Innovative Engineering

hydraulic relay

Product Description:

The Innovative control "Relay" featuring large water passages for hydraulic operation of valves, sizes ranging from ¾" to 16" diameter.

The "Relay" provides a handle for manual operation and a tube connector for remote hydraulic control. "Relay" further provides three tube connectors; one for the controlled valve, one for the line pressure and one for drainage.

Technical function:

"Relay's" internal mechanism controls the water passage to the command chamber of the controlled valve, so that it is either connected to the line pressure causing the valve closure, or to the drainage causing the valve to open.

The manual handle has three positions:

Position 1 – Opens the valve.

Position 2 – Closes the valve.

Position 3 – Auto / remote hydraulic command

Properties and Technical Specifications:

- **Maximum operating pressure: 10 atm**
- **"Relay" offers three types of springs for different topographic pressure:**
  - **a) standard spring for up to +10 meters.**
  - **b) Stronger spring for up to +20 meters.**
  - **c) Weaker spring suitable for low pressure systems, operating in the range of 0, 2 atm**
- **Remote command pressure to the "Relay" may be lower than the up-stream line pressure of the valve. Example: for a standard spring a command pressure of 1.5 to 2 atm is sufficient to operate the "Relay" with a line pressure of 10 atm at the valve**
- **The "Relay" has high tolerance to occasional line pressure drops (as low as zero atm) and will not leak at lower line pressures.**
- **"Relay" features innovative plug-in fittings consisting of a bayonet adjustment method that requires no sealing materials and enables quick assembly and disassembly.**
- **Angle fittings rotate freely to the required direction, without causing leaks.**
- **Easy and fast transition of operation from NC to NO position, by only repositioning the fittings without disassembling the tube itself.**
- **Easy manual operation even under high-pressure conditions.**

Structural Material:

- **Fiberglass reinforced poliamid body and accessories.**
- **NBR reinforced diaphragms and seals**
- **SST spring and screws.**

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Advantages of "Relay"

Quick response:

The "Relay" is designed to respond quickly to a change in status command. This ability is maintained under conditions of a long command line, when there is air in the hydraulic command tubing, and when the "Relay" is commanded using air pressure.

Reliability under demanding conditions:

The "Relay" is designed with a dual-chambered structure, enabling it to operate effectively when the command pressure is significantly below the line pressure (for example, 2 atm is sufficient to operate the Relay with a line pressure of 10 atm). This property ensures reliable operation even when the command pressure falls because of leaks, presence of air in the command tubing, or long command lines.

Low sensitivity to height differences in the irrigated area:

The "Relay" is designed for low sensitivity to topography, and operates excellently at all the various height differences, by choosing one of the two types of springs: a standard silver colored spring for height differences up to 10 m, or a brown colored spring for height differences up to 20 m. This property simplifies the design of an irrigation system, and avoids the necessity for manually adjusting the spring by trial and error.

Precise control and prevention of water loss:

The "Relay" is designed to prevent the familiar phenomenon of the opening of every valve in the area when line pressure falls, or when irrigation ceases or pumps are turned off. This phenomenon often causes a significant waste of water because of the long time required for the pressure to return when the valves are open. The "Relay" ensures that the valves remain closed even when the pressure is low, and thus ensures a rapid pressure rise when irrigation begins. In this way, the "Relay" prevents water waste and improves irrigation control.

Working pressure:

The "Relay" is designed to operate at pressure up to 10 atm (PN10), and has been tested at 16 atm for 24 hours and at 24 atm for one hour, according to the Israeli Standards.

Advanced ergonomics:

In designing the "Relay", special attention has been given to ergonomics. The tube connectors are an integral part of the "Relay" and connect to it using the innovative Plug-In system. This system allows the connectors to be changed rapidly and easily, without the use of sealant compounds, and enables free rotation of the connectors in the required direction, without risk of leaks.

Green thinking:

The water industry makes widespread use of Teflon sealants which are not biodegradable and accumulate in the natural environment and pollute it.

Plug-in connectors do not use Teflon or other sealants, and this helps to preserve the environment over time.

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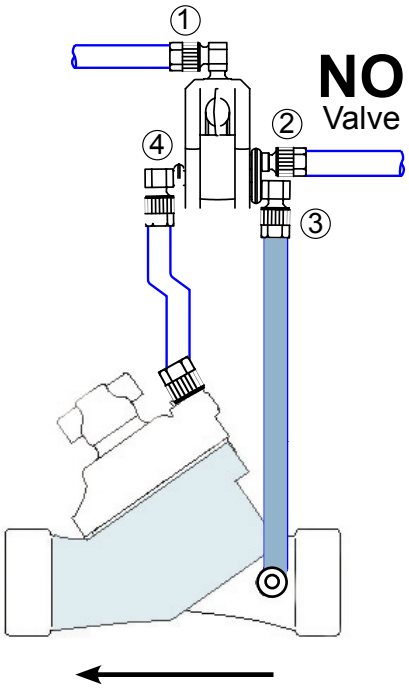
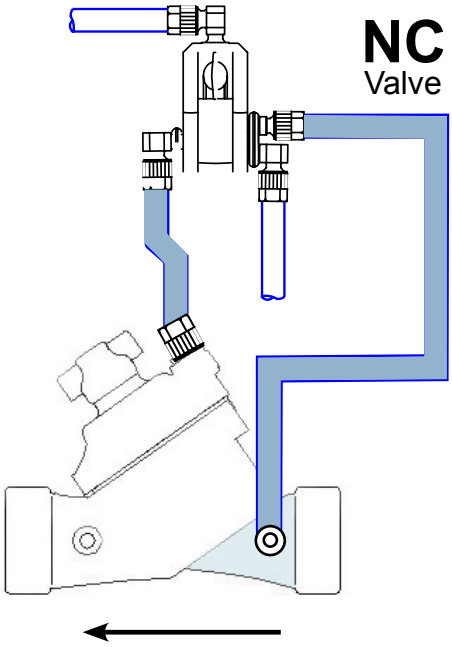
RELAY
TECHNICAL DATA



NO Valve

1. Remote Command
2. Drain
3. Line Pressure
4. Valve chamber



NC Valve

1. Remote Command
2. Line Pressure
3. Drain
4. Valve chamber

TECHNICAL DATA	
Operating Pressure:	0-10 bar/ 0-150 psi
Connectors:	8 - 6mm tube connector
Manual Override:	Open, Auto, Closed

Springs Selection Table (for Topographic Height Difference)

Standard	Silver 0-10m
Optional	Green 10-20m

Structural Material

- Fiberglass reinforced poliamid body and accessories. (UV Protected)
- EPDM reinforced gaskets and diaphragms.
- SST spring and screws.