

FB5C Series

3A Sanitary Back Pressure Regulators

The FB5C is available with a hard seat and a variety of diaphragm and o-ring materials, making the valve well-suited for virtually any hygienic back pressure application.

The FB5C operates by sensing the inlet pressure, or back pressure, beneath the diaphragm, as flow enters from inlet port on the side. As the back pressure exceeds the setpoint, the diaphragm force compresses the range spring permitting the stem to move from the seat toward the open position. As the flow increases, the back pressure is relieved and the spring and diaphragm relax, allowing the stem to return to the normally closed position. If a different set point is desired, a simple turn of the adjusting screw will increase or decrease the setting to any set point within the range covered by the regulator's spring.

FEATURES

- No guiding surfaces in the fluid – prevents particulate generation
- 100% 316L body and trim
- Self-draining
- No threads to disassemble for cleaning
- Clean-in-Place, Steam-in-Place – dome features spring arrangement to allow CIP/SIP

*CRN Registration Number Available For Specific Models – Contact Factory



AVAILABLE FINISHES

Body

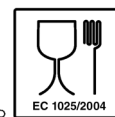
- Standard: 32Ra (.81 Ra μm) mechanical finish on all wetted surfaces; as cast finish on exterior.

Spring Housing

- Standard: as cast finished 316SST

Adjusting Screw and Handle

- Standard: 32Ra (.81 Ra μm) (Note: adjusting screw is a threaded part)



FB5C SERIES SANITARY BACK PRESSURE REGULATORS

SPECIFICATIONS – 3A VALVES (FB5C)*

Sizes: 1/2", 3/4", 1", 1-1/2" 2", 3" (DN15-DN80)

End Connections: Sanitary Clamp

Trim Materials: 316L Stainless Steel (ASTM A479, S31603)

Body Materials: ASTM A351, CF3M 316L

Seat Materials

- Standard hard seat – integral 316L SST seat

Spring Housing Materials

- CF8M cast SST (1/2" – 3")

Diaphragm Materials for 3A Valves

- EPDM (to 120°F, 49°C), 3A spec. (1/2" - 1" only)
- Jorlon (to 250°F, 121°C), 3A & FDA

O-Ring Materials for 3A Approved Valves

- EPDM (to 120°F, 49°C)
- Teflon-Encapsulated Viton (to 250°F, 121°C)

Shutoff: ANSI Class III hard seat

Set Point Spring Ranges:

| Set Point Spring Ranges PSI (Bar) | | |
|-----------------------------------|-----------------|-----------------|
| 1/2"-1" | 1-1/2" | 2"-3" |
| 3-8* (0,2-0,5) | 10-25 (0,7-1,7) | 5-25 (0,34-1,7) |
| 5-30 (0,34-2,1) | 15-40 (1,0-2,7) | 10-25 (0,7-1,7) |
| 15-50 (1,0-3,4) | 35-85 (2,4-5,8) | 15-60 (1,0-4,1) |
| 35-90 (2,4-6,2) | | |
| 50-105 (3,4-7,2) | | |

*EPDM Diaphragm Only

Cv (Kv) Ratings:

| Valve Size | Available Cv (Kv) | Cv for Relief Valve Sizing |
|------------|----------------------|----------------------------|
| 1/2" | 0.5 (0,4) | 0.6 (0,5) |
| 3/4" | 1.5 (1,3) | 4.5 (3,9) |
| 1" | 3.0 (2,6); 5.5 (4,7) | 10.7 (9,2) |
| 1-1/2" | 10.0 (8,6) | 26.3 (22,6) |
| 2" | 19.0 (16,3) | 56.5 (48,6) |
| 3" | 28.0 (24,1) | 67.1 (57,7) |

