

Fisher™ GX Bolted Bonnet Control Valve and Actuator System



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The Fisher GX Bolted Bonnet is a compact, state-of-the-art control valve and actuator system, designed to control a wide range of process liquids, gases and vapors.

The GX Bolted Bonnet incorporates a proven bolted bonnet design, simplifying maintenance, while extending the GX portfolio with enhanced versatility for critical applications.

The GX Bolted Bonnet is rugged, reliable and easy to select. It requires no actuator sizing — the actuator selection is automatic once the valve body construction is selected.

The optimized design results in reduced complexity and parts count. As a result, the cost of maintenance is reduced.

The GX Bolted Bonnet meets the requirements of both EN and ASME standards. It is available with a complete accessory package, including the Fisher FIELDVUE™ DVC integrated digital valve controllers.

Features

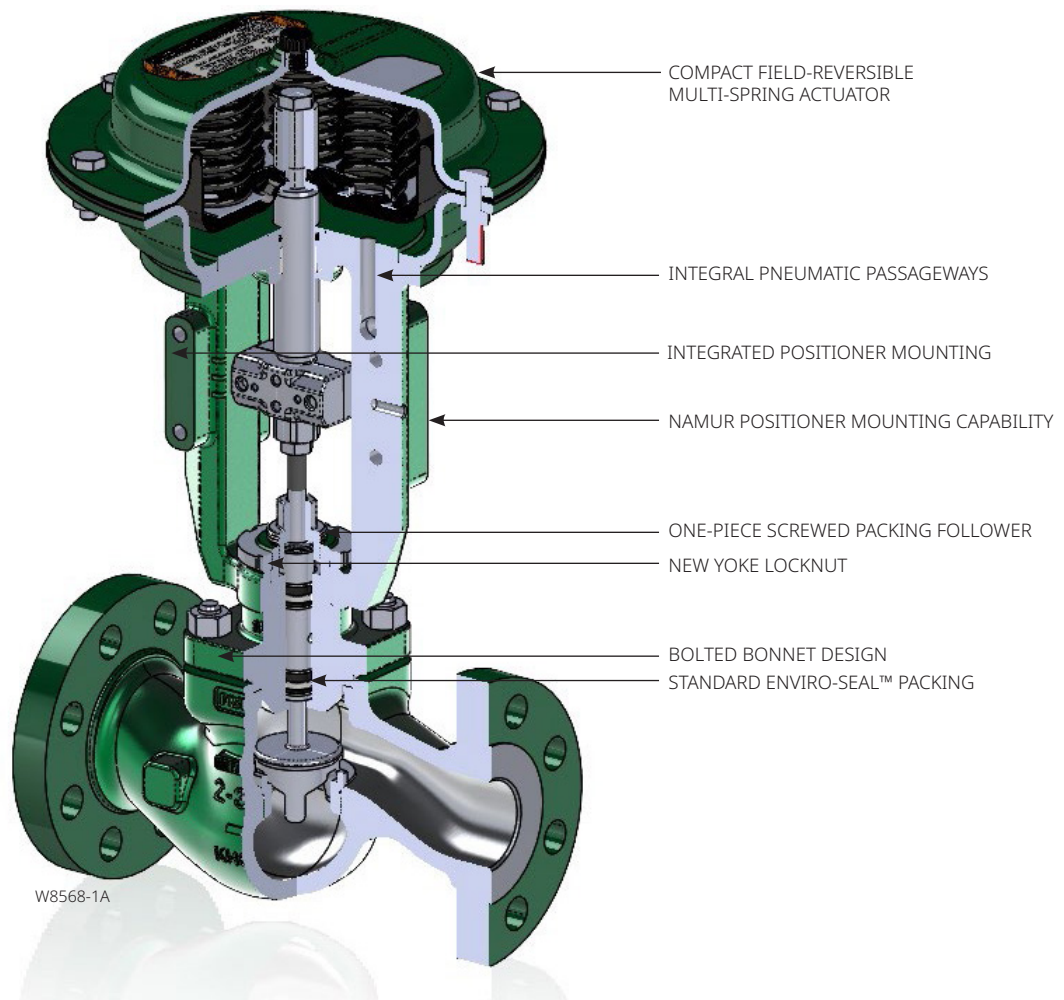
- Compact and robust bolted bonnet design
- Easy to size and select
- No actuator sizing required – selection is automatic
- Optimized actuator allows for a wide range of air supply
- Engineered for easy maintenance
- Maximum part commonality across sizes
- Replaceable trim
- Low lifetime costs
- Robust, low-profile design
- Compact multi-spring pneumatic actuator
- Available with integrated, easy-to-calibrate FIELDVUE DVC digital valve controller
- Valve body sizes DN 15 through 150 / NPS 1/2 through 6
- Pressure Classes PN 10 to 40, CL150 and 300
- High capacity design
- Valve body flow passage optimized for flow stability
- Full range of materials, including alloys
- Shutoff capabilities: Class II, IV, V and VI
- Rangeability of 50:1 (equal percentage)
- Optional metal bellows seal
- ISO 5210 F07, F10, F12, F14 mounting available for use with electric actuators

Figure 1. Fisher GX Bolted Bonnet Control Valve, Actuator and FIELDVUE DVC7K Digital Valve Controller



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Figure 2. Fisher GX Bolted Bonnet Control Valve Assembly with Port-Guided Contoured Plug (Port Sizes 36 to 136 mm)

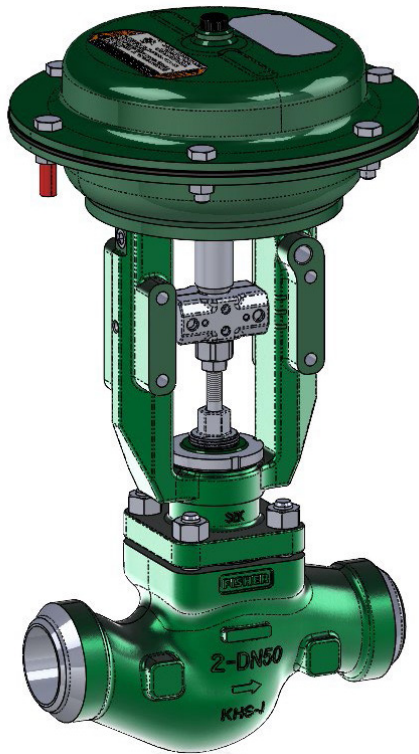


Optimized valve and actuator system — Product simplicity and ease of selection form the foundation of the GX. Mounted with a digital or analog positioner, the GX Bolted Bonnet provides high performance control across a wide range of process applications.

Compact actuator design — The GX Bolted Bonnet utilizes a compact, multi-spring actuator. The GX Bolted Bonnet design has been optimized to eliminate complicated actuator sizing procedures - once the valve body, port size and air supply pressure are selected, the actuator size is fixed.

Modular design — The design architecture has been optimized to maximize the use of common parts across sizes. The actuator stem and stem connector are used across all GX Bolted Bonnet sizes. The GX Bolted Bonnet actuator uses a total of 6 different springs across all valve sizes. These spring sets have been optimized to allow for maximum application coverage. The plug/stem assemblies and ENVIRO-SEAL packing sets are common across several sizes, as well.

Figure 3. Fisher GX Bolted Bonnet with BWE Connections



Low lifetime costs — Reduced product complexity, low parts count and part commonality all contribute to reduced inventory and maintenance costs.

Stable flow control — The flow cavity of the GX Bolted Bonnet valve body has been engineered to provide stable flow and reduce process variability.

Emission requirements — ENVIRO-SEAL packing systems provide an improved stem seal to help prevent the loss of valuable or hazardous process fluid. The GX Bolted Bonnet comes standard with ENVIRO-SEAL PTFE packing. For applications exceeding 232°C / 450°F, ENVIRO-SEAL graphite ULF packing and extension bonnets are available.

Easy maintenance — The simple screwed seat-ring and one-piece plug and stem design provide easy maintenance. Design simplicity and parts commonality contribute to reduced spares inventory. The integrated FIELDVUE DVC digital valve controllers allow easy instrument removal, without a requirement for tubing disconnection or replacement (fail-down construction).

The bolted bonnet design further enhances maintenance efficiency by enabling actuator service without the need to open the bonnet and reducing downtime.

