

World-class Pneumatics from Rexroth. Product Overview



Our Expertise is Your Competitive Advantage

Experience and expertise combined with world-class products. Working with Rexroth means working with a partner who can show you how to apply pneumatics for your competitive advantage.



Standard or Custom

Providing a sophisticated and extensive standard product line in both NPT and ISO G (BSPP) port configurations, our products include pneumatic valves and actuators, pneumatic and hydraulic cylinders, pneumatic fieldbus-compatible valve manifolds, electro-pneumatic valves and positioners, FRLs, tubing and fittings, vacuum components, industrial shock absorbers, and tooth chain products.

We can also customize products to produce application-specific solutions. Our experience in materials, design and manufacturing, and machine knowledge gives us the flexibility to work with you to craft the exact solution you need.

Versatile, Modular, Precise

Our products are designed with market-specific needs in mind. You're likely to find what you need from our standard product offering, or we can give you the custom solution you need. Our modular approach means greater versatility

and flexibility in application and customization. What's more, the modularity allows easier integration and greater cost savings.

Customer-based Product Development

Our products have always been state-of-the-art technology. We are constantly developing new products and improving existing ones – while working with customers globally to understand evolving needs. By focusing our product development on your real-world needs, we create products that give you a competitive edge in reliability, capabilities, and ease of use.

Worldwide Presence

Global presence, global availability, global application – with Rexroth you have an international supplier who can support you worldwide. Four development centers – in Lexington, Kentucky; Hannover and Schwieberdingen, Germany; and Bonneville, France – serve as centers of competence for advancing the state-of-the-art in pneumatics in ISO 9001-certified design and production environments.

Delivery

Our **GoTo** focused delivery program provides a wide range of products when you need them. See the inside back cover of this brochure for more details.

Producing movement with air – that’s pneumatics from Rexroth. We can show you how to do more with air – to achieve higher productivity, greater precision, and higher reliability. With a complete portfolio of pneumatic, hydraulic, mechanical, electronic, and electro-pneumatic components and systems, Rexroth is your global source of industrial automation solutions.



Industry-specific Solutions

One size pneumatic solutions don’t fit all application needs. Different industries have decidedly different needs. The requirements of the food processing industry, for example, differ enormously from those of the automotive industry or the challenges of system automation. Our application specialists have experience in your market, understand your specific needs, and can work with you to find the proper products.



Pneumatic Directional Control Valves



Because we are involved in all industries, we have developed pneumatic directional control valves to handle almost every application. From various valve types, such as poppet or spool valves, to ceramic sliding plates, and flow ranges from C_v 0.014 to 15.75, Rexroth has the valve for you. Most Rexroth valves are pre-lubricated, meaning they can operate with or without line lubrication. A wide array of fieldbus capability is available to interface with all major protocols.



Ceram™ and Series 581 - ISO 5599-1 Valves

Pneumatic 4-way and dual 3-way directional control valves in ISO sizes 1 through 4 are available in various solenoid and air pilot versions. The legendary Ceram valve utilizes ceramic plates for sealing, and has become known as “the” valve for rugged conditions or dirty air, and as the valve that doesn’t stick. The Series 581 valve uses a balanced spool and sleeve design and offers a very economical



solution for ISO valve installations. Both lines have solenoid and air piloted versions, and offer dozens of accessories and options. Porting is 1/4” to 1” NPT or BSPP.

Plug-in Valves – Fieldbus Solutions

A wide range of plug-in pneumatic 4-way and dual 3-way directional control valves plus very flexible, yet powerful bus solutions set Rexroth apart from the competition. Choose from centralized bus solutions with our electronics located directly on the valve manifolds, or decentralized systems with our DDL (Drive and Diagnostic Link) bus components. Fieldbus-enabled valves include ISO 15407-2 Series CD01/02-PI valves with flow rates to 1.35 C_v , ISO 5599-2 Series CD10/20/30-PI valves with flows to 4.8 C_v in ISO sizes 1 to 3, HF Series valves with flows to 1.4 C_v , and Series CA44 for AS-i with flows to 0.2 C_v . All major protocols are supported. Configure factory-assembled custom

manifolds on our web site. Many of our other industrial valves/manifolds such as Ceram, Series 740 and Series LS04 can be adapted to fieldbus using our B-Design control units.

