Back Pressure Regulators

Instrumentation, Process & Analyzer (IPA) Systems
Veriflo Division - IPA Catalog 4510
ABP1 Series
Back Pressure Regulator

Customer Value Proposition:

The ABP1 is a versatile design for the control of inlet, upstream or back pressure in an instrument or analyzer system.

The materials of construction of this regulator make it suitable for applications where corrosive media and/or environments are present.

Product Features:

- Standard Hastelloy C-22® diaphragm for superior strength and corrosion resistance.
- Cleaned for O2 service is standard.
- Convoluted diaphragm provides outlet pressure stability with changes in flow.
- Integral diaphragm stop provides an additional safety measure.
- Express Service Program is available and noted in blue italic print.

Contact Information:

Parker Hannifin Corporation
Veriflo Division
250 Canal Blvd
Richmond, California 94804

phone 510 235 9590
fax 510 232 7396
veriflo.sales@parker.com

www.parker.com/veriflo
ABP1

Flow Curves

Dimensional Drawing

Ø1.38 (35mm)
Hole Required For
Panel Mounting
Max Panel
Thickness 1/4”

1/8 NPT
Captured Vent
Port

Ø2.18
(55.4 mm)

0.75
(19.1 mm)

10-32 UNF
2 PL

Ø2.00
(50.8 mm)

0.75
(19.1 mm)

2.65
(67.3 mm)

4.90
(124.5 mm)

Safety Guide and Installation and Operating Instructions available at
www.parker.com/veriflo
ABP1

Ordering Information

Build an ABP1 Regulator by replacing the numbered symbols with an option from the corresponding tables below.

Note: Options in blue/italic type are available for the Express Service Program.

Sample: ABP1S T 3 3BP 2 4

Finished Order: ABP1ST33BP24

1 Body Material
S = 316L Stainless Steel
H = Hastelloy C-22®
M = Monel®

2 Seat Material
T = PTFE
V = Fluorocarbon Elastomer (FKM)
K = Perfluoroelastomer (FFKM)

3 Pressure Range

<table>
<thead>
<tr>
<th>Range</th>
<th>Gauge</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = 1 - 25 psig</td>
<td>03 = 0 - 30 psig</td>
</tr>
<tr>
<td>2 = 2 - 50 psig</td>
<td>OL = 0 - 60 psig</td>
</tr>
<tr>
<td>3 = 3 - 100 psig</td>
<td>2 = 0 - 200 psig</td>
</tr>
<tr>
<td>4 = 10 - 250 psig</td>
<td>4 = 0 - 400 psig</td>
</tr>
<tr>
<td>5 = 20 - 500 psig</td>
<td>6 = 0 - 600 psig</td>
</tr>
</tbody>
</table>

4 Porting
2BP = 2 Ports - No X required for gauges, Inlet & outlet ports only.
3BP = 3 Ports - One X for gauge port
3PB = 3 Ports - One X for gauge port (outlet though bottom)
3PP = 3 Ports - One X for gauge ports

5 Inlet Gauge

<table>
<thead>
<tr>
<th>Range</th>
<th>Gauge</th>
</tr>
</thead>
<tbody>
<tr>
<td>03 = 0 - 30 psig</td>
<td></td>
</tr>
<tr>
<td>OL = 0 - 60 psig</td>
<td></td>
</tr>
<tr>
<td>2 = 0 - 200 psig</td>
<td></td>
</tr>
<tr>
<td>4 = 0 - 400 psig</td>
<td></td>
</tr>
<tr>
<td>6 = 0 - 600 psig</td>
<td></td>
</tr>
<tr>
<td>X = No Gauge</td>
<td></td>
</tr>
</tbody>
</table>

6 Port Style

<table>
<thead>
<tr>
<th>Style</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 = 1/8” NPT Female</td>
<td></td>
</tr>
<tr>
<td>3 = 1/4” NPT Female</td>
<td></td>
</tr>
</tbody>
</table>

Note: Panel Mount Option:
Order Panel Nut Ring p/n: 41900363 as a separate line item.

Vent Muffler Option:
Order Vent Muffler p/n: 46600581 as a separate line item.

Optional Features
This section can have multiple options

DO = Dome Loaded (Not available with M option)
M = Metal Knob (Black) (Not available with DO options)
06 = 0.06 Cv
1 = 0.1 Cv

Note: Veriflo reserves the right to plug NPT ports. If a true ported body is required, please contact Customer Service.