Figure 4. Fisher GX Extension Bolted Bonnet Valve

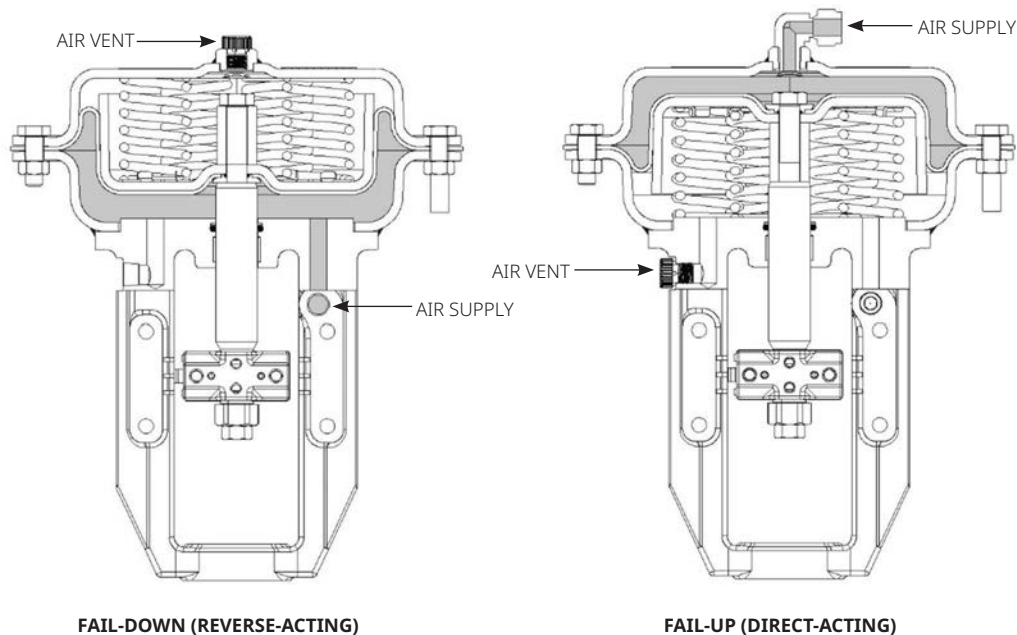


Long life — Alloy valve constructions and hardened trim materials are available in the GX Bolted Bonnet to increase valve body, bonnet and trim life.

Low ambient temperature — For service with ambient temperature down to -60°C / -76°F. This construction is suitable for cold climate regions. Optional side mounted handwheel allowed, however, it is not advisable to operate when ambient is below -50°C / -58°F.

Cryogenic offering — The GX Bolted Bonnet is available in a low temperature construction. The compact design maintains high performance in low temperature applications, while minimizing overall envelope size.

Versatile connection options — The GX Bolted Bonnet valve, with flanged RF, welded end connections (butt weld, socket weld) and NPT threaded connections, ensures flexibility, seamless integration and compatibility with EN and ASME standards (refer to Figure 3 for GX Bolted Bonnet with BW ends).

Figure 5. Fisher GX Bolted Bonnet Principle of Operation – Actuator Air Supply

Integrated mounting — The FIELDVUE DVC digital valve controllers integrally mount to the GX Bolted Bonnet actuator, eliminating the need for mounting brackets. The FIELDVUE DVC transmits a pneumatic signal to the actuator casing via an air passage in the yoke leg, causing the valve to stroke (see Figure 5). This eliminates the need for positioner-to-actuator tubing in the fail-down configuration.

Field-friendly actuator rotation — The actuator can be rotated in the field without needing to isolate and drain the process fluid, simplifying maintenance operations and enhancing flexibility during installation or servicing.

Linkage-less feedback — The FIELDVUE DVC digital valve controllers offer as standard a non-contacting valve position feedback system. This is a true linkage-less design, which uses no levers and no touching parts between the valve stem and the positioner.

Additional Accessory selection — The GX Bolted Bonnet is available with a variety of digital or analog positioners besides the FIELDVUE DVC, as well as solenoid and limit switches. The actuator is also compatible with the IEC 60534-6-1 (NAMUR) positioner mounting standard.

Principle of Operation

Integrated Air Supply — When mounted with the FIELDVUE DVC digital valve controller, the GX Bolted Bonnet uses an integrated actuator air supply system. In the fail-down construction, air is supplied to the lower actuator casing via a port on the actuator yoke face — no tubing is required. In the fail-up configuration, air is supplied to the upper casing via tubing.

Figure 6. Fisher GX Bolted Bonnet Control Valve with Typical Soft Seat Trim Construction (DN 25 to 150 and NPS 1 to 6, Port Sizes of 22 to 136 mm)

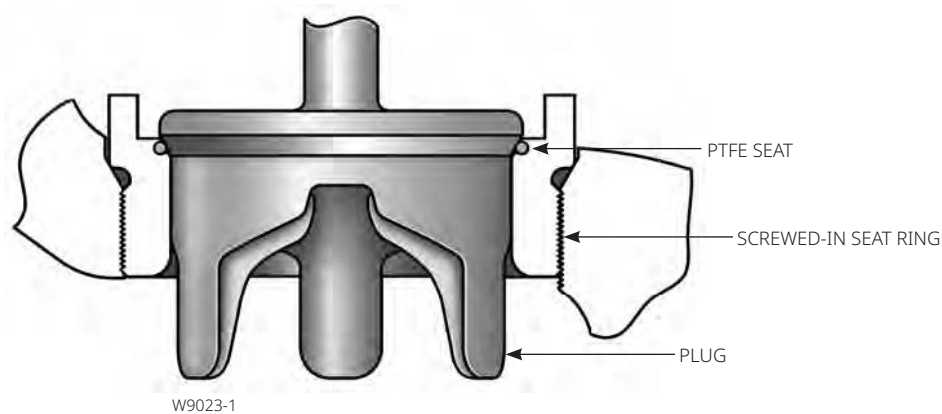


Figure 7. Fisher GX Bolted Bonnet Control Valve with Port-Guided Plug (DN 40 to 150 and NPS 1-1/2 to 6, Port Sizes of 36 to 136 mm)

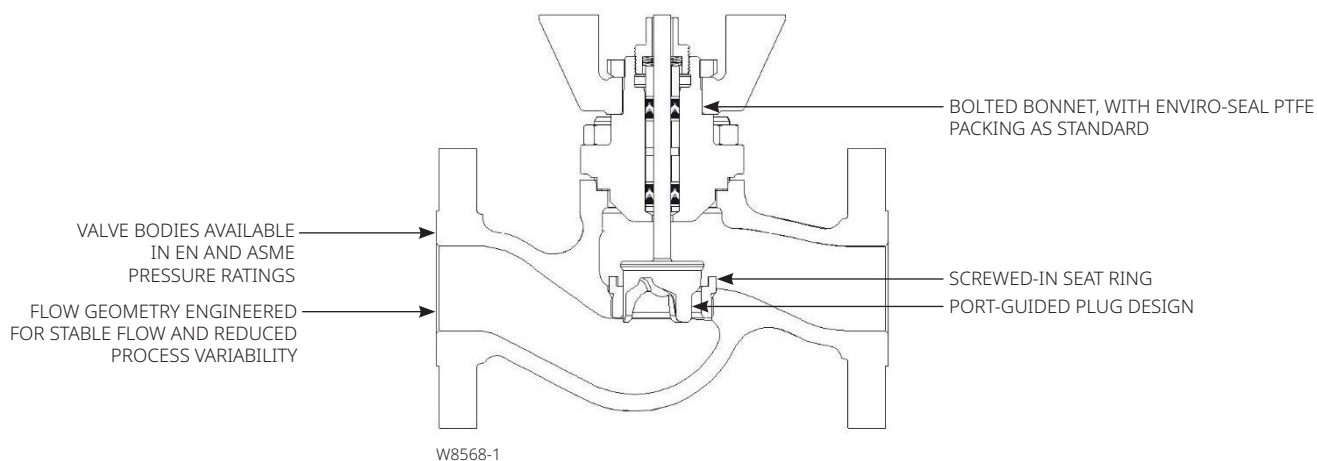


Figure 8. Fisher GX Bolted Bonnet Control Valve with Balanced Trim (DN 80 to 150 and NPS 3 to 6, Port Sizes of 70, 90 and 136 mm Only)

