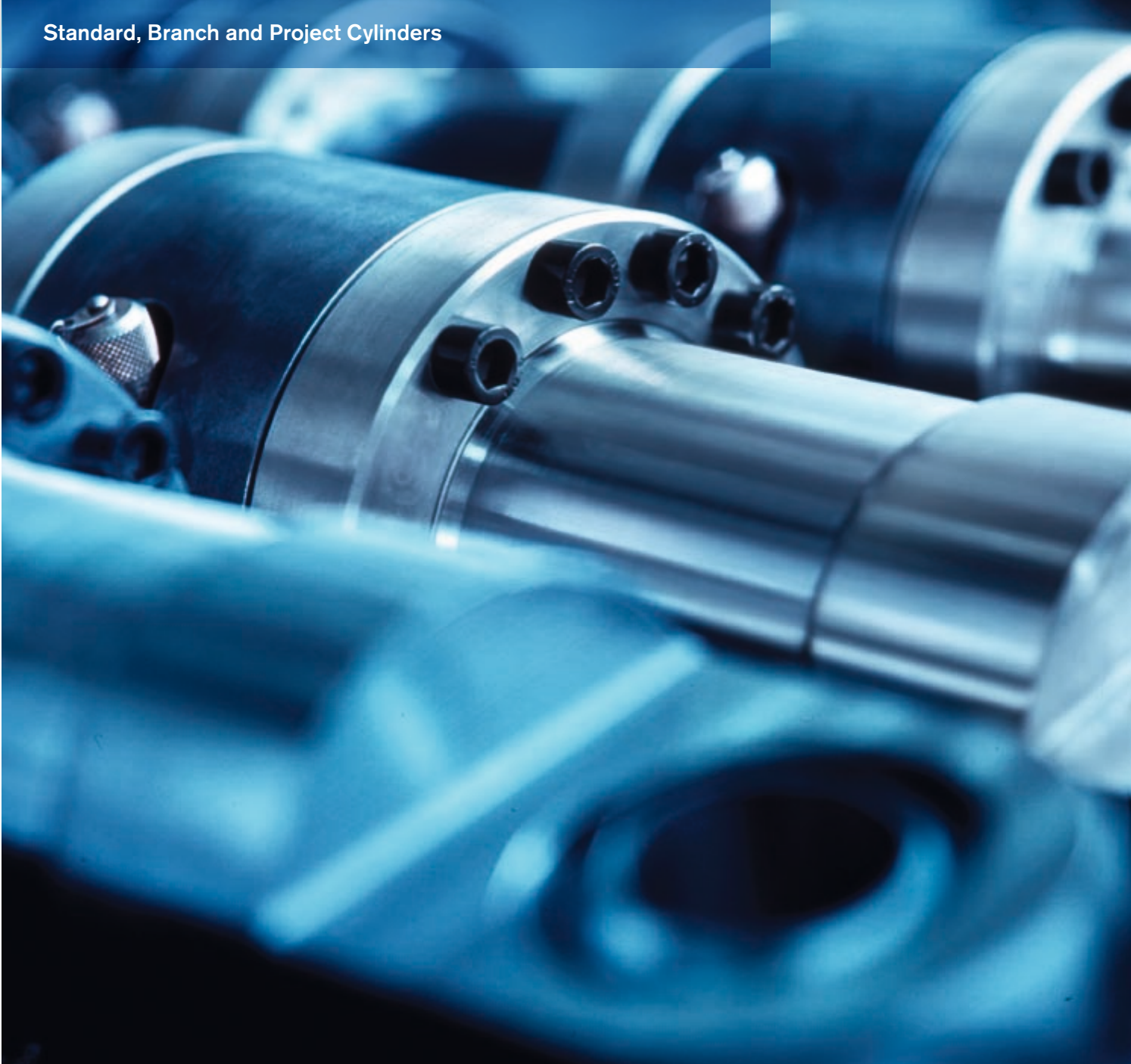


Three in One: Rexroth Hydraulic Cylinders



Standard, Branch and Project Cylinders



We develop and produce cylinders for virtually every branch of industry and for every purpose: Steelworks and rolling mills, foundry machinery, machine tools, general machine construction, presses, plastics processing machinery, civil engineering, wood and paper industry, handling systems, on- and offshore, ...

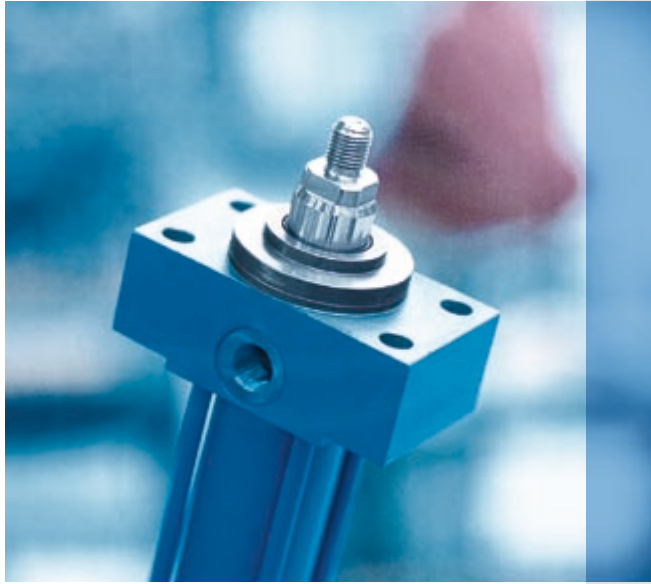


Three in One: Hydraulic Cylinders from Rexroth

Whether you are integrating Standard Cylinders, Branch Cylinders or Project Cylinders into your overall concept: All standard series are highly configurable to an universal concept, thus enabling you to avoid special costly designs. Rexroth maintains actually a minimal number of standard series, preferring to concentrate on improving special features of variants instead.

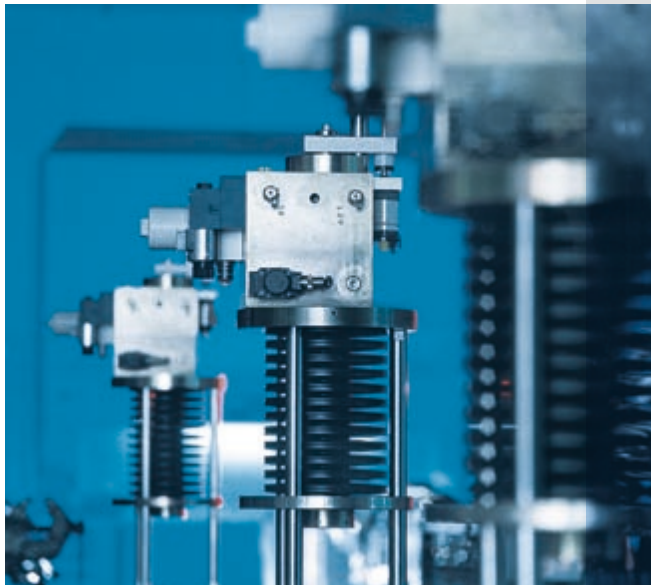
With Branch Cylinders highly specialized project design engineers work out customer-specific solutions: These cylinders are designed, tested and then, once ready they are series-produced in the required quantity, all in collaboration with the customer.

