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20 Bushes Lane  
Elmwood Park, NJ 07407

## Model BPS09i-TC

### In-Line Sanitary Tri-Clamp Flange Back Pressure/Bypass Valve



**-In-Line, Self-Draining Design**

-Diaphragm or Piston and Spring Operated

-1/2"-3" Sanitary Tri-Clamp Connections

-Inlet Pressures Up To 150 PSIG (10.3 BAR), Set Pressure Range From 0-80 PSIG (0-6.9 BAR)

-In Line Serviceable

-Internal 20 RA Surface Finish Standard Constructed of 316L Stainless Steel

-ANSI Class VI Seat Leakage

## Features

- **Pressure-Containing Parts** made from solid bar stock materials — unlike castings which have wall thickness variations.
- **Body and Trim:** Standard material is type 316L stainless steel mechanically polished to a uniform 20 RA surface finish. Electropolishing for enhanced surface finish is offered at an additional cost.
- **Diaphragm or Piston Sensing Mechanism:** Diaphragm models offered only in ½"-2" sizes. Diaphragm sensed back pressure valves offer superior sensitivity to increases in process line pressures as opposed to piston sensed valves. However, piston sensed designs are capable of much larger flow rates which are offered in 2-½" and 3" connections.
- **Teflon-Viton Composite Reinforced Diaphragm:** Viton backed diaphragm with a Teflon film interacting on the wetted side offers adequate corrosion resistance to a variety of fluids and gases including steam with an allowable temperature of 350°F (176°C). Diaphragms with Buna backing are available for lower temperature applications. Flexible all Buna or all Viton diaphragms are available as well and are recommended for low pressure applications.
- **Spring Chamber and Adjusting Spring:** These parts are non-wetted, not in contact with the fluid or gas, and standard in 316L stainless steel.
- **In-Line Porting:** In line Sanitary Tri-Clamp connections are standard. Mounting in the horizontal upright position is highly recommended as it is the only position that drains water away from the valve trim, otherwise the valve can operate in any orientation.
- **Inline Serviceable:** Capable of being serviced inline. The process lines must be depressurized before any servicing of this product. All trim components can be replaced, inspected, or cleaned by removing the sanitary clamp.
- **Self-Draining:** The inclined toroidal geometry connecting the inlet to the flow chamber allows the valve to self-drain.
- **300 Series Stainless Steel V-Band Clamp:** Allows for quick assembly and disassembly. Clamp is rated for 800 psi.

## Applications

This product is used for sanitary backpressure regulation. A few typical applications include maintaining constant pump discharge pressures, bypassing excessive pressures from various types of process equipment, and any application where a constant pressure must be maintained in a sanitary process or piping system. This product is designed for clean, filtered or strained, non-abrasive, liquids and gases including but not limited to: water, steam, non-fluorinated chemicals, inert gasses and fluids compatible with the selected elastomers and valve materials. A strainer or filter with the appropriate material and pressure rating can be purchased from STRAVAL. High temperature applications can be satisfied with careful selection of materials (contact factory).

## Options

- Connection Sizes: ½"-3" tri-clamp sanitary ferrules typical. See BPS09i-FLG or BPS09i-NPT for industrial connections.
- Diaphragm Sensing (½"-2" Only)
  - Viton Backing with PTFE Film (wetted side), Buna Backing with PTFE Film (wetted side), Only Buna, Only Viton
  - Seat: PTFE, Buna, Viton, Metal
- Piston Sensing (2-½"-3" Only)
  - Body and Spring Chamber Seal: EPDM, Buna, PTFE, Viton, Kalrez
  - Piston Seal: EPDM, Buna, PTFE, Viton, Kalrez
  - Seat: EPDM, Buna, PTFE, Viton, Kalrez
- Surface Finish: 20 RA mechanical polish, Electropolished

