

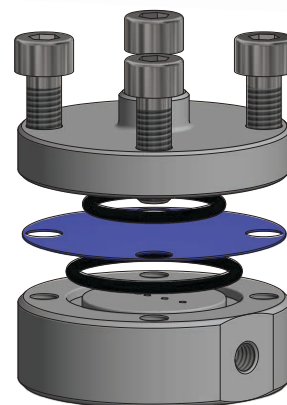
## LVF Miniature Back Pressure Regulator

The LVF Back Pressure Regulator is a very compact, low dead volume version of our low flow LF back pressure regulator. It comes exclusively in 1/16" size ports, either HPLC (10-32) style threads or HiP AF1 style. The LVF has a maximum Cv of 0.01, a diameter of 1.5in (39mm) and a dead volume of 0.23 ml.

Equilibar developed the LVF in response to requests for a smaller back pressure regulator. Many of the requests came from scientists performing catalytic research with multiple reactor systems at a high temperature. In this situation, back pressure regulators are often placed inside an oven where space is severely limited.

The design of the LVF is based on the same novel technology as all Equilibar back pressure regulators, but this miniature version has a diameter of less than 40 mm.

The LVF is especially well suited for applications involving catalytic research or gas chromatography. It is also well adapted to provide singularly high precision for microfluidics and micro and nano flow control.



## Key Features

### EASE OF USE

The Equilibar LVF is a dome-loaded pressure regulator with pilot operation. Gas or air is fed into the top (dome) area of the regulator to provide the pressure setpoint in a 1:1 ratio for the process. The pressure of the gas in the dome is set by a secondary standard regulator called a pilot regulator. The pilot regulator can be manual or electronic, depending on the application's requirements.

### EXCELLENT STABILITY

Equilibar regulators feature ultra sensitive diaphragm-operated back pressure technology capable of controlling pressure with high precision over a wide range of flows. It fully opens in less than 1% overpressure in most applications. The stability of the Equilibar regulator is unmatched in the industry.

### SMOOTH COMPUTER AUTOMATION

Equilibar back pressure regulators respond instantaneously to changes in flow or setpoint to maintain the desired inlet pressure. Because of this lightning fast control capability, they are a perfect match for computer automated control. Set the LVF regulator up with an electronic pilot regulator, connect it to the process control system, and it is ready for automation.

### PATENTS

[www.equilibar.com/support/patents/](http://www.equilibar.com/support/patents/)

### WIDE RANGE OF CV

As with all of Equilibar's back pressure regulators, the LVF features patented technology based on a dome-loaded, multiple orifice design that is capable of providing high performance across incredibly wide flow rate ranges. The LVF unit has an impressive Cv turndown ratio of 100,000:1.

### MULTIPHASE FLOW COMPATIBILITY

Traditional back pressure regulators consist of a single orifice and valve seat, while Equilibar back pressure regulators have multiple orifices. This design controls liquid and gas flow simultaneously without the pressure spikes seen with traditional valves.

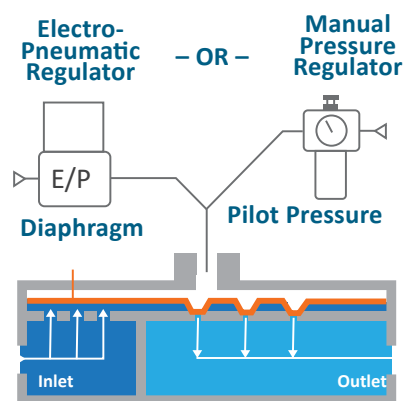
### SIMPLE RUGGED CONSTRUCTION

LVF back pressure regulators are machined from 316L stainless steel and consists of a body, cap, bolts, O-ring and diaphragm. The LVF can be disassembled, cleaned and rebuilt in minutes. It is recommended to maintain an Equilibar regulator on a yearly basis for most applications. Rebuild kits consisting of an O-ring and diaphragm can be purchased from the factory.

# Design Highlights

## HOW IT WORKS

Simply apply a pilot pressure to the dome of the Equilibar® back pressure regulator (BPR) equal to the desired setpoint and the BPR does the rest. This pilot pressure forces the flexible diaphragm down onto a plate of orifices. A rise in inlet pressure lifts the diaphragm up to allow excess pressure to be relieved through the outlet orifices. Similarly, a loss of pressure at the inlet causes the diaphragm to be pushed closer to the orifices, restricting flow and rebuilding pressure upstream.



## Specifications

Max Pressure	2000 psi (103 bar)
Flow Coeff (Cv)	1E-08 to 0.01
Inlet/Outlet Port	1/16" HPLC or HiP
Reference Port	1/16"
Diameter	1.5 in (39 mm)
Height	1 in (25 mm)
Weight	6.5 oz (185 g)
Dead Volume <sup>1</sup>	0.23 ml (0.014 in <sup>3</sup> )

Body / Cap material	Stainless Steel 316/316L (std); Hastelloy C276; Titanium; Zirconium; PTFE, PVDF, PEEK, PVC, Monel
O-rings	Viton® (FKM) (std); Also available: Kalrez® (FFKM), PTFE, EPDM, Buna-N
Diaphragm	PTFE/glass laminate (std); Also available: Stainless Steel SS316/316L, Hastelloy C276, Virgin PTFE, FKM, Polyimide, Buna-N, PEEK, EPDM
Temperature Capabilities	up to 150°C (metal body, PTFE diaphragm, Viton® O-rings) up to 200°C (metal body, metal diaphragm, Viton® O-rings) up to 300°C (metal body, metal diaphragm, Kalrez® O-rings)

<sup>1</sup> Dead volume is approximate and for reference only. Approximations are made assuming diaphragm is in the "down" position

Viton® and Kalrez® are registered trademarks of DuPont

Equilibar regulators are control devices, not safety devices or shut-off devices and should not be used as such

## ORDERING INFORMATION

Std Part Number: LVF0SVN0-VSMPxxTyyabcd where xx=max pressure, yy=max temperature and abcd are diaphragm and O-ring materials. Diaphragm and O-ring materials are dependent on application. Please [contact an application engineer](#) to order.

## About Equilibar

Equilibar provides innovative and robust pressure control technology for researchers and engineers worldwide. We are proud to design, manufacture and test our patented back pressure regulators in our factory overlooking the Blue Ridge Mountains near Asheville, NC.

### APPLICATION ENGINEERING –WHAT SETS US APART

Unlike mass-market regulator distributors, we focus on working with you, the scientist or engineer with a complex pressure control scenario.

Our application engineers work collaboratively with clients to identify the optimal model, trim, and diaphragm for each application's unique challenges. No matter where you are on the globe, you can stay in close contact with your engineer by email, telephone, videoconferencing or fax.

After installation, your application engineer will support you with start-up information and fine-tuning as needed.

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Made in the  
USA

Equilibar's quality system is  
**ISO 9001:2015** certified.

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