

Metallurgy Service

Ready to keep your Production running



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Metallurgy is a demanding industry sector with challenging working conditions. Continuous production and a harsh environment cause wear on components, which can lead to dangerous consequences for the workforce and high downtime costs. Bosch Rexroth offers solutions to keep operations running smoothly and to optimize processes for maximum efficiency and safety.

our way
we MOVE to win
 + People | Digitalization | Sustainability

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Bosch Rexroth Service Portfolio for Metallurgy

Stay on top of all maintenance needs with Bosch Rexroth Services

Many metallurgy processes require continuous production to meet industry requirements. This means that there is a lot of strain on the hydraulic components, which are essential to keep the systems running. Dust, humidity, high temperatures, vibrations and chemicals involved also contribute to wear and tear. To avoid unforeseen malfunctions, regular maintenance is necessary and helps ensure that machines operate reliably and efficiently. Identifying potential risks is crucial for meeting the high safety demands in the sector and to prevent accidents at the workplace.

A good service agreement is also a smart investment that can lead to significant cost savings in the long run. Regular maintenance helps to identify and address minor issues before they develop into major problems that require

expensive repairs or replacements. By conducting inspections and repairs regularly, potential breakdowns can be prevented, leading to less production downtime and resulting losses. Machines operate more efficiently if they are maintained regularly by trained and certified personnel.

The Bosch Rexroth Service Portfolio for Metallurgy supports customers with relevant tools to keep their production running and the total cost of ownership at a lower level, which is a key performance indicator of the industry. The service portfolio of Bosch Rexroth includes a broad range: from spare parts in case of emergency to preventive measures for keeping systems up to date to retrofits or modernizations - We have the solution for you!



Categories within the Service Portfolio

- ▶ Repairs and Fixed Price Repairs
- ▶ Field Service
- ▶ Industry Service
- ▶ Spare Parts
- ▶ Service Agreements

Basic

BASIC SERVICES COMMON FOR ALL REGIONS

- ▶ Phase-Out Management and Replacement of phased out Products
- ▶ Digital Services
- ▶ Retrofit Kits

Advanced

PROACTIVE SERVICES - PREVENTIVE AND PREDICTIVE

- ▶ Standardized Modular HPUs
- ▶ Hydraulic Mold Oscillation
- ▶ Energy Saving Solutions
- ▶ Functional Safety Solutions
- ▶ Fluid Type Changes

Upgrades

REPLACEMENT / RETROFIT / MODERNIZATION

Global Service Network & Metallurgy Application Center

Discover the global Bosch Rexroth Service Network, providing expert knowledge anywhere in the World

With over 2000 Service Technicians working in many different countries all over the world Bosch Rexroth offers a broad Service Network. Additionally, the Service team is supported by certified Excellence Service partners that are close to the market, to support our customers locally. The unique combination of worldwide Service support, together with the Application Center for Metallurgy offers Bosch Rexroth customers broad technical expertise to deal with all issues.

more than
2000
perfectly trained
service experts

over
218
service center

184
locations

52
countries

Repair Portfolio and Fixed Price Repairs

Discover the advantages of Bosch Rexroth Repairs: total transparency and cost-efficiency for all your repair needs



Bosch Rexroth offers several levels of repair to fulfill the customer requirements. This includes standard repair, urgency repair and an emergency repair. These vary in speed and scope of the repair.

Besides this, Bosch Rexroth offers Fixed Price Repairs in the field of metallurgy, that can improve the process significantly. One of the key advantages is cost security. With a Fixed Price Agreement, unexpected expenses and budget overruns can be avoided. The cost of the repair is predetermined and transparent, ensuring that there won't be any hidden fees or additional costs later on. These agreements also offer better planning reliability - Unlike traditional repairs, where timelines can be uncertain and drawn out. By removing multiple steps, like approval times, technical discussions or clarifications with the customer, from the process, we are able to drastically

shorten it, resulting in an average duration of only 8 working days for a Bosch Rexroth Fixed Price Repair. The Fix Price repair includes a 12-month warranty on the complete unit. This guarantees additional security for the customer. Should any issues arise within the warranty period, they can be addressed without incurring additional costs.

All technicians performing these repairs have extensive knowledge and training on the components. This enables a precise analysis of the component during inspection and a back-to-new-level after the overhaul. Additionally, Fixed Price Repairs ensure that only original manufacturer's specifications are used. This means that your equipment will be repaired using original spare parts and the manufacturers testing specifications, guaranteeing optimal performance and longevity.



