socket. All with outstanding energy efficiency and low noise.

Intelligent all-rounder available immediately
The latest linear axes were developed to be absolutely practical and future-proof: standardized assemblies containing proven serial components ensure immediate availability, optimal scalability and quick start-up. The IndraDrive controller with the latest Sytronix Position Force Control (PFC) technology package supports all common fieldbuses. The hydraulically optimized PFC software comes ready to use and performs all control tasks.

The SHA axes come completely pre-assembled and are started up by Bosch Rexroth. Just connect power and communications, and that's it. The operating software includes special SHA functions – complex traversing profiles can be configured without major effort.

Benefits resulting from special product features
▶ Modular and optimally scalable: thanks to standardized components
▶ Energy-efficient and noise-optimized: thanks to partial-load speed reduction and stand-by mode
▶ Easy start-up: completely pre-assembled and filled, easy control with IndraDrive and special operating software; electrical and mechanical interfaces only
▶ Self-sufficient and rugged: virtually wear-free operation; decentralized, closed fluid circuit

Key technical data
▶ Force range: 100 to 2,500 kN
▶ Max. traversing speed: 1,000 mm/sec
▶ Max. stroke: 1,800 mm
▶ Connectivity with Sercos, Multi-Ethernet (PROFINET, EtherNet/IP, EtherCAT, POWERLINK) and CANopen
▶ Pressure, temperature, efficiency condition monitoring
The new A10/32 size 45 high-speed pump, equipped with best-in-class standards in pressure and flow control, and power limitation, saves space, energy and costs. Available in all DFE system models. Paired with new Multi-Ethernet communication for a modern, energy-efficient pump system.

**Saves space, energy and costs**
The A10/32 series of Rexroth axial piston pumps, proven under the harshest conditions, has been expanded to included the size 45 high-speed version. With the various electronic versions, they are an unbeatable pairing.

The increased speed (up to 3,000 rpm) allows for a downsized pump. It is also possible to reduce installed power with the variable pump. This saves you valuable installation space and reduces investment and operating costs. All this with the usual proven pressure, delivery rate and power control precision.

**Benefits resulting from special product features**
- Compact: space-saving and cost-reducing with downsized pump and electric motor
- Energy-efficient: reduced installed power
- Open: connectivity with Sercos and Multi-Ethernet
- Powerful: higher max. speed
- Rugged: proven pumps and on-board electronics
- Variable: pressure control, flow control, p/W control, power limitation (optional)

### Key technical data
- A10 series 32 size 45 high-speed
- Speed: Max. high-speed: 3,000 rpm
- Max. flow: 135 l/min
- Nominal pressure: 280 bar
- Analog, digital communication
- Connectivity with Sercos, Multi-Ethernet (PROFINET, EtherNet/IP, EtherCAT, POWERLINK and VARAN)
CIMSmart: measure and monitor piston position and temperature without contact

The latest generation of the CIMSmart measuring system is fully integrated in the hydraulic cylinder and is based on the latest developments in the automotive industry. The position and temperature of the piston can be measured with ultraprecision and monitored at any time, even under the harshest conditions (such as on the high seas), and completely without contact. Reliability with proven Bosch Rexroth quality.

Plug-and-play: easy to install, easy to analyze
For over 20 years, the sensors of the Cylinder Integrated Measuring System (CIMS) by Rexroth have been reliably and precisely measuring the position of piston rods in thousands of hydraulic cylinders across the globe.

The latest generation has been developed in close collaboration with the automotive experts at Bosch. State-of-the-art technology from the automotive sector has been refined and optimized for the harshest industrial environments. The result: a contactless, highly precise measuring system that is easy to install, automatically compensates for external factors and whose status can be easily monitored at all times. Whether temperature or piston position – you are always informed. And you can avoid unforeseen standstills.

Benefits resulting from special product features
▶ Preventive monitoring: simple diagnostics and optimization for less downtime and greater availability
▶ Contactless measuring: piston and sensor are not impeded in any way and can operate reliably in the harshest conditions
▶ Easy installation and startup: plug-and-play without manual calibration
▶ Absolutely reliable position and temperature measuring at all times
▶ Backward compatible

Key technical data
▶ High precision: non-linearity < ±1 mm
▶ RS-422 output signal (1,024 pulses/cm)
▶ Wide temperature range from –40 °C to +70 °C
▶ High pressure resistance in (sea)water (IP68, 10 bar)
▶ Certified for potentially explosive environments (ATEX Zone 1 optional)
Innovations in the field of electric drives and controls: for maximum flexibility and improved efficiency

From the innovative linear motion system to one-of-a-kind multi-core CNC controllers or cabinet-free Industry 4.0 solutions, to total Open Core Engineering for individual real-time controllers – the latest drive and controller tools make your systems perform better, handle more easily and, most importantly, stay relevant where it counts.
Open Core Engineering: freedom and efficiency redefined

Open Core Engineering not only speeds up and simplifies your software engineering, it also gives you more freedom and flexibility for tomorrow’s production. State-of-the-art software tools and technology-oriented function packages based on international standards increase efficiency. With the Open Core Interface technology, you can connect your PLC-based automation solution to high-level language-based applications and the latest IT automation technology.

Unique programming flexibility
Open Core Engineering bundles the engineering portfolio for all software-based and intelligent solutions together with all drive and control technologies. Consistent software tools such as IndraWorks cover the entire engineering workflow, while function toolkits simplify the engineering of complex machine processes and allow for faster integration of new and innovative machine functions.

The Open Core Interface also provides direct access to control and drive functions with high-level language-based applications. This enables machine control units to be connected seamlessly to IT automation devices, data and services. Open Core Engineering provides new degrees of freedom in automation and bridges the previously separate worlds of PLC and IT automation in a consistent portfolio.
Benefits resulting from special product features

▶ Flexible: universal engineering framework for all automation tasks
▶ Efficient: technology-oriented function packages for reducing complexity
▶ Innovative: implement new solutions by bridging the gap to IT automation
▶ Customized: OEM-specific real-time functions on control systems
▶ Future-proof: multi-technological solutions that support open standards and interfaces

Software tools

Covering every step in the workflow – from planning to programming, to parameterization, commissioning, and service. Open standards are consistently applied to all engineering and communication interfaces to secure the investment in and integration of future technologies. At the center is IndraWorks, the engineering framework: it provides all the basic tools for PLC-based automation, including the homogeneously integrated CODESYS V3. IndraWorks offers integrated operating based on the latest Windows technologies with centralized project management and wizard-supported project planning of control units, drives and peripherals.

Function toolkits

These expand the PLC-based engineering by means of function-oriented solution packages, accelerate the implementation of machine processes, optimize project workflows and enable the integration of advanced machine functions.

Examples of system-dependent function toolkits

▶ Generic Application Template: automated, template-based creation of machine projects
▶ FlexProfile: toolbox for the implementation of nonlinear motion profiles
▶ Robot Control: toolbox for the implementation of multi-dimensional motion control
▶ Safety Manager: programming of the integrated safety control system SafeLogic

Examples of system-independent function toolkits

▶ Automation Interface: for accessing project data
▶ Communication: for OPC/OPC UA communication
▶ Team Engineering: connects version control systems
▶ Visualization: for creating user interfaces (HMI)

Open standards

Open standards in machine automation are the basis for the flexible integration of software-based solutions into the engineering and system environments of the user and for the migration of new technologies into existing automation structures.

Open Core Interface and its benefits

The software tools and function toolkits continue to bridge the gap between PLC-based and IT-based automation with innovative interface technology. This gives high-level language-based applications on external devices flexible access to all control and drive functions.

▶ Extensive support for high-level language-based engineering platforms
▶ Customized production of smart apps, integration of smart devices in the automation of machines
▶ Simplified simulation and optimization of machine processes
▶ Simple connection to Windows-based IT automation applications
▶ Direct integration of real-time functions in the control system (system-dependent)
Open Core Interface for Controls: new degrees of freedom for connecting PLC and IT

With the expansion of the Open Core Interface for Controls interface technology you now have even more options when developing plant and machinery. The Open Core Interface for controls gives you direct access to all control functions. And as a perfect base: now with support for MathWorks, Modelica-based tools and programming in Lua and Java. Take advantage of this freedom.

More options, more flexibility
Model-based engineering and rapid control prototyping offer new ways to increase engineering efficiency. Along with the software platforms MATLAB by MathWorks and LabVIEW by National Instruments that are already supported by Open Core Engineering, developers can now also use MathWorks Simulink and environments based on the open source modeling language, Modelica.

Open Core Engineering already caters for early phases of machine workflow with the option of integration in PLM tools.

Open Core Interface for Controls opens up new degrees of freedom for users to directly program control systems with flexible access to functions via high-level languages outside of IEC 61131-3. As well as support for the C/C++ for VxWorks languages, applications written in Lua and Java can be run directly on the control systems. Java, as the most popular enterprise application language, and Lua, a powerful, script-based interpreter language, allow M2M applications to be integrated into the Industry 4.0 vision.