**\*Price Varies with Materials of Construction, Size, and Selected Options/Alternatives**

## Principle of Operation

This is a direct acting valve with an adjustable spring operating against a diaphragm or piston subjected to the inlet

pressure of the valve. Increasing the spring compression by turning the adjusting screw clockwise, increases the system or line pressure to be maintained. Reducing the spring compression by turning the adjusting screw counter-clockwise will reduce the system or line pressure to be maintained. An increase in line pressure beyond the set point (inlet pressure that exceeds the compressive force of the spring) will cause the seat or diaphragm to open permitting flow to the outlet. This bypasses any excess line pressure through the outlet of the valve

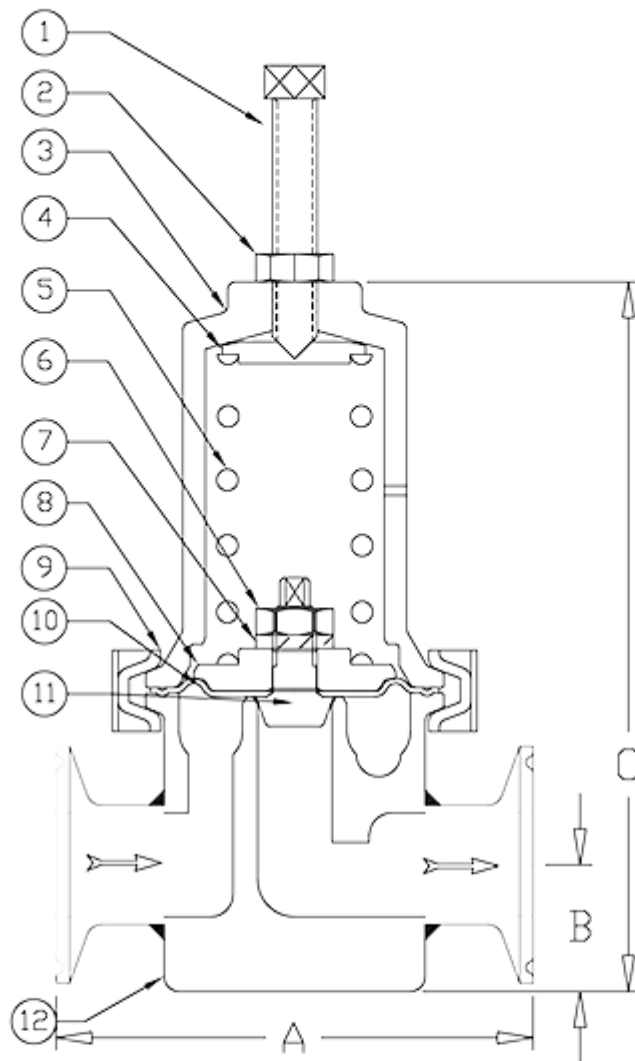
**Ordering Instructions and Nomenclature**

| Valve Type                  | Straval Identification Number | Porting   | Connection Size  | Connection Type    | Sensing Mechanism   |
|-----------------------------|-------------------------------|-----------|--|--------------------|---|
| BPS-Back Pressure Regulator | 09                            | i-In-Line | 05: ½"<br>07: ¾"<br>10: 1"<br>15: 1-½"<br>20: 2"<br>25: 2-½"<br>30: 3" | San. Tri-Clamp: TC | D-Diaphragm<br>D-Diaphragm<br>D-Diaphragm<br>D-Diaphragm<br>D-Diaphragm<br>P-Piston<br>P-Piston |

**BPS09i-10TCP**

The nomenclature above is specific to this product only.

# DIAPHRAGM SENSED



ALL DIMENSIONS NOMINAL AND SUBJECT TO CHANGE WITHOUT NOTICE  
 CONTACT FACTORY FOR CERTIFIED DIMENSIONAL DRAWINGS  
 \*\*DIMENSION C IS DEPENDANT ON SPRING RANGE, CONTACT PLANT