HF Series Plug-In Valves

Expand the modular HF02-LG and HF03-LG valve block system in single station increments up to 16 stations (HF02-LG) or 32 stations (HF03-LG) – providing up to 32 valve functions. Save space with no sacrifice of flow: the HF02-LG is 20 mm wide with 1.4 C_v and the HF03-LG is 16 mm wide at 0.7 C_v . Power consumption is only 0.35 watts per 24 VDC solenoid. The two valve series can combine on the same manifold. The HF04 valves – only 11.3 mm wide – deliver a flow of 0.4 C_v . The LP04 low profile version is only 49 mm high with a flow of 0.35 C_v . HF series valves used with our fieldbus modules are compatible with all the major protocols.

CL03 and CL03-XL Clean Line™ Valves

The CL03 Clean Line valve series uses IP69K rated

◀ **Top to bottom: Ceram and Series 581, Plug-in Valves, HF Series Valves, CL03 and CL03-XL Valves**

protection in a hygienically designed package making it ideal for high pressure wash down applications. The gaps between the valve protection covers allow easy cleaning and avoid dirt pockets. The materials used for the subbases and covers are carefully selected and tested for chemical resistance. By not requiring a protective cabinet, the valve offers reduced installation cost, and the valve manifold can be located as close to the actuators as possible, allowing the machine to function faster. Factory assembled and tested manifolds are available from 1 to 16 stations, up to 32 solenoids in either discrete multi-pin or direct fieldbus connection, and the manifolds are field expandable. The series features a flow rate of 0.7 C_V (CL03), and 1.4 C_V (CL03-XL).

Polymer Bodied Valves

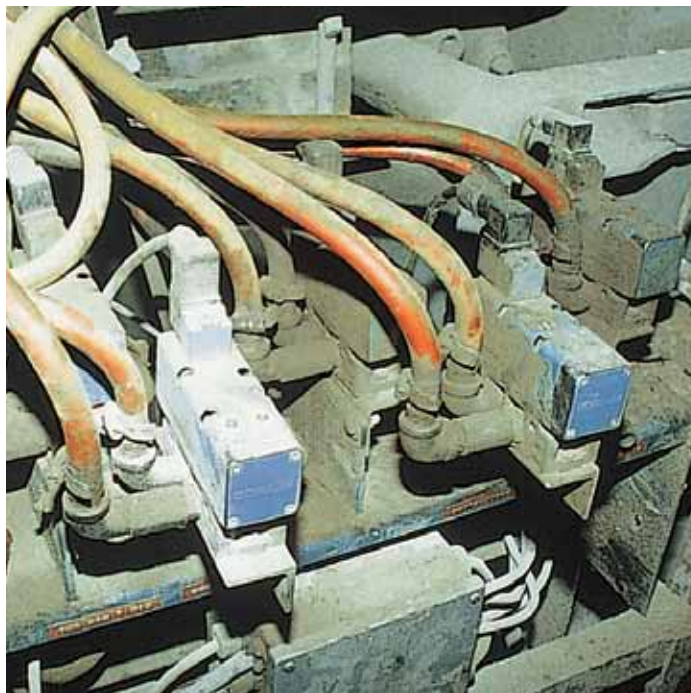
These lightweight, compact valve lines offer excellent corrosion resistance. With solenoid or air pilot versions, the Series 840 (C_V of 0.2) and the Series 740 (C_V of 0.7) are 4-way valves used in-line or on our snap-on manifold system. They

feature integrated fittings for plastic tubing, and a diaphragm/poppet design. Our TC series valves are available in either in-line or manifold versions, with body widths of 17 mm at 0.8 C_V for the 1/8 size, and 21 mm at 1.5 C_V for the 1/4 size. Series 579/589 valves are 3-way valves with push-in inch or metric fittings and C_V up to 0.85 that use a dovetail joint to assemble modular valve manifolds. The LS04 series valve family has inline or manifold capability, with a 10.8 mm body width at flows up to 0.37 C_V .