Benefits resulting from special product features

- Complete system of hardware and software components for rapid control prototyping and model-based engineering
- Accelerated time-to-market thanks to extensive support of environments such as MATLAB, LabVIEW, Simulink and Modelica-based tools, such as OpenModelica
- Innovative programming of, e.g., sequence-oriented applications with RobotControl in the interpreter-based script language, Lua
- Implementation of web-based or company-wide M2M applications based on Java
- Support for Node-RED and Node.js in IoT applications (Internet of Things)
Open Core Interface for Drives: directly connect IndraDrive to IT automation

Automation made easy: Open Core Interface for Drives gives IT automation applications direct access to all drive parameters – for all IndraDrive drives from 100 W to 4 MW, whether centralized or decentralized. The Sercos Internet protocol (S/IP) used facilitates standardized network communication at the production level. Simple, quick, flexible.

A consistent PLC and IT portfolio
The interface technology Open Core Interface for Drives enables machine control systems and sub-systems to be perfectly linked to devices, data and IT automation services. This opens up completely new degrees of freedom for you in relation to automation. High-level language-based applications on external devices are provided with flexible access to all the control and drive functions of IndraDrive.

Benefits resulting from special product features
- High-level language programming with C/C++ and C#
- Smart device programming in C# with Microsoft Visual Studio plus Xamarin
- Expansion of operation and service concepts
- Direct Java programming for use in databases and MES systems
- Direct access to all drive functions, parameters and PLC variables
- Drive-controlled positioning and drive-internal interpolation using high-level language functions
- Use of WebConnector for Industry 4.0 protocols (MQTT, CoAP, LwM2M, etc.)
- Support for Node-RED and Node.js in IoT applications (Internet of Things)
- Implementation of web-based or company-wide M2M applications based on Java
WebConnector: universal interpreter between the web and automation environment

For Industry 4.0 applications, you need to have the right control centers in key places. Cross-platform, fast and easy-to-program communication interfaces ensure perfect dialog between the control and the HMI application. The new WebConnector connects your automation environment with stationary and mobile end devices more easily than ever: web-based, variable, modular and absolutely independent thanks to HTML5 and Java technology. Data networking made easy.

Quick, simple and platform-independent
With WebConnector, you can create custom, web-based HMI applications with ease: the high-performance WebSockets protocol gives you quick access to controls and drives without having to know the underlying protocol. An integrated web server allows you to integrate your own HTML websites on standard browsers without using additional plug-ins. And due to its focus on Java, the WebConnector is fully platform-independent, it runs on all operating systems for which a Java Virtual Machine is available. So you can directly manage all Rexroth’s components or those of third party providers using your smartphone or tablet. A fundamental building block of your data networking system.

Benefits resulting from special product features
- Fast: access via WebSockets (JavaScript and .NET) to controls and drives, no detailed knowledge of the lower-level communication system required
- Flexible: connects C#/.NET and web applications to Rexroth or third-party components. Supports Industry 4.0 protocols (e.g., MQTT)
- Integrated web server: for displaying HTML5 websites on standard browsers
- Independent: executable on any operating system for which a Java Virtual Machine is available (Linux, Windows, Raspbian, etc.)

Key technical data
- Communication interface for easy, custom HMI programming
- Variable number of control connections and possible HMI clients
- Modular use: directly on the control or HMI devices with a Java Virtual Machine
- Control connection via Open Core Interface or OPC UA

As a process data gateway, WebConnector is the link between the web client and the automation environment
IndraWorks 14VRS: the universal tool for efficient engineering

IndraWorks is the first engineering framework that integrates CODESYS V3 into market and application maturity. With IndraWorks, Rexroth is showing the way forward in the engineering of motion logic applications with comprehensive wizards and high-performance solution tool boxes. So you make significant savings in terms of time, costs and programming workload – while quality is enhanced. Especially with the new version of the system.

First end-to-end motion logic engineering tool
As part of the range of Open Core Engineering solutions, IndraWorks is the universal engineering framework for Rexroth's automation systems. It offers central project management and every tool needed for planning, programming, start-up, visualization and diagnostics. The enhanced basic functions and high-performance function toolkits in the new 14VRS system version quickly and efficiently implement your automation applications.

Benefits of upgrades and function toolkits
▶ Fully included in the basic functions: project planning, parameterization, programming, diagnosis, visualization
▶ Consistent operation: intuitive user interface based on current Windows technologies with central project administration and wizard-based support
▶ Generic Application Template function toolkit: simple, functional extensions of GAT program framework via plug-ins
▶ Application-based function toolkits: SafetyManager, RobotControl, Hydraulics, Visualization
▶ Extensive comparison functions: project, configuration, PLC program, online/offline
▶ New interface for bi-directional project data exchange between EPLAN electric P8 and IndraWorks Engineering 14VRS

Key technical data
▶ Uniform software framework – consistent engineering of all Rexroth control systems
▶ PLC and motion logic programming based on CODESYS V3 with object-oriented language extensions
▶ Comprehensive motion control functions: point-to-point, axis interpolation, robot control, CNC, hydraulics
▶ Simple integration: FDT/DTM, automation interface, connection to version control systems, EPLAN electric P8
IndraMotion MLC 14VRS: the complete system for all control tasks

The IndraMotion MLC automation solution combines motion, robot and logic control into a complete, uniform system for the first time. High-performance control hardware, rapid signal processing and innovative control cross communication allow you to choose freely between centralized and decentralized structures. You can easily adapt IndraMotion MLC to your application thanks to flexible hardware and software extensions. Standardized design and open standards allow you to synchronize all of your drive technologies with maximum performance.

Consistent, highly flexible, efficient

IndraMotion MLC uses the ideal platforms for modern automation: in addition to the scaled IndraControl L device family, the controller-based IndraControl XM2 control not only offers more computing power, it also provides high-performance and synchronous I/O processing in a more compact design. In addition to motion logic functionality in hard real-time, the new high-end IndraControl V IPC platform features a Windows operating system for additional tools. Open Core Engineering offers a perfectly coordinated tool chain for all engineering phases throughout the entire product lifecycle of the machine. The Open Core Interface bridges the gap to Industry 4.0 with direct access to all control system elements – for a new degree of flexibility.

Benefits of 14VRS system version upgrades

- Rapid I/O processing with IndraControl S20 – asynchronous, clocked, cyclic
- Safety Manager function toolkit: for programming the optional SafeLogic safety control
- Robot Control function toolkit: Lua script language for programming sequence-oriented processes
- Automation Interface function toolkit: new SDKs for automated generation of new projects, configurations and program sections in IndraWorks
- MATLAB/Simulink and Modelica: support for rapid control prototyping and model-based engineering

Key technical data

- PLC runtime system according to IEC 61131-3 based on CODESYS V3
- IndraWorks universal engineering framework
- Connectivity with Sercos, Multi-Ethernet and PROFIBUS
- Open Core Interface technology for high-level language-based applications
- Supports electric, hydraulic and hybrid drives
- Can be expanded with safety controller up to PL e/Cat 5 (EN ISO 13849-1) or SIL 3 (IEC 62061)
IndraMotion MLD 14VRS: add and change axes with ease

Improved communication between the drives: The new IndraMotion MLD 14VRS, with its modern Indralogic 2G version of PLC editors, greatly simplifies the engineering tasks and provides all the additional functions for simplifying the automation of complete small systems with electronic and hydraulic drives. Hot-plugging drives during production maximizes flexibility, while the Sercos connection and the Open Core Interface ensure easy integration.

Dual master controlling: with Sercos and EtherNet/IP
Practical: Sercos and EtherNet/IP devices can now be easily connected using the same Ethernet port. IndraMotion MLD 14VRS is based on the scalable IndraDrive platform. High-performance motion control and PLC functions are combined to form a complete automation system for modern machinery concepts. Perfect for controlling gantry axes with the GantryPosControl toolkit. The newly integrated Open Core Interface for drives allows access to all drive and control parameters, as well as PLC variables. Open interfaces simplify automation. In short: efficient Open Core Engineering.

Benefits of Open Core Engineering extensions
▶ Visualization function toolkit: simple implementation of machine operation/monitoring now with WinStudio, compact IndraControl VR21 and OEM web server touchscreen controls
▶ Technology function toolkit: with winder/unwinder and tension controller, now with IndraLogic 2G
▶ Handling function toolkit: now with IndraLogic 2G (with pre-made HMI interfaces for compact control panels)
▶ New Generic Application Template (GAT) function toolkit: automatic code generation for framework applications with operating mode and error handling

Key technical data
▶ Max. 10 motion control axes
▶ Max. 4 peripherals connectable via Sercos
▶ Min. Sercos cycle time: 250 µs
▶ Min. PLC cycle time: 1 ms
▶ New version includes object-oriented programming according to IEC 61131-3 3rd Edition
▶ Connectivity with Sercos and Multi-Ethernet (EtherCAT [SoE, CoE], EtherNet/IP, POWERLINK)
IndraMotion MTX 14VRS: the unique multi-core CNC control system

Really multi-talented: the IndraMotion MTX is the unique, individually scalable CNC platform with integrated PLC for successful cutting and pressing concepts. Outstanding performance data and extensive technology functions open completely new horizons, even for highly dynamic multi-technology machines. You can now control up to 60 channels and 250 axes with one CNC. For maximum productivity and flexibility.