| MATERIAL LIST<br>& SPECIFICATION |                 |                                  | DIMENSIONS (inches) |      |    |        |    |
|----------------------------------|-----------------|----------------------------------|---------------------|------|----|--------|----|
|                                  |                 |                                  | SIZE                | CV   | A  | B      | C  |
| 1                                | ADJUSTING SCREW | 304, 316L STAINLESS STEEL        | 1/2                 | 1.85 | 4" | 13/16" | ** |
| 2                                | JAM NUT         | 304, 316L STAINLESS STEEL        | 3/4                 | 3.1  | 4" | 15/16" | ** |
| 3                                | SPRING CHAMBER  | 303, 316L STAINLESS STEEL        | 1                   | 10.3 | 6" | 1"     | ** |
| 4                                | SPRING PUSHER   | 303, 316L STAINLESS STEEL        | 1-1/2               | 12.2 | 6" | 1 1/4" | ** |
| 5                                | SPRING          | 304, 316L STAINLESS STEEL        | 2                   | 12.2 | 6" | 1 1/2" | ** |
| 6                                | NUT             | 304, 316L STAINLESS STEEL        |                     |      |    |        |    |
| 7                                | LOCK WASHER     | 304, 316L STAINLESS STEEL        |                     |      |    |        |    |
| 8                                | SPRING FOLLOWER | 303, 316L STAINLESS STEEL        |                     |      |    |        |    |
| 9                                | V-BAND CLAMP    | 304 STAINLESS STEEL              |                     |      |    |        |    |
| 10                               | DIAPHRAGM       | TFE/Viton, TFE/Buna, Buna, Viton |                     |      |    |        |    |
| 11                               | DIAPHRAGM SCREW | 303, 316L STAINLESS STEEL        |                     |      |    |        |    |
| 12                               | BODY            | 303, 316L STAINLESS STEEL        |                     |      |    |        |    |

|  |  |
|--|--|
| PH 973-340-9933<br>FX 973-340-9933<br>20 BUSHES LANE<br>ELMWOOD PARK, NJ 07407 | <b>STRA VALVES</b><br><b>STRAINERS VAL</b>                     |
| DATE 08/15/2018<br>DWG NO AS   | TITLE Back Pressure/Bypass Valve<br>IN-LINE SANITARY TRI-CLAMP |
|  | BPS09i-TC-D  |
|  | REV A  |

## Material List and Specification

Diaphragm Sensed

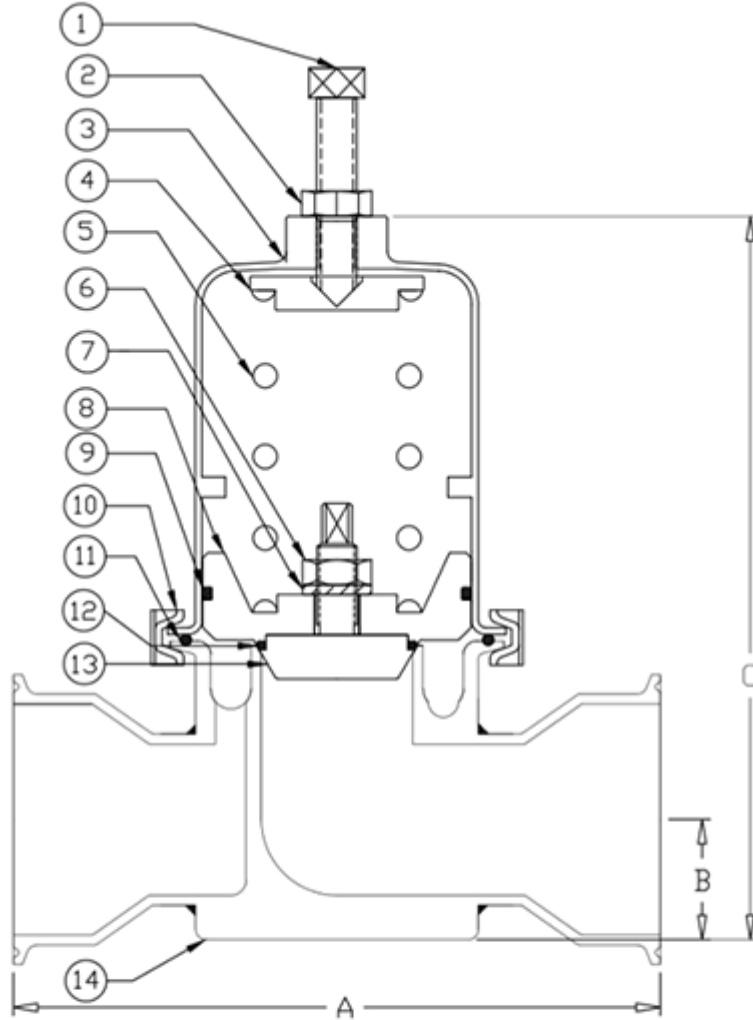
| # | Part | Materials |
|---|------|-----------|
|---|------|-----------|