Other Valves

The compact, space-saving Series DO10/15-MR 2-way and 3-way valves are rated for 12 and 24 VDC and offer flows up to 0.014 C_V (DO10-MR 10 mm wide) and 0.05 C_V (DO15-MR 15 mm wide). Manifold banks and single subbases are available.

Rotair® Block poppet valves are 1/8", 1/4" and 3/8" NPT ported valves with a manual rotary handle and C_V of up to 1.2. CD04 1/8" NPT and CD07 1/4" NPT in-line valves, with C_V 0.9 (CD04) and 1.1 (CD07), are offered in solenoid, manual and air pilot versions. Subbase



▲ **Ceram™ valves withstand harsh conditions and dirty air without “sticking.”**

mounted TaskMaster® valves are 1/4" and 1/2" NPT ported with C_V of 1.0 and feature solenoid, air pilot, lever and button operators. PowerMaster® tapped body valves come in 1/4" through 1-1/4" NPT ports with C_V from 2.4 to 15.8, and are available with solenoid, air pilot and mechanical operators. Our economical Series 830 3-way solenoid valve is subbase or manifold mounted, with a C_V of 0.06. The AP series of 3-way and 4-way poppet valves feature six mechanical versions with flows up to 0.6 C_V and choice of NPT or ISO G ports. Stainless steel Series ST valves are mechanically operated and corrosion resistant with G1/8 ports and flows up to 0.28 C_V .



◀ **Left to Right: Polymer Bodied Valves and Other Valves**

Pneumatic Cylinders

Series RTC Rodless Cylinders

The RTC employs a shuttle cylinder design with an oval shaped piston. It's ideal for applications requiring high precision over a long stroke length, yet the installed length is just over half that of conventional piston rod cylinders. RTC cylinders operate up to a fast 22 feet/second, thanks to optimized air channels and Ideal Cushioning. Bore sizes range from 16 mm to 80 mm, and three versions are available – internal guiding, mini guide and heavy-duty

guide. Choose from NPT or ISO-G (BSPP) ports.

NFPA Pneumatic and Hydraulic Cylinders and Positioners

Industry proven PowerMaster® pneumatic and medium pressure hydraulic, plus PressureMaster® high pressure hydraulic NFPA steel cylinders offer total flexibility in system design. Fully interchangeable with other NFPA cylinders, they are available with custom modifications, transducer feedback and integral valve mounting. Our pneumatic

servo valve can be mounted directly on the cylinder to make a positioner. NFPA cylinders are backed by fast shipping, worldwide service, and an online configurator with CAD drawings.

TaskMaster® Pneumatic Cylinders

The TaskMaster has been the standard in industry for nearly fifty years with its smooth extruded aluminum design. The line has two distinct model choices – the TM-1 series matches NFPA rod thread and port dimensions, while the TM-8 series offers an exact replacement for the original TaskMaster line. Features include standard magnetic piston, oversize rod options, and port and cushion options. The aluminum bodied cylinder is available in 1-1/2” through 6” bores (5” and 6” are tie rod design).



▲ Top to bottom: Series RTC Rodless Cylinders, NFPA Pneumatic and Hydraulic Cylinders, and Taskmaster Pneumatic Cylinders

Rexroth has an extensive line of industrial cylinders to provide solutions to applications large and small. Bore sizes range from 2.5 mm to over 20", with a wide variety of models and materials. From food processing to heavy industry, Rexroth cylinders meet the demands of our customers worldwide. Many of our cylinder lines have on-line configurators for designing custom cylinders.



ISO 15552 Cylinders - Aluminum

Choose from three different series of ISO 15552 cylinders. These aluminum bodied cylinders are available in three designs: traditional tie rod (TRB), hygienic-internal sensor (ICL), and robust profile protected sensor (PRA). An optional rod brake is available. Bore sizes are 32 mm to 320 mm with ISO G ports standard. NPT ports are available in bores 32 mm to 125 mm.



Compact Cylinders

The modular design of our compact cylinders provides a cylinder package with many size and mounting variants. Single and double acting versions are offered, plus: male or female threaded piston rod, single or double rod end versions, hollow piston rods, torsion protection, metal rod scrapers, high temperature seals, reinforced piston rods, as well as corrosion protection. Other models include multi-position and tandem cylinder combinations. Flush mounted proximity

switches can be installed on all four sides. They are available from 16 mm through 100 mm bore sizes with strokes to 300 mm. Series CCI and KHZ have ISO-G ports, and the CCI is also available with NPT porting.