Extreme performance with complex, multiple technologies
The proven IndraMotion MTX system has been consistently developed in the current software version 14. You now control up to 60 independent channels and 250 axes with one CNC that features extremely fast PLC and CNC cycle times. So you avoid incurring additional hardware and engineering costs. The 5-axis interpolation is now universally available for all models – for improved scalability. The new shape cutting function (laser, water jet, plasma) makes the IndraMotion MTX series even more universal for multi-technology processing in one machine. And with its open standards, it is even ready for Industry 4.0. Truly a complete package.

Benefits resulting from special product features
▶ Multi-technology processing with 60 channels, 250 axes: bending, turning, milling, grinding, punching/nibbling, shape cutting, handling and rotary transfer with one CNC
▶ Great performance, even when maximum number of axes is used
▶ Improved scalability: 5-axis interpolation throughout the series
▶ Fast actions: fast PLC/CNC communication for reduced cycle times
▶ Open Core Engineering: for efficiency in engineering and customer functions
▶ Industry 4.0-ready: open standards such as OPC UA on board
▶ Practical: 3D online simulation with collision detection
▶ Future-proof: HMI multi-touch support

Key technical data
▶ Up to 60 independent channels with one CNC system
▶ Up to 250 axes in one CNC
▶ 5-axis interpolation from MTX micro to MTX advanced
▶ Multi-core CNC system (IndraMotion MTX advanced)
▶ Extremely short PLC and CNC cycle times
IndraMotion MTX micro: the first compact system with 5-axis interpolation

The most economical way possible to start using a CNC control. With the full range of functions. The new IndraMotion MTX micro provides everything that you need from small CNC machines. Now even a high-performance 5-axis interpolation facility can make its debut in the compact segment. The IndraMotion MTX micro is nevertheless extremely quick to start and, with a large library of technology cycles, is incredibly easy to program.

Compact and cost-effective, but with a full range of functions
Conveniently control up to 12 axes in 2 CNC channels, now in the compact class. Even including 5-axis interpolation. For extremely rapid, powerful and, above all, cost-efficient turning, milling, drilling, grinding, punching/nibbling and gear cutting. The new MTX micro series smooths your entry into the CNC world. It minimizes commissioning workload, it's extremely easy to operate, and it has comprehensive programming tools for even complex processing tasks. And it's ready for Industry 4.0 right now. The ultimate in economy!

Benefits resulting from special product features
▶ 2 CNC machining channels: controlling processing and automation in one CNC system saves hardware costs and accelerates commissioning
▶ Extensive library of technology cycles: for simple, standardized programming of even complex processing tasks
▶ New control panels for horizontal or vertical use: for optimized ergonomics
▶ Industry 4.0-ready: open standards such as OPC UA on board

Key Technical Data
▶ Up to 12 axes, of which 4 are CNC spindles
▶ 2 CNC machining channels
▶ 5-axis interpolation (a first in the compact class)
▶ Extensive functions for turning, milling, drilling, grinding, punching/nibbling and gear cutting
▶ Optimized control panels for intuitive machine operation
IndraControl XM12: flexible, real-time control

The IndraControl XM control family has a new arrival: the new, modular IndraControl XM12 control expands the lower, inexpensive end of the range. IndraControl XM12 combines the high real-time capability of the Sercos automation bus with the new IndraControl S20 I/O family to form a modular and fully functional control system – for medium-power factory automation applications.

Simple configuration, flexible data processing
The IndraControl XM control platform is available for a variety of motion logic applications. In addition to the integrated Sercos automation bus, other Ethernet-based field-buses can be configured flexibly. The XM12 can be flexibly extended by locally connecting the extremely fast and modular IndraControl S20 I/O modules. With the same system functions as the XM21/22, the XM12 is now available for all cost-sensitive applications with moderate power requirements. It also saves you money: the service-friendly design reduces installation and start-up costs.

Benefits resulting from special product features
▶ Simple and flexible system configuration with modular I/O extension
▶ Additional connectivity with Multi-Ethernet via software stacks
▶ High real-time capability across the entire system
▶ Sercos as real-time-capable automation bus for system-wide networking
▶ Maintenance-free thanks to the lack of wear parts such as fans and batteries
▶ IndraMotion MLC scalable system firmware for motion logic applications

Key technical data
▶ IP20 rating
▶ On-board Sercos master for clocked fieldbus connection
▶ Modern control platform with dual core Cortex A9 processor technology
▶ Gigabit Ethernet, USB, SD card slot, diagnostic LED
▶ Modular expansion options with I/O modules
▶ Extended temperature range from –25°C to +60°C
IndraControl XFE: flexible function extension

Flexible, functional addition to the IndraControl XM control family: IndraControl XFE now offers modular extension options for performance class XM21 and higher. The concept allows up to three extension modules on a controller at the same time. This allows you to extend functionality easily and affordably.

Easy modular extension
The functionality and integratability of your system can be easily extended by adding on the new XFE extension modules. Up to three modules can be flexibly added to the control on site. There are now communication modules for Sercos, Multi-Ethernet and PROFIBUS as master or slave interface. Other function extension modules are planned for the near future. As with every component in the IndraControl XM control family, the service-friendly design ensures easy installation and configuration.

Benefits resulting from special product features
- Simple and flexible extension of the system functionality
- High-performance integration into the control system
- Flexible configuration of fieldbus connections (master/slave)
- Simple and rugged design
- Maintenance-free thanks to the lack of wear parts such as fans and batteries
- Optimal system integration into motion logic applications

Key technical data
- IP20 rating
- Connectivity with Sercos, Multi-Ethernet and PROFIBUS
- Master or slave modules for cost-optimized use
- Powerful system connection via PCIexpress
- Extended temperature range from –25°C to +60°C
IndraControl FM: intelligent cabinet-free control

Everything on board for cabinet-free automation concepts: the new IndraControl FM control hardware combines machine PLC, I/O and Open Core Interface for your Industry 4.0-capable systems. You can install and start up completely separate, intelligent modules either directly or in the machine. A rugged IP65 rating, all the necessary interfaces and even quick integration of IoT services via Linux.

i4.0-ready: flexible connection, open integration

On the outside, the only thing noticeable about IndraControl FM is its compact hardware design that has been specially created for the increasing modularization in mechanical engineering. By omitting wear parts, such as batteries and fans, the controller is maintenance-free. The brains are on the inside: with versatile sensor/actuator interfaces and on-board Multi-Ethernet, you can flexibly and easily connect to heterogeneous automation topologies. Regardless of PLC programming, you can comfortably connect IoT (Internet of Things) applications using the freely programmable Linux operating system in SOA-based i.40 architectures. This gives you all the freedom you need for modern, future-proof systems today.

Benefits resulting from special product features

- Cabinet-free: for rapid, decentralized installation and start-up
- Fast: high-performance process data processing via integrated PLC with min. cycle time of 250 µs
- Highly communicative: numerous sensor/actuator interfaces, on-board Sercos and Multi-Ethernet slave interface – for flexible automation
- Open: supports high-level language-based applications via Open Core Interface for drives; easy integration of IoT services via Linux
- Maintenance-free: no wear parts such as fans and batteries

Key technical data

- IP65 rating
- 36 analog and digital I/O modules for sensors, actuators and Modbus on board
- Multi-protocol-capable Ethernet interface (slave)
- Pre-assembled hybrid cable and/or M12 connector
- Power supply via hybrid cable (42 V DC) or I/O box (24 V DC)
- Standardized PLC functionality based on CODESYS V3
Sercans Sercos master module: connect drives and I/O devices to PCs with ease

You have never upgraded OEM controls with Sercos automation bus as easily or for less – with suitable scaled performance classes for all needs: the cost-efficient Sercans S is ideal for small and simple serial systems in packaging and processing, assembly and handling. Sercans M is the standard for most applications. And Sercans L, with a minimal cycle time of 62.5 μs, for large, complex, high-end systems.

Simple and cost-effective implementation
The new Sercans family is an easy and affordable option for implementing Sercos automation bus in controls. The new Sercans S model can be used in inexpensive PCs for cost savings. With firmware version 3, Sercos and EtherNet/IP devices can now be easily and comfortably connected to the same Ethernet port (with existing software stack for EtherNet/IP). So you increase your productivity quickly and efficiently. With the Sercans module, you can connect the IndraDrive drive family and the IndraControl S20, S67 I/O and Sercos devices from many suppliers to a PC with ease – and benefit directly from the Sercos properties.

Benefits resulting from special product features
▶ Increased productivity due to short cycle times
▶ Reduced wiring costs thanks to safety functions being operated by CIP Safety on Sercos
▶ Exchange secure data with comprehensive safety peripherals for spread-out systems using CIP Safety on Sercos
▶ Minimal cycle times and high rate of data throughput to the host application (Sercans L)
▶ Ideal for using TenaSys, Linux with PREEMPT-RT-Patch and QNX Neutrino with the Intime real-time operating system.
▶ Practical: connect any Ethernet user directly – without additional hardware
▶ Sample program in C programming language

Key technical data
▶ Sercans L: minimal cycle time of 62.5 μs; up to 511 Sercos devices per card and 2,000 per PC; system extension with up to 120 secure nodes via CIP Safety on Sercos per card and 480 per PC
▶ Sercans M: PCI and PCI Express interface available
▶ Sercans S: up to 10 devices and one card per PC
IndraControl VEP: brilliant for new operating concepts

Innovative operation and visualization requires the right components: the new IndraControl VEP embedded PC brings you one giant step closer in developing promising operating concepts for any area of application. With a powerful quad core processor, high-resolution and multi-touch-capable widescreens with anti-reflection coating, and two models for the control cabinet or support arm, this panel PC is the ideal hardware basis for your new operating concepts.