Body Pressure Temperature Rating for 3A Approved Valves

| Valve Size | PSIG @ 100F | PSIG @ 120F | PSIG @ 100F | PSIG @ 120F | PSIG @ 100F | PSIG @ 250F | ΔP |
|----------------|--------------------------|--------------------------|----------------------------|----------------------------|--|--|-----|
| | EPDM Dia/ EPDM O-ring | EPDM Dia/ EPDM O-ring | Jorlon Dia/ EPDM O-ring | Jorlon Dia/ EPDM O-ring | Jorlon Dia/ TFE-Vit Encap O-ring | Jorlon Dia/ TFE-Vit Encap O-ring | |
| 1/2", 3/4", 1" | 200 | 175 | 200 | 175 | 200 | 175 | 150 |
| 1-1/2" | N/A | N/A | 125 | 100 | 125 | 100 | 100 |
| 2", 3" | N/A | N/A | 100 | 75 | 100 | 75 | 75 |

*For info on FB5C High Temp valves (FB5CHT), see page 3

SPECIFICATIONS – HIGH TEMP VALVES (FB5CHT)*

Sizes: 1/2", 3/4", 1", 1-1/2" 2", 3" (DN15-DN80)

End Connections: Sanitary Clamp

Trim Materials: 316L Stainless Steel (ASTM A479, S31603)

Body Materials: ASTM A351, CF3M 316L

Seat Materials

- Standard hard seat – integral 316L SST seat
- Optional Soft seats
 - Jorlon (FDA & USP Class VI) for steam and hot fluid service to 338°F (170°C), Cv 3.0 and larger only
 - PEEK (FDA & USP Class VI) for steam and hot fluid service to 350°F (177°C), Cv 0.5 and larger
 - PTFE to +252°F (122°C) continuous or 275°F (135°C) intermittent [not to exceed 15 min. in a one hour period] FDA, USP Class VI, Cv 0.5 and larger

Spring Housing Materials

- CF8M cast SST (1/2" – 3")

Diaphragm Materials for High Temp Valves

- EPDM/Nylon (to 275°F, 135°C), FDA (1/2" - 1" only)
- Jorlon (to 350°F, 176°C)

O-Ring Materials for High Temp Valves

- EPDM (to 275°F, 135°C)
- Teflon-Encapsulated Viton (to 350°F, 176°C)

Shutoff: ANSI Class III hard seat

ANSI Class VI Soft Seat

Set Point Spring Ranges:

| Set Point Spring Ranges PSI (Bar) | | |
|-----------------------------------|-----------------|-----------------|
| 1/2"-1" | 1-1/2" | 2"-3" |
| 3-8* (0,2-0,5) | 10-25 (0,7-1,7) | 5-25 (0,34-1,7) |
| 5-30 (0,34-2,1) | 15-40 (1,0-2,7) | 10-25 (0,7-1,7) |
| 15-50 (1,0-3,4) | 35-85 (2,4-5,8) | 15-60 (1,0-4,1) |
| 35-90 (2,4-6,2) | | |
| 50-105 (3,4-7,2) | | |

*EPDM Diaphragm Only

Cv (Kv) Ratings:

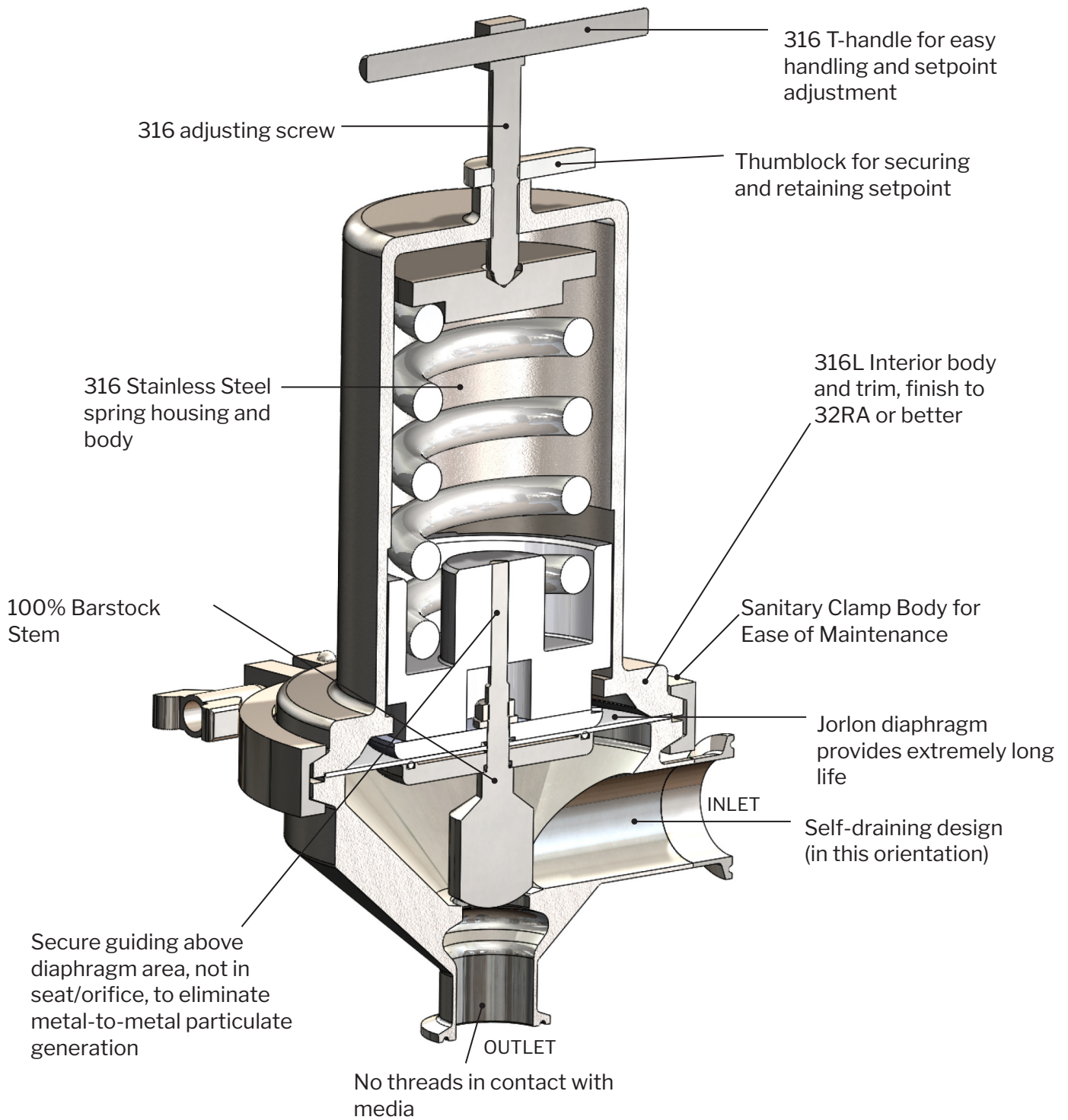
| Valve Size | Available Cv (Kv) | Cv for Relief Valve Sizing |
|------------|----------------------|----------------------------|
| 1/2" | 0.5 (0,4) | 0.6 (0,5) |
| 3/4" | 1.5 (1,3) | 4.5 (3,9) |
| 1" | 3.0 (2,6); 5.5 (4,7) | 10.7 (9,2) |
| 1-1/2" | 10.0 (8,6) | 26.3 (22,6) |
| 2" | 19.0 (16,3) | 56.5 (48,6) |
| 3" | 28.0 (24,1) | 67.1 (57,7) |

Body Pressure Temperature Rating for High Temperature Valves

| Valve Size | PSIG @ 100F | PSIG @ 275F | PSIG @ 100F | PSIG @ 350F | ΔP |
|----------------|--------------------------|--------------------------|--|--|-----|
| | EPDM Dia/ EPDM O-ring | EPDM Dia/ EPDM O-ring | Jorlon Dia/ TFE-Vit Encap O-ring | Jorlon Dia/ TFE-Vit Encap O-ring | |
| 1/2", 3/4", 1" | 200 | 100 | 200 | 150 | 100 |
| 1-1/2" | N/A | N/A | 125 | 80 | 80 |
| 2", 3" | N/A | N/A | 100 | 50 | 50 |

