# 187 HIGH PRESSURE DIRECTIONAL FLOW CONTROL

The Lee Company's new 187 High Pressure Directional Flow Control is the latest addition to Lee's line of miniature directional flow control valves. These valves provide restricted flow in one direction and free flow in the other direction. This new valve is ideal for high pressure hydraulic applications with system pressures up to 5000 psi, and incorporates high strength safety screens for both flow directions. Nominal weight is just 1.9 grams.

Available in forward and reverse free flow configurations, the new Lee 187 High Pressure Directional Flow Control is constructed entirely of stainless steel for durability and long life. Metered Lohm* Rates are available from 1000 to 20,000 Lohms. Each directional flow control valve is 100% tested and inspected to ensure reliable, consistent performance.

- Designed for System Pressures up to 5000 psi
- Weighs only 1.9 grams
- High Strength Screens Protect both Flow Directions
- 100% Tested and Inspected
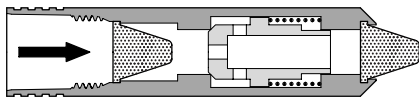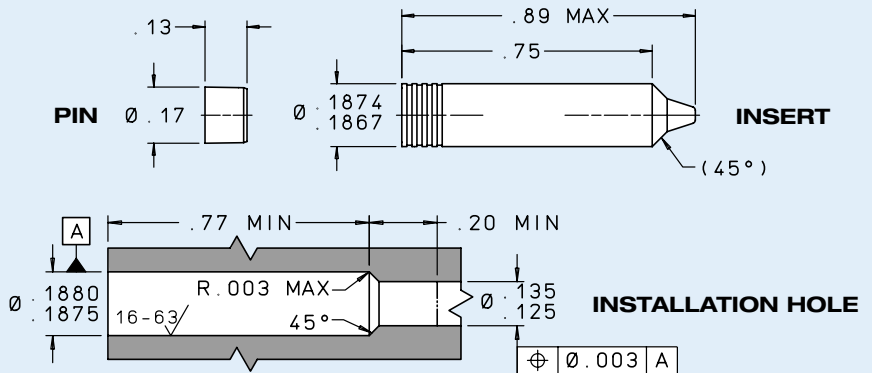
FREE FLOW FORWARD
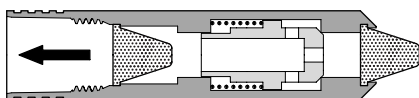
FREE FLOW REVERSE

MATERIALS		
Part	**Material**	**Specification**
Body	304 CRES	AMS 5639
Pin	15-5PH CRES	AMS 5659
Poppet	15-5PH CRES	AMS 5659
Spring	17-7PH CRES	AMS 5678
Screens	15-5PH CRES	AMS 5659

PERFORMANCE
Metered Lohm Rate Tolerance ....±5% or ±10%
Nominal System Pressure....5000 psid max.
Cracking Pressure ....2 - 8 psid

* The Lohm is a measure of flow resistance. Additional information can be found at www.TheLeeCo.com

LEE PART NUMBER		METERED* LOHM RATE	FREE FLOW* LOHM RATE (Max.)	NOMINAL SCREEN HOLE SIZE (inches)
±5%	**±10%**			
FREE FLOW FORWARD				
FHFA1875100D	FHFA1870100D	1,000	500	0.008
FHFA1875150D	FHFA1870150D	1,500	500	0.008
FHFA1875200D	FHFA1870200D	2,000	500	0.008
FHFA1875250D	FHFA1870250D	2,500	500	0.008
FHFA1875300D	FHFA1870300D	3,000	500	0.008
FHFA1875400D	FHFA1870400D	4,000	500	0.008
FHFA1875500D	FHFA1870500D	5,000	650	0.004
FHFA1875600D	FHFA1870600D	6,000	650	0.004
FHFA1875800D	FHFA1870800D	8,000	650	0.004
FHFA1875100H	FHFA1870100H	10,000	650	0.004
FHFA1875120H	FHFA1870120H	12,000	650	0.004
FHFA1875150H	FHFA1870150H	15,000	650	0.004
FHFA1875200H	FHFA1870200H	20,000	650	0.004
FREE FLOW REVERSE				
FHRA1875100D	FHRA1870100D	1,000	500	0.008
FHRA1875150D	FHRA1870150D	1,500	500	0.008
FHRA1875200D	FHRA1870200D	2,000	500	0.008
FHRA1875250D	FHRA1870250D	2,500	500	0.008
FHRA1875300D	FHRA1870300D	3,000	500	0.008
FHRA1875400D	FHRA1870400D	4,000	500	0.008
FHRA1875500D	FHRA1870500D	5,000	650	0.004
FHRA1875600D	FHRA1870600D	6,000	650	0.004
FHRA1875800D	FHRA1870800D	8,000	650	0.004
FHRA1875100H	FHRA1870100H	10,000	650	0.004
FHRA1875120H	FHRA1870120H	12,000	650	0.004
FHRA1875150H	FHRA1870150H	15,000	650	0.004
FHRA1875200H	FHRA1870200H	20,000	650	0.004

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.

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)

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
$$L = \frac{KV}{I} \sqrt{\frac{H}{S}}$$

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

LIQUID FLOW – UNITS CONSTANT K

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