Porting Configurations
## ABP1 Specifications

### Materials of Construction

<table>
<thead>
<tr>
<th>Wetted</th>
<th>Non-wetted</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Body Options</strong></td>
<td><strong>Cap</strong></td>
</tr>
<tr>
<td>316L Stainless Steel (std)</td>
<td>303 Stainless Steel</td>
</tr>
<tr>
<td>Monel® or Hastelloy C-22®</td>
<td>Cap Nut</td>
</tr>
<tr>
<td><strong>Diaphragm</strong></td>
<td>316L Stainless Steel</td>
</tr>
<tr>
<td>Hastelloy C-22®</td>
<td><strong>Knob Options</strong></td>
</tr>
<tr>
<td><strong>Diaphragm Assembly Options</strong></td>
<td>ABS (std)</td>
</tr>
<tr>
<td>316L Stainless Steel, PTFE (std)</td>
<td>Aluminum</td>
</tr>
<tr>
<td>Hastelloy C-22, PTFE</td>
<td></td>
</tr>
<tr>
<td><strong>Seal Options</strong></td>
<td></td>
</tr>
<tr>
<td>PTFE, FKM or FFKM</td>
<td></td>
</tr>
<tr>
<td><strong>Seat O-ring</strong></td>
<td></td>
</tr>
<tr>
<td>PTFE</td>
<td></td>
</tr>
<tr>
<td><strong>Seat &amp; Holder Options</strong></td>
<td></td>
</tr>
<tr>
<td>316L Stainless Steel (std)</td>
<td></td>
</tr>
<tr>
<td>Hastelloy C-22®</td>
<td></td>
</tr>
<tr>
<td><strong>Outboard Gasket</strong></td>
<td></td>
</tr>
<tr>
<td>PTFE</td>
<td></td>
</tr>
<tr>
<td><strong>Screen Options</strong></td>
<td></td>
</tr>
<tr>
<td>316L Stainless Steel (std)</td>
<td></td>
</tr>
<tr>
<td>Hastelloy C-22®</td>
<td></td>
</tr>
</tbody>
</table>

For additional information on materials of construction, functional performance and operating conditions, see Regulator Technical Bulletin.

### Functional Performance

#### Design
- **Proof Pressure**: 750 psig (52 barg)
- **Burst Pressure**: 1,500 psig (103 barg)
- **Flow Capacity**: $C_v = 0.3 \text{ (std), } 0.1 \text{ or } 0.06$ $C_v$
- **Leak Rate**:
  - Internal: Bubble Tight
  - External: Bubble Tight
- **Internal Volume**: 5.9 cc
- **Approx. Weight**: 2.3 lbs (1.0 kgm)

#### Operating Conditions
- **Control Pressure**:
  - 1 - 25 psig (2 barg)
  - 2 - 50 psig (3.5 barg)
  - 3 - 100 psig (7 barg)
  - 10 - 250 psig (17 barg)
  - 20 - 500 psig (35 barg)
- **Max. Temperature of Flow Media**: -15°F to 400°F (26°C to 204°C)
  - Note: Metal Knob required for high temperature applications

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ABP3 Series
Back Pressure Regulator

Customer Value Proposition:

The ABP3 is a versatile design for precise control of inlet, upstream or back pressures.

The large convoluted diaphragm provides the user greater sensitivity of outlet pressures.

The materials of construction of this regulator make it suitable for applications where corrosive media and/or environments are present.

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Product Features:

- Standard Hastelloy C-22® diaphragm for superior strength and corrosion resistance.
- Integral diaphragm stop provides an additional safety measure.
- Cleaned for O2 service is standard.
- Express Service Program is available and noted in blue italic print.
- Convoluted diaphragm provides outlet pressure stability with changes in flow.
ABP3
Flow Curves

![Graph showing flow curves for ABP3 0.3 Cv]

Dimensional Drawing

- Ø1.38 (35 mm) Hole Required for Panel Mounting
- Max Panel Thickness 1/4"
- 1/8 NPT Captured Vent Port
- 5.29 (134.4 mm)
- 2.90 (73.7 mm)
- 2.29 (58.2 mm)
- 0.87 (22.2 mm)
- Ø2.38 (60.5 mm)
- 69 (17.5 mm)
- 10-32UNF 2 PL

Safety Guide and Installation and Operating Instructions available at www.parker.com/veriflo
ABP3

Ordering Information

Build an ABP3 Regulator by replacing the numbered symbols with an option from the corresponding tables below.

Note: Options in blue/Italic type are available for the Express Service Program.