Something special – that's our strength: Rexroth develops and produces Project Cylinders for project-related individual solutions. We accept virtually every challenge, realizing cylinders with piston diameters of up to 1,500 millimeters and stroke lengths of up to 24 meters – and naturally with the relevant, perfectly matched with power units, connection ports and other accessories.



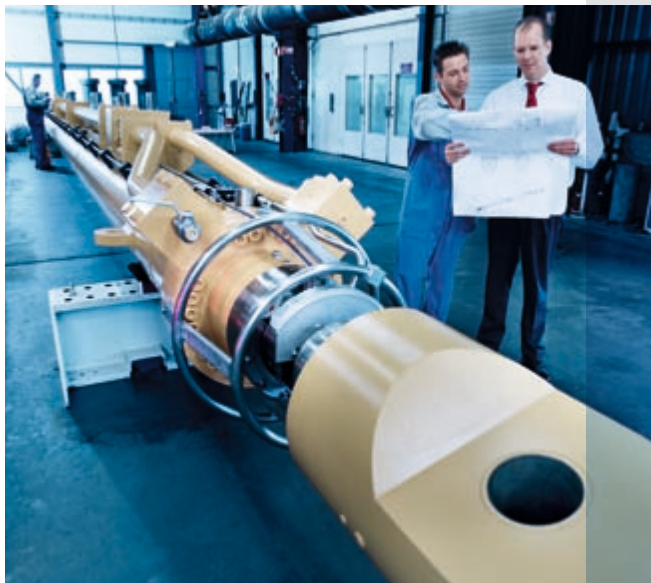
Standard Cylinders

Rexroth Cylinders: Technological leadership combined with highly specialized application know-how. The right partner for your requirements in every branch of industry.



Branch Cylinders

Standard Tie Rod Cylinders	4
Standard Mill Type Cylinders	6
Branch Cylinders	8
Project Cylinders	12
Interactive Catalog System	16



Project Cylinders



The specific advantages of Rexroth Tie Rod Cylinders come particularly to the fore in machine tools and transfer systems for automotive production: They are extremely short in their design and, with up to 18 different mountings available, they offer a high degree of freedom when it comes to design.

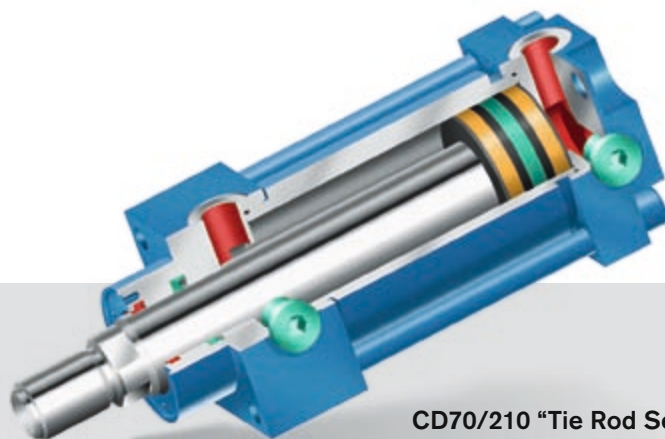
Compact Variety: Standard Tie Rod Cylinders

The extensive range of Tie Rod Cylinders from Rexroth in modular design comprise a large number of variants as well as mountings – and more. Particularly with demanding applications an optional, integrated absolute position measuring system ensures high precision movements. It is space-saving and works in non-contact operation.

Even with the development and production of Tie Rod Cylinders Rexroth uses proven methods and tools in the automotive industry. This offers you the security of reproducible large-scale series quality. Self-adjustable end position

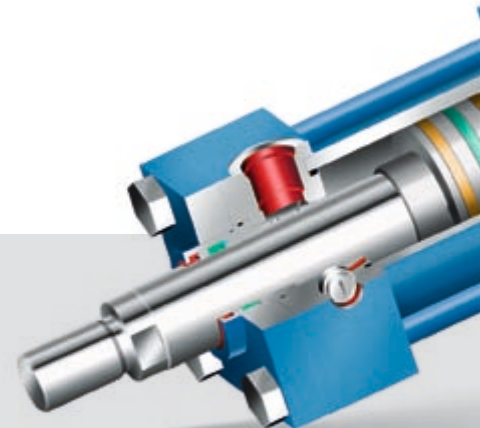
cushioning with integrated throttle and check valve function prevents damage both to the cylinder and the whole system. Integrated proximity switches record the position of the piston rod in both end positions. Subplates for control valves simplify the design of hydraulic axes for positioning as well as open and closed loop control of the cylinders with minimum cost and effort.

By consistent use of these complete solutions you can reduce complex conversions, and thus also the total cost of ownership, of your automation solutions.