Stainless Steel Cylinders

Our Series ICS-D1 (316 acid-proof stainless) and ICS-D2 (304 stainless) pneumatic cylinders meet all levels of corrosion resistance. Their hygienic design has smooth, cavity-free surfaces for easy clean up. The cylinders are lubricated with food-grade grease allowing direct contact with food. Bore sizes available from 32 mm to 100 mm.

Series M Mini Cylinders

Mini cylinders feature stainless steel tubes and aluminum heads and caps. Bore sizes range from 5/16" to 3" with NPT porting. Twenty-seven mounting styles, magnetic piston, and a wide variety of mounting accessories are available. Series M is interchangeable with other major brands.

ISO 6432 Mini Cylinders

Single and double acting mini ISO cylinders feature stainless steel tubes and piston rods with anodized aluminum end caps. Bore sizes from 10 mm to 25 mm, with stroke lengths up to 1000 mm are available.

Micro Cylinders and Others

For the smallest cylinder applications, Series 131 start at 2.5 mm bore size. Featuring stainless steel piston rods and bodies along with brass pistons, the Series 131 can withstand corrosive conditions also. End covers are brass or aluminum. Single acting models range from 2.5 mm to 10 mm bores, while double acting models range from 6 mm to 10 mm bores. Other cylinders available include Series RDC rolling diaphragm type, and our SWN screw-in type.



▲ Top to bottom: ISO 15552 and Compact Cylinders, Stainless Steel Cylinders, and ISO 6432 Mini, Series M Mini, and Micro Cylinders

Automation/ Handling Devices

Rexroth provides automation building block solutions to allow custom applications at standard component prices. Compact, light weight, and efficient describe our products used in areas such as material handling, assembly, and other precision applications. Many of these products use our Easy-2-Combine interface for fast, yet precise integration. Easy-2-Combine is part of the Rexroth EasyHandling system, which easily integrates controls, pneumatic and electro-mechanical actuators, plus aluminum framing into a system optimized for your application. Use our online configurator to design custom assemblies.



Mini Slides

Pneumatic mini slides feature an integrated Ball Rail® guide for smooth, low-friction movement while offering high load capacity and rigidity. The MSC series covers bore sizes 8 mm to 25 mm. The ZSC series is available in 6 mm to 25 mm bore sizes. They feature stroke lengths from 10 mm to 200 mm, anodized aluminum bodies, stainless steel piston rods, and come standard with magnetic pistons for sensors.

Rotary Actuators

Four series of durable rotary actuators are offered. The RAP and RCM series are double rack-and-pinion designs with torque values from 0.1 Nm (0.88 in-lb) to 2.4 Nm (21 in-lb), and rotation angles from 90° to 360°. The RCM version also offers an optional intermediate position. The RAK and RAN series are vane type with torque values from 0.13 Nm (0.1 lb-ft) to 81.4 Nm (60 lb-ft), and rotation angles from 90° to 275°.

◀ **Mini Slides, Rotary Actuators, Vacuum Products, Series NCT Non-contact Transport Units, Series RWT Index Tables, and Grippers**

Vacuum Products

Choose from a wide variety of vacuum cup styles, vacuum generators and accessory devices. Cup sizes range from 1/4" to 12" O.D., with holding forces up to 575 pounds @ 60% vacuum. Cup styles include standard, tube mounted, bellows, oval and rough surface versions.

Series NCT Non-contact Transport Units

These devices allow lifting of small objects without touching the surface. Air-flow under the device creates a vacuum, and thus a lifting force. NCTs are maintenance-free with a long life because they have no moving parts, and because contact is not required for lifting. NCTs are ideal for transporting highly sensitive objects such as those found in the electronics industry. Versions in Aluminum (for general applications) or PEEK (engineering polymer for washdown / food and packaging applications) are available.

Series RWT Index Tables

Our index tables feature continuous stepwise rotation. Variations with 8 stops x 45°, 6 stops x 60° or 4 stops x 90° and with either clockwise or counter-clockwise rotation are available. Torque rating is 1.2 Nm (0.88 lb-ft) at 87 psi. Sensors are available for position indication.