|     |                 |                                   |
|-----|-----------------|-----------------------------------|
| 1.  | Adjusting Screw | 304, 316L Stainless Steel         |
| 2.  | Jam Nut         | 304, 316L Stainless Steel         |
| 3.  | Spring Chamber  | 303, 316L Stainless Steel         |
| 4.  | Spring Pusher   | 303, 316L Stainless Steel         |
| 5.  | Spring          | 304, 316L Stainless Steel         |
| 6.  | Nut             | 304, 316L Stainless Steel         |
| 7.  | Lock Washer     | 304, 316L Stainless Steel         |
| 8.  | Spring Follower | 303, 316L Stainless Steel         |
| 9.  | V-Band Clamp    | 304 Stainless Steel               |
| 10. | Diaphragm       | TFE/Vitorn, TFE/Buna, Buna, Viton |
| 11. | Diaphragm Screw | 304, 316L Stainless Steel         |
| 12. | Body            | 303, 316L Stainless Steel         |

| Dimensions (inch) |      |    |        |    |
|-------------------|------|----|--------|----|
| Size              | cv   | A  | B      | C  |
| 1/2               | 1.85 | 4" | 13/16" | ** |
| 3/4               | 3.1  | 4" | 15/16" | ** |
| 1                 | 10.3 | 6" | 1"     | ** |
| 1-1/2             | 12.2 | 6" | 1 1/4" | ** |
| 2                 | 12.2 | 6" | 1 1/2" | ** |

Note: Dimensions are approximate and are subject to change without notice. Request certified dimensions before final product installation.

PISTON SENSED



ALL DIMENSIONS NOMINAL AND SUBJECT TO CHANGE WITHOUT NOTICE  
CONTACT FACTORY FOR CERTIFIED DIMENSIONAL DRAWINGS

MATERIAL LIST  
& SPECIFICATION

| PART              | MATERIAL                        |
|-------------------|---------------------------------|
| 1 ADJUSTING SCREW | 304, 316L STAINLESS STEEL       |
| 2 JAM NUT         | 304, 316L STAINLESS STEEL       |
| 3 SPRING CHAMBER  | 303, 316L STAINLESS STEEL       |
| 4 SPRING PUSHER   | 303, 316L STAINLESS STEEL       |
| 5 SPRING          | 304, 316L STAINLESS STEEL       |
| 6 NUT             | 304, 316L STAINLESS STEEL       |
| 7 LOCK WASHER     | 304, 316L STAINLESS STEEL       |
| 8 SPRING FOLLOWER | 303, 316L STAINLESS STEEL       |
| 9 PISTON SEAL     | EPDM, PTFE, BUNA, VITON, KALREZ |
| 10 V-BAND CLAMP   | 304 STAINLESS STEEL             |
| 11 O-RING         | EPDM, PTFE, BUNA, VITON, KALREZ |
| 12 SEAT           | EPDM, PTFE, BUNA, VITON, KALREZ |
| 13 SEAT HOLDER    | 303, 316L STAINLESS STEEL       |
| 14 BODY           | 303, 316L STAINLESS STEEL       |

DIMENSIONS (inches)

| SIZE  | CV   | A  | B      | C        |
|-------|------|----|--------|----------|
| 2-1/2 | 23.3 | 8" | 1-1/2" | 8-15/16" |
| 3     | 28   | 8" | 1-1/2" | 8-15/16" |