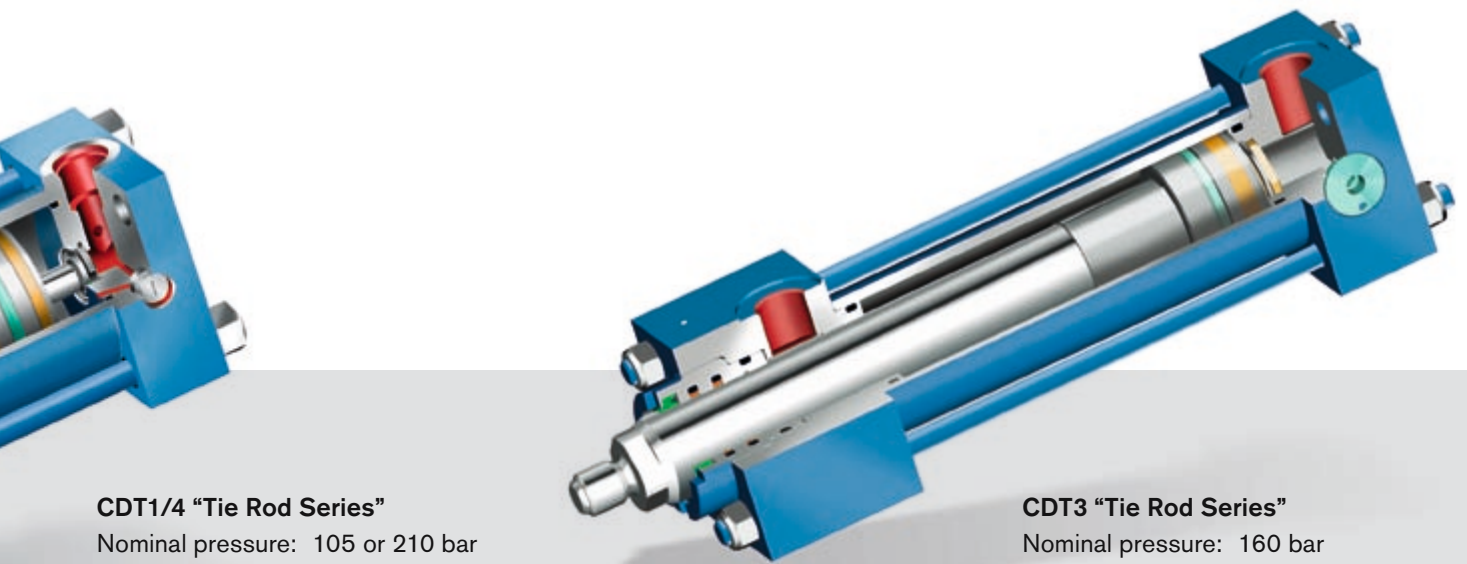
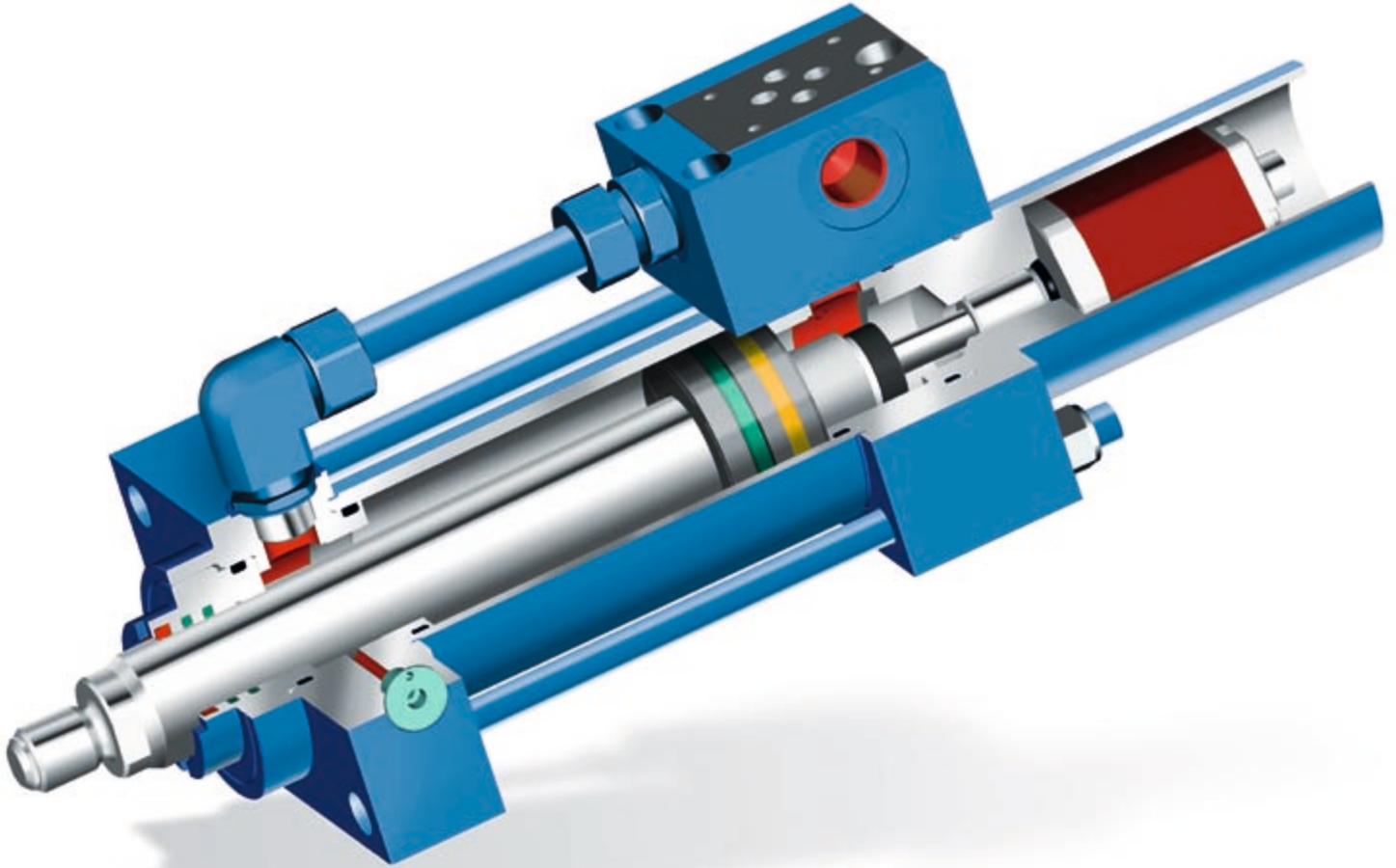
VBH "Tie Rod Series"

Nominal pressure: 200 bar
Piston diameter: 25 up to 125 mm
Standards: CNOMO



CD70/210 "Tie Rod Series"

Nominal pressure: 70/210 bar
Piston diameter: 25 up to 200 mm
Standards: NFPA



CDT1/4 "Tie Rod Series"

Nominal pressure: 105 or 210 bar
 Piston diameter: 1,00/1,50 up to 8,00 ins.
 Standards: NFPA

CDT3 "Tie Rod Series"

Nominal pressure: 160 bar
 Piston diameter: 25 up to 200 mm
 Standards: ISO 6020/2



Cylinders for virtually every branch of industry and for every purpose: Steelworks and rolling mills, foundry machinery, machine tools, general machine construction, presses, plastics processing machinery, civil engineering, wood and paper industry, handling systems.

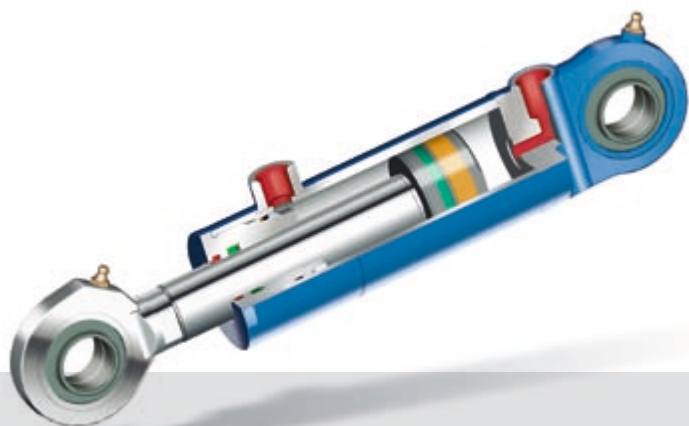
Robust and More than the Norm: Standard Mill Type Cylinders

All Mill Type Cylinder series are highly configurable to an universal concept, thus enabling you to avoid special costly designs. Rexroth maintains actually a minimal number of series, preferring to concentrate on improving special features of variants instead. This guarantees swift results to suit you.

All cylinders are as clear and constructive in their assembly as they are precise in their design: Rexroth cylinders have an precision-driven piston rod combined with the latest bearing and sealing systems.