Grippers

A wide variety of pneumatic grippers in parallel, angular and centric versions provide a secure and precise hold at the end of the axes in a material handling system. Parallel grippers capable of holding up to 13.5 kg (29 lb) loads are available.

GPC – Guide Precision Cylinders

The GPC makes it easier to design and build machines by reducing the need for external guides on cylinders, combining movement and precision in one unit. Reinforced guide rods provide high stability, high side load capacity and

non-rotation. GPCs can be combined without the use of adapter plates to make a 2-axis system. The ball bearing version is for higher precision/lower friction applications. The slide bearing version is a cost efficient, high load solution. A magnetic piston and polymer impact cushions are standard. Bore sizes range from 10 mm to 100 mm. A "Clean" version for food and packaging is available.

Easy-2-Combine

Easy-2-Combine is the

simple solution to the complex problem of creating handling systems. By using Easy-2-Combine's pneumatic linear modules, mini slides, rotary actuators and grippers as building blocks, you can significantly reduce the time and effort it takes to select, size and assemble components. Our online configurator does the engineering calculations and provides a single part number for the entire system. E2C is part of the Rexroth EasyHandling system.



- **GPC Cylinders (Standard, Top-Loader, and Clean versions) and an example of Easy-2-Combine**

Accessories/Air Preparation

To complete a pneumatic application, you need more than just valves and cylinders. That's why Rexroth offers an extensive line of fittings, tubing, air preparation and accessory devices. These accessory devices allow for easier, cleaner, and more energy-efficient installations.



Fittings, Tubing and Silencers

A wide variety of inch and metric fittings (including flow controls), tubing, adapters and silencers are available. Push-in fittings provide quick, easy connection to plastic tubing. Stain-

less steel fittings provide corrosion resistance where necessary. Tubing is available in various materials (PUR, PE, PA, and PTFE) for maximum application compatibility. Silencers for exhaust ports come in several styles and materials.



Accessory Valves

Quick exhaust valves with aluminum or plastic bodies range in port size from 1/4" to 1" NPT. Aluminum bodied shuttle valves come with 1/8" to 1/2" NPT ports. In-line check valves and flow controls are available in 1/8" to 1" NPT. Right angle check valves range from 1/8" to 1/2" NPT.



▲ **Series AS FRL**

Relay Valves

The "S" relay valve is a pilot-operated, 3-way, pneumatic pressure control valve with open exhaust. Ideal for use as a volume booster, port sizes range from 3/8" to 1" NPT, with supply and pilot pressure to 250 psi.

Shock Absorbers

Shock absorbers for energy absorption or to function as a mechanical stop come in self-compensating and adjustable models. Maximum energy absorption ratings range from 1,700 to 8,000 Nm.

Pressure Sensors

Rexroth offers electrical (reed contact) and electronic (piezoresistive) pressure sensors for monitoring of pneumatic system status. Our PE5 series is our most versatile pressure sensor yet, offering a host of user-selectable options in its on-screen menu.

PM1 mechanical pressure sensors are available in flange-mount versions designed for direct coupling to FRLs without fittings.

Air Preparation

Wide range of FRL's include choices of NPT or ISO-G (BSPP) ports. Combination units are available from 1/8" to 1" ports, and filters, coalescing filters, and regulators available from 1/8" to 2" ports. Many options and accessories are available including: lock-out valves, exhaust ("dump") valves, start-up valves, reverse flow regulators and pilot-operated regulators. Also, our unique Combi FRL combines all functions of a traditional FRL in one single component package.

◀ **Top: Fittings, Tubing and Silencers**

◀ **Bottom: Accessory Valves, Relay Valves, Shock Absorbers, Pressure Sensors, and Air Preparation**



Electro-pneumatic Devices

Rexroth electro-pneumatic (E-P) devices bridge the gap between electronics and pneumatics by converting an electrical signal proportionally into pneumatic pressure. They are used where electrical control is required to act directly on a change of pressure or force. A serial interface option is available on all models via Rexroth analog bus modules.