Powerful and intuitive: embedded PC with multi-touch
An ideal combination: the capacitive touchscreen and brilliant 15" and 21" widescreen displays make a perfect pair with the high-performance Intel Atom processor technology to make machines and systems easy to operate. Fast, flexible, intuitive. With two housing models, one for control cabinets and the other for direct mounting on a support arm, this powerful embedded PC will make you ready for any application. Your ideal basis for new operating concepts.

Benefits resulting from special product features
- Ergonomic: intuitive multi-touch control for innovative visualization
- Brilliant: high-resolution widescreen displays with anti-reflection coating for ideal readability
- Efficient: panel PC as the ideal HMI unit in the control cabinet
- Rugged: IP65 rated compact operator terminal for direct support arm installation
- Fast: powerful quad core processor

Key technical data
- Display diagonals: 15.6" and 21.5"
- Intel Atom Bay Trail CPU
- 4 GB RAM and 32 GB on-board flash memory
- 2 x Gigabit Ethernet
- 1 x USB 3.0 and 1 x USB 2.0 port
- Capacitive touchscreen
IndraControl VAM15 and VAM21: comfortable and flexible machine operation

Whether stand-alone or in combination with multi-touch displays – you probably have never operated your machine more ergonomically and with more flexibility: the IndraControl VAM15 and VAM21 machine control panels, with maximum ergonomics and user flexibility, form the perfect HMI solution for machine tools in combination with multi-touch devices. Freely mappable keys, support for additional control elements, an interface for an external handwheel and digital I/O form the basis for use in any machine or application.

Ideal when combined with multi-touch operating devices
The new VAM15 and VAM21 machine control panels are not only convenient and universal in terms of operation, but in every aspect: the machine control panels offer large, long travel keys for easy machine operation and robust membrane keys for high-performance setup functionality. An emergency stop button and override rotary switches for spindle and feed motion. They easily support additional control elements, have a handwheel interface and unassigned digital inputs and outputs – all in all, perfect for use in any machine or application.

Benefits resulting from special product features
- Comfortable: ergonomically arranged control elements
- Universal: user-definable and markable keys with LED
- Efficient: easy, economical integration into the Sercos Ethernet-based automation bus
- Adaptable: thanks to digital I/O and handwheel interface
- Fast: simple installation and connection technology
- Future-proof: ready for additional controls and connections (d = 16/22.5 mm)

Key technical data
- Rugged machine control panel with integrated fieldbus connection for Sercos automation bus
- 6 pushbuttons and a keypad with 15 keys, user-definable and markable
- 2 multi-stage rotary switches for spindle and feed motion override
- Emergency stop button, tamper-proof with rotary release
- Interface for external handwheel and 16 digital inputs and 16 digital outputs
NY4114 high-performance multi-axis controller: controlling extremely fast movements with Linux

The modular NYCe 4000 multi-axis controller controls complex processes from a single unit. Including drive functions, simulations, and diagnoses. Specially designed for the low-voltage range up to 150 V with high motion control requirements, extreme speed and precision. The platform now has a powerful, open, Linux-based motion control unit for your Industry 4.0 applications.

Key Technical Data
- Compact: integrated motion controller, drive modules and I/O interfaces
- Extremely fast: 32 kHz position control with numerous pilot control and filter options
- Motion unit with dual core A9 processors: 1 GB flash, 1 GB RAM, MicroSD flash and USB
- Linux operating system with Xenomai real-time extension
- Eclipse-based development and debugging environment

Develop faster, control faster with Linux
The NYCe 4000 is a compact unit that offers unrivaled flexibility. With highly developed hardware for complex sequences plus an open software architecture. Powerful dual A9 processors feature maximum motion performance for MIMO control algorithms, user-specific special functions or MATLAB/Simulink controllers. The Linux operating system comes installed on the NY4114 and is the perfect platform for your application software. Use the open, Ethernet-based communication structure for simple integration into your networks. Not only can you obtain customized motion solutions more quickly, but the time to market is reduced considerably. This increases your production output and is Industry 4.0-compatible.

Benefits resulting from special product features
- Fast: powerful 32 kHz servo control algorithms
- Customized: customer-specific motion upgrades, including MIMO at 8 kHz
- Highly flexible: integrable drive module with 15 to 150 V DC bus voltage for servo and stepper motors
- i4.0-compatible: open Linux operating system with real-time extension
- Shorter time to market: developer environments based on Visual Studio and Eclipse
- Programming in C, C++ and .NET
LMS linear motion system: complex transporting and positioning – precise, flexible, fast

The Linear Motion System (LMS) from Rexroth is a new, unique technical solution for transporting and positioning materials and workpieces. Where traditional rollers, chains or belt systems reach their limits for any reason, LMS is the perfect concept. It delivers higher accuracy, allows for freely programmable individual and synchronized movements, and is faster than traditional systems. A perfect module for i4.0 production.

LMS replaces traditional transfer systems
LMS is based on standard linear motor technology, in which each single workpiece pallet/carrier is moved individually. LMS components are easily integrated into your desired transport and positioning system and are extremely flexible. Carrier size and weight are scalable (1 kg to 1,000 kg) and the track layout is freely configurable. This saves space and costs, and facilitates flexible production. LMS is also maintenance-free. Building your machine just got easier. You now have every option for a future-proof i4.0 solution, even for a transfer system.

Benefits resulting from special product features
▶ Easily integrated: freely configurable track layout, saves space and costs
▶ Flexible: scalable carrier size/weight (1 kg to 1,000 kg), individually controllable carriers
▶ Cost-efficient: transport system can act as handling axis for easier handling
▶ Autonomous: perfect for i4.0 solutions, for more flexible production
▶ Fast and precise: high throughput, high position repeatability

Key technical data
▶ Wide performance range from 60 N to 3,000 N
▶ Speeds of up to 5 m/sec
▶ Positioning accuracy of up to 10 μm (with encoder option)
▶ Magnetic disks standard or vacuum-compatible up to 10⁻⁸ mbar
▶ Temperature range up to 150 °C
IndraControl S20 for Safety: fast and safe automation

The fastest I/O technology in the market is now playing it safe: with the latest safety modules from the modular IndraControl S20 I/O component family, safe communication is now possible with CIP Safety or PROFIsafe. For safe and speedy automation, even for demanding applications.

Flexible integration, simple installation
The IndraControl S20 I/O range allows real-time applications with short cycle times. With new safety modules of the same frame size, you now have the right elements for your safety applications. Flexible usability due to the support of CIP Safety on Sercos or PROFIsafe on PROFINET. The safety modules can be combined with standard modules as required. Easy to install due to tool-free wiring, and easy to configure using the IndraWorks engineering tool. For constantly fast and safe signal processing. For maximum availability and time-saving, safe automation.

Benefits resulting from special product features
- Certified: SIL 3 according to EN 61508, SILCL 3 according to EN 62061, Category 4/PL e according to EN ISO 13849-1
- High-performance: intelligent local bus with optimized data communication for clock-synchronized signal processing
- Simple installation: quick tool-free wiring, fewer errors
- Rugged design: for high system availability levels
- Easy to integrate: can be flexibly used without dependence on specific safety solutions

Key technical data
- IP20 rating
- Secure digital channels 8 (one-channel) or 4 (two-channel)
- CIP Safety on Sercos, PROFIsafe on PROFINET
- 10 g shock resistance (continuous shock) according to EN 60068-2-39
- Extended temperature range from –35 °C to +60 °C
IndraDrive with SafeMotion: the new generation of control units for improved productivity

No matter which IndraDrive series you are using – the new control unit generation for SafeMotion increases the productivity of every machine by extensive, drive-integrated safety functions. Start-up is quicker, safer, and more affordable now that the safe logic functions are integrated in the drive.

For all IndraDrive series

Whether simple "Safe Torque Off" or complex safety functions for motion "Safe Motion" – "Safety on Board" ensures the maximum level of safety in all models in the IndraDrive series. And it improves productivity wherever safe stopping, holding, moving and position monitoring is required.

Selecting safety functions via Sercos and Multi-Ethernet (CIP Safety on Sercos, PROFIsafe on PROFINET or Safety over EtherCAT) or integrating safe logic functions directly in the drive (no external logic modules) saves time and money. As well as device replacement without the use of a PC in the event of servicing. However, SafeMotion increases one thing above all: safety in your systems.

Benefits resulting from special product features

- Comprehensive: drive-integrated safety functions for braking, holding, moving and position monitoring
- Flexible: select safety functions via CIP Safety on Sercos, PROFIsafe on PROFINET, Safety over EtherCAT or, optionally, via discrete 24 V signals
- Clever: safe logic functions integrated in the drive
- Productive: enhanced machine productivity with reduced costs
- Consistent: for all IndraDrive product families: Cs, C, M, Mi, ML

Key technical data

- Maximum level of safety (Cat. 4, PL e, SIL3) for all safety functions
- Safe absolute end position replaces hardware limit switch by software
- 31 safe cam areas configurable
- Reduced commissioning effort due to semi-automatic support
- PC-free device replacement when servicing
IndraDrive ML: universal inverter now for marine and offshore

The new IndraDrive ML is the latest addition to the IndraDrive family in the upper power range: up to 500 kW individually, up to 4 MW when 8 devices are connected in parallel. New areas of application open up with additional devices for mains connections between 525 V and 690 V, as well as the marine and offshore certification. This is what turns these compact, modular inverters into real all-rounders – they can be used as mains inverters or motor inverters. This minimizes the number of models, simplifies handling and reduces your storage costs.