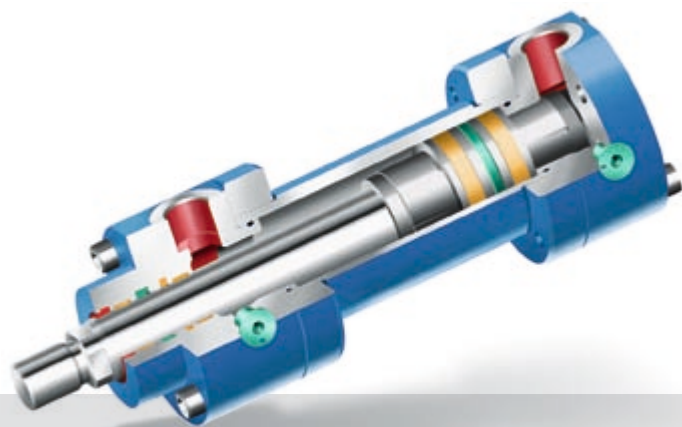
An optional integrated absolute positional measuring system ensures maximum precision. Sub-plates for proportional control valves, as well as for SL and SV check valves, simplify the positioning, as well as open and closed loop control of the cylinders, with minimum cost and effort.

Its robust design makes Rexroth Mill Type Cylinders especially reliable, even under extreme working conditions.



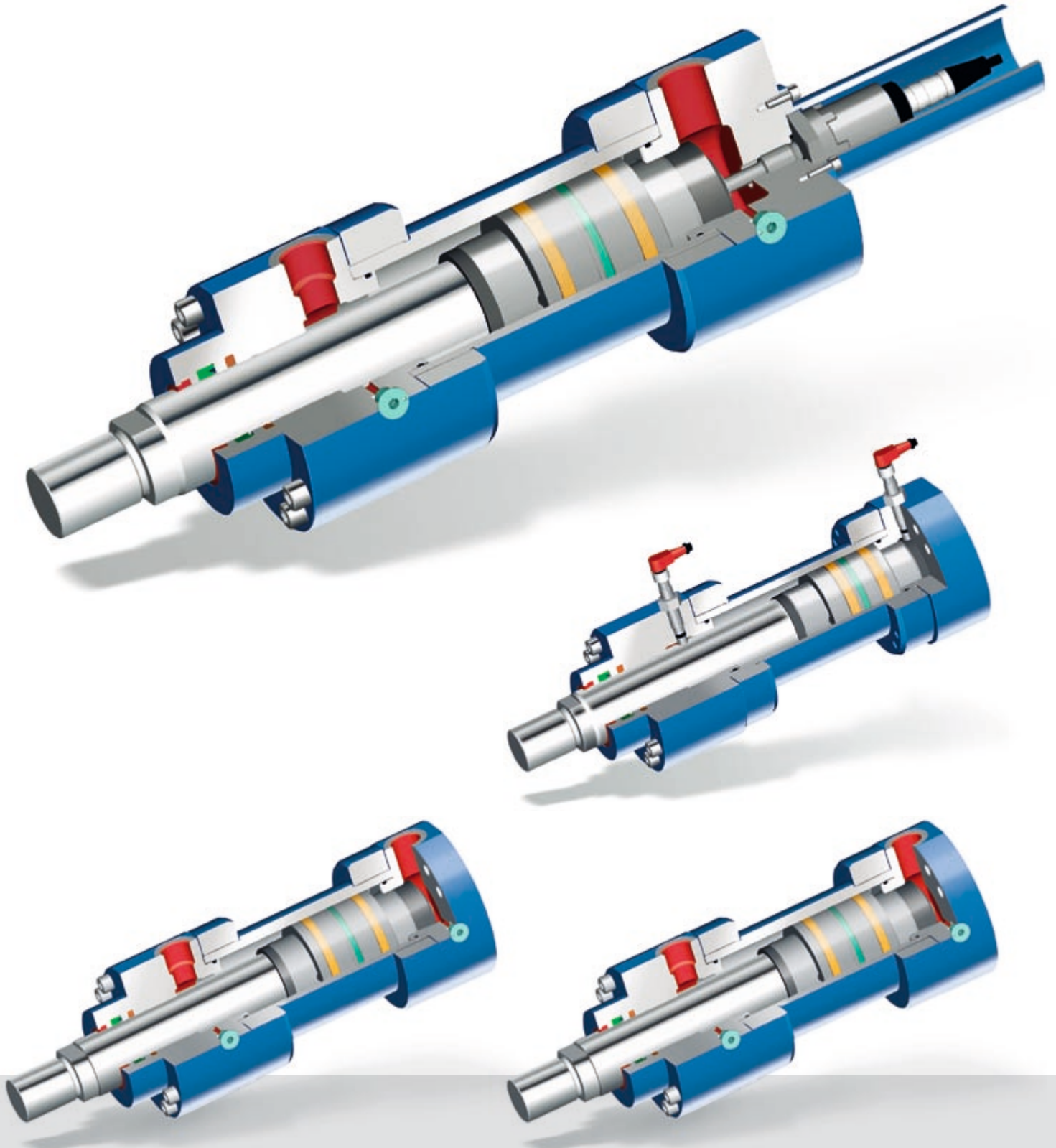
CDL1 "Light Series"

Nominal pressure: 160 bar
 Piston diameter: 25 up to 200 mm
 Standards: Bosch Rexroth Standard



CDM1 "Medium Series"

Nominal pressure: 160 bar
 Piston diameter: 25 up to 200 mm
 Standards: ISO 6020/1



CDH1/3 "Heavy Duty Series"

Nominal pressure: CDH1 250 bar

Nominal pressure: CDH3 350 bar

Piston diameter: 40 up to 320 mm

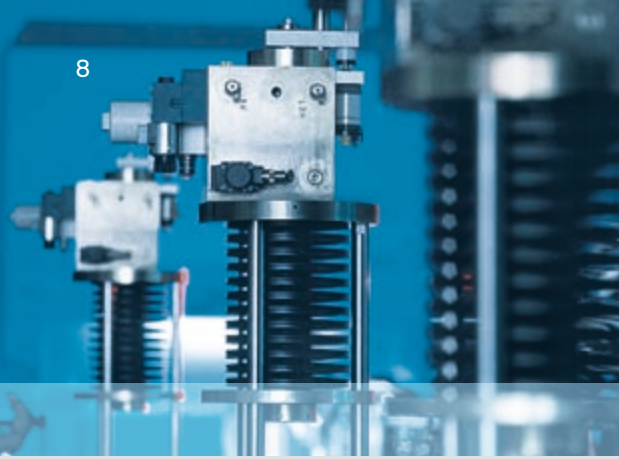
Standards: Bosch Rexroth Standard

CDH2 "Heavy Duty Series"

Nominal pressure: 250 bar

Piston diameter: 40 up to 320 mm

Standards: ISO 6022



Highly specialized cylinder design engineers engage themselves in working out customer-specific solutions: Special Branch Cylinders are designed, tested and produced in series, all in collaboration with the customer.

Individual Series: Branch Cylinders

Hydraulic drive systems control the angle of incidence of the rotor blades in wind turbines in robust, reliable and maintenance free way.