ED02 E-P Pressure Control Valves

In a design including two directly controlled 2/2 way proportional valves and an air flow rate greater than 100 l/min, the compact ED02 attains a dynamic that is usually only possible with our ED07 and ED12. Four different internal pressure sensors results in a resolution that sets it apart from the competition within any pressure range between 0–150 psi. Hysteresis is <0.6% full scale.

EV04 E-P Pressure Control Valves

These analog E-Ps offer flow rates up to 12.4 SCFM, and inputs between 0–10 VDC, 0–20 mA, 4–20 mA or a potentiometer. The output pressure range of this pilot control version is up to 150 psi with a hysteresis of 1 psi. Universal port threads allow ISO G1/8 or 1/8" NPT ports.

ED05 Pressure Control Valves

The ED05 E-Ps feature flow rates up to 35 SCFM with output pressure ranges up to 150 psi. Command signals include 0–10 VDC,

0–20 mA, 4–20 mA or a potentiometer. Universal port threads allow ISO G1/4 or 1/4" NPT ports. Hysteresis is <1 psi.

ED07 E-P Pressure Control Valves

The ED07 is available with flows of up to 45 SCFM. The versions include a variety of analog inputs/outputs and fieldbus compatible with our own DDL version. Also available is an external sensor version. Port threads are G3/8, with a subbase required. Hysteresis in all versions is <0.45 psi.

ED12 E-P Pressure Control Valves

The high flow ED12 reaches flows up to 92 SCFM. This analog, proportional solenoid E-P accepts command signals between 1–10 VDC, 0–20 mA or a potentiometer. Porting is G3/4 with a subbase. The hysteresis is 0.44 psi.

Accu-Air™ E-P Pressure Control Valves

The Accu-Air EP-1 features flow up to 1 SCFM and output pressure of up to 150 psi, while accepting 0–10 VDC or 0–20 mA

command signals. Porting is 1/4" NPT, with a hysteresis of < 2.0 psi.

E-P Positioners

The E-P positioner delivers a proportional position based on a command signal between 0–10 VDC, 0–20 mA or a potentiometer. Available in bore sizes 1-1/2" through 5" and standard strokes up to 18" (longer strokes available), accuracy is ± 0.050 " or 1% of stroke, whichever is greater. The positioner consists of a cylinder with integral sensor, optimized

valving, and an electronic controller.

Electronic Flowmeters

This electronic volume meter accurately measures air volume flow rates. A selectable output electrical signal of 200–1200Hz, 0–10 VDC or 4–20 mA is proportional to the flow rate measurement. Maximum operating pressure is 145 psi. Three sizes are available with flow ranges up to 1 C_v.



Mobile/Oilfield Valves

Rexroth pneumatic valves for mobile and oilfield applications have been the industry leader for decades due to their rugged, proven reliability and precise control. These directional and pressure control valves control oilfield equipment, vehicle transmission shifting, cranes, construction equipment, rail car hopper gates, and more.



Type “A” Pilotair® Directional Control Valves

These valves are panel mounted, poppet-type valves that open, close and vent an air circuit. They are ideal for frequent use because of ease of operation, fast response and ability to tolerate contaminated air. Maximum pressure is 250 psi, C_v of 1.0, 1/4” NPT ports, with 3-way, 4-way and multiple 3-way functions. Handle operated or block style valves with variety of air pilot or mechanical operators are available.

Type “P” Rotair® Directional Control Valves

This valve has single handle operation, with up to eight distinct handle positions, and is ideal for transfer valves and control of multi-position cylinders on vehicle transmissions. Maximum supply pressure is 150 psi. Multiple 3-way functions, 1/4” NPT ports.

Type “D” Pilotair® Directional Control Valves

A custom valve for a standard price, the “D” Pilotair is easily tailored to your installation. Nine basic valves and nine basic operators in both 1/4” and 1/2” NPT & BSPP port sizes, along with various operator spring return and holding functions are available. The operators and valve segments can be rotated at 90-degree increments to fit most any application problem, with flows of 2.1 and

5.1 C_v . 2-way, 3-way and 4-way functions.

SuperSpool™ Directional Railcar Valves

These valves come in manual or solenoid operated models, subplate or tapped body mounting, single or double solenoid, and in 1/2” and 3/4” NPT ports. Limited models are available with 1” and 1-1/4” NPT ports with C_v up to 15.75. Some of our popular 3/4” NPT models are used to control our rail car cylinders on bottom dump coal cars.