Fixed Price Repair



Standard repair

* approximate time in working days

BASIC SERVICES

Bosch Rexroth
Repair Portfolio



Benefits of Fixed Price Repair by Bosch Rexroth

- Cost security
- Planning reliability
- 12 months New Part Warranty
- Maximum quality and reliability
- Original manufacturer's specifications

Operator risks of repairs by non-certified service centers

- Shortened service life and higher total cost of ownership
- Liability risks
- Loss of productivity and quality
- Increased climate impact
- Longer maintenance times

Maintenance Cooperation with our Customers

It is key for Bosch Rexroth Service to work closely together with the customer for the best results

SPARE PARTS MANAGEMENT

The Bosch Rexroth Spare Part Management Service is a comprehensive solution to efficiently oversee and stock the spare parts inventory for customers. It ensures the right parts are available when needed, avoiding over- or under-stocking. Bosch Rexroth takes on all responsibility for the stocking of parts and guarantees they won't have exceeded their shelf life by the time they need to be used.

The same is true for the warranty: It starts with the implementation instead of the storage. With clearly defined access times and quantities, as well as an agreed upon replenishment times, the customer has complete planning security. Throughout the whole contract period prices are fixed, resulting in lower costs and uninterrupted operations for the customer,



Advantages of Original Bosch Rexroth Spare Parts

- ▶ Worldwide support for technical clarification and quotations
- ▶ Spare parts and kits including instructions and exploded drawings
- ▶ Easy identification and documentation via online catalog
- ▶ Express delivery from central warehouse
- ▶ Express assembly of customer specific version for wide range of products
- ▶ Assembly of phased out products

