

HYDRAULIC COMPONENTS



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Hydraulic Systems Provide Reliable High Power Motion

Fluid power is generally divided into two main categories: Pneumatics and Hydraulics. Pneumatic systems use compressed air for low-cost applications requiring moderate forces or torques. Hydraulic systems use incompressible fluid (typically oil) at much higher pressure. The higher system pressure allows actuators to produce much higher forces or torques and the incompressible fluid allows for very precise positioning in actuators. Hydraulic systems also operate in a much smoother way with steadiness throughout the motion, whereas a pneumatic system can be described as somewhat quick and jerky.



Complete Hydraulic Power Unit

Hydraulic actuators and motors can also be utilized in dangerous environments where an electric motor-driven device would be unsafe due to potential sparks.

While hydraulic systems can be complex, it is possible to build a durable, powerful system for many industrial applications with a few basic components. The main components are a fluid reservoir, pump, filters, control valves, actuators, pipes or hoses, and fittings.

Since the primary medium of a hydraulic system is hydraulic fluid, there needs to be a place to store it. A fluid reservoir is a tank that holds the fluid, protects it from contaminants, removes air, and helps cool the fluid.

Pumps generate the flow of hydraulic fluid so that it can be useful in producing energy. Normally the pumps are controlled by an electric motor. However, combustion engines are sometimes used to operate hydraulic pumps on vehicles or other mobile systems.

Filters are just what they sound like in that they remove contaminants from hydraulic fluid to prevent seal breakdown and heat buildup from unnecessary friction. Sounds simple but hydraulic system filtration is very important and without proper filtration the system will fail prematurely due to fluid contamination causing wear and heat buildup in the system. A proper hydraulic filtration system is required for smooth operation and a reliable system.

Valves control the flow of fluid throughout the system and direct the fluid to where it is supposed to go. Control valves are available in manual, piloted, and solenoid operated styles.

Last but not least are hydraulic actuators. These devices translate the flow of fluid into mechanical motion or torque. Most of the time when we think of hydraulic actuators, we are thinking about hydraulic cylinders which are linear actuators. Hydraulic motors are another type of actuator that converts the flow of hydraulic fluid into rotational motion.



Hydraulic Press

What types of applications use hydraulic power?

For applications that require more than just simple movement of light or medium-weight objects where pneumatics can be used, hydraulics are often chosen and usually found in industrial applications such as:

- Elevators or lifts
- Hoppers
- Rams
- Industrial presses
- Industrial clamps
- Large industrial shears

Hydraulics are also used in everyday applications that we neglect to notice such as:

- Power steering and braking systems in vehicles
- Automatic transmissions
- Elevators
- Hydraulic log splitters

Why buy hydraulic components from us?

There are many distinct advantages to buying hydraulic components from us. For decades AutomationDirect has been known as a reliable source for automation equipment such as PLCs, drives, mechanical power

transmission components, and pneumatic components. We have consistently delivered quality products to our customers and can get them to our customers quickly.



Price

As with all of our product lines, our prices are often well below the list prices of traditional automation suppliers. Our direct business model allows us to operate more efficiently than other suppliers and pass the savings on to you.



Quality

All of the hydraulic components and accessories we sell have a 1- or 2-year warranty



Service

We give you options for self-service but at the same time, we are there when you need us. You can place your order online or call our customer service. Have a technical question about one of our products or need help gathering up a bill of materials for one of your projects? You can call our Free Technical Support.

Power Your Hydraulic System **BUCHER** hydraulics

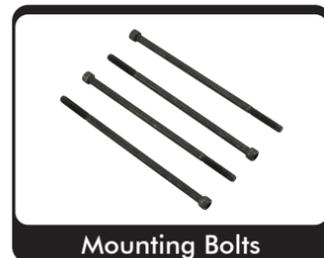
Hydraulic power units are the lifeblood of a hydraulic system. AutomationDirect carries Bucher hydraulic power units, a well-respected name in hydraulics. These all-in-one units generate the pressure and flow of hydraulic fluid throughout the system. Power units include a reservoir, pump, filter, and many other combined accessories integrated into one unit.

Models offered include the M-series and T-series units. The primary difference is that the M-series uses single-phase power for the pump, and the T-series uses three-phase power. The T-series also offers a higher flow rate range. A T-series dual-flow, dual-pressure model is also available.