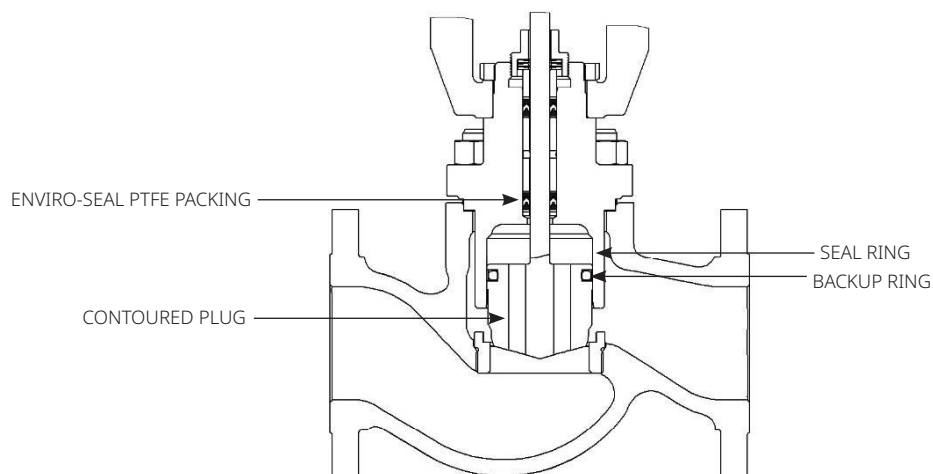
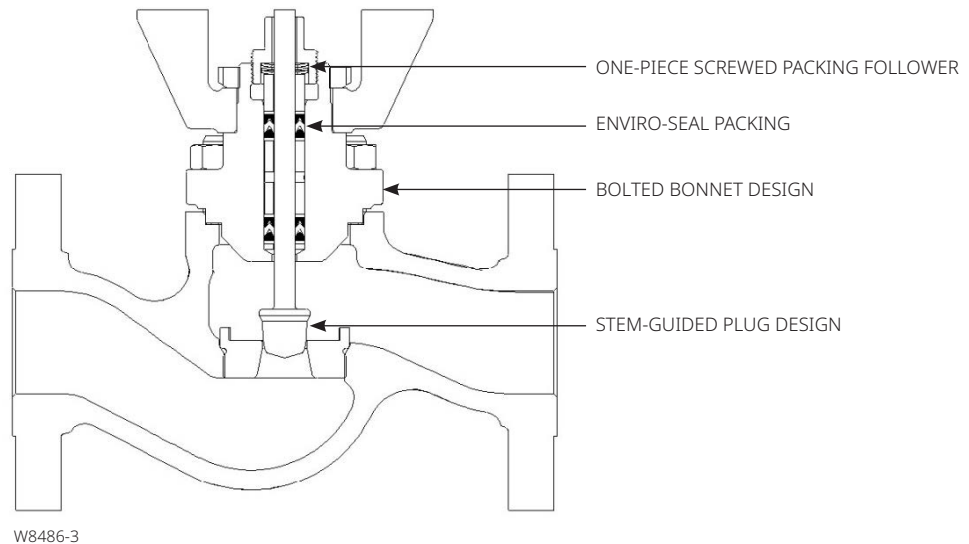


Figure 9. Fisher GX Bolted Bonnet Control Valve Assembly with Stem-Guided Contoured Plug (Size DN 25 and NPS 1)



Fisher GX Bolted Bonnet Control Valve

The GX Bolted Bonnet is a single port, flow-up globe style valve that offers port-guided (Figure 2), stem-guided (Figure 9) and balanced trim with a screwed-in seat ring (see Table 1 for a description of trim style availability). Each valve size offers an unbalanced plug design, which eliminates dead spaces where fluid polymerization might occur. Although the optimized GX Bolted Bonnet actuator allows for wide usage of unbalanced trim, a balanced plug design is available for higher pressure drop applications in DN 80, 100 and 150 / NPS 3, 4 and 6 sizes.

The GX Bolted Bonnet features a bolted bonnet design, which improves maintenance efficiency and safety, allowing actuator service without the need to open the bonnet. Combined with an easy-to-adjust screwed packing follower, it simplifies servicing in the field.

The plug and stem are a rugged, one-piece welded assembly.

The standard construction incorporates metal-to-metal seating, with a PTFE soft seat option for Class VI shutoff (see Figure 6). Class V shutoff is available with metal trim. Hardened trim with stellite overlay is available for erosive service, as well.

Both linear and equal percentage flow characteristics are available in full port and restricted trim. Micro-Flow is available for applications requiring low flow control capability.

Standard valve body materials are carbon steel and stainless steel. Alloy materials are available for valve body sizes DN 15 through 100 / NPS 1/2 through 4 for corrosive applications.

Fisher GX Bolted Bonnet Control Valve Specifications and Materials of Construction

See Tables 1 and 2.

Table 1. Fisher GX Bolted Bonnet Valve Specifications

| Specifications | EN | ASME |
|-----------------------------|--|--|
| Valve Body Size | DN 15, 20, 25, 40, 50, 80, 100, 150 | NPS 1/2, 3/4, 1, 1-1/2, 2, 3, 4, 6 |
| Pressure Rating | PN 10/16/25/40 per EN12516-1 ⁽¹⁾ | CL150/300 per ASME B16.34 ⁽²⁾ |
| End Connections | Flanged raised face per EN 1092-1 | Flanged raised face per ASME B16.5 |
| | Butt weld-ends per EN 12627 | Butt weld-ends per ASME B16.25 |
| | | Socket weld-ends per ASME B16.11 (NPS 1/2 through 2 only) |
| | | NPT ends per ASME B16.11 (NPS 1/2 through 2 only) |
| Available Butt weld-ends | DN 15: ø21.3x2 mm | Schedule 40 |
| | DN 20: ø26.9x2.3 mm | |
| | DN 25: ø33.7x2.3 mm, ø33.7x2.6 mm | |
| | DN 40: ø48.3x2.6 mm | |
| | DN 50: ø60.3x2.9 mm, ø60.3x3.2 mm | |
| | DN 80: ø88.9x3.2 mm, ø88.9x4 mm | |
| | DN 100: ø114.3x3.6 mm, ø114.3x5 mm | |
| | DN 150: ø168.3x4.5 mm, ø168.3x5.6 mm | |
| Valve Body/Bonnet Materials | 1.0619 Steel | ASME SA216 WCC Steel |
| | 1.4409 Stainless steel | ASME SA351 CF3M Stainless steel |
| | CW2M (sizes DN 25 through 100 only) ⁽³⁾ | CW2M (NPS 1 through 4 only) ⁽³⁾ |
| | ASME SA352 LCC | ASME SA352 LCC |
| | ASTM A990 CN3MCu/ASME SA351 CN7M (Cast Alloy 20) (sizes DN 25 through 100 only) ⁽³⁾ | ASTM A990 CN3MCu/ASME SA351 CN7M (Cast Alloy 20) (NPS 1 through 4 only) ⁽³⁾ |
| | CD3MN Duplex SST (sizes DN 25 through 100 only) ⁽³⁾ | CD3MN Duplex SST (NPS 1 through 4 only) ⁽³⁾ |
| | CF3 304L SST (sizes DN 25 through 100 only) ⁽³⁾ | CF3 304L SST (NPS 1 through 4 only) ⁽³⁾ |
| | - - - | M35-2 (NPS 1 through 4 only) ⁽³⁾ |
| | - - - | N7M Alloy B2 (NPS 1 through 4 only) ⁽³⁾ |

- continued -

Table 1. Fisher GX Bolted Bonnet Valve Specifications (continued)

| Specifications | EN | ASME |
|---|---|---|
| Face-to-Face Dimensions | Per EN 558 Series 1 for flanged ends | Per ANSI/ISA 75.08.01 for flanged ends |
| | Per EN 12982 Series 1 for butt welded ends | Per ANSI/ISA 75.08.05 short series for butt weld-ends |
| | | Per ANSI/ISA 75.08.03 short series for socket weld-ends |
| | | Per ANSI/ISA 75.08.03 short series for NPT ends |
| Shutoff per IEC 60534-4 and ANSI/FCI 70-2 | Metal seat - Class IV (standard), Class II (optional) | |
| | Metal seat - Class V (optional) | |
| | PTFE seat - Class VI (optional) ⁽⁴⁾ | |
| Flow Direction | Flow-up (Cavitrol™ III trim, Flow down) | |
| Flow Control Characteristics | Equal Percentage and Linear | |
| Flow Coefficients | See Fisher Catalog 12 | |
| Trim Style | Port Diameters | Trim Style Description |
| | 4.8 mm | Micro-Flow trim (unbalanced) |
| | 9.5, 14, 22 mm | Stem-Guided with Contoured Plug (unbalanced) or Port-Guided with Cavitrol III trim (unbalanced) |
| | 36, 46 mm | Port-Guided Plug (unbalanced) |
| | 70, 90, 136 mm | Balanced Trim with Contoured plug or Unbalanced Port-Guided Plug |
| Handwheel | Available as an option | |
| Travel Stop | Available as an option | |
| 1. Standardized on PN40 for welded ends. 2. Standardized on CL300 for welded ends and NPT. 3. Not available with welded ends and NPT connections. 4. For 4.8 to 14 mm ports, Class VI shutoff is achieved without PTFE seat. | | |