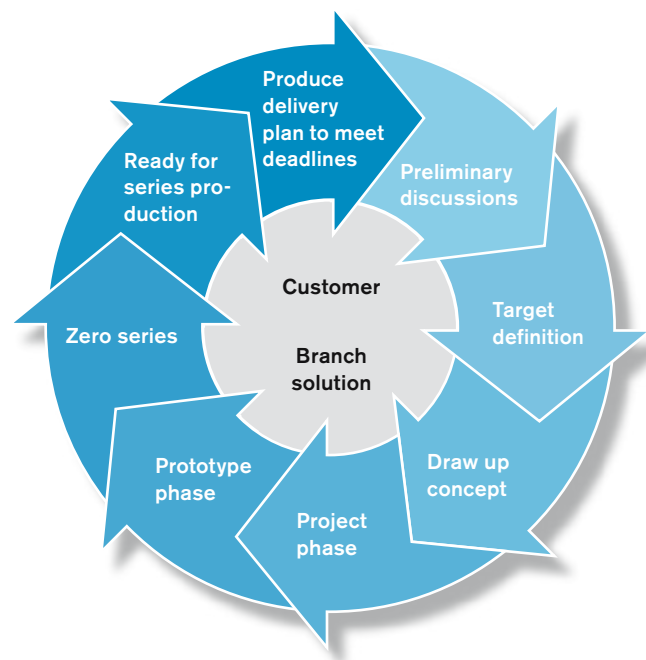
The machine manufacturer sets the task and Rexroth designs the ideal electrohydraulic linear drive – hydraulic cylinder, compact control block, control valve and digital axis controller – all from a single source.

For this branch solution together with the customer Rexroth developed a solution based on Standard Cylinders exactly to the requirements and optimally combined with matched control components. And this is where your know-how, combined with that of Rexroth, really counts: This is because

every application demands tailor-made concepts. Rexroth develops state-of-the-art solutions, working together with you as trustworthy partner as well as with leading research institutes.

We naturally place great emphasis on protecting your interests. This also includes the consistent application of the latest quality methods in the development and production of your Branch Cylinders. With simulation programs that we have developed we can calculate at an early stage the parameters required, thus offering you the highest level of safety in drive design. We configure complete, ready-to-use axes to your specifications. Precisely: Individuality in series.

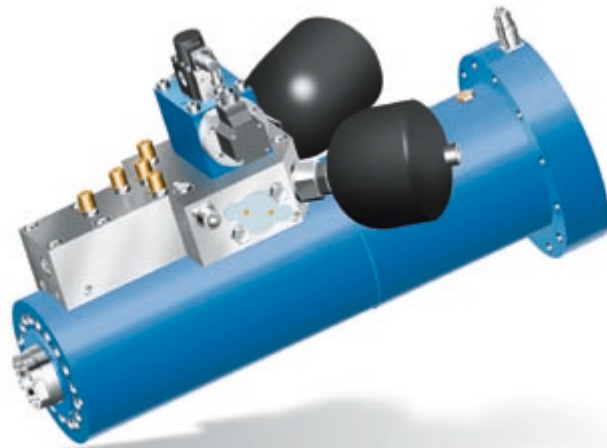
Only with a predefined process and close co-operation between the customer, application specialists and cylinder developers it is possible to realize innovative and branch-specific solutions.





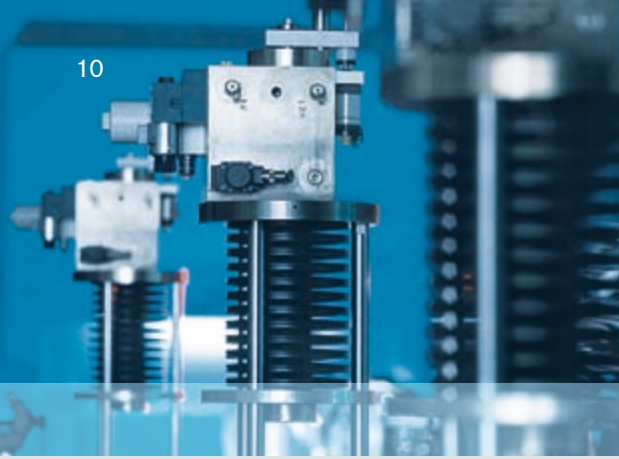
Pitch Cylinder Axes with integrated position measuring system for rotor blade adjustment according to wind strength

Place of application:	On- and offshore
Control block:	Directly assembled with control valve
Position measuring system:	Integrated, magnetostrictive
Design:	Long service life and long servicing intervals

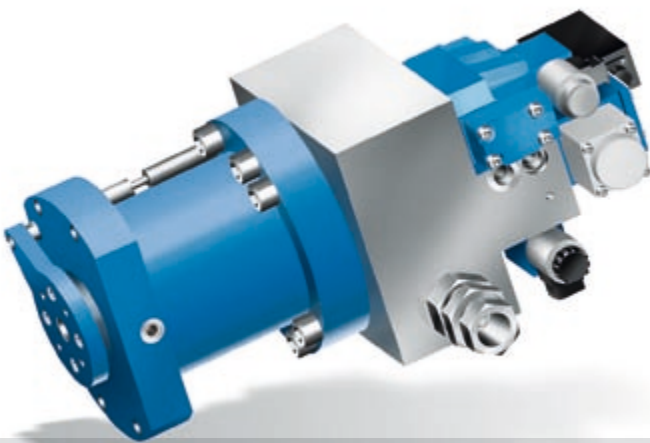
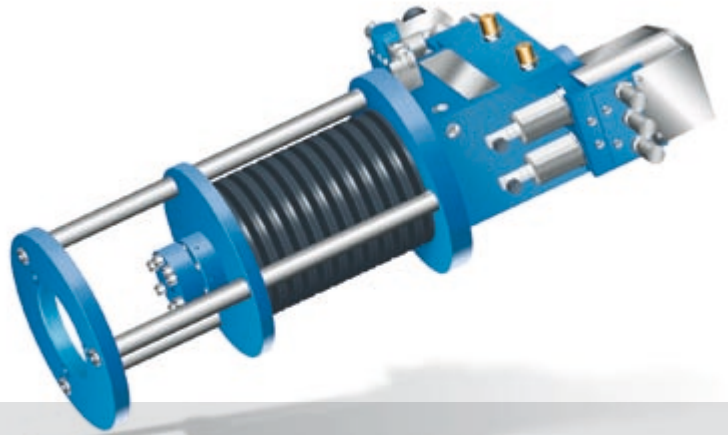


Servo Cylinders for applications in test and simulation technology

Model:	CGS280 ...
Operating pressure:	28 MPa (280 bar)
Bearings:	Hydrostatic pocket bearings
Power stages:	10 up to 1000 kN
Working strokes:	50 up to 500 mm
Control block:	Control valve assembly via control block or subplate
Position measuring system:	Integrated

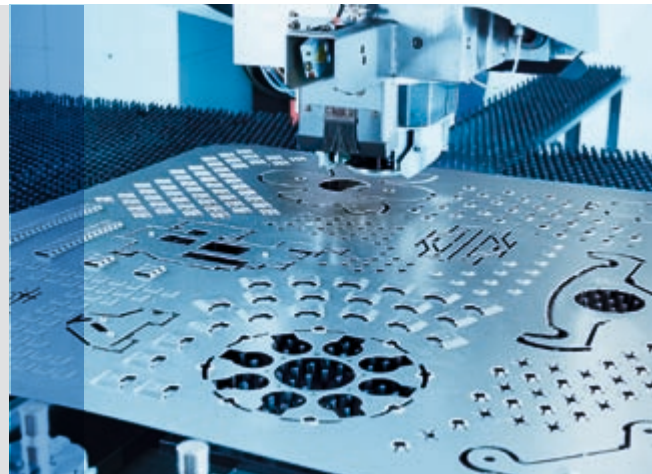


Combined know-how, precise knowledge of the application and tailor-made concepts offer you the highest level of safety when designing your drive systems.



