

## Vent-to-open, spring biased closed, unbalanced poppet logic element with pilot source from port 1 or 2

Capacity:  
**25 gpm (95 L/min.)**

Functional Group:

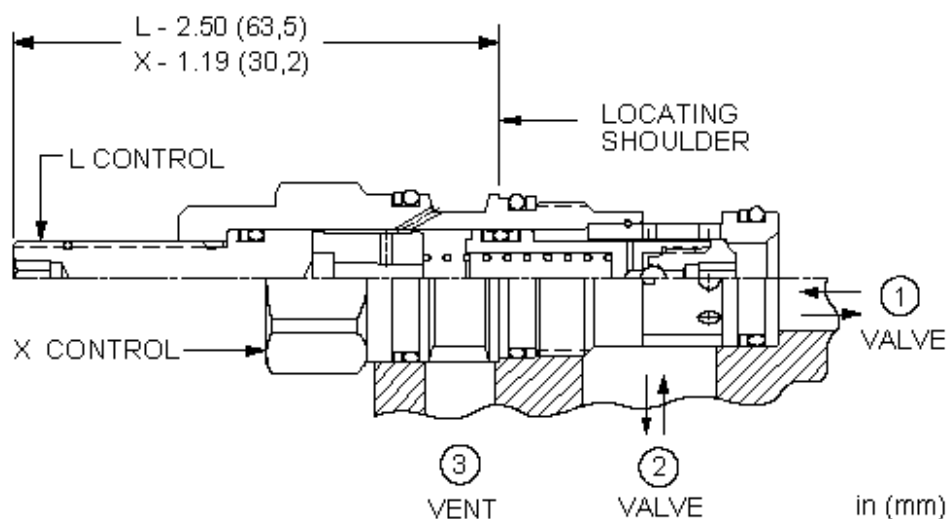
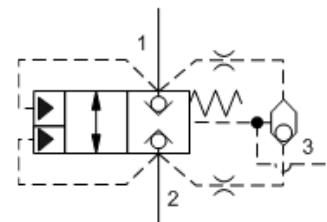
**Products : Cartridges : Logic Element : Unbalanced Poppet : Vent-to-open, Spring Biased Closed, with Pilot Source from Port 1 or 2**

Model:

**LODD**

### Product Description

These unbalanced, vent-to-open logic valves are 2-way switching elements that are spring-biased closed and incorporate an integral shuttle so that the higher of pressures at either port 1 or port 2 can be used as a pilot source. With port 3 blocked, the valve is held in the closed position by the spring force. With port 3 vented, the valve will open provided there is sufficient pressure to overcome the spring force. The force generated at port 3, plus the spring force, must be greater than the sum of the forces acting at port 1 and port 2 for the valve to remain closed. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

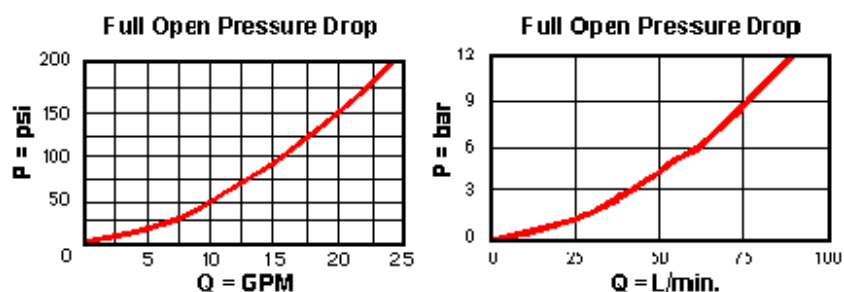


### Technical Features

- These valves have positive seals between port 2 and the pilot area.
- These valves are pressure responsive at all ports, therefore it is essential to consider all aspects of system operation through a complete cycle. Pressure changes at any one port may cause a valve to switch from a closed to an open position, or vice versa. All possible pressure changes in the complete circuit must be considered to assure a safe, functional system design.
- All ports will accept 5000 psi (350 bar).
- These valves open quickly when vented. Time to close is difficult to predict as it is dependant on the rate of flow and the pressure drop created as it closes.
- Controlling 2 or more of these valves with 1 pilot control is not advised. The shuttle valve creates a flow path between the multiple elements. Using a blocking check on the pilot of each logic valve will prevent this.
- Corrosion resistant cartridge valves are intended for use in corrosive environments and are identified by the model code suffix /AP (see Option Selection below). The bodies of these valves are made from high strength lean duplex stainless steel. Adjustment screws are made from titanium or silicon brass, depending on the model. Lock nuts, retaining wires, and assorted controls are made from 316 stainless steel. Internal parts are made from carbon steel leaded alloy, the same as standard valves.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

**Technical Data**

|                                           | U.S. Units          | Metric Units       |
|-------------------------------------------|---------------------|--------------------|
| Cavity                                    |                     | T-11A              |
| Capacity                                  | 25 gpm              | 95 L/min.          |
| Area Ratio, A3 to A1                      | 1.8:1               |                    |
| Area Ratio, A3 to A2                      | 2.25:1              |                    |
| Control Orifice Diameter                  | .021 in.            | 0,53 mm            |
| Maximum Operating Pressure                | 5000 psi            | 350 bar            |
| Maximum Valve Leakage at 110 SUS (24 cSt) | 10 drops/min.       | 0,7 cc/min.        |
| Pilot Volume Displacement                 | .04 in <sup>3</sup> | 0,66 cc            |
| Series (from Cavity)                      |                     | Series 1           |
| Valve Hex Size                            | 7/8 in.             | 22,2 mm            |
| Valve Installation Torque                 | 30 - 35 lbf ft      | 40 - 50 Nm         |
| Seal Kits - Cartridge                     |                     | Buna: 990-011-007  |
| Seal Kits - Cartridge                     |                     | Viton: 990-011-006 |
| Model Weight                              | 0.28 lb.            | 0.13 kg.           |

**LODD-XDN****Control****Standard Options****X** Not Adjustable**Cracking Pressure****Standard Options****D** 50 psi (3,5 bar)**Seal Material****Standard Options**

**N** Buna-N

**V** Viton

**Material/Coating Modifier****Preferred Options****No modifier** (standard material with no special coating)**Special Options****/AP** Stainless Steel, Passivated

Control: X

***Our corrosion resistant product line is growing! If you are interested in a corrosion resistant option for this model, please contact Sun.***

**Additional Options****Control****L** Stroke Adjustment

When the modifier is /AP, the control must be X

**Cracking Pressure****Seal Material****Related Models**[LODD8](#)