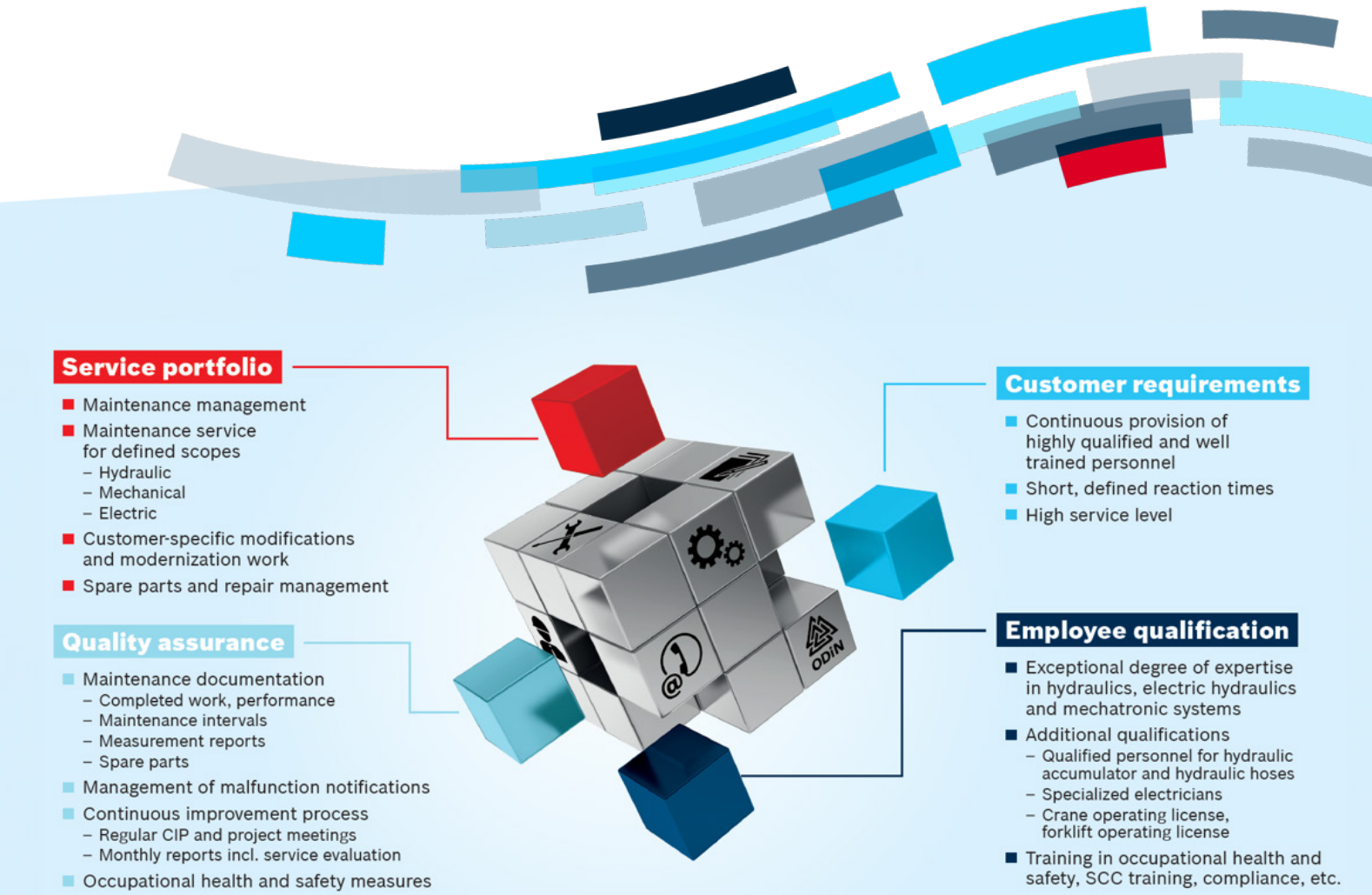


▶ Bosch Rexroth Spare Parts Finder

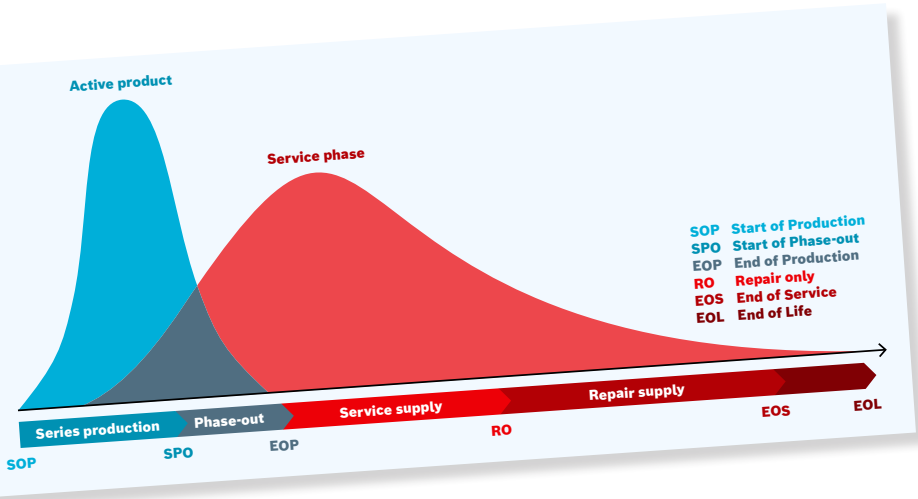
INDUSTRY SERVICE

Bosch Rexroth offers to take on the responsibility for the end user's maintenance tasks, including whole areas or applications. This means a portfolio of services, like regular maintenance, calibrations, troubleshooting or retrofits, will be clearly defined together with the customer and carried out by Bosch Rexroth. Technical errors can also be resolved as soon as they arise. We know that maintaining hydraulic systems and units requires a high level of experience. This is particularly the case for industry-specific applications. Bosch Rexroth can

take over the whole personnel management and the responsibility to have enough staff with the right qualification on site, including any additional certificates that are needed, for example for specialized electronics. Customers can have our Service Technicians permanently stationed at their location to acquire application specific expertise that can be difficult to find. These technicians cooperate with the customers staff, sharing their knowledge and ensuring that measures taken are up to our high standards for safety and precision.



