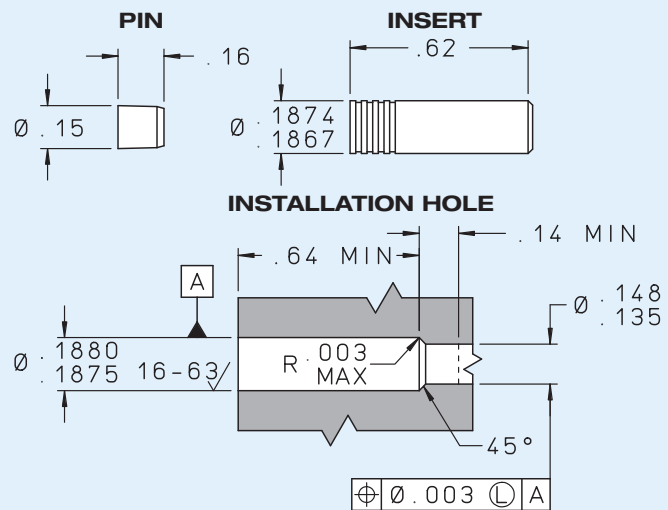
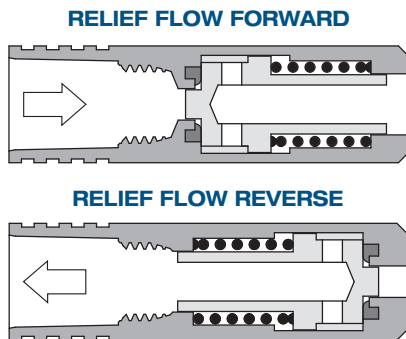


## 187 ZERO LEAK PRI®

The Lee Company's new 187 Zero Leak PRI (Pressure Relief Insert) is the latest addition to Lee's line of miniature zero leak pressure relief valves. This new valve is ideal for both pneumatic and hydraulic pressure relief applications where zero leakage is needed.

The cracking pressure is preset at the factory with capabilities ranging from 20 psid up to 100 psid. The nominal weight is only 1.5 grams. Each Zero Leak PRI is 100% tested and inspected to ensure reliable, consistent performance. Please contact your local Lee Sales Engineer for assistance in solving your zero leak relief valve needs.

- Cracking Pressure from 20 - 100 psid
- Zero Leakage
- Weighs only 1.5 grams
- 100% Tested and Inspected
- Endurance Tested to 100,000 Cycles Minimum



MATERIALS		
PART	MATERIAL	SPECIFICATION
Body	15-5PH CRES	AMS 5659
Poppet	303 CRES	QQ-S-763C
Spring	17-7PH CRES	AMS 5678
Optional Shims	300 Series CRES	ASTM A 666
Pin	17-4PH CRES	AMS 5643
Elastomeric Seat <i>Each valve contains one of the following elastomeric materials.</i>	Fluorocarbon	AMS-R-83485 or AMS-R-83248
	EPDM	AMS-R-83285

INSTALLATION AND EXTRACTION
Tool Set Part Number: CUTA1870110C
Replacement Pin Part Number: CSFA1870003A

LEE PART NUMBER		SEAT MATERIAL	MINIMUM CRACKING PRESSURE (psid)	FLOW POINT		FULLY OPEN LOHM RATE	MINIMUM SHUTOFF PRESSURE (psid)
FORWARD	REVERSE			LOHM* RATE	AT (psid)		
PSFA1870020L	PSRA1870020L	Fluorocarbon	20	2500 max.	40	750 max.	16
PSFA1870040L	PSRA1870040L	Fluorocarbon	40	2500 max.	80	750 max.	32
PSFA1870060L	PSRA1870060L	Fluorocarbon	60	2500 max.	105	750 max.	48
PSFA1870080L	PSRA1870080L	Fluorocarbon	80	2500 max.	140	750 max.	64
PSFA1870100L	PSRA1870100L	Fluorocarbon	100	2500 max.	175	750 max.	80
PSFA1871020L	PSRA1871020L	EPDM	20	2500 max.	40	750 max.	16
PSFA1871040L	PSRA1871040L	EPDM	40	2500 max.	80	750 max.	32
PSFA1871060L	PSRA1871060L	EPDM	60	2500 max.	105	750 max.	48
PSFA1871080L	PSRA1871080L	EPDM	80	2500 max.	140	750 max.	64
PSFA1871100L	PSRA1871100L	EPDM	100	2500 max.	175	750 max.	80

PERFORMANCE
Leakage at Minimum Cracking Pressure: .....0 drops in a 1 minute test
Leakage at Minimum Shutoff Pressure: .....0 drops in a 1 minute test
Nominal Weight:..... 1.5 grams
<i>Valve performance on Hydraulic Oil at ambient temperature.</i>

Finish: All CRES Parts Passivated.  
 Pins are prewaxed. Do not degrease.  
 Do not lubricate.

\* The Lohm is a measure of flow resistance. Additional information can be found on the reverse side and at [www.theleeco.com](http://www.theleeco.com).

NOTE: The Lee Company 187 Zero Leak PRI is not recommended for general checked pressurization service. Excessive pressurization in the non-relief flow direction may cause damage to the valve's critical sealing surfaces.

# 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 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.

$$\text{Volumetric Flow Units } L = \frac{KV}{I} \sqrt{\frac{H}{S}} \quad \text{Gravimetric Flow Units } L = \frac{KV}{w} \sqrt{HS}$$

## 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
in <sup>3</sup> /min	4 620	17 600	1 760

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

## 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 below)
- \*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](http://www.theleeco.com).