# 250 INVERSE LEE SHUTTLE™ VALVE

The Lee Company's new 250 Inverse Shuttle Valve is the latest addition to Lee's line of miniature inverse shuttle valves. The poppets in this shuttle valve are designed to allow the lower inlet pressure to flow while the higher inlet pressure is blocked.

This new shuttle valve is ideal for high pressure applications with system pressures up to 5000 PSI. The metal components are constructed entirely of stainless steel for durability and long life. Each Inverse Shuttle Valve is 100% tested and inspected to ensure reliable, consistent performance.

- Designed for system pressures up to 5000 psi
- Weighs only 8 grams
- All metal components made from stainless steel
- 100% tested and inspected
- Endurance tested to 250,000 cycles

**SVIA2500326D**

### PIN

### INSERT

### INSTALLATION HOLE
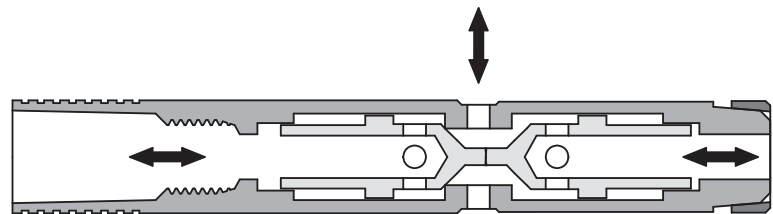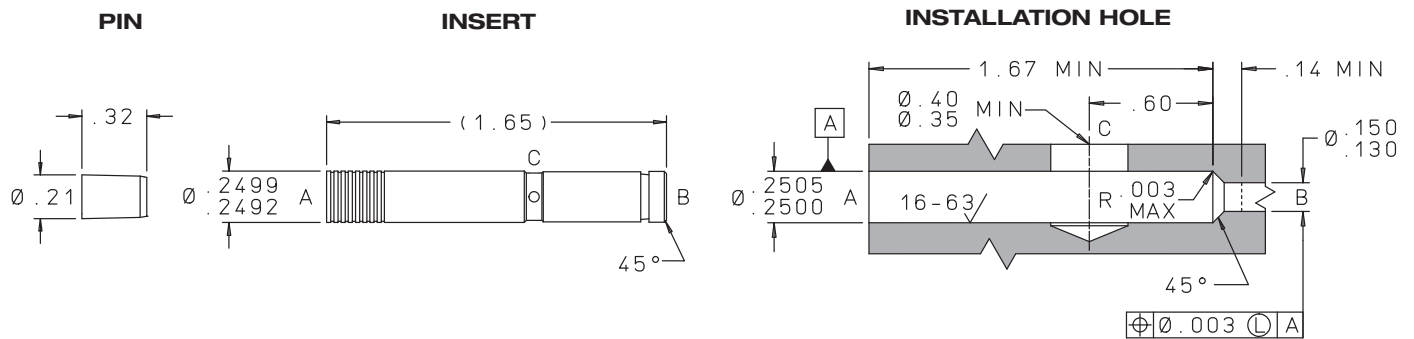
| MATERIALS | | |
|---|---|---|
| **PART** | **MATERIAL** | **SPECIFICATION** |
| Body Rear | 304 Cres | AMS 5639 |
| Body Center | 15-5PH Cres | AMS 5659 |
| Body Front | 304 Cres | AMS 5639 |
| Poppets | 15-5PH Cres | AMS 5659 |
| Pin | 17-4 PH | AMS 5643 |
| Compression Seal | Polyimide | — |

## PERFORMANCE

**Unbalanced Flow: (290 Lohms maximum)**
Port A to Port C (Port B Closed): 0.31 GPM min. @ 25 psid ($P_B \geq 1.25 \times P_A$)
Port B to Port C (Port A Closed): 0.31 GPM min. @ 25 psid ($P_A \geq 1.25 \times P_B$)

**Anti-Cavitation Flow: (260 Lohms maximum)**
Port C to Port A: 0.35 GPM min. @ 25 psid
Port C to Port B: 0.35 GPM min. @ 25 psid

**Maximum Leakage:**
Port A to Ports C & B (Ports C & B at atmosphere): 5 drops/minute at 50 psid
Port B to Ports C & A (Ports C & A at atmosphere): 5 drops/minute at 50 psid

**Nominal System Pressure:** up to 5000 psi

**Nominal Weight:** 8 grams

*Valve performance on MIL-PRF-83282 at 85 °F      1 drop = 50 uL*

# LEE LOHM LAWS

## LOHMS LAWS (liquids)

Every engineer will be interested in our simple system of defining the fluid resistance of Lee hydraulic components.

Just as the OHM is used in the electrical industry, we find that we can use a liquid OHM or "Lohm" to good advantage on all hydraulic computations.

When using the Lohm system, you can forget about coefficients of discharge and dimensional tolerances on drilled holes. These factors are automatically compensated for in the Lohm calculations, and confirmed by testing each component to establish flow tolerances. The resistance to flow of any fluid control component can be expressed in Lohms.

The Lohm has been selected so that a 1 Lohm restriction will permit a flow of 100 gallons per minute of water with a pressure drop of 25 psi at a temperature of 80°F.

### LIQUID FLOW – UNITS CONSTANT K

| VOLUMETRIC FLOW UNITS | | | |
|---|---|---|---|
| Flow Units | Pressure Units | | |
|  | psi | bar | kPa |
| GPM | 20 | 76.2 | 7.62 |
| L/min | 75.7 | 288 | 28.8 |
| ml/min | 75 700 | 288 000 | 28 800 |
| in³/min | 4 620 | 17 600 | 1 760 |

| GRAVIMETRIC FLOW UNITS | | | |
|---|---|---|---|
| Flow Units | Pressure Units | | |
|  | psi | bar | kPa |
| PPH | 10 000 | 38 100 | 3810 |
| gm/min | 75 700 | 288 000 | 28 800 |

## LIQUID FLOW FORMULA

The following formulas are presented to extend the use of the Lohm laws to many different liquids, operating over a wide range of pressure conditions.

These formulas introduce compensation factors for liquid density and viscosity. They are applicable to any liquid of known properties, with minimum restrictions on pressure levels or temperature.

The units constant (K) eliminates the need to convert pressure and flow parameters to special units.

Volumetric Flow Units $\quad L = \dfrac{KV}{I} \sqrt{\dfrac{H}{S}}$

Gravimetric Flow Units $\quad L = \dfrac{KV}{w} \sqrt{HS}$

## NOMENCLATURE

- L = Lohms
- S = Specific gravity*
- H = Differential pressure
- V = Viscosity compensation factor**
- I = Liquid flow rate: Volumetric
- w = Liquid flow rate: Gravimetric
- K = Units Constant – Liquid (see chart above)

*S = 1.0 for water at 80°F.
**V = 1.0 for water at 80°F.

For other fluids and temperatures, contact your Lee Sales Engineer or visit us at www.theleeco.com.