

## Diaphragm Seals

# Type L Series Diaphragm Seal Elements for Low Pressure Applications

### DESCRIPTION

Type L Series diaphragm seals feature removable, elastomer diaphragms that may be replaced or repaired if required. These seal elements are intended for low pressure sensitivity instruments such as bellows and diaphragm-type gauges. They are sensitive to pressure changes as low as 2" H<sub>2</sub>O (51 mm H<sub>2</sub>O at 4°C).

Type L Series diaphragm seals employ diaphragms retained between two bolted members. In the clean-out design, the diaphragms are situated between the top and middle ring. In the LB and LG design, the diaphragms are located between the top and bottom. The diaphragm is loosely retained in the upper housing for easy repair or replacement. This extends the life of the seal element and allows for field replacement and service.



### FEATURES

- Removable elastomer diaphragms
  - Ideal for low pressure sensitivity bellows and diaphragm-type gauges
- Materials available for corrosive applications
- Superior low pressure response
  - Pressures as low as 2" H<sub>2</sub>O
- Large volumetric displacement
  - 1.38 cubic inches
- Seal ratings to 5000 psig (345 bar)

### SEAL CONFIGURATIONS

#### Threaded Seal Elements

There are four basic versions of L Series diaphragm seals with threaded attachments. The LB seal element is used for pressure applications only and has a pressure rating of 1250 psig at 100°F (86 bar at 38°C). The LG seal element is similar to the LB seal, except that it has a 1/4 NPT flushing connection. The LA seal element has a standard pressure rating of 1250 psig at 100°F (86 bar at 38°C), but may also be supplied with a pressure rating of up to 5000 psig. The LH seal element is similar to the LA seal element except that it features a 1/4 NPT flushing connection. Both have an extended area allowing for negative displacement making them ideal for vacuum applications.

#### Flanged Seal Elements

There are two basic versions of flanged L Series seal elements. The flange is a standard raised face style. The LC seal element may be supplied in .5" and .75" with Class 150 thru 1500 ANSI flange ratings. A 1" version may be supplied with a Class 150 thru 600 ANSI rating. 2" thru 8" versions are available with Class 150 to 300 ANSI ratings.

#### In-line Flow Thru Seal Elements

In-line flow thru L Series diaphragm seals include the LJ versions for 3-inch and larger pipe connections. The LK versions are available with 1/4, 3/8, or 1/2 NPT process connections. The LM version is for pipe sizes from .75" to 2.5" schedule 40 pipe (other schedules available) where the diaphragm seal element is to be directly welded to the process pipe. The LN version is for pipe sizes from 0.75" to 2.0" requiring ANSI ratings of 150 or 300. These may be supplied with an optional TEFLON® liner. The LP versions are for pipe sizes from 3" to 8" and with ANSI ratings of 150 or 300.

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### MODEL L SERIES SELECTION GUIDE

SEAL TYPE	SEAL MOUNTING	OPERATING TEMPERATURE	OPERATING PRESSURE	PROCESS APPLICATION	FLUSHING CONNECTION
LB	Thread	100°F (38°C)	1250 psig (86 bar) <sup>2</sup>	Low Pressure	No Flush
LG	Thread	100°F (38°C)	1250 psig (86 bar)	Low Pressure	With Flushing Connection
LA	Thread	100°F (38°C)	1250 psig (86 bar) <sup>1</sup>	Vacuum	No Flush
LH	Thread	100°F (38°C)	1250 psig (86 bar) <sup>1</sup>	Vacuum	With Flushing Connection
LC	Flange	-	Flange Dependent <sup>2</sup>	Low Pressure	No Flush
LD	Flange	-	Flange Dependent	Low Pressure	With Flushing Connection
LJ	In-Line Flow Thru <sup>a</sup>	100°F (38°C)	1250 psig (86 bar)	Low Pressure	No Flush
LK	In-Line Flow Thru <sup>b</sup>	100°F (38°C)	1250 psig (86 bar)	Low Pressure	No Flush
LM	In-Line Flow Thru <sup>c</sup>	100°F (38°C)	1250 psig (86 bar)	Low Pressure	No Flush
LN	In-Line Flow Thru <sup>d</sup>	-	Flange & Schedule Dependent	Low Pressure	No Flush
LP	In-Line Flow Thru <sup>e</sup>	-	Flange & Schedule Dependent	Low Pressure	No Flush

**NOTE:**

<sup>1</sup> 5000 psig available at 100°F (345 bar at 38°C)

<sup>2</sup> LB and LC Series with non-metal exposed materials are rated at 100 psi (7 bar)

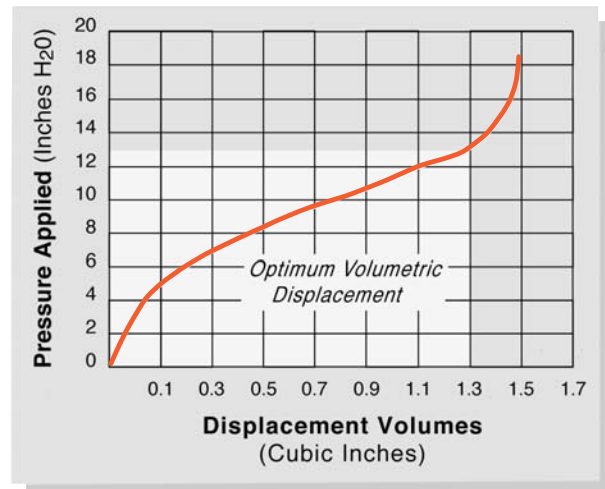
<sup>a</sup> In-line flow thru welded by user

<sup>b</sup> In-line flow thru thread-attached connection

<sup>c</sup> In-line flow thru welded by user, pipe supplied, schedule dependent

<sup>d</sup> In-line flow thru for .75" to 2" pipe diameters

<sup>e</sup> In-line flow thru for 3" to 8" pipe diameters



### Application Note

Prevent inaccuracies by avoiding very low span in gauge or differential pressure applications which do not provide sufficient differential pressure energy to drive the instrument, seal element, and fill liquid column.

### Pressure vs. Volumetric Displacement

Displacement curves are provided to assist in selecting a diaphragm seal with minimal full span displacement bias effects. This graph is for reference only and may not accurately represent the maximum displacement that may be used. Contact AMETEK for exact specifications.

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