Flexair® Pressure Regulat- ing Valves

The Flexair valve gives 3-way, precise control of the various functions performed during the operation of oil drilling rigs, excavating machinery, hoist, dredges and production machines. Handle options include various lengths, self-holding, self-returning, and detent in extreme positions. Handle guide arrangements available to operate one, two or three pressure or directional control lines separately or in combinations. Maximum pressure is 150 psi.

Type “M” Plus™ Pressure Control Valves

Designed for short-distance (up to 50 feet), low-force pressure control applica-

tions, this valve offers economical and accurate control. Operators include hand lever, foot pedal and mechanical plunger. Maximum supply pressure is 150 psi, with choice of two controllable output pressure ranges, 0–60 or 0–100 psi. Sensitivity is 2% of range, and ports are 1/8” NPT.

Type “H” Controlair® Pres- sure Regulating Valves

Hand, foot or mechanically operated, these valves can control both pressure and flow of air. Some models control functions in sepa-

rate and independent air circuits or in branches of the same circuit. Other models control these functions either selectively or simultaneously in three separate and independent branches of an air circuit. Outlet pressures are controllable between 0–175 psi, and can maintain pressure within 1-1/2 psi.

- ▶ **Top right: Type “A” Pilotair**
- ▼ **Middle left: Type “P” Rotair**
- ▼ **Middle right: Type “D” Pilotair**
- ▼ **Bottom left: SuperSpool Railcar**
- ▼ **Bottom right: Type “M” Plus, Flexair, and Type “H” Controlair**



Mobile/Oilfield Actuators and Cylinders



Rexroth actuator/positioners are compact, pneumatically operated devices used for accurate positioning of diesel engine governor control arms, butterfly valves, carburetors and other low-force mechanisms. Applications for our mobile cylinders include transmissions, positioning hydraulic valves, clutches, brakes, rail car hopper control, etc.



A-2-H Actuators

These diaphragm-lever radial actuators have a power rating of 410 in-lb-degrees and come in four

pressure range choices up to 90 psi. The A-2-H has a nominal stroke of 2", adjustable from 1-7/8" to 2-1/4".

AA Type Actuators

These powerful diaphragm-lever type actuators have a force rating up to 1125 inch-lb-degrees. Single and two-direction models are available, as well as models with a separately controlled stop cylinder. Output travel is adjustable from 7/8" to 2-1/4", with a pressure range of 0-60 psi.

Two Direction Positioners

These versatile linear positioners move one-half their total stroke length in each direction from a center "zero" position. They feature three total stroke lengths, 1", 1-1/2" and 2". Force ratings range from 410 to 820 in-lb-degrees, and four pressure range

choices up to 115 psi are available.



Type "C" Linear Positioners

These small linear piston types have integral female clevises for easy mounting. Two sizes are offered, with force ratings of 650 and 1400 in-lb-degrees. Strokes are 1-1/5" or 3", and operating pressure ranges from 0-60 psi.

Multi-position Transmission Cylinders

These air cylinders are discreet positioning devices which can be controlled by "A" or "D" Pilotair® or "P" Rotair® valves depending on number of positions. Two through eight position models have various stroke lengths, available in 1/16" increments. Maximum operating pressure can be up to 250 psi depending on the model.

Construction Grade (cast iron) Cylinders

Constructed of unyielding semisteel, these durable cylinders are unequaled for clutch and brake applications. The cylinders feature an integral female clevis mounting. Operating pressure is 120 psi, and strokes range from 2-1/2" to 7". Single and double acting models, and bore sizes from 2-1/2" to 4-1/2" are offered.

