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## Common Applications of Accumulators

**Accumulators have many different applications; we have listed some of the most popular below:**

### **Shortening of Response Time**

Because of their instant response time, accumulators will provide fluid to fast acting valves, thereby reducing the dwell time for actuator response. Accumulators are especially effective in proportional and servo valve circuits.

### **Energy Conservation**

Accumulators can reduce energy costs in a variety of applications. By assisting the flow output for pumps with intermittent duty cycles, the accumulator will reduce system horsepower requirements. When combined with variable volume, pressure-compensated pumps, accumulators not only reduce horsepower requirements, but they will also assist with rapid flow demands.

### **Absorption of Hydraulic Line Shock**

Accumulators can take the shock out of a line when a valve closes or some other action occurs, resulting in "water hammer." By reducing line shock, system components such as pumps, valves, hoses and fittings are not subjected to pressure spikes; thus extending the life of each of your components.

### **Emergency Standby Power – Electrical Power Failure**

By having fully-charged accumulators integrated into a circuit, should an electrical power failure occur, the accumulators will supply enough flow and pressure to complete a cycle, close a valve or move an actuator. Using accumulators as emergency power will ensure an electrical failure does not permanently damage your system or cause other undesirable effects.

### **Emergency Standby Power – Immediate Response**

When large volumes of fluid are required in a fail-safe situation to actuate large valves, cylinders or rams, a charged accumulator or group of accumulators will provide an instantaneous response. Large banks of accumulators called Blowout Preventer Control Systems (BOP Units) provide emergency power to prevent blowouts during drilling and exploration.

### **Transfer Barrier for Fluid Separation**

Transfer Barrier accumulators are used in applications where two fluids must transfer pressure between each other, but cannot be mixed together. Transfer Barrier accumulators can also be used to cycle different pressurized fluids in and out of chambers.

### **Auxiliary Power Source**

Accumulators can be used to supplement pump flow for intermittent high demands in many systems. By using accumulators, pump size and required horsepower can be dramatically reduced.

### **Pressure Holding**

Accumulators are used extensively to hold pressure in a circuit, especially where actuators are used. The accumulator makes up for any leakage and maintains system pressure when all valving is closed.



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## **Pressurized Gas Bottles & Gas Cylinders**

Accumulators, Inc. manufactures gas bottles for storage of all types of gases and fluids up to 10,000 psi. An assortment of connections is available to accommodate the most demanding plumbing requirements. Unlike DOT gas bottles, our products are designed, manufactured and tested to meet the most stringent ASME Section VIII, Div I requirements.

## **Compensation for Thermal Expansion and Contraction**

Accumulators are especially effective when heat causes the volume of a system's fluid to expand. In systems where "hard" plumbing is installed, an accumulator is extremely important to prevent lines and pipes from rupturing due to thermal expansion of fluid. When fluids instead contract due to cooling, accumulators can make up for diminishing volume.

## **Compensation for Fluid Leakage**

Accumulators can ensure that your system fluid volume pressure maintains an even level despite any internal leaks; especially important if your system contains spool valves, cartridge valves or hydraulic cylinders.

## **Dispenser for Pressurized Lubricants**

Accumulators are an excellent choice for the precise dispersion of fluids for lubrication. Flow controlled by an accumulator is pulsation free.

## **Prevention of Pump Cavitation**

When installed on the inlet side of certain pumps, accumulators will greatly diminish or prevent cavitation. Accumulators provide fluid immediately should head pressure be lost upon pump startup.

## **Noise Attenuation**

Accumulators are extremely effective in reducing the noise of hydraulic systems caused by piston pumps, relief valves and the complexities of some hydraulic circuits. Noise attenuation of up to 95% can be achieved in many systems.

As with all hydraulic products, the correct selection, installation, operation and maintenance by qualified personnel is the users' responsibility.

Please [Contact Us](#) for assistance in recommending an accumulator for your application.