Modular, compact and energy-saving
These universal inverters are ideal for complex multi-axis applications. They are powerful, flexible drives for the mega-watt range. With two voltage models and extensive certifications, they can be used for any standard or servo applications and come with a range of energy-saving options for perfect adaptation. They also come with all the usual features of the proven IndraDrive family – from certified Safety on Board to drive-integrated motion logic solutions, to multi-encoder interfaces and Multi-Ethernet communication. Simply universal.

Benefits resulting from special product features
- Modular universal inverters for multi-axis applications: minimize model variety, simplify handling, reduce storage costs
- Application-optimized energy-saving concepts: flexible adaptation to any use saves energy and reduces grid load
- High power density: compact design saves space in the cabinet
- Less coolant at higher coolant temperature: allows for compact heat exchangers and efficient heat recovery
- Both voltage models are now certified for marine and offshore: for more areas of application

Key technical data
- Single device power of 110 kW to 500 kW with 8 increments
- System power of up to 4 MW with parallel connection
- Supply voltage: 3 AC 380–500 V/525–690 V/50–60 Hz/TN, TT and IT network
- Cooling types: fluid cooling, air cooling
- 1.5-fold overload for 60 sec
IndraDrive Mi: cabinet-free drive system with new cooling variants

The latest generation of IndraDrive Mi can be adapted to your environment like no other decentralized drive system. The drive allows 100 % reduction of control cabinet at all. This makes it ideal for use in any modular machine – for maximum flexibility and minimal space. With up to 90 % less wiring and 100 % less cooling required.

Self-sufficient complete package with new cooling options
The brand new features of the IndraDrive Mi offer you complete flexibility. For example, when cooling: in addition to the thermal interface for cold plate or insulated mounting, models that utilize convection through a ribbed cooler and forced air cooling are now available. Multi-protocol capabilities mean that it can be used with any major control manufacturer’s products. Optional integrated motion logic combines drive, motion control and sequence logic so complex that motion sequences can be implemented purely at the drive level.

The hybrid cables for IndraDrive Mi now also come with round connectors whose slim geometry allow for smaller cable bushings in machines. These pre-assembled cables can also be routed through pipes.

Benefits resulting from special product features
- Reduction of up to 100 % in the size of the control cabinet: drive components fully designed to IP65 standard
- Up to 90 % less wiring with hybrid cables
- Reduction of up to 100 % in the control cabinet cooling power
- Connectivity with Sercos and Multi-Ethernet: compatible with all relevant Ethernet protocols and common controller products
- Motion-logic system integration option: achieving complex motion sequences at the level of the drive

Key Technical Data
- Up to 30 drives on one hybrid cable of up to 200 m in length.
- Connectivity with Sercos, Multi-Ethernet (PROFINET, EtherNet/IP, EtherCAT, POWERLINK)
- Integrated safety technology: Safe Torque Off/SafeMotion
- IEC 61131-3 integrated motion logic
- Peripheral connection: control communication uncoupling
- Variable cooling concept: thermal interface for cold plate or insulated mounting, convection cooling, forced air cooling
Electric drives and controls | Frequency converters

Frequency Converter
EFC 3610/5610: universally usable, perfectly integrable

The power of Rexroth's line of frequency converters has been optimally extended to 90 kW. Featuring scalable option modules with Multi-Ethernet and I/O interfaces and a compact design, these frequency converters can be used for any application. And they are particularly easy to install without additional peripherals.

Key technical data
- Power ranges: EFC 3610 1x AC 230 V 0.4 kW to 3x AC 400 V 22 kW; EFC 5610 1x AC 230 V 0.4 kW to 3x AC 400 V 90 kW
- V/f control (EFC 3610) or vector control (EFC 5610)
- High starting torque (200 %) and overload (150 % for up to 60 sec)
- Operating control versions: simple LED and plain text LCD
- Integrated mains filter (EN 61800-3 C3) and integrated DC choke for 30 kW and higher
- Integrated brake chopper (up to 22 kW)

Saves time and space – and enhances quality
Efficient speed control is the basis for saving energy and reducing CO₂ emissions – this is why the new and improved frequency converters come packed with intelligent features that meet any engineering and usability requirements. Compact with their space-saving assembly qualities and clever option modules, and with all external components removed, they provide the ultimate in simple installation and space-saving qualities. I/O and fieldbus modules provide simple extension options. Ease of use is ensured not only due to fast parameterization using autotuning, copy function or a PC (USB port), but also due to the harmonized parameters throughout the series – which saves time, improves quality, and facilitates series-production commissioning.

Benefits resulting from special product features
- Compact and complete: space-saving installation and wiring – for simple installation and integration
- Simply practical: removable operating unit with accumulator function, optional LCD plain text display, simple parameterization using autotuning, copy function or USB port – for quick, reliable series-production commissioning
- Top connectivity: modular configuration and extension possible with I/O modules and Sercos/Multi-Ethernet, PROFIBUS and CANopen
- Flexible expandability: even with application-specific firmware (ASF)
IndraDyn S – synchronous servo motors MS2N: intelligent, powerful, flexible

More torque, higher speeds, a practical single-cable connection and an extensive options program: The new IndraDyn S MS2N motor generation by Rexroth combines high dynamics with compact dimensions and excellent energy efficiency. A selection of rotors with lower and medium inertia is available for optimal alignment of motor and load inertia. The MS2N motors become a data source for intelligent solutions in the Industry 4.0 environment.

More torque, more dynamics, more efficiency

Six sizes, over 50 motor types – the MS2N series covers a wide range of applications from 0.8 to 148 Nm of continuous torque. Higher maximum torques of up to 360 Nm with increased overload capability and dynamics make these new servo motors even more flexible. The standard field weakening mode available in conjunction with IndraDrive drive controllers enhances the usable torque-speed range beyond the voltage limit.

Motors sizes MS2N07 and above come with optional integrated fans. These greatly increase nominal torque in the same construction size. Flexible options, e.g., when configuring the encoder accuracy classes, shaft options or choosing from the two motor designs, also meet the various requirements of modern automation.

Benefits resulting from special product features

- High power density for compact machines: high torque density, increased speed range, high energy efficiency
- Single-cable connection for reduced installation effort: up to 75 m of cable without additional components
- Intelligent within IndraDrive system: servo motor as a reliable sensor and data source, real-time processing
Nexo cordless nutrunner: the most intelligent hand-held nutrunner in the world

Highly intelligent: with Nexo, the entire controller is located in the nutrunner – a worldwide innovation that makes many Industry 4.0 applications possible for the first time. The integrated control systems enable the wireless cordless nutrunners to be connected directly to the higher-level systems, for example, without any additional hardware in your premises network. It couldn’t be simpler – or more cost-effective.

Reliable and high-precision
For tough bolting, Rexroth now puts the intelligence right in your hand: since the entire controller is in the tool, the Nexo does not require any external control. It can communicate directly with your servers since its browser-based operator control system is suitable for any operating system. So it saves on costs. A precise action measurement transducer with a large, practical display that indicates tightening results ensures highly accurate results. So your users are always in the picture.

Benefits resulting from special product features
▶ Entire controller in the nutrunner: no additional hardware, fewer costs
▶ Large display: practical information always in view
▶ High-precision measurement system: for the ultimate in precision torque and rotary angle sensing

Key technical data
▶ Max. speed: 880 rpm
▶ Max. torque: 65 Nm now available
▶ Sensing of torque and angle of rotation
▶ 2.4 and 5 GHz WIFI
▶ Incorporates illumination of the screwing location
▶ All versions also available with barcode scanner
▶ Extensive range of accessories
▶ Suitable for class A safety-related screwing tasks according to VDI/VDE2862
PQM Process Quality Manager: intelligently control processes, drastically increase productivity

Detecting and avoiding deviations and errors immediately in the production process – not a problem with the new Process Quality Manager: An intelligent early warning system that reduces quality costs. Monitor and document your production processes securely and reliably. You can counteract any deviations from the planned process immediately, avoiding the production of defective parts. Your experts are notified of errors promptly and can respond immediately. And productivity increases.

Real-time control: via open interfaces, with all experts

Comprehensive analyses provide complete transparency, extensive reporting options and real-time notifications for stepping up processes – this is what the intelligent control management of today looks like. Browser-based and with open interfaces, the new Process Quality Manager by Rexroth notifies all interested parties of any deviations and errors quickly, easily and reliably. This multiplies expert knowledge and facilitates rapid, targeted responses. Not just intelligent, it also increases your productivity on a sustainable basis.