Proactive Services - Preventive and Predictive

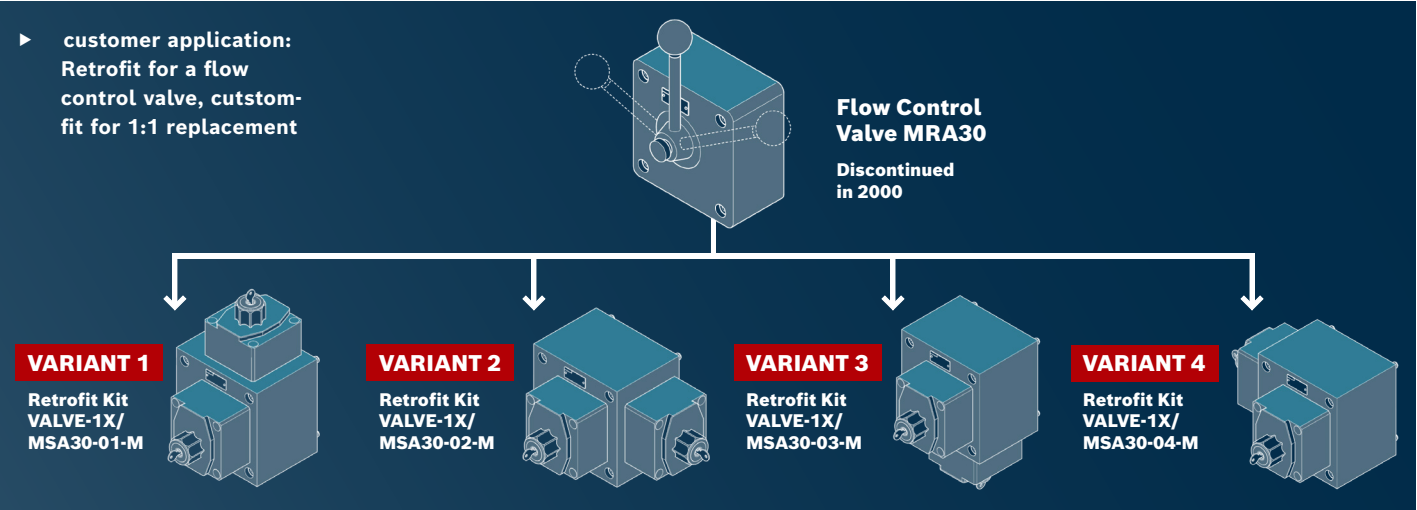


PHASE-OUT MANAGEMENT

It can be difficult to keep track of many machine parts and the stage of the service life cycle they are in. Bosch Rexroth supports you with proactive information regarding the phase out of materials. The most important part is to have an overview of the installed base. Many components are delivered by OEMs, as part of a machine. So, it is crucial to together identify the critical components that need a certain maintenance strategy. Besides this proactive information and the discussion on the installed base, Bosch Rexroth offers functionally compatible solutions, retrofit kits or individual solutions that will keep the total cost of ownership down.

RETROFIT KITS

Standardized retrofit kits from Rexroth have a big impact for less cost and effort. The complete 1:1 replacement solutions make fast and easy retrofitting possible because they require no or only minimal changes. The graphic below shows one retrofit example from the metallurgy sector. The flow control valves MSA30 or MRA30 were sold from 1970 to the early 2000s. They perfectly fit into the machines but the components are no longer repairable. Bosch Rexroth created a retrofit by designing a manifold with two mounted valves that has the same connection diagram. Like this, it fulfills the same performance specifications and has the same dimensions.



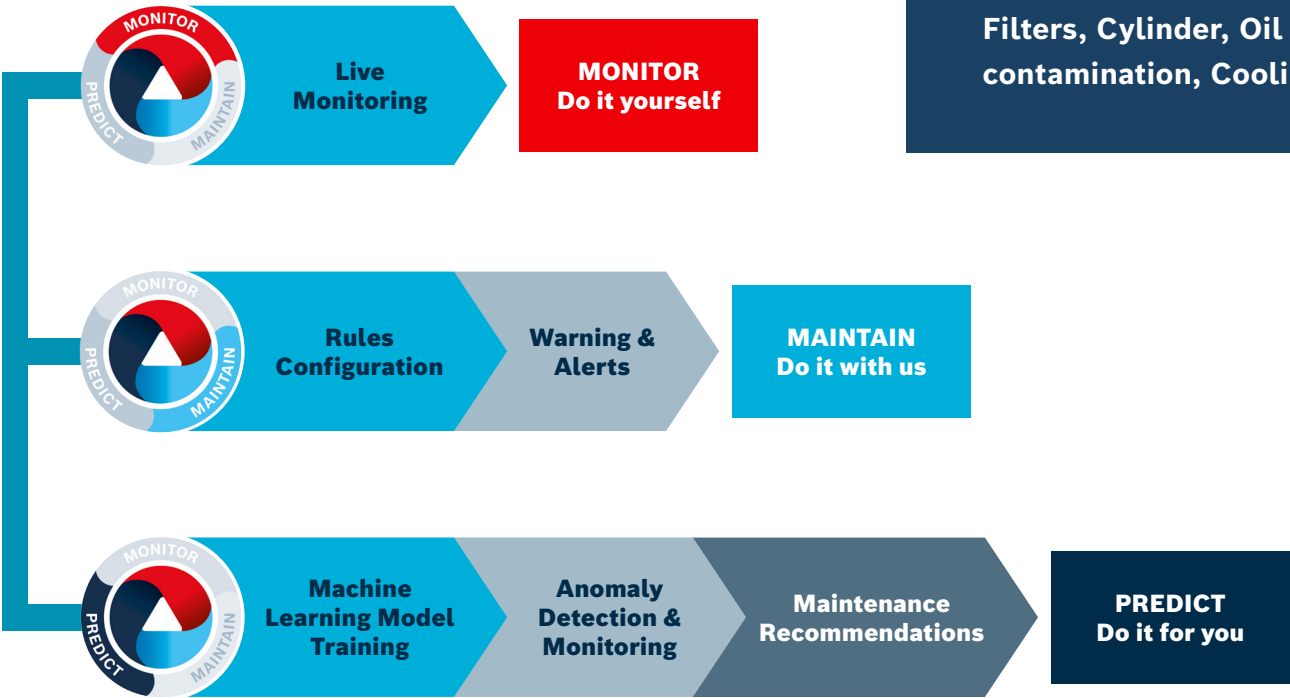
CYTROCONNECT SOLUTIONS – THE DIGITAL SERVICE FOR CONDITION MONITORING AND PREDICTIVE MAINTENANCE