Nibble Cylinder Axis for punching / nibbling of sheet metal

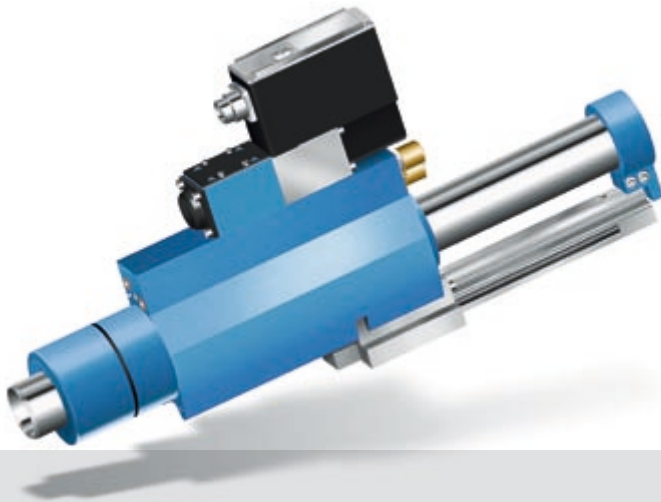
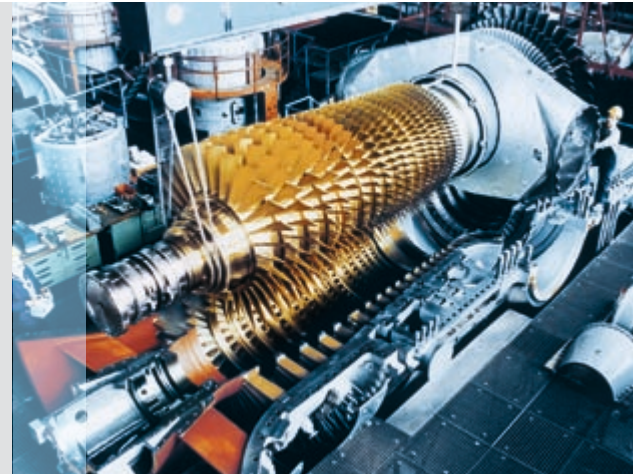
Size:	200 up to 1200 kN
Operating pressure:	Up to 28 MPa (280 bar)
Working strokes:	2 up to 4 mm (total strokes from 40 up to 50 mm)
Frequency:	Up to 16 Hz (approx. 1,000 per minute)
Control block:	Integrated for control valve assembly
Position measuring system:	LVDT





Energy Cylinder for closed loop control for the supply current for steam and gas turbines

Position measuring system: Integrated (redundant up to a factor of three)
 Control block: Housing used as "tube" and control block for direct mounting of control valves
 Closing speed: 1.3 m/s
 Closing force: Up to 350 kN



In-feed Axis for multi-spindle automatic lathe with directly mounted control valve

Operating pressure: 105 bar
 Positioning accuracy: $\geq 1 \mu\text{m}$
 Accuracy: Follow-on error tolerance $\pm 1 \mu\text{m}$
 Position measuring system: Calibrated glass rod (externally mounted)





Something special – that's our strength: Rexroth develops and produces Project Cylinders for project-based individual solutions. We accept virtually every challenge and realize cylinders with piston diameters of up to 1,500 millimeters and stroke lengths of up to 24 meters – naturally with suitable, perfectly matched with power units, connection ports and other accessories.

Customized Individual Solutions: Project Cylinders

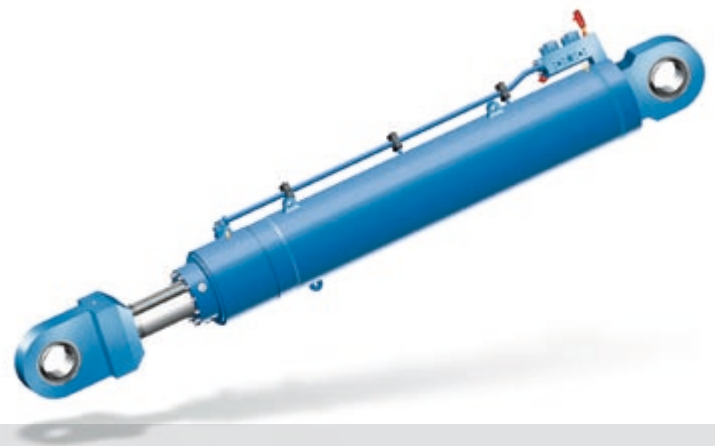
Rexroth works consistently to application-specific engineering standards, such as Lloyds, DNV, the American Bureau of Shipping as well as Rexroth and customer standards.

The systematic and documented product development process utilizes the latest development tools and ensures the highest quality for solutions with the efficiency that you require.

As the only manufacturer of all drive and control technologies Rexroth can offer considerably

more: Unique and proven experience in the development, delivery and commissioning of major projects, also as the main contractor.

It is not only unusual dimensions that count here; particular functionalities and technical equipment may also demand special solutions and Rexroth is able to realize these solutions for you. Our production sites in Europe, Asia and South America guarantee to find you the shortest way to achieve these.



Handling systems:

Boom Cylinder for track loader

Piston diameter: 320 mm

Piston rod diameter: 180 mm

Stroke length: 1,735 mm

Application: Open-cast mining under abrasive and dirt conditions



Heavy industry:

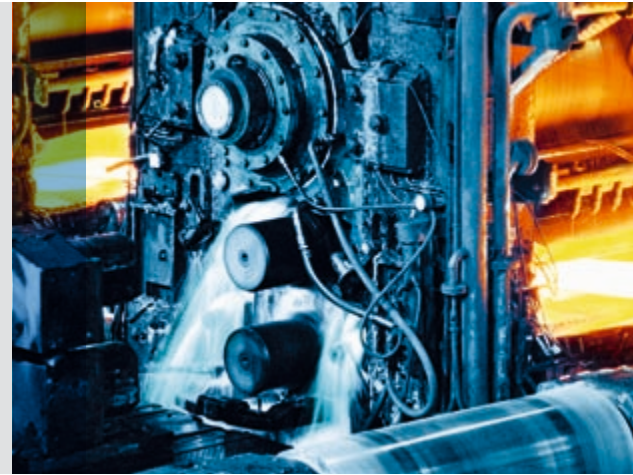
Automatic Gauge Cylinder for roll gap control

Piston diameter: 1,500 mm

Piston rod diameter: 1,480 mm

Stroke length: 80 mm

Application: Accurate and dynamic strip thickness control in steelworks by high resolution and integrated measurement- and servo system



General industry / Presses:

Main Pressing Cylinder for baling presses

Piston diameter: 720 mm

Piston rod diameter: 700 mm

Stroke length: 600 mm

Measuring system: Integrated mechanical

Coating: Special piston rod coating for abrasive conditions





**Fit for every environment:
Customized Rexroth Project
Cylinders provide motion in
any environment, whether in
harsh offshore applications or
underground in tunnel drilling
machines – and reliably even
with extremely heavy loads.**

Rexroth hydraulic cylinders are continually setting standards in the area of durable piston rod surface protection. Based on the already many times proven Ceramax process Rexroth engineers have developed a new coating method based on the high-speed spraying process of metallic compounds with carbon. With this metal-matrix layer you can rely on extra corrosion protection, which further improves long-term functional operation in aggressive environments, such as salt water or chemicals.