- Totally enclosed fan cooled Premium Efficiency electric motor, rated for 60 Hz, will also work with some 50 Hz voltages
- Available in max pressure ranges from 1500 to 3000 PSI or dual-pressure unit in 600/2500 PSI
- Flow rates for M-series from 1 to 3 GPM
- Flow rates for T-series from 2 to 6.8 GPM
- Flow rates for dual-pressure T-series 11/3 GPM
- Powder coated reservoir plumbed for vertical mounting
- Adjustable safety relief valve preset at factory
- Suction strainer at pump inlet
- Return line spin-on type filter with visual by-pass indicator
- Bayonette style filler / breather assembly with strainer basket (T-Series)
- Threaded style filler / breather assembly with dipstick (M-Series)
- Sight / level / temperature gauge (T-Series only)
- Liquid filled pressure gauge with isolator
- Two extra 1" NPT couplings through top of reservoir for electrical sensors should you need remote live data of level or temperature
- 3/4" NPT drain port on lower front/side of reservoir
- Hydraulic connections:
 - T-Series: Aluminum adaptable base manifold with SAE #10, P & T ports
 - M-Series: Aluminum D03 manifold with SAE #6 A&B ports with included 4-way/3-position D03 tandem center valve



Optional accessories:



Hydraulic Power Unit Heat Exchangers

Heat exchangers for hydraulic power units improve the longevity of the unit and the overall system by reducing heat buildup during higher duty cycles. This lowers the fluid temperature, allowing the fluid and all hydraulic components to last longer. Heat exchangers are available for Bucher T-series hydraulic power units.



Hydraulic Solenoid Valves

Hydraulic solenoid valves are control devices that alter fluid flow throughout the system and direct the fluid to where it is needed to control actuators. These actuators may include cylinders and hydraulic motors. Bucher hydraulic solenoid valves are available in NFPA D03 and D05 styles.

- 4-port, 4-way, and 3-position
- Four different center configurations for D03 style, two different center configurations for D05 style
- 120 VAC or 24 VDC double solenoids
- Manual overrides

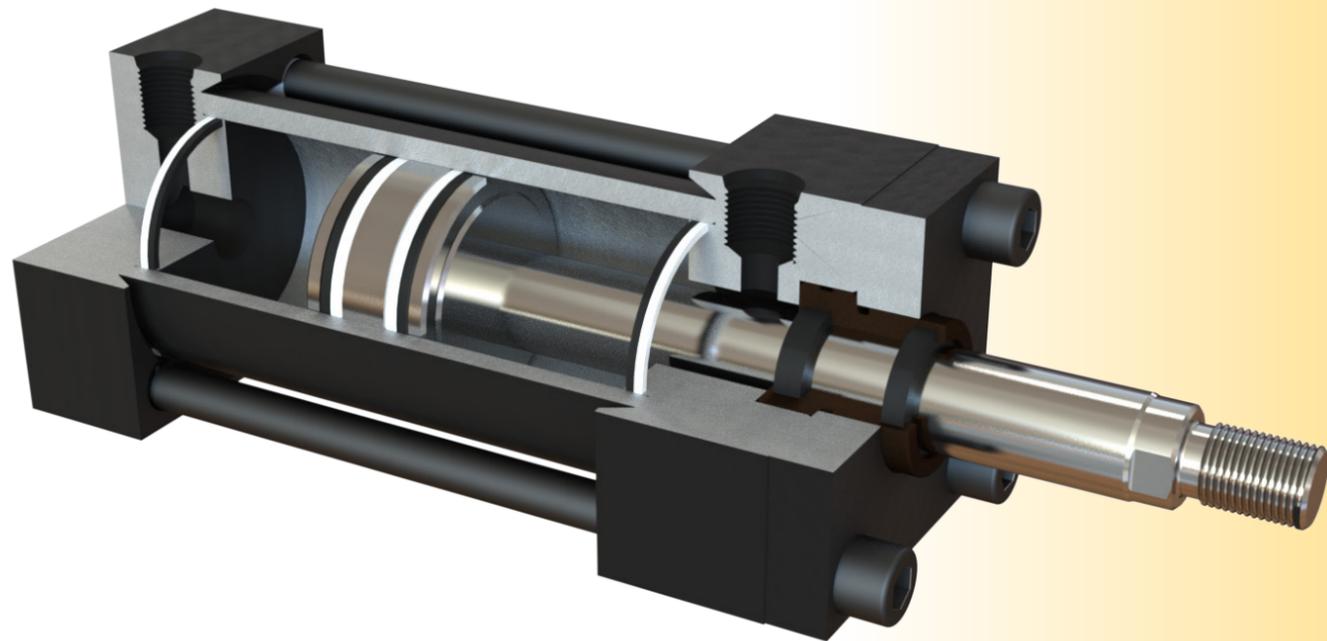
Hydraulic Cylinders in Stock and Ready to Ship!