Benefits resulting from special product features

- Open interfaces, browser-based GUI: for swift information flow
- Comprehensive analysis and reporting options in real-time: for complete transparency and a sustained increase in productivity
- Intelligent control management: multiplies expert knowledge and facilitates immediate response

Key technical data

- Browser-based GUI
- Compatible with any operating system (Windows, Linux, etc.)
- Integrated process data cockpit
- Tightening graphs and results in real-time
- High scalability
The latest generation of resistance welding control systems delivers what you are entitled to expect from the European market leader: a highly efficient, reliable, medium-frequency control system which is once again setting standards. With intuitive operation, state-of-the-art hardware and adaptive control – for ultra-fast commissioning, energy-saving control, and above all superb weld point quality. Even with complex plate thickness combinations. The automotive industry isn't the only one that will want to get their hands on it.

**Proven 100,000 times over and continuously improved**

With the new PRC 7300, the specialists at Bosch Rexroth have once again improved a flexible basic concept that has proven itself 100,000 times over in tough industrial practice. So you can get going even quicker and save costs. A new intuitive user interface makes parameterization, visualization and diagnosis child's play. The commissioning time is reduced by 90%! Basic settings and welding point optimization in five steps and in less than 10 seconds. The adaptive control system guarantees maximum weld point quality, minimal reworking, and the highest possible level of reliability. Even when welding aluminum and in the case of tricky combinations of metals. State-of-the-art semi-conductor technology and a flexible system architecture guarantee energy-efficient control at all times – 30% more economical when actually welding, up to 80% between weld operations.

**Benefits resulting from special product features**

- Superb reliability due to adaptive control and monitoring (even in the case of tricky metal combinations and Al)
- Faster commissioning, visualization and diagnosis thanks to new intuitive user interface (90% reduction in commissioning time)
- Highly flexible and future-proof thanks to modular system architecture with integrated application layer
- Energy-efficient and cost-saving due to state-of-the-art hardware technology

**Key technical data**

- Medium-frequency control systems for applications up to 320 kA
- Adaptive control and monitoring
- Control of electronic servo drives
- Integrated plier front end
- Intuitive Windows-based and web-based user interface
- Standardized interfaces for factory network integration
Linear motion technology innovations: precise and efficient positioning, configuration by press of a button

Measure positions without contact, move heavy loads with high precision, or configure components quickly and easily online – with linear motion technology, Rexroth shows off its expertise in processes and practical requirements in a wide variety of applications, sectors and markets.
IMS-A integrated measuring system: high-precision guidance and measurement

The integrated measuring system combines ball rail and roller rail systems with an absolute length measuring system in our new IMS-A product. The system accuracy of this inductive measuring system is comparable to high-precision glass scales and is therefore ideally suited for use in external measuring systems on machine tools.

Measuring inductively the absolute position with a resolution of 0.025 µm
The IMS-A provides you with a precision instrument that guarantees excellent workpiece quality through accurate position measuring. Thanks to the inductive, contactless measuring principle, the system functions wear-free, which reduces your downtimes. In addition, it is particularly compact thanks to the integration of the systems, which saves installation space.

Benefits resulting from special product features
▶ Absolute position entry, without buffering battery
▶ High system accuracy
▶ Inductive, contactless measuring principle
▶ Measuring function integrated into the guideway
▶ Resistant to contamination without any additional measures

Key technical data
▶ Max. position resolution: 0.025 µm
▶ Pitch accuracy: ±3 µm/m
▶ Ball rail systems: sizes 20/25/30/35/45
▶ Roller rail systems: sizes 35/45/55/65
▶ Max. rail length: 4,500 mm ea.
▶ Interfaces: Hiperface, SSI, DRIVE-CLiQ, FANUC

DRIVE-CLiQ is a registered trademark of Siemens
EMC-HD electromechanical cylinder: moving extreme loads with less energy

This robust electromechanical cylinder was developed for use in heavy-duty applications. As a complete building system with integrated planetary or ball screw assembly, it is designed for efficient operation even under harsh conditions.

A rugged, complete building system
The latest electromechanical cylinders were designed for long service life under tough conditions: Perfectly sealed for a high IP rating and tough corrosion protection. The precision-rolled screw assemblies position precisely and powerfully and feature high economic efficiency with low operating costs, as well as high energy efficiency. The configurable servo drive is freely programmable, process parameters can be modified with ease – allowing you to implement even complex traversing profiles with precision and adjust them at any time.

Benefits resulting from special product features
▶ High energy efficiency and small environmental footprint
▶ No leakage
▶ Simple, rugged design for long service life, even in harsh environments
▶ Complete building system and multiple combination options for high flexibility to serve a broad range of applications
▶ Precise positioning, high dynamics, powerful drive and a long service life due to the use of precision screw assemblies
▶ Optional port for a one-point lubrication system reduces downtime and saves time and money
▶ Less design and installation work thanks to a complete, turnkey system
▶ Intelligent drive system for free programmability and implementation of complex traversing profiles

Key technical data
▶ Dynamic load rating (Cdyn): 50 to 470 kN
▶ Max. axial force: 290 kN (pull/push)
▶ Max. traversing speed: 1 m/sec
▶ Max. stroke: 1,700 mm
▶ Protection rating: IP65
▶ Connectivity with Sercos and Multi-Ethernet
EMC electromechanical cylinder: compact, precise and highly flexible

Every detail of the new EMC electromechanical cylinder reflects the system expertise of Rexroth in the consistent integration of proven proprietary technologies. The result is an actuator whose external geometry and method of operation is similar to a pneumatic cylinder, but is much more energy-efficient and flexible. This makes it more than just an alternative to pneumatic linear drives in many sectors.

Complete system: hygienic, variable, precise
Its high variability makes the new EMC so interesting for many industries and applications. This affordable, simple, basic cylinder can be adapted to practically any need thanks to numerous options. Hygienic, highly resistant to chemicals, perfectly sealed and with a high IP rating. These available options also ensure a long service life – even under harsh industrial conditions. The powerful EMC always performs with high efficiency and economy.

Benefits resulting from special product features
▶ Hygienic design: high resistance to chemicals and cleaning agents
▶ Good sealing: IP65 rating, sealed against dirt and water from outside and lubrication leakage from the cylinder
▶ Optimized lubrication concept: optional port for a one-point lubrication system reduces downtime and saves time and money
▶ High-precision ball screw assemblies: for high performance with maximum cost-effectiveness
▶ Complete building system and great variability: ideally customizable to customer applications
▶ Complete, turnkey system: less design and installation effort
▶ Intelligent drive system for free programmability and implementation of complex traversing profiles

Key technical data
▶ Dynamic load rating (Cdyn): 2.5 to 93 kN
▶ Max. axial force: 55 kN (pull/push)
▶ Max. traversing speed: 1.6 m/sec
▶ Max. stroke: 1,500 mm
▶ Protection rating: IP54, IP65 optional
With the LinSelect tool, Rexroth fundamentally simplifies the selection of linear axes and actuators. The clear and intuitive user interface guides you to the ideal result step by step – saving time and money.

The ideal result in five steps
LinSelect uses design and application parameters to recommend matching products from the Rexroth range of linear motion systems. The tool also determines the appropriate motor and drive controller. Results are shown in detail, and product recommendations can be conveniently saved and shared though the project management feature. Selecting, ordering and obtaining CAD files for linear motion systems has never been easier.

Benefits resulting from special product features
- Quick engineering: results in less than 15 minutes
- LinSelect combines years of application experience with a modern and intuitive user interface
- Seamless selection, configuration and ordering process
- Select mechanics, motor and drive combination with a single tool
- Precise and reliable results
- Always up-to-date: product data supplied continuously

Key technical data
- Select from more than 100,000 product combinations
- Interface to online configuration tool
- Several languages available
- Also available offline
Online screw assembly configurator: available online anytime

Rexroth presents the first online configurator for screw assemblies: Now you can quickly and easily design your specific solution or even order standard products 24 hours a day, seven days a week. With practical cost overviews and short delivery times.

Easy configuration, speedy delivery
Once again, Rexroth is one step ahead: with the new online configuration tool, screw assemblies can be ordered with unrivaled speed and ease. Practically integrated in the Rexroth eShop, you can order standard components directly or navigate through the image-guided configuration process to create your specific solution. While constantly being informed of the costs. 2D and 3D data is available for download in all common formats. Go online. Around the clock. It doesn’t get any easier.

Benefits resulting from special product features
- Quick and easy design thanks to image-guided configuration
- Individual dimension inputs are checked for technical feasibility (red/green display) and plausibility
- Configuration tool integrated in eShop
- Order 24 hours a day, 7 days a week
- 2D/3D data available for download in all common formats
- Available online anywhere at anytime

Key technical data
- Complete size range represented
- Customer-specific end machining or according to the catalog
- All configuration options available
Innovations in assembly technology: powerful movement of parts and efficient acceleration of processes

Be it market-leading transfer systems that move workpieces of up to 400 kg, modular building systems that make planning a breeze, or interactive communication platforms and the latest ergonomics apps with live performance figures and analysis tools that speed up processes – Rexroth is just as innovative in assembly technology as in any other area. Take advantage of our process know-how. And of our meticulously conceived solutions.
ActiveAssist: identify workpieces clearly, guide employees individually, ensure 100 % process quality

Quick and easy learning of manual work steps for varied assembly tasks, precise checking and documentation of every step in real-time, without quality controls on the component – this dream is now a reality. The intuitive platform makes all information available to the employee at all times, individually tailored to their needs, indicates errors and intervenes to correct them. Intuitive to use and completely networked, you can bring greater quality and productivity to your manufacturing.