Table 2. Materials (Other Valve Components)

| Component | | Material |
|--|----------------------------|--|
| Packing Follower | | S21800 SST screwed follower |
| Body/Bonnet Bolting and Nuts | | SA193-B7 studs/SA194-2H nuts with NCF2 coating for Carbon steel constructions. DN 150: SA193-B7M studs / SA194-2HM nuts with NCF2 coating (optional) |
| | | S20910 (XM19) for Alloy and Stainless steel assemblies, as standard. |
| Packing | | ENVIRO-SEAL PTFE V-ring with N07718 Belleville springs – standard |
| | | ENVIRO-SEAL Graphite ULF with N07718 Belleville springs – optional |
| | | Enhanced ENVIRO-SEAL IS (ISO-Seal) PTFE (Double) with N07718 Belleville springs – optional |
| Bonnet Gasket | | DN 15 through 150: Graphite laminate |
| | | DN 15 through 100: PTFE encapsulated N10276 (optional) Applicable from -46 to 232°C / -50 to 450°F (May be preferable when the standard graphite laminate gasket material is not compatible with the process fluid.) |
| NACE MR0175/ ISO15156 ⁽¹⁾ and NACE MR0103 Construction | | Stainless steel or Carbon steel valve bodies and bonnets |
| | | Standard ENVIRO-SEAL PTFE packing |
| | | S31603/CoCr-A plug, S20910 stem and S31603/CoCr-A seat ring |
| | Body/ Bonnet Bolting | SA193-B7 studs/SA194-2H nuts with NCF2 coating (S20910 SST optional) for Carbon steel |
| | | S20910 (XM19) for Stainless steel |
| | | For DN 150 optional: SA193-B7M studs/SA194-2HM nuts with NCF2 coating for Carbon steel |
| Balanced Trim (Sizes DN 80, 100 and 150 / NPS 3, 4 and 6) | | Carbon-Filled PTFE Seal ring |
| | Back-up Rings | Nitrile (Standard) -46 to 82°C / -50 to 180°F |
| | | Ethylene Propylene [EPDM] (Optional): -46 to 232°C / -50 to 450°F in steam and hot water; -46 to 121°C / -50 to 250°F in air (EPDM is not recommended for use in hydrocarbons) |
| | | FKM (Fluorocarbon) (Optional): -18 to 204°C / 0 to 400°F (Applicable in a wide variety of solvents, chemicals and hydrocarbons. Avoid use with steam, ammonia or hot water over 82°C / 180°F) |
| | | Graphite piston ring without back up ring (Optional): -46 to 593°C / -50 to 1100°F ⁽²⁾ |
| 1. Environmental restrictions may apply. | | |
| 2. Limited to Class II shutoff with standard trims. | | |

Table 3. Trim Materials for Port Diameters of 4.8 mm (Micro-Flow trim) (Unbalanced Trim)

| Valve Body Construction | Trim Type | Stem | Plug | Seat |
|---|----------------|------------------------|--------|------------------------|
| Carbon steel (1.0619/WCC and LCC) | Metal-to-metal | S31603 strain hardened | R31233 | SA351 CF3M |
| | Hard-faced | S20910 | R31233 | SA351 CF3M/CoCr-A seat |
| | Metal-to-metal | N06022 | R31233 | CW2M |
| Stainless steel (1.4409/CF3M) | Metal-to-metal | S31603 strain hardened | R31233 | SA351 CF3M |
| | Hard-faced | S20910 | R31233 | SA351 CF3M/CoCr-A seat |
| | Metal-to-metal | N06022 | R31233 | CW2M |
| Carbon steel to NACE MR0175/ISO15156 ⁽²⁾ and NACE MR0103 (1.0619/WCC and LCC) | Hard-faced | S20910 | R31233 | SA351 CF3M/CoCr-A seat |
| Stainless steel to NACE MR0175/ISO15156 ⁽²⁾ and NACE MR0103 (1.4409/CF3M) | Hard-faced | S20910 | R31233 | SA351 CF3M/CoCr-A seat |
| CW2M and CN3MCu/CN7M ⁽¹⁾ | Metal-to-metal | N06022 | R31233 | CW2M |
| Duplex SST (CD3MN) ⁽¹⁾ | Metal-to-metal | S31803 (Duplex SST) | R31233 | CD3MN (Duplex SST) |
| 304L SST (CF3) ⁽¹⁾ | Metal-to-metal | S31803 (Duplex SST) | R31233 | CF3 (304L SST) |
| 1. Not available in DN 15 and 20 / NPS 1/2 and 3/4 sizes. 2. Environmental restrictions may apply. | | | | |

Table 4. Trim Materials for Port Diameters of 9.5 and 14 mm (Unbalanced Trim)

| Valve Body Construction | Trim Type | Stem | Plug | Seat |
|---|----------------|------------------------|---------------------|------------------------|
| Carbon steel (1.0619/ WCC and LCC) | Metal-to-metal | S31603 strain hardened | S31603 | SA351 CF3M |
| | Hard-faced | S20910 | S31603/CoCr-A seat | SA351 CF3M/CoCr-A seat |
| | Metal-to-metal | N06022 | N06022 | CW2M |
| Stainless steel (1.4409/CF3M) | Metal-to-metal | S31603 strain hardened | S31603 | SA351 CF3M |
| | Hard-faced | S20910 | S31603/CoCr-A seat | SA351 CF3M/CoCr-A seat |
| | Metal-to-metal | N06022 | N06022 | CW2M |
| Carbon steel to NACE MR0175/ISO15156 ⁽²⁾ and NACE MR0103 (1.0619/WCC and LCC) | Hard-faced | S20910 | S31603/CoCr-A seat | SA351 CF3M/CoCr-A seat |
| Stainless steel to NACE MR0175/ISO15156 ⁽²⁾ and NACE MR0103 (1.4409/CF3M) | Hard-faced | S20910 | S31603/CoCr-A seat | SA351 CF3M/CoCr-A seat |
| CW2M and CN3MCu/ CN7M ⁽¹⁾ | Metal-to-metal | N06022 | N06022 | CW2M |
| Duplex SST (CD3MN) ⁽¹⁾ | Metal-to-metal | S31803 (Duplex SST) | S31803 (Duplex SST) | CD3MN (Duplex SST) |
| 304L SST (CF3) ⁽¹⁾ | Metal-to-metal | S31803 (Duplex SST) | S30403 (304L SST) | CF3 (304L SST) |
| M35-2 ⁽¹⁾ | Metal-to-metal | N05500 | N05500 | N05500 |
| N7M (Alloy B2) ⁽¹⁾ | Metal-to-metal | N10675 (Alloy B3) | N10675 (Alloy B3) | N7M (Alloy B2) |
| 3. Not available in DN 15 and 20 / NPS 1/2 and 3/4 sizes. 4. Environmental restrictions may apply. | | | | |

