

rotork® Fluid Systems

Actuator Control System for Pump Control Valves

There's a recognised need to protect discharge pumps and piping systems from reverse flow and water hammer. A two-speed valve control system is generally utilised; a slow speed that inhibits hydraulic shock for normal operation, and a faster close speed for ESD (emergency shutdown).



A traditional solution is often a pneumatic actuator with hydraulic dampening for precise speed control. These systems have several limitations, among them the fact that they often include a complex control circuit with several manually operated valves. Many operators agree with Rotork that this type of system is not the best solution to protect their plant and expensive equipment.

Rotork Fluid Systems has developed a simple, yet effective and dependable, actuator package for pump control valves. By use of a specially designed hydraulic manifold, the complex control circuit piping and its many potential leak points is eliminated.

The manifold block incorporates speed controls for open, close and ESD, a hydraulic solenoid control valve with manual override, a manual hand pump with local / remote operation selector and a hydraulic oil reservoir.

For normal operation, the system provides an adjustable, one- to four-minute stroke time. The system also automatically provides a faster, and independently adjustable five- to thirty-second, stroke time upon loss of ESD signal.

A variety of options are available including limit switches and filter / regulators. The system can be easily tailored to meet specific application requirements.

Design features and benefits

- Standardised system for all fluid power actuators.
- Simple cost-effective solution.
- Few connections, less potential leak points.
- Can be retrofit to existing installations.
- Very simple operation.
- Precise adjustable speed control with separate controls for open, close and ESD.

Established Leaders in Flow Control

Remote Operation

1. Set the remote manual selector to REMOTE.
2. Energise hydraulic solenoid valve.
 - a. Energise pneumatic solenoid for slow open.
 - b. De-energise the pneumatic solenoid for slow close.
3. De-energise both pneumatic and hydraulic solenoids for fast close.

Manual Operation

1. Set the remote manual selector to OPEN OR CLOSE.
2. Cycle the hand pump to stroke the actuator.

N.B. When manual operation is completed, ensure that the remote manual selector is returned to REMOTE.

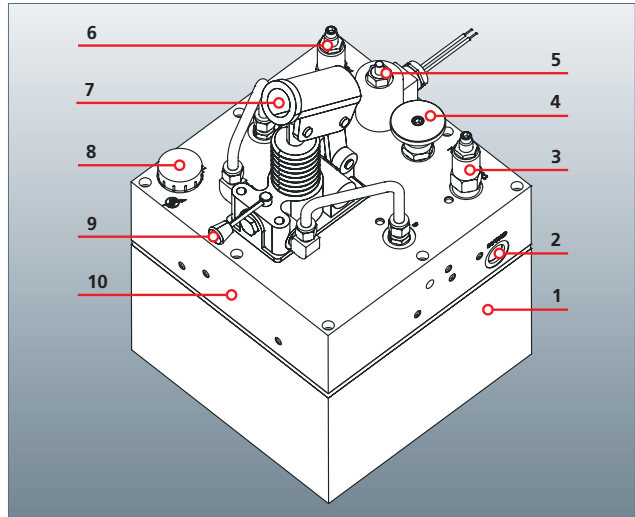


Fig.1. Hydraulic manifold details.

ITEM	DESCRIPTION
1	Reservoir
2	Port to Actuator Hydraulic Cylinder – outboard
3	Speed Control for Slow Close
4	Speed Control for ESD Fast Close
5	ESD Solenoid Valve with Manual Override
6	Speed Control for Slow Open
7	Manual Hand Pump (handle not shown)
8	Oil Filler / Dipstick
9*	Remote / Manual Operation Selector
10	Hydraulic Manifold Block
11	Port to Actuator Hydraulic Cylinder – inboard (not shown)

- * The Remote / Manual Selector has three positions. The center position is for remote operation. Positions to the left and right are for manual operation. Direction of travel determined by either of these two manual positions is dependent upon the actuator range utilised (i.e., the left position may be for open or it may be for close). All units are labeled accordingly.

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