CIMS position measuring system

The integrated, semi-absolute CIMS position measuring system guarantees maximum precision. With a measuring accuracy down to the millimeter across the whole stroke, a microprocessor controls the exact position of the piston with embedded software and an integrated tolerance and safety test. Rexroth project cylinders are thus able to undertake positioning tasks with absolute precision, even with extreme dimensions and performance requirements.



Offshore:

Bottom Door Cylinder to open the bottom doors of a suction dredgers

Piston diameter: 480 mm

Piston rod diameter: 220 mm

Stroke length: 3350 mm

Application: In sea water with a sandy environment



Offshore:

Riser Tensioning Cylinders for oil-drilling vessels

Piston diameter: 560 mm

Piston rod diameter: 230 mm

Stroke length: 16,300 mm

Application: Dynamic application in aggressive environments



Civil engineering:

Intake Cylinder for hydro power dam

Piston diameter: 450 mm

Piston rod diameter: 150 mm

Stroke length: 15,415 mm

Application: Piston rod partly submerged





Online or per DVD: ICS Interactive Catalog System

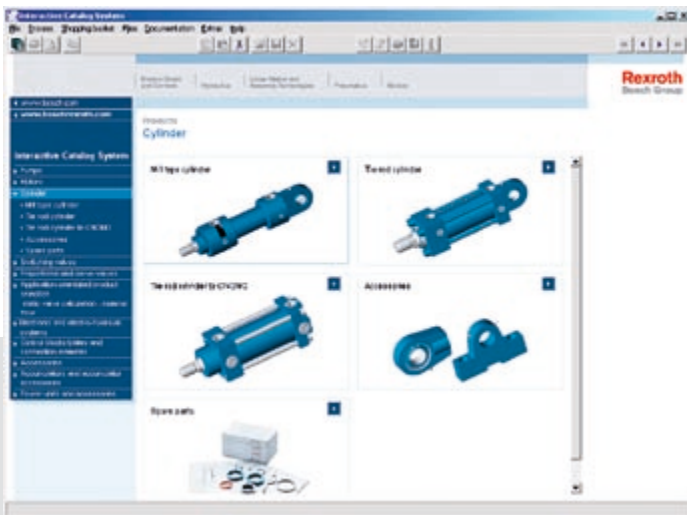
The Interactive Catalog System is there to support you in the best possible way when selecting and designing your cylinder application. You decide between the installation-free DVD version or online configuration on the Rexroth website. Simply enter the details in 3D or DXF format into your records.

With the Interactive Catalog System your Standard Cylinder is only a few mouse-clicks away. You can select swiftly and conveniently exactly the right one for you from currently available hydraulic cylinders. This may be effected according to series, type code or individual technical specifications.

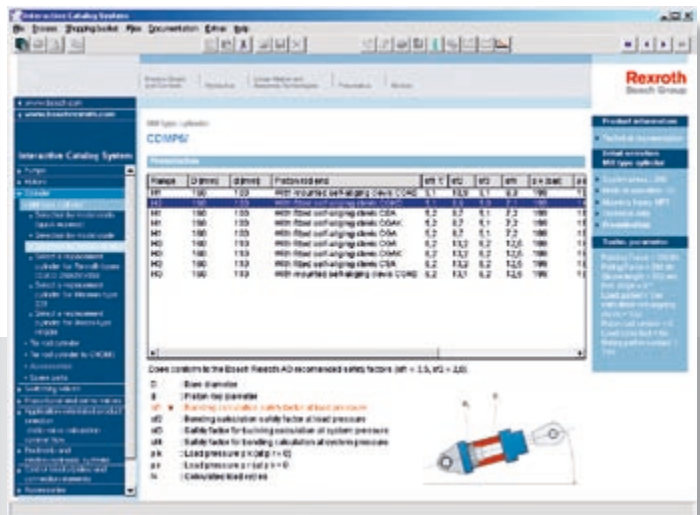
to 2D- and 3D files for direct transfer to all commonly-used CAD systems. This saves both time and money in the design of your individual machine.

Any direct inquiries on products selected this way should be sent via email to Rexroth. On request you will be sent an offer and you can then easily call up all hydraulic cylinder documentation via the internet.

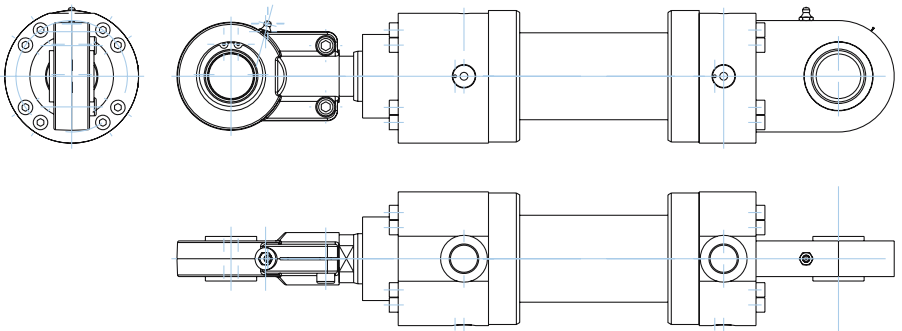
You will receive all the technical details, including current catalog documentation, dimensional drawings, CAD drawings, right through



Selection mask for selecting cylinders by series



Selection of series by technical details and the associated safety factors



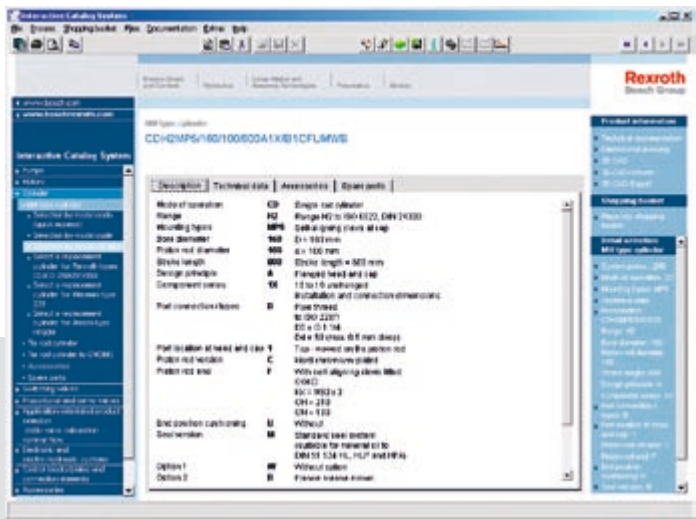
Optimum support when selecting and designing for your cylinder application via availability of construction drawings in DXF Data format.