Table 5. Trim Materials for Port Diameters of 22, 36, 46, 70, 90 and 136 mm (Unbalanced Trim)

| Valve Body Construction | Trim Type | Stem | Plug | Seat |
|---|--|------------------------|------------------------------------|---|
| Carbon steel (1.0619/WCC and LCC) | Metal-to-metal | S31603 strain hardened | S31603 | SA351 CF3M ⁽³⁾ |
| | Soft seat | S31603 strain hardened | S31603 | SA351 CF3M/PTFE seat ⁽⁴⁾ |
| | Hard-faced/ Whisper Trim III ^{TM(2)} | S20910 | S31603/CoCr-A seat | SA351 CF3M/CoCr-A seat (22 mm) SA351 CF3M/CoCr-A seat and guide (>22 mm) |
| | Cavitrol III trim | S20910 | S31603/CoCr-A seat | S17400 Cage |
| | Metal-to-metal | N06022 | N06022 | CW2M ⁽¹⁾ |
| | Soft seat | N06022 | N06022 | CW2M/PTFE seat ⁽¹⁾ |
| Stainless steel (1.4409/CF3M) | Metal-to-metal | S31603 strain hardened | S31603 | SA351 CF3M ⁽³⁾ |
| | Soft seat | S31603 strain hardened | S31603 | SA351 CF3M/PTFE seat ⁽⁴⁾ |
| | Hard-faced/ Whisper Trim III ⁽²⁾ | S20910 | S31603/CoCr-A seat | SA351 CF3M/CoCr-A seat (22 mm) SA351 CF3M/CoCr-A seat and guide (>22 mm) |
| | Cavitrol III trim | S20910 | S31603/CoCr-A seat and guide | S17400 Cage |
| | Metal-to-metal | N06022 | N06022 | CW2M ⁽¹⁾ |
| | Soft seat | N06022 | N06022 | CW2M/PTFE seat ⁽¹⁾ |
| Carbon steel to NACE MR0175/ISO15156 ⁽⁵⁾ and NACE MR0103 (1.0619/WCC and LCC) | Hard-faced | S20910 | S31603/CoCr-A seat | SA351 CF3M/CoCr-A seat (22 mm) SA351 CF3M/CoCr-A seat and guide (>22 mm) |
| Stainless steel to NACE MR0175/ISO15156 ⁽⁵⁾ and NACE MR0103 (1.4409/CF3M) | Hard-faced | S20910 | S31603/CoCr-A seat | SA351 CF3M/CoCr-A seat (22 mm) SA351 CF3M/CoCr-A seat and guide (>22 mm) |
| CW2M and CN3MCu/ CN7M ⁽¹⁾ | Metal-to-metal | N06022 | N06022 | CW2M |
| | Soft seat | N06022 | N06022 | CW2M / PTFE seat |
| Duplex SST (CD3MN) ⁽¹⁾ | Metal-to-metal | S31803 (Duplex SST) | S31803 (Duplex SST) | CD3MN (Duplex SST) |
| | Soft seat | S31803 (Duplex SST) | S31803 (Duplex SST) | CD3MN (Duplex SST)/ PTFE seat ⁽¹⁾ |
| 304L SST (CF3) ⁽¹⁾ | Metal-to-metal | S31803 (Duplex SST) | S30403 (304L SST) | CF3 (304L SST) |
| | Soft seat | S31803 (Duplex SST) | S30403 (304L SST) | CF3 (304L SST)/ PTFE seat ⁽¹⁾ |
| M35-2 ⁽¹⁾ | Metal-to-metal | N05500 | N05500 | N05500 |
| N7M (Alloy B2) ⁽¹⁾ | Metal-to-metal | N10675 (Alloy B3) | N10675 (Alloy B3)/ N7M (>22 mm) | N7M (Alloy B2) |

1. Not available for DN 150 / NPS 6.

2. Whisper Trim III is only available in 70 and 90 mm ports.

3. DN 150 / NPS 6 has CoCr-A seat and guide.

4. DN 150 / NPS 6 has CoCr-A guide.

5. Environmental restrictions may apply.

Table 6. Trim Materials for Port Diameters of 70, 90 and 136 mm (Balanced Trim)⁽³⁾

| Valve Body Construction | Trim Type | Stem | Plug | Seat |
|---|--|------------------------|---------------------------------|-------------------------------------|
| Carbon steel (1.0619/WCC and LCC) ⁽¹⁾ | Metal-to-metal | S31603 strain hardened | S31603 | SA351 CF3M |
| | Hard-faced/ Whisper Trim III ⁽⁴⁾ | S20910 | S31603/CoCr-A seat and guide | SA351 CF3M/CoCr-A seat and guide |
| | Metal-to-metal | N06022 | N06022 | CW2M ⁽²⁾ |
| Stainless steel (1.4409/CF3M) | Metal-to-metal | S31603 strain hardened | S31603 | SA351 CF3M |
| | Hard-faced/ Whisper Trim III ⁽⁴⁾ | S20910 | S31603/CoCr-A seat and guide | SA351 CF3M/CoCr-A seat and guide |
| | Metal-to-metal | N06022 | N06022 | CW2M ⁽²⁾ |
| Carbon steel to NACE MR0175/ISO15156 ⁽⁵⁾ and NACE MR0103 (1.0619/WCC and LCC) | Hard-faced | S20910 | S31603/CoCr-A seat | SA351 CF3M/CoCr-A seat and guide |
| Carbon steel to NACE MR0175/ISO15156 ⁽⁵⁾ and NACE MR0103 (1.0619/WCC and LCC) | Hard-faced | S20910 | S31603/CoCr-A seat | SA351 CF3M/CoCr-A seat and guide |
| CW2M and CN3MCu/ CN7M ⁽²⁾ | Metal-to-metal | N06022 | N06022 | CW2M |
| Duplex SST (CD3MN) ⁽²⁾ | Metal-to-metal | S31803 (Duplex SST) | S31803 (Duplex SST) | CD3MN (Duplex SST) |
| 304L SST (CF3) ⁽²⁾ | Metal-to-metal | S31803 (Duplex SST) | S30403 (304L SST) | CF3 (304L SST) |

1. The bonnet used in the carbon steel balanced trim construction is made of 1.4409/CF3M stainless steel.
2. Not available for DN 150 / NPS 6.
3. Balanced trim not available with M35-2 or N7M trim.
4. Balanced Whisper Trim III in DN 150 / NPS 6 136 mm port diameter only.
5. Environmental restrictions may apply.

Table 7. Fisher GX Bolted Bonnet Availability

| VALVE SIZE | | PORT SIZE | STEM DIAMETER | TRAVEL |
|------------|-------|---------------|---------------|--------|
| DN | NPS | mm | mm | mm |
| 15 | 1/2 | 4.8 | 10 | 20 |
| | | 9.5 | | |
| 20 | 3/4 | 4.8 | | |
| | | 9.5 | | |
| | | 14 | | |
| 25 | 1 | 4.8 | | |
| | | 9.5 | | |
| | | 14 | | |
| | | 22 | | |
| 40 | 1-1/2 | 14 | | |
| | | 22 | | |
| | | 36 | | |
| 50 | 2 | 22 | | |
| | | 36 | | |
| | | 46 | | |
| 80 | 3 | 36 | 14 | 20 |
| | | 46 | | |
| | | 70 - balanced | | |
| | | 70 | | |
| 100 | 4 | 46 | | 40 |
| | | 70 | | 20 |
| | | 90 - balanced | | 40 |
| | | 90 | | 20 |
| | | 90 | | 40 |
| 150 | 6 | 90 | 19 | 40 |
| | | 136 | | 60 |