Digital solutions help to support maintenance activities and give insights into the current machine status. The goal is to avoid unplanned machine breakdowns which cause production loss and high costs and to extend the maintenance cycles according to the condition of the component. Bosch Rexroth is an expert in the field of hydraulics and combines that with industrial expertise to offer reliable Condition Monitoring and Predictive Maintenance Solutions. Our modular approach starts with a data visualization solution of the current status which gives first insights into the machine and supports for several smaller use cases. By enlarging the service with a rule based condition monitoring, automated alarms and warnings are sent out by the system, in case the machine exceeds any boundaries. With CytroConnect Predict this system is equipped with machine learning models to detect anomalies in an early stage to predict the right service interval. The Predict service also includes maintenance recommendations by experts, quarterly reporting and daily monitoring by Rexroth Experts.



Customer Application of CytroConnect Solutions for an electric Arc Furnace

- Installed in Italy in 2022
- Solution for Pumps, Filters, Cylinder, Oil contamination, Cooling



Hydraulic Upgrades & Machinery Modernization

Old Machines, New Possibilities: Achieve Peak Performance with Machinery Upgrades by Bosch Rexroth

Steel Plant production machinery can often be more than 30 years old, resulting in a large demand for retro-fitting state of the art hydraulics and other machine updates. In addition, safety guidelines and other regulations have evolved over the last decades. Bosch Rexroth offers modern solutions to meet market requirements from smaller component-based upgrades and retrofits to major hydraulic modernization projects.

Steel producers are obliged to consider CO2 emission reduction as part of their Total Cost of Ownership calculations to satisfy market demands, and new regulations like machine directive ISO 13849. In addition, new trends for have emerged for downsizing hydraulic systems I.e. increased system pressure to reduce flow demands (smaller pump size) and technology for reducing reservoir oil volume needs.



Application specific solutions



Standardised modules



Replacement of components



Hydraulic system upgrades

Portfolio for Retrofit and Modernization by the Application Center

APPLICATION BASED STANDARDS WITH METALLURGY INDUSTRY FOCUS

Bosch Rexroth offers standardized hydraulic functions for furnaces, ferrous and non-ferrous continuous casting machines and rolling mills. These metallurgy functions improve efficiency, reliability, cost-effectiveness and reduce downtime for production machines by utilizing proven, tested solutions.

They ensure maintenance costs will be reduced while maintaining consistent production output quality. Pre-engineered circuits and functionality are the ideal solution for retrofitting and modernizing, but can also be modified as needed for specific customer requirements.