Sample: ABP3ST33BP24

Finished Order: ABP3ST33BP24

1 Body Material
   S = 316L Stainless Steel
   H = Hastelloy C-22®

2 Seat Material
   T = PTFE
   V = Fluorocarbon Elastomer (FKM)
   K = Perfluoroelastomer (FFKM)

3 Pressure Range
<table>
<thead>
<tr>
<th>Range</th>
<th>Gauge</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = 1 - 5 psig</td>
<td>05 0 - 15 psig</td>
</tr>
<tr>
<td>2 = 1 - 30 psig</td>
<td>OL 0 - 60 psig</td>
</tr>
<tr>
<td>3 = 2 - 60 psig</td>
<td>01 0 - 100 psig</td>
</tr>
</tbody>
</table>

4 Porting
   2BP = 2 Ports - No X required for gauges, Inlet & outlet ports only.
   3BP = 3 Ports - One X for gauge port
   3PP = 3 Ports - One X for gauge port

5 Inlet Gauge
   05 = 0 - 15 psig
   OL = 0 - 60 psig
   01 = 0 - 100 psig
   X = No Gauge
   (Additional ranges available upon request)

6 Port Style
   2 = 1/8" NPT Female
   4 = 1/4" NPT Female
   (All Gauge ports are 1/4" NPT Female)

7 Optional Features
   This section can have multiple options
   DO = Dome Loaded (Not available with M option)
   M = Metal Knob (Black) (Not available with DO options, required for higher temperatures)
   06 = 0.06 Cv
   1 = 0.1 Cv

Note: Panel Mount Option:
Order Panel Nut Ring p/n: 41900363 as a separate line item.

Vent Muffler Option:
Order Vent Muffler p/n: 46600581 as a separate line item.

Additional configurations available upon request

Note: Veriflo reserves the right to plug NPT ports. If a true ported body is required, please contact Customer Service.

Porting Configurations
## ABP3 Specifications

### Materials of Construction

<table>
<thead>
<tr>
<th>Wetted</th>
<th>Non-wetted</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Body Options</strong></td>
<td>Cap</td>
</tr>
<tr>
<td>316L Stainless Steel (std), Hastelloy C-22®</td>
<td>Nickel Plated Brass</td>
</tr>
<tr>
<td>Hastelloy C-22®</td>
<td>Cap Nut</td>
</tr>
<tr>
<td><strong>Diaphragm</strong></td>
<td>Nickel Plated Brass</td>
</tr>
<tr>
<td>Hastelloy C-22®</td>
<td>Knob Options</td>
</tr>
<tr>
<td><strong>Diaphragm Assembly Options</strong></td>
<td>ABS (std)</td>
</tr>
<tr>
<td>316L Stainless Steel &amp; PTFE (std) or Hastelloy C22® &amp; PTFE</td>
<td>Aluminum</td>
</tr>
<tr>
<td><strong>Seat O-ring</strong></td>
<td></td>
</tr>
<tr>
<td>PTFE</td>
<td></td>
</tr>
<tr>
<td><strong>Seat &amp; Holder Options</strong></td>
<td></td>
</tr>
<tr>
<td>316L Stainless Steel (std) Hastelloy C-22®</td>
<td></td>
</tr>
<tr>
<td><strong>Seal Options</strong></td>
<td></td>
</tr>
<tr>
<td>PTFE, FKM or FFKM</td>
<td></td>
</tr>
<tr>
<td><strong>Screen Options</strong></td>
<td></td>
</tr>
<tr>
<td>316L Stainless Steel (std) Hastelloy C-22®</td>
<td></td>
</tr>
<tr>
<td><strong>Outboard O-ring Options</strong></td>
<td></td>
</tr>
<tr>
<td>PTFE (with PTFE or FFKM seats) FKM (with FKM seat)</td>
<td></td>
</tr>
</tbody>
</table>

### Functional Performance

<table>
<thead>
<tr>
<th>Design</th>
<th>Flow Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Proof Pressure</strong></td>
<td>CV</td>
</tr>
<tr>
<td>90 psig (6 barg)</td>
<td>0.3 CV (std)</td>
</tr>
<tr>
<td><strong>Burst Pressure</strong></td>
<td>180 psig (12.4 barg)</td>
</tr>
<tr>
<td>0.1 CV or 0.06 CV</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Leak Rate</th>
<th>Internal Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal:</td>
<td>13.8 cc</td>
</tr>
<tr>
<td>Bubble Tight</td>
<td></td>
</tr>
<tr>
<td>External:</td>
<td></td>
</tr>
<tr>
<td>Bubble Tight</td>
<td></td>
</tr>
<tr>
<td><strong>Internal Volume</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Approx. Weight</strong></td>
<td></td>
</tr>
<tr>
<td>4.2 lbs (1.9 kgm)</td>
<td></td>
</tr>
</tbody>
</table>

For additional information on materials of construction, functional performance and operating conditions, see Regulator Technical Bulletin.