Table 8. Allowable Temperature Ranges for Valve Body, Bonnet and Trim⁽¹⁾

| VALVE BODY/ BONNET MATERIAL | BONNET STYLE | ENVIRO-SEAL PACKING | GASKET | TRIM STYLE | TEMPERATURE | | | |
|-----------------------------------|------------------------|-------------------------|-------------------------------------|--|--------------------|--------------------|----------------|--------------------|
| | | | | | °C | | °F | |
| | | | | | Min. | Max. | Min. | Max. |
| 1.0619/SA216 WCC Steel | Standard | PTFE or Graphite ULF | Graphite laminate or PTFE/N10276 | Metal-to-metal; hard-faced; soft seat | -29 ⁽⁵⁾ | 232 | -20 | 450 |
| | Extension | | Graphite laminate | Metal-to-metal; hard-faced | -29 ⁽⁵⁾ | 371 ⁽³⁾ | -20 | 700 ⁽³⁾ |
| | Bellows | | Graphite laminate or PTFE/N10276 | Metal-to-metal; hard-faced; soft seat | -29 ⁽⁵⁾ | 232 | -20 | 450 |
| | | | Graphite laminate | Metal-to-metal; hard-faced | -29 ⁽⁵⁾ | 371 | -50 | 700 |
| 1.4409/SA351 CF3M SST | Standard | | Graphite laminate or PTFE/N10276 | Metal-to-metal; hard-faced; soft seat | -46 | 232 | -50 | 450 |
| | Extension | | Graphite laminate | Metal-to-metal; hard-faced | -46 | 371 ⁽³⁾ | -50 | 700 ⁽³⁾ |
| | Cryogenic Extension | | Graphite laminate | Metal-to-metal; hard-faced | ⁽²⁾ | 371 | ⁽²⁾ | 700 |
| | Bellows | | Graphite laminate or PTFE/N10276 | Metal-to-metal; hard-faced; soft seat | -46 | 232 | -50 | 450 |
| | | | Graphite laminate | Metal-to-metal; hard-faced | -46 | 371 | -50 | 700 |
| CW2M | Standard | | Graphite laminate or PTFE/N10276 | Metal-to-metal; soft seat | -46 | 232 | -50 | 450 |
| | Bellows | | Graphite laminate or PTFE/N10276 | Metal-to-metal; soft seat | -46 | 232 | -50 | 450 |
| LCC | Standard | | Graphite laminate or PTFE/N10276 | Metal-to-metal; hard-faced; soft seat | -46 | 232 | -50 | 450 |
| | Extension | | Graphite laminate | Metal-to-metal; hard-faced | -46 | 343 ⁽⁴⁾ | -50 | 650 ⁽⁴⁾ |
| | Bellows | | Graphite laminate or PTFE/N10276 | Metal-to-metal; hard-faced; soft seat | -46 | 232 | -50 | 450 |
| | | | Graphite laminate | Metal-to-metal; hard-faced | -46 | 343 | -50 | 650 |
| CN3MCu/CN7M | Standard | PTFE | Graphite laminate or PTFE/N10276 | Metal-to-metal; soft seat | -46 | 232 | -50 | 450 |
| 304L SST (CF3) | Standard | | Graphite laminate or PTFE/S30403 | Metal-to-metal; soft seat | -46 | 232 | -50 | 450 |
| Duplex SST (CD3MN) | Standard | | Graphite laminate or PTFE/N10276 | Metal-to-metal; soft seat | -46 | 232 | -50 | 450 |
| M35-2 | Standard | | Graphite laminate or PTFE/N04400 | Metal-to-metal | -46 | 232 | -50 | 450 |
| N7M (Alloy B2) | Standard | | Graphite laminate or PTFE/N10276 | Metal-to-metal | -46 | 232 | -50 | 450 |

1. Back-up ring materials used in sizes DN 80, 100 and 150 / NPS 3, 4 and 6 with balanced trim may be limited by temperature and application. See Table 2.
2. Consult your [Emerson sales office](#) for minimum temperature limit.
3. Only for DN 150 / NPS 6, the 371°C / 700°F can be achieved by using a standard bonnet based on trim/packing/gasket selection. Consult your [Emerson sales office](#) for higher temperature limits.
4. Only for DN 150 / NPS 6, the 343°C / 650°F can be achieved by using a standard bonnet based on trim/packing/gasket selection. Consult your [Emerson sales office](#) for higher temperature limits.
5. In case of PED for EU, minimum temperature is limited to -10°C / 14°F.

Figure 10. Fisher GX Bolted Bonnet Packings

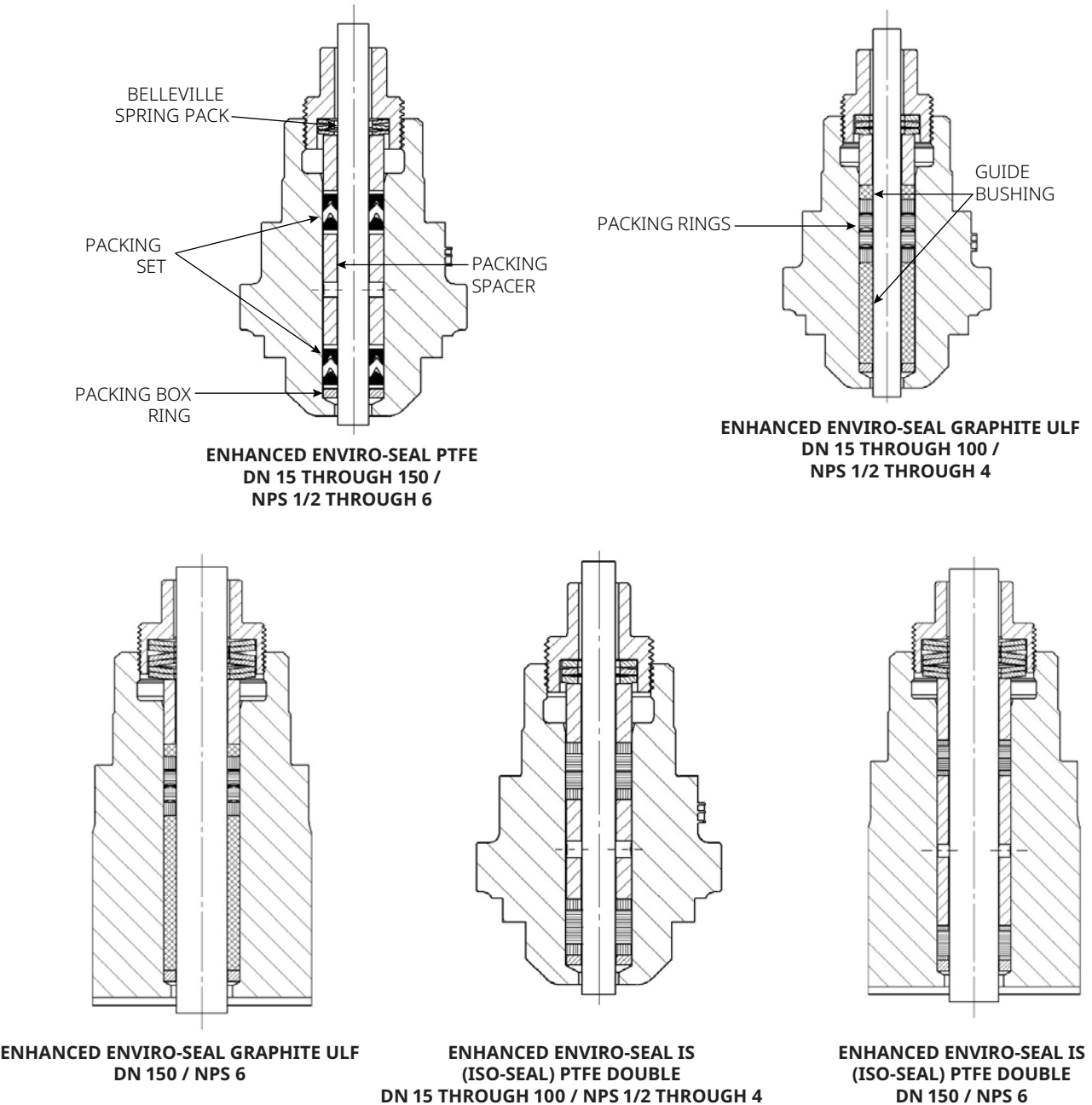


Figure 11. GX Bolted Bonnet Cavitrol III Trim



X0112

GX Bolted Bonnet Cavitrol III for DN 25 through 50 / NPS 1 through 2

Cavitrol III trim lowers hydrodynamic noise and reduces vibration by utilizing proprietary drilled hole shape and spacing to shift the frequency and isolate the cavitation in order to prevent damage.

Features

- Max delta-P of 27.6 barg / 400 psid
- Flow down
- Class V shutoff – standard

Available Sizes

- DN 25 / NPS 1, 225 Actuator, 20 mm travel
- DN 40 / NPS 1-1/2, 750 Actuator, 20 mm travel
- DN 50 / NPS 2, 750 Actuator, 20 mm travel

Requirements

- Minimum 4 bar / 58 psig supply pressure
- Only available with standard bonnet

Table 9. Materials of Construction for Cavitrol III Trim

| Part | Material |
|----------------|------------------------------|
| Stem | S20910 |
| Plug | S31603/CoCr-A Seat and Guide |
| Seat Ring/Cage | S17400 |

Figure 12. GX Bolted Bonnet Whisper Trim III



X0336

GX Bolted Bonnet Whisper Trim III for DN 80 through 150 / NPS 3 through 6

Whisper Trim III A1 lowers aerodynamic valve noise by utilizing multiple orifices of special shape, size and spacing. These orifices break up turbulent compressible fluid streams and shift the acoustic energy to a higher frequency range. The result is about 20 dBA noise attenuation.

