



Bal Seal® Bellows Seal in Dispensing Valves and Metering Devices

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Overview

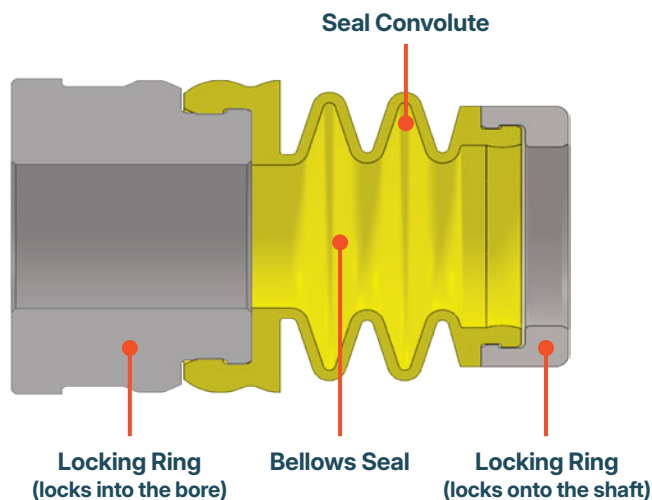
Many industries depend on valves and metering devices to precisely dispense and control the flow of high viscosity and quick-curing media. But the temperatures, speeds, and abrasive/corrosive media common to this equipment can be extremely harsh on seals. The bellows seal has become a popular choice for these demanding applications.

Bellows Seal Basics

A bellows seal is a type of compression/expansion joint that creates a seal to keep various media types (fluids, gases, debris, etc.) from contacting internal or external system components due to their incompatibility, corrosive nature or to simply contain hazardous gases or liquids under pressure.

The bellows seal is typically employed in equipment that has linear movement. It is mounted onto a housing or piston so that one end is able to move while the other end is fixed. However, both ends of the bellows seal may be stationary or dynamic.

A bellows seal may have one or many convolutes, depending on cross-section, diameter, and the amount of travel required. More convolutes increase the seal's ability to travel, but can also limit pressure capacity, depending on the material type and diameter. The convolutes can be designed to reduce entrapment of media, increase flow rates, and reduce turbulence for minimal back pressure and media obstruction.



BELLOWS SEAL CROSS SECTION

Operating Parameters

Pressure

Low Vacuum to 1,000 psi (70 kg/cm²)

Speed

4 fpm (1.22 M/m) at 1,000 cycles per minute and higher depending on media and pressure

Temperature

-150 °F to 600 °F (-101 °C to 315 °C)

Media

Hot melt adhesive, paints, epoxy, gases, bio medical fluids, food, volatile chemicals, sterilization, implantable, more

Benefits

- Tested to seal effectively for >3M cycles in wet conditions
- Locking Rings reduce diametrical seal shrinkage for reliable sealing under constant thermal cycling
- Excellent chemical compatibility, easy peel-and-clean of high viscous/curable media
- No dead-volume or media entrapment
- No dynamic friction or wear particles during cycling
- Complete isolation of interior components from media
- High flexibility & high fatigue resistance
- No Leak paths

For more information about these capabilities, please contact your Bal Seal technical sales representative.

The Bal Seal® Solution

The Bal Seal bellows seal is precision-machined from formulated and blended PTFE (or a selection of other engineered polymer compounds) for optimized performance, reduced media adhesion, and low permeability.

Material Compliance

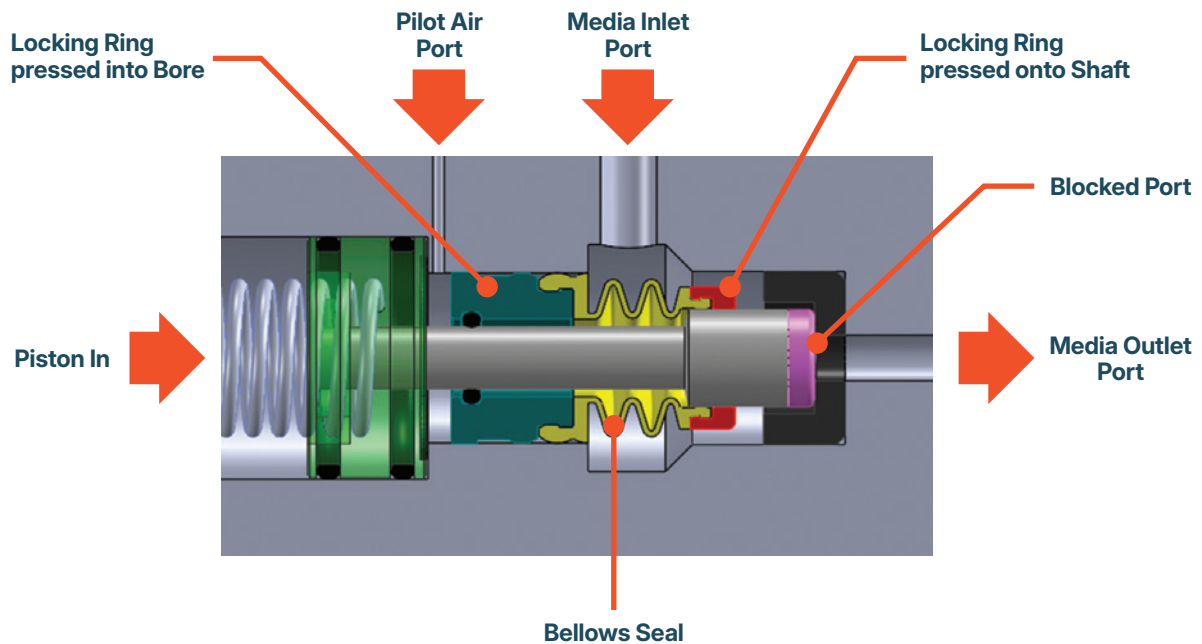
FDA, USP Class VI, RoHS, NSF, NORSOK M710, NACE

Size Options

.20 in to 27.0 in. (5 mm to 686 mm)

The seal incorporates a metal locking ring that is pressed into the housing or onto a piston in order to maintain secure mounting despite repeated thermal cycling or high-speed translation. Other mounting alternatives include:

- Snap on
- Thread-on
- Flange clamping
- Barbed interlocking



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