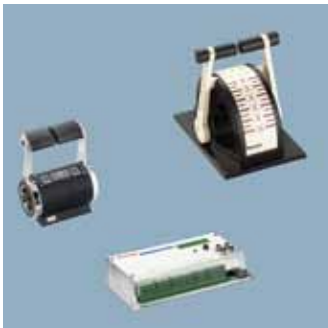


Hopper Dump Rail Car Cylinders

These heavy-duty 8", 12" or 14" bore air cylinders operate hopper gates. Cast ductile iron heads and caps are standard, with stroke lengths from 10" to 30". The cylinder tubing can be chrome plated I.D. steel, or lightweight corrosion resistant fiberglass. NFPA type MP1 and MS4, or customized mounts are available.

Marine Controls

We were the pioneer in the field of pneumatic remote controls for marine propulsion systems. Today, we provide both pneumatic and electronic controls for a broad spectrum of vessels, from pleasure and fishing boats, to tugs, offshore



supply and military ships.

Marex OS II Electronic Marine Control Systems

These microprocessor controlled systems feature a high level of flexibility, and the ability to transfer data via CAN-Bus. They are able to control a variety of propulsion systems from reverse gear to controllable pitch propellers. The modular concept enables specific requirements of a ship to be met with a minimum of design and installation work. Clear text information via a display aids in programming functions and troubleshooting.

- ◀ **Top: Marex OS II Electronic Marine Control Systems**
- ◀ **Bottom: Pneumatic Control Systems, Pneumatic Clutch and Throttle Valves, and Positioner**



Pneumatic Control Systems

Factory assembled and tested Rexroth control systems are ready for ship-board installation and operation. They incorporate pneumatic pressure interlocks and protective circuits for proper engine and reverse gear operation without relying on operator judgment to time or anticipate propulsion machinery functions. Standard systems include LogicMaster® air clutch (1,000 to 4,000 horsepower engines) and hydraulic clutch (800 to 2,000 HP) units, along with GearMaster® (200 to 1200 HP) air and hydraulic clutch control units.

Pneumatic Clutch and Throttle Valves

We offer a very large selection of rugged, panel mounted marine Controlair®

valves, all corrosion resistant and with proven dependability. Choose from single or double handle models, and plenty of position and pressure options. Models with chrome plated brass covers and handles are available for open deck or other applications.

Air Logic Valves and Accessories

A wide variety of other special marine components are available to complete installations. These include shuttle, check and flow control valves, gauge blocks, timers, positioners, multi-function valves and pressure regulators.

Inverted Tooth Chain



Inverted tooth chains differ considerably in their design from other steel sprocket chains. The plates form a positive locking contact with the wheels of the chain, at the same time taking on the tensile force. In this way inverted tooth chains transmit higher torques and power in confined installation spaces. The main design characteristic is the cradle-type joint made of two profile trunnions. This joint design

provides benefits such as: low-noise operation, speeds of to 50 m/s, 99% efficient non-slip operation, high load capacity, extra long service life and smooth operation.



www.boschrexroth-us.com

The U.S. internet site for Pneumatics and all of the other Rexroth divisions supplies valuable information and resources twenty-four hours a day. Everything from on-line catalogs and .pdf files, to CAD files, energy savings calculators, circuit drawings, product calculation programs and configurators, and our **GoTo** focused delivery program. Use our product configurators to design your own custom valve manifolds, cylinders, air prep assemblies and automation systems.

For a direct link to the U.S. Pneumatics section, visit www.boschrexroth-us.com/brp



GoTo Focused Delivery Program: the products you need— when you need them

In today's competitive global manufacturing marketplace, every second counts. That's why we created the GoTo Focused Delivery Program. To give you an easy way to select quality Rexroth products. Gain the benefits of fast delivery. And enjoy one more competitive advantage in developing your applications.

GoTo Program features

- ▶ Wide range of products available for fast delivery
- ▶ Easy-to-use catalogs and website tools including an online buying option
- ▶ Competitive pricing on the products you need fast
- ▶ Proven Rexroth quality and performance

GoTo Program benefits

- ▶ Accelerated design and commissioning
- ▶ Faster time to market
- ▶ Reduced system costs
- ▶ Reliable machine performance
- ▶ Long-term customer satisfaction



For your next application or project, **GoTo** the winning team at Bosch Rexroth.

For more information on the **GoTo** Program and other Rexroth quality products, please visit our website at www.boschrexroth-us/GoTo. For a direct link to pneumatics, visit www.boschrexroth-us/GoToPneumatics.

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