AutomationDirect carries the Peninsular brand of NFPA standard hydraulic cylinders. Unlike other suppliers, our hydraulic cylinders are in stock and ready to ship to you - no long lead times for made-to-order cylinders. These double-acting cylinders are fabricated to very

strict tolerance specifications from the highest quality materials. Many bolt-on mounting options allow for installation flexibility and replacement of existing cylinder installations.

Peninsular hydraulic cylinders offer the features needed for most common applications:

- Interchangeable with other popular brands of NFPA cylinders
- Available bore sizes: 1-1/2", 2", 2-1/2", 3-1/4", 4"
- Wide selection of stroke lengths
- All models are double-acting
- Tapped end caps for mounting accessories
- Ductile iron rod bearing
- 3000 psi working pressure
- Temperature range is -20° F to 200° F
- Bolt-on mounting accessories include front or rear flange mounts, rear pivot eye mounts, rear clevis mounts, and rod clevis mounts
- Made in the USA
- All models are typically available for same-day shipment



Optional mounting accessories:



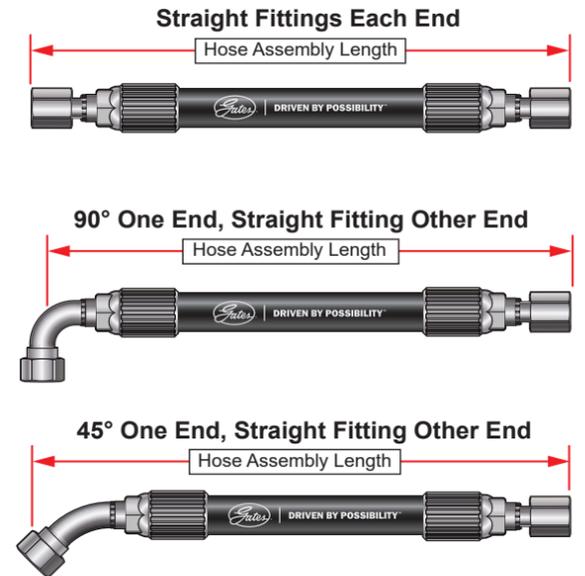
Hydraulic Hoses and Adapters



High-quality hoses are essential to prevent leaks and burst situations due to pressure or age.

Normally, hoses are sold in bulk that must be cut to the desired length and terminated with fittings on-site. Some manufacturing facilities have the capability to do this themselves, but oftentimes, a new hydraulic project or breakdown requires calling a custom hose company to cut and terminate the hoses.

Gates hydraulic hoses from Royal Brass & Hose are already pre-cut, terminated, in-stock, and ready to ship. 2ft to 10ft lengths are available, depending on models. Hoses are terminated with the Gates MegaCrimp coupling, which is stronger and more durable than traditional fittings. These fittings are tested to one million impulse cycles to ensure reliability.



Gates MXT™ Hydraulic Hoses

Gates MXT hydraulic hoses are tested to three times the standard impulse life expectancy and offer exceptional durability and long life with a light and strong construction. These hoses are made to last.

- Heavy-duty construction to withstand the harshest environments
- Oil resistant, synthetic, MSHA flame resistant black rubber with reinforced braided steel wire
- Hose diameters from 1/4 inch (-4 size) to 3/4 inch (-12 size)
- Straight female JIC swivel fittings on both ends
- Meets or exceeds SAE 100R2/EN 857 2SC/EN 853 2SN, SAE 100R16, SAE 100R17, SAE 6149-3
- Tested to 3X impulse criteria (600,000 cycles)

Gates ProFlex™ Hydraulic Hoses

Gates PROFLEX hydraulic hoses have higher flexibility than most hoses on the market. These are perfect for variable pressure applications.

- Compact construction with a smaller outside diameter requires less force to flex
- Synthetic, MSHA flame resistant black rubber with reinforced braided steel wire
- Hose diameters from 1/4 inch (-4 size) to 3/4 inch (-12 size)
- Straight female JIC swivel fittings on both ends
- Meets or exceeds SAE 100R2/EN 857 2SC/EN 853 2SN, SAE 100R16, SAE 100R17, SAE 6149-3
- Qualified for 200,000 cycles impulse life with MEGACRIMP, PCK, GB (-8, -12 & -16) couplings



HY-TECH Hydraulic Adapters

HY-TECH hydraulic adapters made from plated steel are available in many connection styles. Adapters are used to connect hoses to valves, actuators, or manifolds.

- Straight JIC to O-ring boss adapters
- Elbow JIC to O-ring boss adapters
- Elbow JIC to JIC adapters
- O-ring boss to O-ring boss straight reducer adapters
- Elbow O-ring boss to O-ring boss adapters
- Straight JIC to flat face adapters
- All models meet SAE J514 & 6149-3