*For info on FB5C 3A valves (FB5C), see page 2

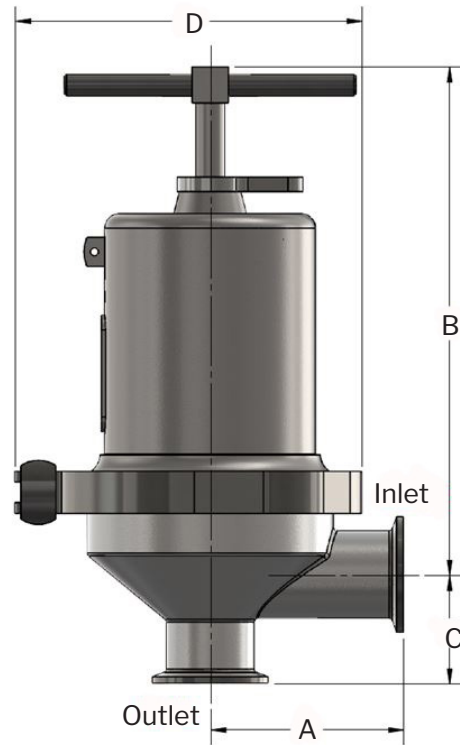
FEATURES & BENEFITS



APPLICATIONS

The FB5C is suitable for a variety of process and clean utility applications in the food, beverage, dairy and health and beauty industries including: CIP, SIP, centrifuges, autoclaves, culinary equipment, sterilizers, process tanks, nitrogen blanketing, etc.

DIMENSIONS



| F & B Valve | Dimensions (inches) | | | | Weight Lbs |
|--|---------------------|-------|------|-------|---------------|
| | A | B | C | D | |
| 1/2"/3/4" Back Pressure Regulator | 3.29 | 8.33 | 1.50 | 5.95 | 9.64 |
| 1" Back Pressure Regulator, Ø0.540 Orifice | 3.31 | 8.74 | 1.87 | 5.95 | 11.44 |
| 1" Back Pressure Regulator, Ø0.758 Orifice | 3.31 | 8.74 | 1.87 | 5.95 | 11.39 |
| 1-1/2" Back Pressure Regulator | 4.20 | 10.98 | 2.57 | 8.78 | 23.83 |
| 2" Back Pressure Regulator | 5.75 | 17.76 | 2.68 | 10.95 | 64.39 |
| 3" Back Pressure Regulator | 6.00 | 17.81 | 3.23 | 10.95 | 70.97 |

| F & B Valve | Dimensions (mm) | | | | Weight Kgs |
|--|-----------------|-------|------|-----|---------------|
| | A | B | C | D | |
| DN15/DN20 Back Pressure Regulator | 83,5 | 211,5 | 38 | 151 | 4 |
| DN25 Back Pressure Regulator, Ø0.540 Orifice | 84 | 222 | 47,5 | 151 | 5 |
| DN25 Back Pressure Regulator, Ø0.758 Orifice | 84 | 222 | 47,5 | 151 | 5 |
| DN40 Back Pressure Regulator | 106,6 | 279 | 65,2 | 223 | 11 |
| DN50 Back Pressure Regulator | 146 | 451 | 68 | 278 | 29 |
| DN80 Back Pressure Regulator | 152,4 | 452,3 | 82 | 278 | 32 |