And that's not all: The Rexroth eShop simplifies the whole procurement process. All that is necessary is to register once under www.boschrexroth.de/eShop, and Rexroth will authenticate within 24 hours.

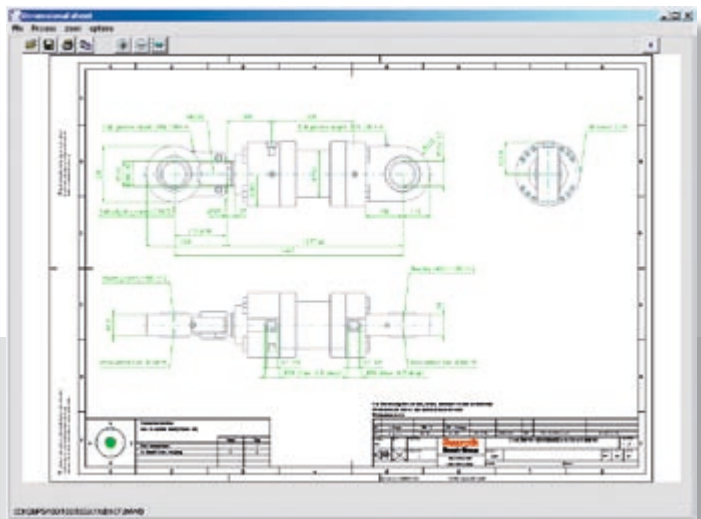
After this you can place orders via a secure SSL Internet connection, which operates similar to online banking. You can bookmark your orders in the archive using your own coding system and call them

up again as required. For repeat orders the order process is just as easy as with a network order. A few mouse clicks and the relevant historic order will appear. You can change individual items as required and send off the order without having to record the items again. Incidentally:

With this one-off registration Rexroth stores directly the individual prices valid at that time.



Documentation of the selected cylinder with type code and the selected steps, together with technical details, accessories and spare parts



Dimensional drawings, complete with all installation dimensions for the selected cylinder

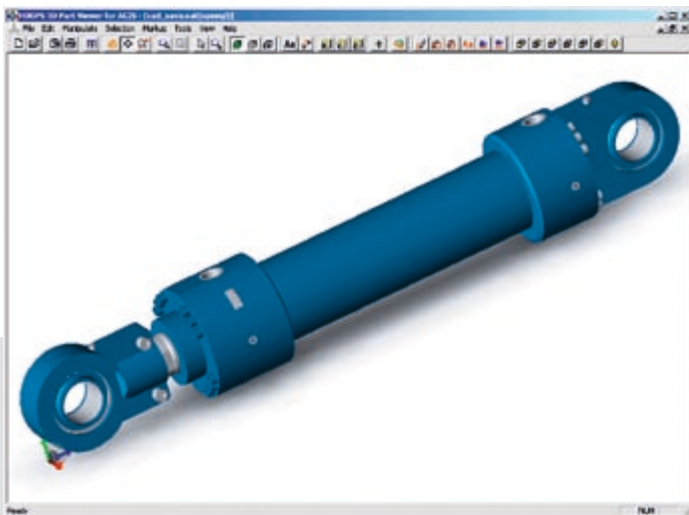
Rexroth
Bosch Group

Interactive Catalog System

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Technical support is available
at any time under
www.boschrexroth.com/ics

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3D-CAD Viewer for
selected cylinders



Spare parts drawing with individual
parts and material number for the
associated sealing kit

Intelligent Hydraulics in New Dimensions

Whether it's a case of raising or lowering loads smoothly, undertaking linear or rotational movements, achieving even acceleration or accurate positioning, maintaining preset speeds, transmitting power or linking motion sequences – in fact, wherever economical power is required, this is where hydraulics comes into its own.

Rexroth is technology and market leader in industrial hydraulics with an extensive product program and proven applications know-how. With the widest selection of hydraulic products in the world, Rexroth will provide you with standard products, application-orientated systems and customized solutions of the highest quality. Furthermore, with the aid of the latest micro-electronics, Rexroth has made hydraulics even more powerful than ever.

Rexroth is the ideal partner if you want to develop highly efficient machines and production facilities – from the first point of contact right through to commissioning and across the complete life cycle. Teams operating worldwide will take on the complete project design work of your systems, even producing a turnkey solution if required.

Whether it's competent support on the telephone, urgent repairs or supply of spare parts, or a callout by one of our engineers – whichever service you require, experienced personnel and a worldwide service network will guarantee that the problem is swiftly solved.

Using hydraulic drive and control technology from Rexroth will help you become more competitive than ever.

The Drive & Control Company

Rexroth is unique. No other brand on the world market can offer its customers all drive and control technologies, both on a specialized and integrated basis. We are considered to be the worldwide benchmark when it comes to drives, controls and motion. Our technological leadership is continually setting us new challenges, with approximately 30,000 employees in more than 80 countries around the world. This is possible thanks to an infrastructure designed with partnership and customer proximity in mind.

As a company Bosch Rexroth can look back on more than 200 years of tradition. As a wholly owned subsidiary of Robert Bosch GmbH, we are part of a globally operating technology group. All this is both our drive and our commitment. And it is unique – just like Bosch Rexroth. The Drive & Control Company.

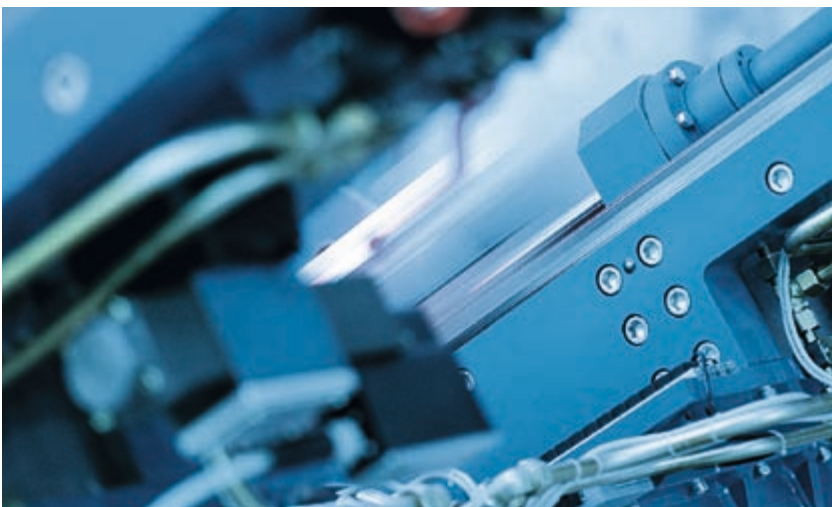
Electric Drives and Controls

Hydraulics

Linear Motion and Assembly Technologies

Pneumatics

Service



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