PH 973-340-9933  
FX 973-340-9933  
20 BUSHY LANE  
ELMWOOD PARK, NJ 07407



|     |          |  |     |
|-----|----------|--|-----|
| REV | DATE     | DESCRIPTION  | REV |
| 001 | 01/15/08 | Back Pressure/Bypass Valve<br>IN-LINE SAFETY TRI-CLAMP | A   |
| 002 | 01/15/08 |  | A   |

BPS09I-TC-P

## Material List and Specification

Piston Sensed

| #  | Part            | Materials                 |
|----|-----------------|---------------------------|
| 1. | Adjusting Screw | 304, 316L Stainless Steel |
| 2. | Jam Nut         | 304, 316L Stainless Steel |
| 3. | Spring Chamber  | 303, 316L Stainless Steel |
| 4. | Spring Pusher   | 303, 316L Stainless Steel |
| 5. | Spring          | 304, 316L Stainless Steel |
| 6. | Nut             | 304, 316L Stainless Steel |

|     |                 |                                 |
|-----|-----------------|---------------------------------|
| 7.  | Lock Washer     | 304, 316L Stainless Steel       |
| 8.  | Spring Follower | 303, 316L Stainless Steel       |
| 9.  | Piston Seal     | EPDM, PTFE, Buna, Viton, Kalrez |
| 10. | V-Band Clamp    | 304 Stainless Steel             |
| 11. | O-Ring          | EPDM, PTFE, Buna, Viton, Kalrez |
| 12. | Seat            | EPDM, PTFE, Buna, Viton, Kalrez |
| 13. | Seat Holder     | 303, 316L Stainless Steel       |
| 14. | Body            | 303, 316L Stainless Steel       |

| Dimensions (inch) |      |    |        |          |
|-------------------|------|----|--------|----------|
| Size              | cv   | A  | B      | C        |
| 2-1/2             | 23.3 | 8" | 1-1/2" | 8-15/16" |
| 3                 | 28   | 8" | 1-1/2" | 8-15/16" |

Note: Dimensions are approximate and are subject to change without notice. Request certified dimensions before final product installation.

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## **1/2" BPS09i-05TC**

**Sanitary Tri-Clamp Connections 150 psi (~10 bar) rating**

Multiple Spring Ranges from:2-80 psig (0.138-5.52 barg) Select spring from pricing page

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## **3/4" BPS09i-07TC**

**Sanitary Tri-Clamp Connections 150 psi (~10 bar) rating**

Multiple Spring Ranges from:2-80 psig (0.138-5.52 barg) Select spring from pricing page

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## **1" BPS09i-10TC**

**Sanitary Tri-Clamp Connections 150 psi (~10 bar) rating**

Multiple Spring Ranges from:2-80 psig (0.138-5.52 barg) Select spring from pricing page

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## **1 1/2" BPS09i-15TC**

**Sanitary Tri-Clamp Connections 150 psi (~10 bar) rating**

Multiple Spring Ranges from:2-80 psig (0.138-5.52 barg) Select spring from pricing page

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## **2" BPS09i-20TC**

**Sanitary Tri-Clamp Connections 150 psi (~10 bar) rating**

Multiple Spring Ranges from:2-80 psig (0.138-5.52 barg) Select spring from pricing page

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## **2 1/2" BPS09i-25TC**

**Sanitary Tri-Clamp Connections 150 psi (~10 bar) rating**

Multiple Spring Ranges from:2-80 psig (0.138-5.52 barg) Select spring from pricing page

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## **3" BPS09i-30TC**

**Sanitary Tri-Clamp Connections 150 psi (~10 bar) rating**

Multiple Spring Ranges from:2-80 psig (0.138-5.52 barg) Select spring from pricing page

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The spring ranges listed above are not achievable with one spring, but are compressed to show overall product capability. Select a specific spring range in the pricing pages or specify a set pressure when ordering.