FB5C SERIES SANITARY BACK PRESSURE REGULATORS

ORDERING SCHEMATIC FB5C (3A)

| Model | | Size | | Body Material | | 1 & 2 | 3 & 4 | 5 & 6 | 7 & 8 | 9 & 10 | 11 & 12 |
|-------|---|------|---|---------------|---|-------|-------|-------|-------|--------|---------|
| | — | | — | | / | | | | | | |

| | Model |
|------|---------------------------------------|
| FB5C | Sanitary Back Pressure Regulator (3A) |

| | Size |
|-----|---------------|
| 050 | 1/2" (DN15) |
| 075 | 3/4" (DN20) |
| 100 | 1" (DN25) |
| 150 | 1-1/2" (DN40) |
| 200 | 2" (DN50) |
| 300 | 3" (DN80) |

| | Body Material |
|----|---------------|
| 6L | 316L SST |

| 1 & 2 | Body | |
|-------|---|-------------|
| | Finish | Cv (Kv) |
| A | 32 Ra (.81 Ra µm) Interior / Cast Exterior (Standard) | B 0.5 (0,4) |
| | | A 1.5 (1,3) |
| | | D 3.0 (2,6) |
| | | K 5.5 (4,6) |
| | | M 10 (8,7) |
| | | N 19 (16,4) |
| | | P 28 (24,2) |
| ZZ | Non- Standard | |

| 3 & 4 | Trim | |
|-------|------------------------------|--------------------------|
| | Finish | Cv (Kv) & Seat |
| A | 32 Ra (.81 Ra µm) (Standard) | 5 Cv 0.5 (0,4) Hard Seat |
| | | A Cv 1.5 (1,3) Hard Seat |
| | | B Cv 3.0 (2,6) Hard Seat |
| | | L Cv 5.5 (4,6) Hard Seat |
| | | P Cv 10 (8,7) Hard Seat |
| | | S Cv 19 (16,4) Hard Seat |
| | | V Cv 28 (24,2) Hard Seat |
| ZZ | Non-Standard | |

| 5 & 6 | O-Ring / Diaphragm |
|-------|---|
| EE | EPDM / EPDM Diaph. |
| TY | Teflon Encaps. Viton / Jorlon Diaph. (3/4" - 3" only) |
| EJ | EPDM / Jorlon Diaph. |
| ZZ | Non-Standard |

| 7 & 8 | | Range | |
|------------------------|------------------|-----------------|-----------------|
| Adjusting Screw Finish | | Range (PSI/Bar) | |
| A | Standard | A | 3-8 (0,2-0,6) |
| | | C | 5-25 (0,3-1,7) |
| | | D | 5-30 (0,3-2,1) |
| | | E | 10-25 (0,7-1,7) |
| | | F | 5-25 (0,3-1,7) |
| | | G | 15-40 (0,3-2,8) |
| | | H | 15-50 (0,3-3,4) |
| | | J | 15-60 (0,3-4,1) |
| | | K | 35-85 (2,4-5,9) |
| | | L | 35-90 (2,4-6,2) |
| Q | 50-105 (0,3-7,2) | | |
| ZZ | Non-Standard | | |

| 9 & 10 | Diaphragm |
|--------|-----------------------|
| EP | EPDM (3/4" & 1" only) |
| JL | JORLON |
| ZZ | NON - STANDARD |

| 11 & 12 | Actuator |
|---------|----------|
| AA | Standard |

DOCUMENTATION

A Certificate of Compliance is available at no charge when requested at time of order. The "Unicert" is a chargeable document. If needed, a "Unicert" must be requested at time of order.



FB5C SERIES SANITARY BACK PRESSURE REGULATORS

ORDERING SCHEMATIC FB5CHT (HIGH TEMP)

| Model | Size | Body Material | 1 & 2 | 3 & 4 | 5 & 6 | 7 & 8 | 9 & 10 | 11 & 12 |
|-------|------|---------------|-------|-------|-------|-------|--------|---------|
| | | | | | | | | |

| Model | Sanitary Back Pressure High Temp Regulator (Not 3A) |
|-------|---|
|-------|---|

| Size | 1/2" (DN15) |
|------|---------------|
| 050 | |
| 075 | 3/4" (DN20) |
| 100 | 1" (DN25) |
| 150 | 1-1/2" (DN40) |
| 200 | 2" (DN50) |
| 300 | 3" (DN80) |