### Operating Conditions

- **Control Pressure**
  - 1 - 5 psig (0.07 - 0.3 barg)
  - 1 - 30 psig (0.07 - 2.06 barg)
  - 2 - 60 psig (0.2 - 4.1 barg)

- **Max. Temperature of Flow Media**
  - -15°F to 400°F (26°C to 204°C)
  - Note: Metal Knob required for high temperature applications

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BPR50 Series
Back Pressure Regulator

Customer Value Proposition:
The BPR50 is a piston style back pressure regulator designed to control upstream or back pressure with corrosive media and environments.

The materials of construction in this regulator make it suitable for use where high pressure corrosive and noncorrosive liquids and gasses at pressures up to 2,000 psig.

Product Features:
- 316L Stainless Steel construction
- Cleaned for O2 service is standard.
- Gas or Liquid Service.
- Simple construction makes maintenance easy.
- Panel mount option is available.
- Adjustable pressures from 100 to 1,200 psig and 200 to 2,000 psig.
- Flow Coefficient of 0.45 Cv.

Contact Information:
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250 Canal Blvd
Richmond, California 94804

phone 510 235 9590
fax 510 232 7396
veriflo.sales@parker.com

www.parker.com/veriflo
BPR50
Flow Curve

Range: 100-1200 psig
200-2000 psig

FLOW OF WATER

PANEL MOUNTING
1.38 (35.1 MM)
HOLE REQUIRED

Dimensional Drawing

BPR50 with T-Bar Handle
Optional Actuation Device

INLET
0.75
(19.1 mm)

OUTLET
1.88
(47.6 mm)

5/32 HEX

BPR50 with Broach Stem
Standard Actuation Device

Safety Guide and Installation and Operating Instructions available at
www.parker.com/veriflo
BPR50
Ordering Information

Build an BPR50 Regulator by replacing the numbered symbols with an option from the corresponding tables below.

Sample: BPR50 S 3PB 1 BH PM
Finished Order: BPR50S3PB1BHPM

1 Body Material
S = 316L Stainless Steel

2 Porting
2PB = 2 Ports - Outlet through bottom
3BP = 3 Ports
3PB = 3 Ports - Outlet through bottom

3 Adjustment Range
1 = 100 - 1200 psig
2 = 200 - 2000 psig

4 Actuation Devices
BH = T Bar Handle
Omit = Broach Stem (Standard)

5 Optional Features
K = Perfluoroelastomer (FFKM) O-ring with PCTFE Seal
PM = Panel Mount

Additional configurations available upon request

Note: Veriflo reserves the right to plug NPT ports. If a true ported body is required, please contact Customer Service.

Porting Configurations

2PB

OUTLET THROUGH BOTTOM

3PB

IN
OUT

IN

3PB

IN

OUTLET THROUGH BOTTOM
## BPR50 Specifications

### Materials of Construction

<table>
<thead>
<tr>
<th>Wetted</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Body</td>
<td>316L Stainless Steel</td>
</tr>
<tr>
<td>Seal Options</td>
<td>Glass filled PTFE (std) PCTFE</td>
</tr>
<tr>
<td>Seal Holder</td>
<td>316L Stainless Steel</td>
</tr>
<tr>
<td>O-ring Options</td>
<td>FKM (std) FFKM</td>
</tr>
<tr>
<td>Piston</td>
<td>316L Stainless Steel</td>
</tr>
<tr>
<td>Gasket</td>
<td>PCTFE</td>
</tr>
<tr>
<td>Spring</td>
<td>316L Stainless Steel</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Non-wetted</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cap</td>
<td>Nickel Plated Brass</td>
</tr>
<tr>
<td>Broach Stem</td>
<td>316L Stainless Steel</td>
</tr>
<tr>
<td>T Bar Handle</td>
<td>Nickel Plated Brass</td>
</tr>
</tbody>
</table>

### Functional Performance

<table>
<thead>
<tr>
<th>Design</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Proof Pressure</td>
<td>3,000 psig (207 barg)</td>
</tr>
<tr>
<td>Burst Pressure</td>
<td>6,000 psig (414 barg)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Flow Capacity</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cv</td>
<td>0.45</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Leak Rate</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal:</td>
<td>Bubble Tight</td>
</tr>
<tr>
<td>External:</td>
<td>Bubble Tight</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Maximum Liquid Flow</th>
<th>20 lpm (5 gpm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hysteresis</td>
<td>20 psig (1.4 barg)</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>0.5 psig (0.03 barg)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Internal Volume</th>
<th>5 cc</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approximate Weight</td>
<td>2.2 lbs (1.0 kgm)</td>
</tr>
</tbody>
</table>

### Operating Conditions

| Control Pressure  | 100 - 1,200 psig (7 - 83 barg) |
|-------------------| 200 - 2,000 psig (14 - 138 barg) |
| Temperature       | -40°F to 150°F (-40°C to 66°C) |

For additional information on materials of construction, functional performance and operating conditions, see Regulator Technical Bulletin.

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