Features

- Flow up
- Class IV shutoff

Available Sizes

- DN 80 / NPS 3, 750 Actuator, 40 mm travel
- DN 100 / NPS 4, 750 Actuator, 40 mm travel
- DN 150 / NPS 6, 1200 Actuator, 60 mm travel

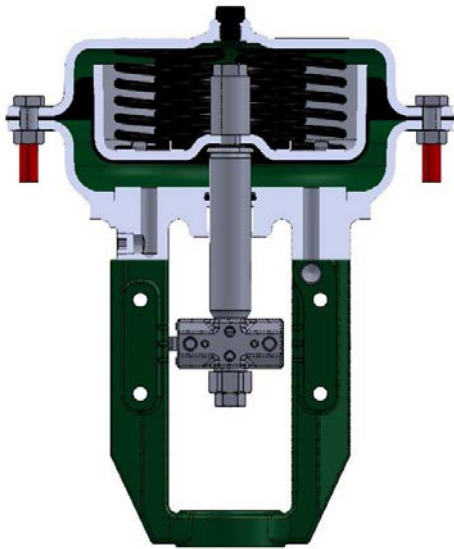
Table 10. Materials of Construction for Whisper Trim III⁽¹⁾

| Part | Material |
|--|------------------------------|
| Stem | S20910 |
| Plug | S31603/CoCr-A Seat |
| Seat Ring | S31603/CoCr-A Seat and Guide |
| Cage ⁽¹⁾ | CF3M |
| 1. DN 150 / NPS 6 uses a separate cage, not integral to the plug stem. | |

Allowable temperature ranges are shown in Table 8.

The Fisher GX Bolted Bonnet Diaphragm Actuator

Figure 13. Fisher GX Bolted Bonnet Actuator



The GX Bolted Bonnet uses a multi-spring, pneumatic diaphragm actuator (see Figure 15). It is capable of air supply pressures to 6.0 barg / 87 psig, allowing valve shutoff at high pressure drops.

The GX Bolted Bonnet product selection system automatically matches the actuator to the valve, eliminating the need for complex actuator sizing procedures.

The multiple spring design provides the preload, eliminating the need for bench set adjustment. The actuator is available in spring-to-open and fail-down configurations.

The GX Bolted Bonnet actuator can be used for throttling or on-off service.

The GX Bolted Bonnet is available with the integrated FIELDVUE DVC digital valve controller. Other digital and analog positioners are available, as well as optional solenoids and limit switches.

Table 11. Actuator Specifications

| | |
|---|---|
| Description | Pneumatic spring-return diaphragm actuator |
| Operating Principle | Air-to-open (standard) Air-to-close (optional) |
| Operating Pressure Ranges | 2.0 to 6.0 barg / 29 to 87 psig ⁽¹⁾ |
| Ambient Temperature | -46 to 82°C / -50 to 180°F ⁽²⁾ |
| Pressure Connection (Fail-up Construction) | G 1/4 female casing connection |
| Finish | Powder coat polyester |
| 1. May vary depending on construction see GX Bolted Bonnet Bulletin Supplement (D104811X012). | |
| 2. Optional ambient construction range: -60 to 82°C / -76 to 180°F. | |

Table 12. Materials of Construction

| Part | Material |
|--------------------------|--|
| Upper and Lower Casings | AISI 1010 stamped Carbon Steel |
| Springs | Steel |
| Diaphragm | Nitrile and Nylon |
| Diaphragm Plate | Size 225 and 750: AISI G10100 stamped Carbon Steel Size 1200: Cast Carbon Steel |
| Yoke | Carbon steel (Stainless Steel optional for some sizes) |
| Casing Fasteners | A2-70 Stainless Steel bolts and nuts |
| Actuator Rod | Stainless Steel |
| Stem Connector | CF3M |
| Stem Connector Fasteners | SA193-B7 bolts with NCF2 coating |
| Stem Bushing | High-density Polyethylene (HDPE) |
| Stem Seal | Nitrile |

Actuator Selection

With the GX Bolted Bonnet, actuator selection has never been easier. Once the valve size and port diameter have been determined, the actuator is automatically selected. No spring selection or bench set calculations are required.

The majority of GX Bolted Bonnet constructions (both fail-down and fail-up) are rated to a full pressure class shutoff capability of 51.7 bar / 750 psi for a 4 to 6 bar / 58 to 87 psig actuator air supply. Refer to Fisher GX Bolted Bonnet Bulletin Supplement GX Bolted Bonnet Bulletin Supplement (D104811X012) for additional information.

The GX Bolted Bonnet actuator has been optimized to allow for varying ranges of supply pressure. See Table 13.

Thrust limitations apply when sizing electric actuators (see Table 14).

A mounting offering can be engineered if not already available for a selected actuator. ISO 5210 mounting is available from size DN 15 to 150 / NPS 1/2 to 6. For additional information, contact your [Emerson sales office](#).

GX Bolted Bonnet ISO 5210 Electric Actuator Mounting

Electric actuator mounting is available for any manufacturing models that comply with ISO 5210, flange type F07, F10, F12, F14. The mounting offering includes a GX Bolted Bonnet yoke, actuator rod adaptor, spacer and bolting.

NOTICE

The up travel stop must be set in the electric actuator in order to prevent damage to the valve trim.

Table 13. Fisher GX Bolted Bonnet Actuator Supply Pressure Ranges

| SUPPLY PRESSURE | RANGE | |
|-----------------|------------|----------|
| | Bar | Psig |
| Standard | 4.0 to 6.0 | 58 to 87 |
| Optional | 3.0 to 4.0 | 44 to 58 |
| Optional | 2.0 to 3.0 | 29 to 44 |

Table 14. Fisher GX Bolted Bonnet Maximum Allowable Thrust for Use with ISO 5210 Electric Actuators

| VALVE SIZE | | STEM DIAMETER | TRAVEL | BONNET STYLE | STEM MATERIAL STRENGTH ⁽¹⁾ | ISO 5210 | MAXIMUM THRUST | |
|------------|----------|---------------|-----------|-------------------|---------------------------------------|------------------|----------------|--------|
| DN | NPS | mm | mm | | | | N | lbf |
| 15 to 50 | 1/2 to 2 | 10 | 20 | Plain | High | F07, F10 and F12 | 17.000 | 3.820 |
| | | | | | Low | F07, F10 and F12 | 7.600 | 1.710 |
| | | | | Bellows/Extension | High | F07, F10 and F12 | 11.400 | 2.560 |
| | | | | | Low | F07, F10 and F12 | 6.700 | 1.510 |
| 80 and 100 | 3 and 4 | 14 | 20 and 40 | Plain | High | F07 | 20.000 | 4.500 |
| | | | | | | F10 | 40.000 | 8.990 |
| | | | | | | F12 | 44.500 | 10.000 |
| | | | | Bellows/Extension | Low | F07, F10 and F12 | 20.000 | 4.500 |
| | | | | | High | F07 | 20.000 | 4.500 |
| | | | | | | F10 and F12 | 20.400 | 4.590 |
| 150 | 6 | 19 | 40 and 60 | Plain | High | F07, F10 and F12 | 14.500 | 3.260 |
| | | | | | | F10, F12 and F14 | 36.800 | 8.270 |

1. High strength stem materials consist of S20910, N05500, S31603. Low strength stem materials consist of S31803, N10665, N06022.

Bellows Extension Bonnet

The GX Bolted Bonnet bellows extension bonnet provides reliable and tight stem sealing for those applications where emissions escaping to the environment cannot be tolerated (see Figure 16). The GX Bolted Bonnet bellows is available in SST (1.4571/316Ti) or N10276 and covers a full range of valve sizes from DN 15 through 100 / NPS 1/2 through 4 (see Tables 15 and 16).