Variant diversity:
Lot sizes of 1 as low-cost as series production
Simple and individually adaptable employee guidance plus precision checking of the assembly step in real-time – these are the basic requirements for producing customized products at the cost of a serial product. ActiveAssist allows exactly that: the intuitive software makes the right information available at any time, tailored to the respective employee. Assembly steps are guided interactively over a projector, pick-to-light, touchscreen or data glasses and are checked and documented in parallel via 3D camera, ultrasound and nutrunner control. The flexible configuration with the simplest learning of assembly steps makes a high variance quickly manageable; continuous checking ensures high quality and productivity.

Benefits resulting from special product features
▶ All-in-one solution: freely configurable system – modularly expendable, easily integrated, quick to learn
▶ Interactive: Guiding of assembly steps over a projector/pick-to-light/touchscreen/virtual surfaces/data glasses and checking via 3D camera/ultrasound/nutrunner control
▶ Industry 4.0 compatible: open web platform for hardware and back-end systems (MES/ERP)
▶ Ergonomic: intuitive operating interface, adapted towards the language and expert knowledge of the employee

Key technical data
▶ Web-based, freely configurable software
▶ Context-based provision of information
▶ Networking with MES and ERP systems
▶ Standardized interface for pick-to-light, ultrasound, projector, touchscreen, RFID camera, bar code
▶ Connectivity to ActiveCockpit
▶ Intelligent nutrunner integration, e.g., Nexo
ActiveCockpit interactive board: view everything live, decide everything quickly – and communicate

As an interactive communication platform, ActiveCockpit processes and displays production data in real-time. IT applications from production planning, quality data management and sending e-mails are intelligently networked with machine and system software functions. All information is directly available to everyone on the line – for faster, informed decisions and simple process optimization.

For a wide variety of back-end systems, and for intuitive operation
You have never seen your key figures quicker or more clearly: in real-time and always displayed consistently in predefined layouts, allowing for immediate on-site discussion and analysis within your team. Intuitive to use and scalable from a 4.7” mobile screen to a 65” UHD touchscreen. Back-end systems can be connected easily using an open interface. You can incorporate your company visualization standards without making any changes to them. Or simply set up your own favorites. Whether you use the e-mail, chat or mobile functions, with the ActiveCockpit you can generate a problem solving process much more quickly and efficiently.

Benefits resulting from special product features
▶ Current and consistent performance figures: make decisions quickly and efficiently on the shop floor
▶ Save time and avoid errors: with direct connection to any back-end system (ERP, MES)
▶ Customer-specific: integrate your own web applications as widgets
▶ Universal: communication tool for employees at all levels
▶ Clear: better structure and documented team discussions
▶ Customer-oriented configuration: thanks to intuitive web application
▶ Automatic minutes function: saves time

Key technical data
▶ Browser-based software, can be extended via apps/widgets
▶ Connect to MES/ ERP back-end systems with i4.0 interface
▶ Scalable end devices: tablet, PC, touchscreen
▶ Intuitive user interface: customized configuration via administrator
▶ Functional data management: supports structured data storage and quick retrieval
VarioFlow plus chain conveyor: the building system for fast assembly and quiet operation

Easy to plan with the MTpro layout designer, three-dimensional, modular, fast and error-free assembly, quiet and efficient operation – the feature list of an ideal transport system sounds something like this. Rexroth has implemented it all in the new generation of VarioFlow plus. A flexible building system for the most diverse applications in a wide range of sectors. It has now been further developed to include an innovative drive concept and numerous complementary products. What more could you want?

Brilliantly easy to plan, economical to operate

Whether as a conveyor system in automotive or electronics assembly plants, in the food and packaging industry or in the linking of machine tools, the new generation of VarioFlow plus features speedy assembly and extremely efficient and quiet operation for any application. The modular building system principle and technical subtleties, such as the innovative drive concept with a separate, modular frequency converter or the numerous add-ons, are what make this transport system so practical and universal. Plan away: with MTpro, layout planning is brilliantly simple.

Benefits resulting from special product features

▶ Very easy planning: modular building system with standardized function modules and MTpro layout designer
▶ Flexible layout planning even for machine tools and electronics: thanks to new drive models, new ESD components and steel chain
▶ Rivet-free guide rail assembly: for fast, error-free installation and quiet, maintenance-free operation
▶ Low friction: for long conveyor sections without drive, low wear, lower costs
▶ Fast start-up: just attach the frequency converter to the profile slot and connect it directly to the motor with a cable

Key technical data

▶ 6 chain widths from 65 to 320 mm
▶ Aluminum or stainless steel available in all widths
▶ FDA-compliant materials
▶ Conveyor speeds up to 100 m/min
▶ 12 chain types
▶ Numerous extras: modular carrier system, adjustment units for wedge conveyors, lateral guides, stainless steel rocker, etc.
▶ Separate frequency converter can be combined with any motor up to 0.55 kW
ActiveMover: the new standard for short cycle times – more precise, faster, heavier loads

When you need to transport products with great speed and precision, the new linear motor transfer system from Rexroth sets new standards of performance: With a unique combination of speed, precision and load capacity, the new ActiveMover will increase your process quality, productivity and profitability, with every single workpiece.

Key technical data
▶ High repeatability: ±0.01 mm
▶ Max. speed: 150 m/min
▶ Acceleration of 4 g for 1 kg payload, 1 g for 10 kg payload
▶ Load per workpiece pallet up to 10 kg
▶ Workpiece pallet width 165 mm, for holding fixture < 500 mm
▶ Robust design
▶ Reversible operation
▶ Asynchronous and synchronous operation
▶ Standard interface for all process controls

Improved processes, shorter cycle times, higher loads
The ActiveMover has everything you need for highly precise transfers in short production cycles: You'll increase your process quality thanks to an extreme repeatability of ±0.01 mm – piece for piece precision without additional indexing. High traversing speeds and acceleration of up to 4 g allow for very short cycle times and increase your productivity. And, because a single pallet moves up to 10 kg and is freely programmable, you'll work more flexibly and efficiently, even when handling sensitive products. Could it get any better?

Benefits resulting from special product features
▶ Precise: exact positioning of workpiece pallet thanks to an integrated measuring system, without additional indexing
▶ Fast: shorter cycle times thanks to high speed and acceleration, faster pallet changes
▶ Robust: powerful drive with up to 160 N per pallet plus a rugged design – for easy process integration and a wide range of applications
▶ Flexible: can be connected to any control system, every pallet is freely programmable and easy to change out
TS 5 transfer system: manage up to 400 kg with easier assembly and more flexibility

400 kg per workpiece is a hefty claim. But the new TS 5 transfer system can handle that easily – even in the harshest environments. With numerous improvements, such as new lift transverse units and drive units and a sleeker design, you now have more freedom in planning and assembly. An ideal, economic solution for any application.

Planned for flexibility, easily assembled, quick to start
The conveyor specialists at Rexroth have packed the TS 5 transfer system, the heavyweight in the Rexroth range, with even more practical features. With workpiece weights of up to 400 kg, the TS 5 shines as a rugged pacemaker, even in the harshest production environments – and all this with the largest possible degrees of freedom for you in planning space or layout. The latest generation of drive, lift traverse, line and positioning units or stop gates make planning a cinch now more than ever with the most user-friendly planning tool: MTpro. Even assembly is a piece of cake thanks to slimmer formats and enhanced modularity. You can't get more flexibility when it comes to getting your application going.

Benefits resulting from special product features
▶ Maintenance-free: friction roller conveyor with king shaft drive
▶ Modular: more flexible building system
▶ Fast: simple planning with high reliability through the use of MTpro

Key technical data
▶ Track width: 455 to 845 mm
▶ Max. total weight of workpiece pallet: 400 kg
▶ Conveyor speed: 2/6/9/12/15 or 18 m/min
▶ Max. section load: 380 kg/m
▶ Optional galvanized or nitro-carburated roller surface
Ergonomics app Fit4Ergonomics: interactive notification, measuring, assessment

The latest generation of ergonomic assessment for assembly workstations is smart, fast, interactive – and works straight from your smart phone. With the new Ergonomics app from Bosch Rexroth, you can access an extensive workstation design knowledge portal, checklists, and analytical and assessment tools at any time. You can also measure levels, such as noise and lighting, directly on site. Simple, precise, interactive.

Direct from your cell phone: workstation designing made easy

With the new Ergonomics app by Bosch Rexroth, working on the ergonomic design of assembly workstations turns into an interactive experience. For the sake of your health. Using digital ergonomics checklists, workstations are assessed according to the latest ergonomics guidelines and interactive recommendations for optimization are produced. The app does not just consider the workstation, but also the surroundings, such as dimensions, lighting and noise – all measured directly with a smart phone. You can then send the results via e-mail to all the interested parties. Everything from one app. Could it be any easier?

