

## BP-3 Series\*

### Adjustable Back Pressure Regulators



The BP-3 Series is designed for either liquid or gas service in instrumentation systems. Similar in design to pressure reducing control regulators which regulate outlet pressures, back pressure regulators control the inlet pressure. The many features of this regulator, particularly its precise throttling action, make it ideal for this type of application. In low flow or closed systems, overpressures often are released by pressure relief valves. This type of relief is on-off with no throttling control. In contrast to relief valves, the back pressure control regulator with its throttling action substantially improves system pressure regulation.

\* Replaces the BPR7A and BPR8A Series.

#### Applications

- Analytical instrumentation
- Pilot plants
- Specialty gas systems
- Compressors
- Pump bypass
- Process vessel protection

#### Features & Specifications

- Only 316L stainless steel and PTFE in flow stream
- 316L stainless steel construction
- Operating temperatures of  $-40^{\circ}\text{F}$  to  $+500^{\circ}\text{F}$  ( $-40^{\circ}\text{C}$  to  $+260^{\circ}\text{C}$ )
- Bubble-tight shutoff
- Gas or liquid service
- Adjustable pressure control ranges of 0–6 psig, 0–10 psig, 0–25 psig, 0–50 psig, 0–100 psig, 0–250 psig, 0–500 psig, 0–750 psig, and 0–1,000 psig
- Cv flow coefficient is 0.2

#### Options

- Wetted materials of construction: brass, Monel®, Hastelloy®, titanium
- Extra ports
- Panel mount (requires a  $1\frac{3}{8}$ " mounting hole)
- High purity connections (tube stubs, metal face seals, etc.)
- Pressure gauges
- Optional Cv's: 0.03, 0.05, 0.06, 0.12, 0.24, 0.3, 0.095, 0.025, 0.04, 0.005, and 0.01

#### Maximum Temperature & Control Pressures

| Seat Material     | Maximum Temperature | @ | Maximum Control Range |
|-------------------|---------------------|---|-----------------------|
| Viton®            | 250° F (121° C)     | @ | 250 psig (1.72 MPa)   |
| Kalrez®           | 300° F (148° C)     | @ | 250 psig (1.72 MPa)   |
| High-density PTFE | 200° F (93° C)      | @ | 500 psig (3.44 MPa)   |
| Polyimide         | 500° F (260° C)     | @ | 1,000 psig (6.89 MPa) |
| PEEK™             | 500° F (260° C)     | @ | 1,000 psig (6.89 MPa) |

Note: Temperatures in excess of  $175^{\circ}\text{F}$  ( $80^{\circ}\text{C}$ ) require the use of a metal knob or the tamper-proof option.

#### Circle Seal Controls

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back pressure regulators

## How to Order

**BP3 - 1 A 1 1 I 5 G 1 1 1 C**

### BODY MATERIALS

- 1 316L stainless steel
- 2 Brass
- 4 Monel®
- 5 Hastelloy® B
- 6 Hastelloy® C
- 7 Titanium

### PORT CONFIGURATION

- A Standard (one inlet & one outlet port)  
For more port configurations, see page 13.

### PROCESS PORT TYPES

- 1 ¼" FNPT (¼" FNPT gauge ports) (standard)
- 2 ¼" tube (¼" tube gauge ports)
- 3 ¼" sch 80 pipe (¼" FNPT gauge ports)
- 4 ⅜" FNPT (¼" FNPT gauge ports)
- 6 ½" tube (¼" tube gauge ports)
- 0 ⅝" FNPT (⅝" FNPT gauge ports)
- A ¼" ISO 7-Rc taper internal (¼" FNPT gauge ports)
- B ¼" internal VCR (¼" tube gauge ports)
- K ¼" sch 40 pipe (¼" FNPT gauge ports)

### SURFACE FINISH/DIAPHRAGM CAVITY

- 1 < 25 Ra

### ACTUATOR MATERIALS

- B CF PTFE
- C Polyimide (metal knob is standard)
- D Viton®
- I High-density PTFE
- K Kalrez®
- Q PEEK™

### CAP ASSEMBLY

- 1 Standard
- 4 Panel mount
- 8 Tamper-proof
- F Tamper-proof, panel mount
- G Metal knob
- H ¼" FNPT dome-loaded
- L BP-6 top works, stainless steel
- O BP-6 top works, panel mount, stainless steel

### DIAPHRAGM FACING/BACKING MATERIAL

- 1 PTFE/stainless steel
- 6 Tefzel® ring/stainless steel
- 7 Viton®/stainless steel
- 8 PTFE/Inconel®
- 9 PTFE/Hastelloy® B
- 0 PTFE/Hastelloy® C
- A PTFE/tantalum

### DIAPHRAGM TYPE

- 1 Standard diaphragm
- 4 Vacuum assist spring, standard diaphragm

### CONTROL RANGE

- B 0-6 psig
- C 0-10 psig
- D 0-25 psig
- E 0-50 psig
- G 0-100 psig
- I 0-250 psig
- J 0-500 psig\*
- W 0-750 psig\*
- K 0-1,000 psig\*†

### FLOW COEFFICIENT (CV)

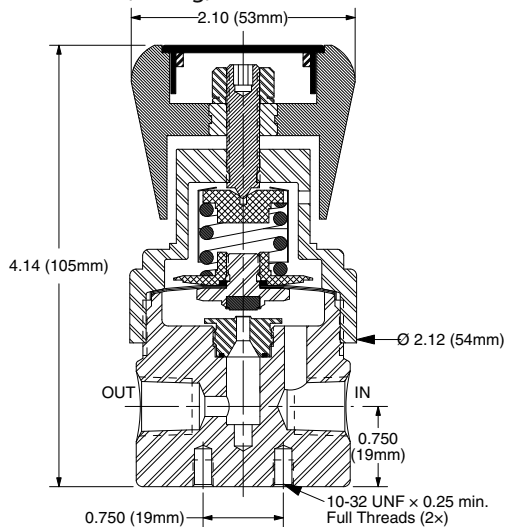
- 1 0.03
- 2 0.05
- 3 0.06
- 4 0.12
- 5 0.2 (standard)
- 6 0.24
- 7 0.30
- A 0.095
- C 0.025
- E 0.04
- I 0.005
- J 0.01

\* Polyimide, PEEK™, or Kel-F® actuators are recommended for these pressure ranges.

† Must use BP-6 top works

## Outline & Mounting Dimensions

Weight = 1.9 lbs (0.86kg)



Tefzel® is a registered trademark of the DuPont Company.  
 Kalrez® and Viton® are registered trademarks of DuPont Dow Elastomers.  
 PEEK™ is a trademark of Victrex PLC.  
 Inconel® and Monel® are registered trademarks of Special Metals Corporation.  
 Hastelloy® is a registered trademark of Haynes International, Inc.  
 Kel-F® is a registered trademark of 3M Company.

## For Your Safety

It is solely the responsibility of the system designer and user to select products suitable for their specific application requirements and to ensure proper installation, operation, and maintenance of these products. Material compatibility, product ratings and application details should be considered in the selection. Improper selection or use of products described herein can cause personal injury or property damage.