| Body Material | 316L SST |
|---------------|----------|
| 6L | |

| 1 & 2 | Body | Cv (Kv) |
|-------|---|-------------|
| A | 32 Ra (.81 Ra μm) Interior / Cast Exterior (Standard) | B 0.5 (0,4) |
| | | A 1.5 (1,3) |
| | | D 3.0 (2,6) |
| | | K 5.5 (4,6) |
| | | M 10 (8,7) |
| | | N 19 (16,4) |
| | | P 28 (24,2) |
| ZZ | Non- Standard | |

| 3 & 4 | Trim | Cv (Kv) & Seat |
|----------------------------|------------------------------|----------------------------|
| A | 32 Ra (.81 Ra μm) (Standard) | 5 Cv 0.5 (0,4) Hard Seat |
| | | 8 Cv 0.5 (0,4) Teflon Seat |
| | | 6 Cv 0.5 (0,4) PEEK Seat |
| | | A Cv 1.5 (1,3) Hard Seat |
| | | 9 Cv 1.5 (1,3) Teflon Seat |
| | | 7 Cv 1.5 (1,3) PEEK Seat |
| | | B Cv 3.0 (2,6) Hard Seat |
| | | F Cv 3.0 (2,6) Teflon Seat |
| | | G Cv 3.0 (2,6) Jorlon Seat |
| | | B Cv 3.0 (2,6) PEEK Seat |
| | | L Cv 5.5 (4,6) Hard Seat |
| | | M Cv 5.5 (4,6) Teflon Seat |
| | | N Cv 5.5 (4,6) Jorlon Seat |
| | | O Cv 5.5 (4,6) PEEK Seat |
| | | P Cv 10 (8,7) Hard Seat |
| | | Q Cv 10 (8,7) Teflon Seat |
| | | R Cv 10 (8,7) Jorlon Seat |
| 3 Cv 10 (8,7) PEEK Seat | | |
| S Cv 19 (16,4) Hard Seat | | |
| T Cv 19 (16,4) Teflon Seat | | |

| 3 & 4 | Trim, Cont. | Cv (Kv) & Seat |
|-------|------------------------------|----------------------------|
| A | 32 Ra (.81 Ra μm) (Standard) | U Cv 19 (16,4) Jorlon Seat |
| | | 4 Cv 19 (16,4) PEEK Seat |
| | | V Cv 28 (24,2) Hard Seat |
| | | W Cv 28 (24,2) Teflon Seat |
| | | X Cv 28 (24,2) Jorlon Seat |
| | | Y Cv 28 (24,2) PEEK Seat |
| ZZ | Non-Standard | |

| 5 & 6 | O-Ring / Diaphragm |
|-------|---|
| EE | EPDM / EPDM Diaph. |
| TY | Teflon Encaps. Viton / Jorlon Diaph. (3/4" - 3" only) |
| EJ | EPDM / Jorlon Diaph. |
| ZZ | Non-Standard |

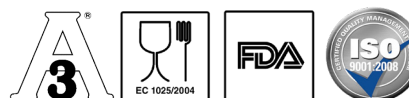
| 7 & 8 | Range | Range (PSI/Bar) |
|-------|--------------|--------------------|
| A | Standard | A 3-8 (0,2-0,6) |
| | | C 5-25 (0,3-1,7) |
| | | D 5-30 (0,3-2,1) |
| | | E 10-25 (0,7-1,7) |
| | | F 5-25 (0,3-1,7) |
| | | G 15-40 (0,3-2,8) |
| | | H 15-50 (0,3-3,4) |
| | | J 15-60 (0,3-4,1) |
| | | K 35-85 (2,4-5,9) |
| | | L 35-90 (2,4-6,2) |
| | | Q 50-105 (0,3-7,2) |
| ZZ | Non-Standard | |

| 9 & 10 | Diaphragm |
|--------|-----------------------|
| EP | EPDM (3/4" & 1" only) |
| JL | JORLON |
| ZZ | NON - STANDARD |

| 11 & 12 | Actuator |
|---------|----------|
| AA | Standard |

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