Coke Plants



Furnaces (BF, EAF, WBF, LF, PF)



Continuous Casting Machines



Rolling Mills



Processing Lines

Possible Applications for Bosch Rexroth Upgrades and Modernizations

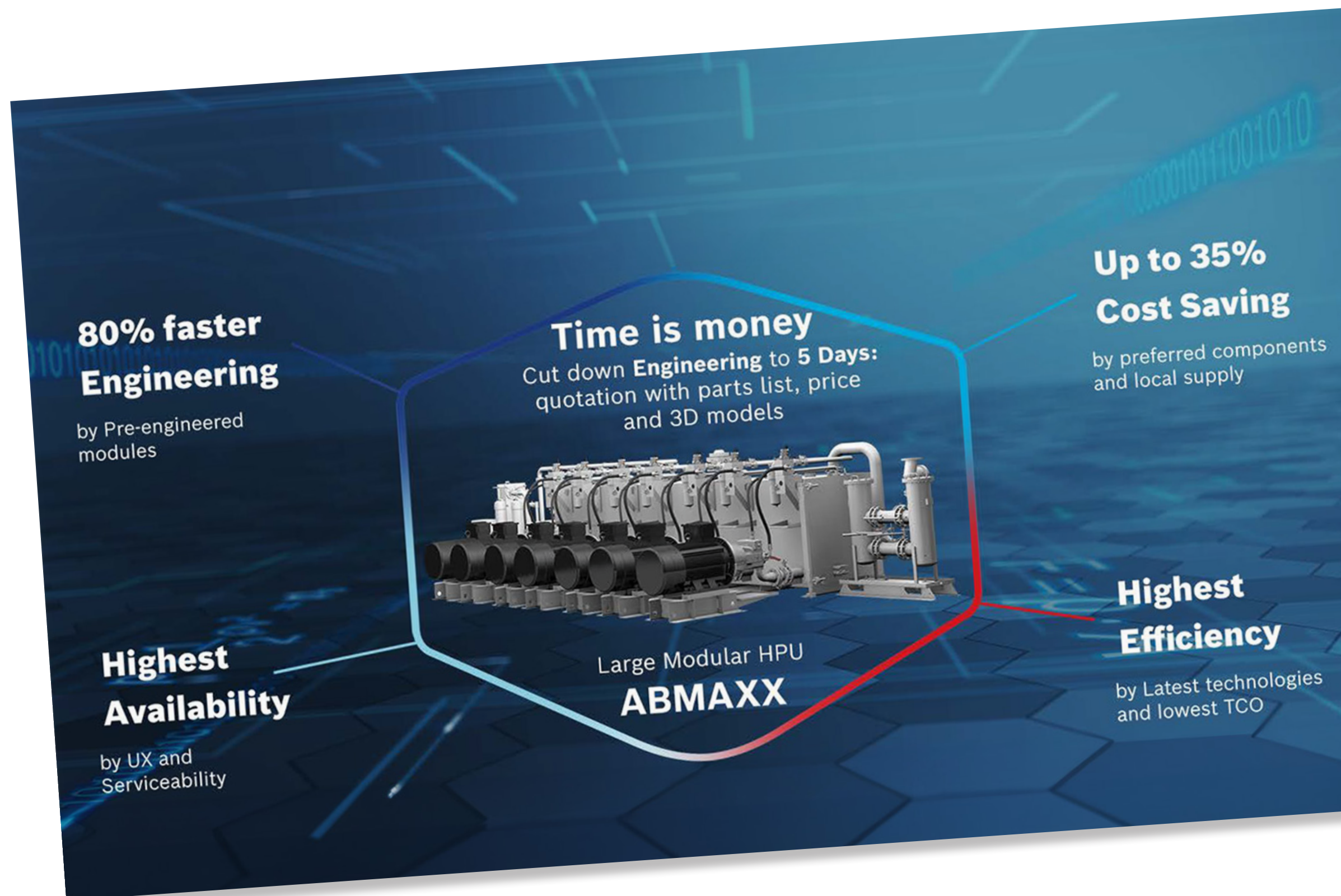
ABMAXX - Modular Construction Kit for High Power Hydraulics

Rexroth's modular ABMAXX large hydraulic power units accelerate the engineering and commissioning process. Hydraulics specialists are able to create an average quotation including the hydraulic circuit diagram, parts lists, a 3D model and footprint estimate within one standard work week. The pre-configured ABMAXX modules are ideal for retrofits and modernizations of installed power units, as each single module can be sized accordingly. Total Cost of Ownership reduction and sustainability are considered during the development phase:

- ▶ Motor pump groups with variable speed pump drives (Sytronix) for energy efficiency are optional
- ▶ CytroConnect with the 3 services levels are also optionally be installed on any ABMAXX system
- ▶ myCro technology implementation to reduce hydraulic system oil volume by 50% is also available

Technical stats:

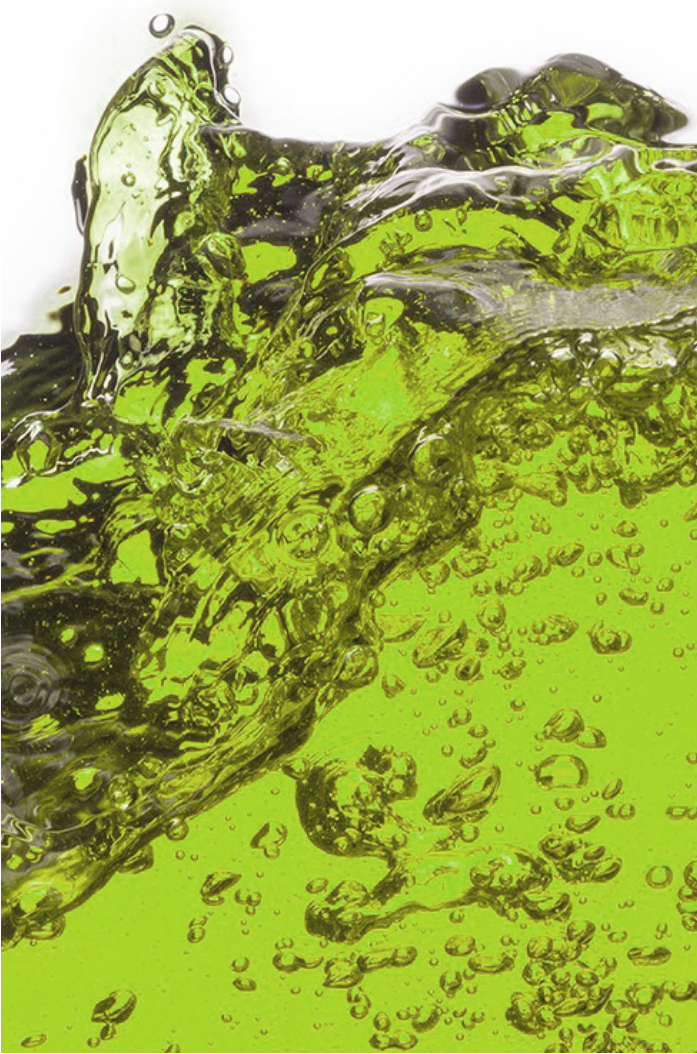
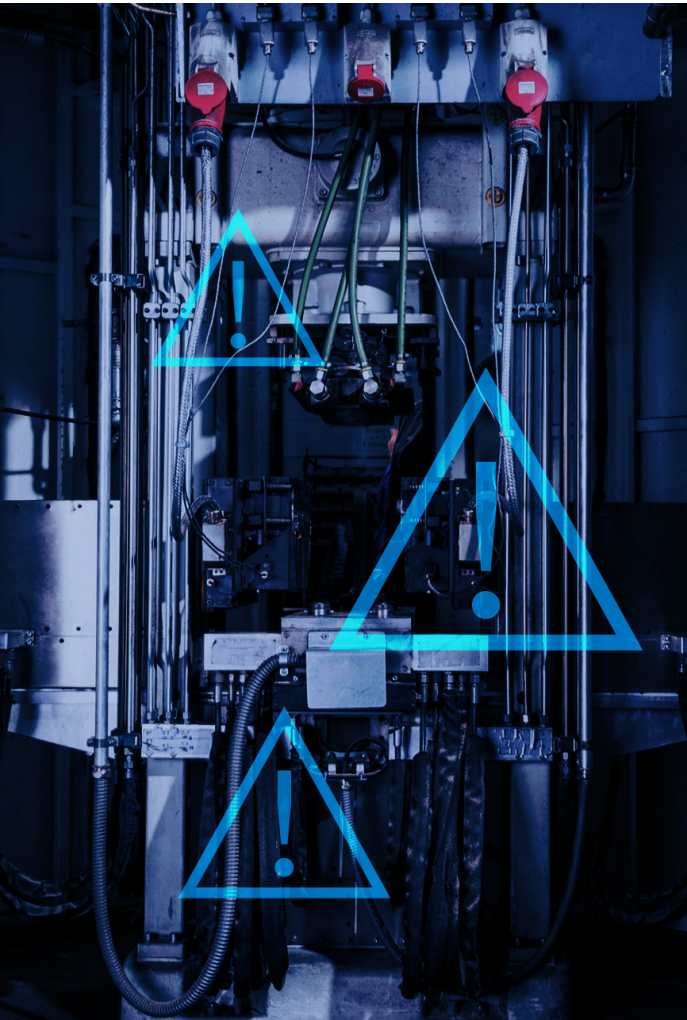
- ▶ Tank size: 2.000 to 18.000 liters
- ▶ Variable pressure ratings up to 315 bar
- ▶ Pump total flow from von 345 l/min to 3.200 l/min (A4VSO/A10VSO)
- ▶ 165 different pre-designed modules
- ▶ Available CytroConnect ready
- ▶ Pre-configured Modules also for Retrofits