Benefits resulting from special product features

- Knowledge portal provides faster access to all critical information
- Easy assessment with interactive ergonomics checks
- Direct on-site measuring from smart phone
- Simple creating, managing and tracking of projects
- Practical e-mail feature for ergonomics checks and project data

Key technical data

- Available free from the Apple App Store and Google Play Store
- Designed for smart phones
- Compatible with iOS versions 8.0 and higher/Android versions 4.2 and higher
- Also available offline
- Requires access to camera, photos/media, microphone
Sytronix variable-speed pump drives:
save up to 80 % energy with up to 20 dB(A) less noise

Sytronix, the combination of rugged hydraulics and efficient electronics, is the intelligent answer to increasing energy prices, cost pressure and strict environmental requirements. Compared to classic hydraulic concepts, with Sytronix you can control the speed of the pump drives as needed with intelligent drive electronics that feature state-of-the-art, customizable firmware and software. The Sytronix range is finely scaled: individual sets of pre-configured, function-oriented converters, motors and pumps with constant pressure system, p/Q control and axis control accessories.
# Overview of variable-speed pump drives

## p

**Sets for constant pressure systems**
- Pressure control

**DRn 5020/7020**
- 18.5 to 315 kW
- High overload capacity
- High control quality
- Moderate dynamics
- New

**FcP 5020/7020**
- 0.4 to 18.5 (90) kW
- Very low noise level
- New drives

## p/Q

**Sets for axis control**
- Pressure control and flow control
- Power limitation

**DFEn 5020/7020**
- 18.5 to 315 kW
- Optional HFC
- Multiple pumps
- High dynamics

**EPn 7020**
- 15 to 250 kW
- Moderate dynamics
- High overload capacity
- New

## p/Q, F/x

**Sets for axis control**
- Pressure control and flow control
- Position control

**SvP 7020**
- 9 to 80 kW
- Position control
- Pressure control
- New drives

- New motors
- New drives
SytronixSize: for faster and easier sizing of electric hydraulics

With the powerful SytronixSize tool, Rexroth dramatically simplifies the design of electrohydraulic drive systems. Handling is intuitive: the user is guided and can size out a system in no time with just a few steps. SytronixSize combines calculations of the sizes of individual hydraulic and electrical components using models. It can also present a quiet and energy-efficient solution every time based on the specific application.

Design automatically, save time and money easily
A tool containing the concentrated knowledge of Rexroth specialists: with SytronixSize, hydraulic and electrical components can be quickly and easily sized using application-specific parameters. No data sheets required. Since the tool already contains all product-relevant data and models, the design process is automatic. When calculating energy needs, the tool always compares two conventional systems – the energy savings are shown directly. Noise emissions are evaluated via the load cycle. And at the end, you get a print-out with all of the relevant application information and the recommended components. Convenient, quick and easy.

Benefits resulting from special product features
▶ Practice-oriented: application cycle factored in
▶ Energy-saving: component thermal loads are checked
▶ Up-to-date: always state-of-the-art
▶ Exact: precise and reliable results
▶ Comprehensive: pump, motor and drive controller size selection
▶ Practical: pre-defined sample applications

Key technical data
▶ Select from the entire Sytronix product range
▶ No installation required
▶ Several languages available
▶ Available offline
▶ Automatic updating
Sytronix FcP 5020 for constant pressure systems and DRn 7020: an affordable complete set

The Rexroth building kit for constant pressure systems has another powerful addition: based on current variable pumps and an optimized frequency converter, affordable drive solutions are available specifically for small power units and large systems with low dynamics. Pre-configured drive sets give you flexibility in a wide range of applications. Standardized control cabinets for the converters are an ideal addition.

Perfect for low dynamics
An ideal symbiosis of variable-speed drive and variable pump is what makes the new drive sets for constant pressure systems so affordable and flexible to use. FcP 5020 was developed from the rugged EFC 5610 specifically for small power units. With direct mounting options for various sensors and easy assembly. The DRn 7020 allows torque and speed to be reduced in partial load mode without a braking resistor, and with motor-friendly power limitation – for ideal consumption at all times based on installed power. By using standard DR and DRG pumps, the system can be easily retrofitted.

Benefits resulting from special product features
- Affordable drive solution for low dynamic performance requirements
- Flexible thanks to pre-configured sets
- Easy installation in the supplemental CAB-X standard control cabinets
- FcP 5020: sensors can be connected directly to the converter – for simple wiring and speedy installation
- DRn 7020: optimized energy efficiency and installation space – through intelligent speed reduction and power limitation

Key technical data
- Nominal power: FcP 5020: 0.25 to 18.5 (90) kW; DRn 7020: 15 to 315 kW
- MOT-FC motors with NEMA and IEC certification
- For use in constant pressure systems
- For open hydraulic systems
- Single-quadrant operation
- Ethernet-based communication and Open Core Engineering exclusively available for Sytronix series 7020
- Connectivity with Sercos and Multi-Ethernet
Sytronix SvP 7020 and EPn 7020 for p/Q control: more compact, more networked, more efficient

With the latest control unit generation of the SvP 7020, Sytronix has opened the door to new, future-proof possibilities such as Industry 4.0, remote maintenance and Open Core Engineering. Take advantage of all of the benefits of these customized, compact solutions that are easy to install and start up: These compact units ensure not only less noise, but higher dynamic performance with energy savings of up to 80%.

Directly controllable, saves up to 80 % on energy
Connect to the Open Core Interface, simply integrate in i4.0 environments for, e.g., querying actual values from Excel or operating Sytronix from MATLAB – this is all possible with the new SvP 7020 control unit. And with an additional servo converter and more compact motors, even smaller machines can achieve high power density with ease. The new EPn 7020 also allows for flow control. The flow target value and current pressure are used to calculate the optimal operating point for the entire system at all times. Even existing systems can be retrofitted to save energy.

Benefits resulting from special product features
- More compact: high power density even in smaller machines
- Future-proof: easily integrated into i4.0 environments, easily connected to Open Core Interface
- More energy-efficient and dynamic
- More practical: pre-assembled motor-pump assemblies with asynchronous or synchronous motor as needed
- Easier: installation and start-up
- Connectivity with Sercos and Multi-Ethernet, PROFIBUS and CANopen

Key technical data
- Max. effective power: 80 kW
- For use in axis control systems
- For open and closed hydraulic systems
- 2-quadrant operation possible (also 4 quadrants with SvP)
- Scalable performance: with basic and advanced control units from IndraDrive building system
- Up to 150 mm less installation length: 25 % more compact in upper power range
- Motor-pump assemblies (MPA) can also be ordered separately
Sytronix DFE: high power and high dynamic performance intelligently networked

The Sytronix DFE system sets consist of an electrohydraulic-controlled axial piston pump driven by a variable-speed asynchronous motor. Your benefit: by using standard motors of up to 315 kW combined with the highly rugged, proven SYDFE pressure and delivery rate control systems, an outstanding price/performance ratio can be achieved into the high power range.

Advanced Performance – great power and dynamics
Sytronix DFE reduces the load on the motor during pressure-holding operation. This means that ideally the electronic components can be designed to be smaller than in conventional drives. The system can be operated in two modes: in "teach-in" mode the cyclically recurring pressure and flow profiles are firstly stored in the electronics so that the system accelerates correctly prior to an increase in flow. In non-cyclic machines (e.g., wood processing/metallurgy), the real-time mode can be used instead. This involves the controller calculating the optimal combination of motor speed and swivel angle setting while the process is running. This maximizes energy savings.

Benefits resulting from special product features
▶ Reduced investment costs due to simple retrofitting
▶ Good price/performance ratio in upper power range thanks to the downsizing of electrical components
▶ Versatility of use: available for A10 and A4 pumps
▶ Versatile networking with Multi-Ethernet interface in EFC converter
▶ Great performance

Key Technical Data
▶ Effective power up to 315 kW
▶ Use in open hydraulic systems
▶ Multiple-circuit and master-slave systems can be built up
▶ Power control: Constant pressure (p) and axis control (p/Q)
▶ 2-quadrant operation
▶ Connectivity with Sercos and Multi-Ethernet, PROFIBUS and CANopen
More knowledge, more benefits: further employee qualification

At the Rexroth Drive & Control Academy, we provide your employees useful training in all drive and control technologies – using genuine industry components. Touch, understand, and apply all of the Drive & Control subjects, as well as trending subjects like Industry 4.0, either at our training centers, your premises, or online.
Ready for Industry 4.0: training, media and a small-scale training system for an entire factory

Bosch Rexroth is not just the leading provider of Industry 4.0 components and systems, it is also the leading user. We are happy to share this unique know-how. At the Drive & Control Academy, we support customized training and further education, as well as certification for technical specialists – focused on Industry 4.0 requirements.

Unique knowledge made available: the Drive & Control Academy

As a full-service provider of everything related to driving, controlling and moving, Bosch Rexroth has developed unique technical knowledge through the Industry 4.0-compliant automation of systems and machines. At the same time, the Bosch Group is also a leading user and one of the biggest trainers for technical occupations. We have over 250 production sites and the knowledge of what is needed for industrial applications in a networked world.

At the Drive & Control Academy of Bosch Rexroth, you will find a broad range of one-of-a-kind training and continuing education programs: training, media, an online portal and modular training systems with industry components that allow you to run through many important Industry 4.0 functions. Take advantage of Rexroth’s know-how for hands-on qualification, contact your technical experts for Industry 4.0.

Drive & Control Academy:
Discover the training courses, media and training systems for Industry 4.0.

www.boschrexroth.com/academy