Upgrades for Safety and Resilience

FUNCTIONAL SAFETY

The safety standard EN ISO 13849 plays a major role for functional safety compliance in machinery design and construction, as it specifies the safety-relevant portions of machine controls requirements. Most of the production machines in metallurgical plants have been in operation for decades and are not EN ISO13849 compliant. Bosch Rexroth provides a wide portfolio for upgrading existing hydraulic controls to meet the compulsory regulations.



FLUID TYPE CHANGES

Fire resistant and eco-friendly fluids have become more common and are applied due to environmental and actuarial (uncertainty and life expectancy models) guidance. Adapting to future challenges posed by these evolving component configurations and system designs, is something Bosch Rexroth Service is uniquely poised to deliver, and can keep the machines running smoothly over the long haul.

APPLICATION CYLINDERS

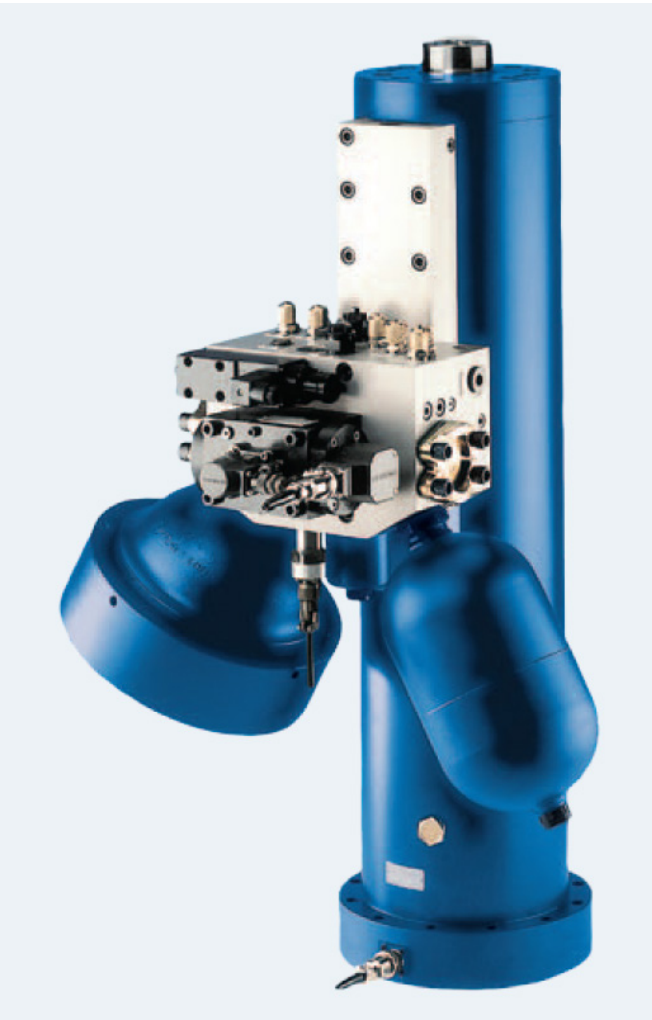
The harsh environmental and operational conditions in metallurgy impact hydraulic cylinders lifetime. Bosch Rexroth developed tailor-made solutions that withstand the hot, humid and contaminated atmosphere found in steel works. Typical cylinder applications are Hydraulic Mold Oscillation in casters and Automatic Gauge Control in rolling mills. For servicing and replacement of existing cylinders please contact with the Bosch Rexroth.



► Automatic Gauge Control Cylinder

The Benefits of Upgrading Machinery with Bosch Rexroth

- Extended lifetime of the machines with state of the art technology
- Compliance with the latest standards and guidelines
- Total Cost of Ownership reduction in terms of energy efficiency and reliability
- Increase of sustainability in terms of less oil consumption and reservoir downsizing
- Digitalization of components and systems



Hydraulic Mold Oscillation Cylinder ◀