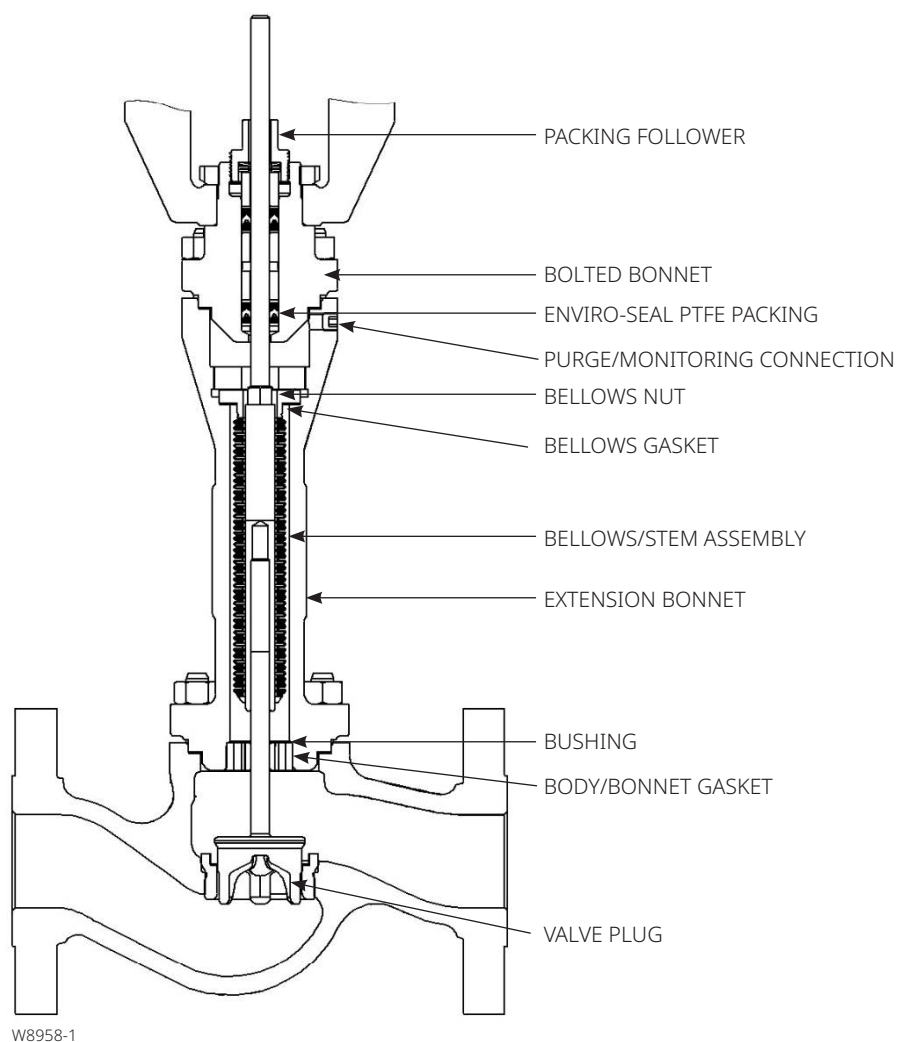
The GX Bolted Bonnet bellows system has been designed for 100,000 full-travel cycles at 51.7 barg / 750 psig and ambient temperature (20°C / 68°F) – capable of full Class 300 for all the constructions.

The mechanically-formed metal bellows provides high operating reliability and extended cycle life.

The GX Bolted Bonnet bellows design incorporates a rugged double- or triple-wall construction for added security. Each bellows is helium tested before leaving the factory.

The GX Bolted Bonnet bellows bonnet comes standard with an ENVIRO-SEAL live-loaded, PTFE packing system as a security backup. A connection is provided above the bellows to allow purging or monitoring the integrity of the replaceable bellows.

Figure 14. Fisher GX Bolted Bonnet Bellows Bonnet and Selection Process



Bellows Selection Process

Follow this process to assist in selecting the appropriate bellows for the application:

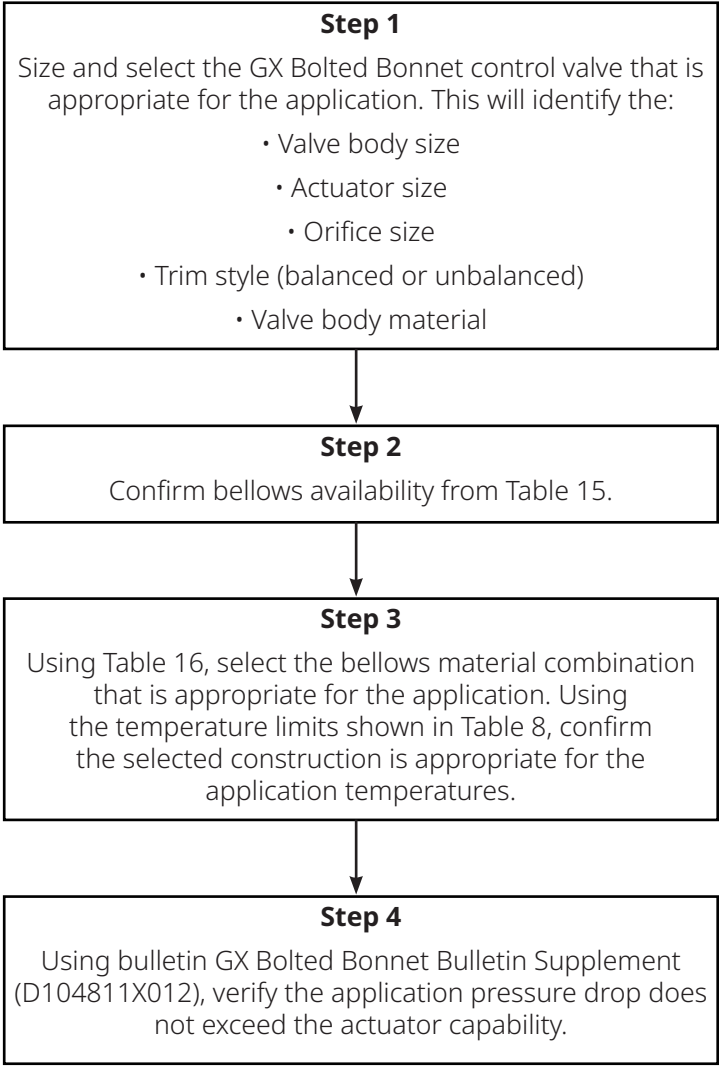


Table 15. Fisher GX Bolted Bonnet Constructions with Bellows Availability

| VALVE BODY SIZES | | PORT SIZE, mm | ACTUATOR SIZES | PLUG TRAVEL | TRIM STYLE |
|------------------|----------|---------------|----------------|-------------|------------|
| DN | NPS | | | | |
| 15 to 50 | 1/2 to 2 | 4.8 to 46 | 225 and 750 | 20 mm | Unbalanced |
| 80 | 3 | 36 to 46 | 750 | 20 mm | Unbalanced |
| | | 70 | 750 | 20 mm | Balanced |
| 100 | 4 | 46 | 750 | 20 mm | Unbalanced |
| | | 90 | 750 | 20 mm | Balanced |

Table 16. Bellows Materials of Construction

| VALVE BODY/ BONNET | BELLOWS | BELLOWS STEM EXTENSION | TRIM MATERIALS | | BOLTING | ENVIRO-SEAL PACKING | GASKETS | LOWER BUSHING | MONITORING CONNECTION PLUG |
|---|-----------------------|------------------------------|---------------------|------------------|----------------------------------|------------------------|----------------------|---------------------------------|----------------------------------|
| | | | Plug ⁽¹⁾ | Stem Material | | | | | |
| Carbon Steel (1.0619/WCC and LCC) | SST (1.4571/316Ti) | S31603 | S31603 or CF3M | S31603 | SA193-B7 with NCF2 coating | Live-loaded PTFE | Graphite laminate | S31600 with R31233 insert | S31600 |
| | N10276 | S31603 | S31603 or CF3M | S31603 | SA193-B7 with NCF2 coating | Live-loaded PTFE | Graphite laminate | S31600 with R31233 insert | S31600 |
| | N10276 | N06022 | N06022 or CW2M | N06022 | SA193-B7 with NCF2 coating | Live-loaded PTFE | Graphite laminate | N10276 with R31233 insert | N10276 |
| Stainless Steel (1.4409/CF3M) | SST (1.4571/316Ti) | S31603 | S31603 or CF3M | S31603 | S20910 | Live-loaded PTFE | Graphite laminate | S31600 with R31233 insert | S31600 |
| | N10276 | S31603 | S31603 or CF3M | S31603 | S20910 | Live-loaded PTFE | Graphite laminate | S31600 with R31233 insert | S31600 |
| | N10276 | N06022 | N06022 or CW2M | N06022 | S20910 | Live-loaded PTFE | Graphite laminate | N10276 with R31233 insert | N10276 |
| CW2M | N10276 | N06022 | N06022 or CW2M | N06022 | S20910 | Live-loaded PTFE | Graphite laminate | N10276 with R31233 insert | N10276 |

1. Plug material for the 4.8 mm port is R31233.

For bellows height dimensions, see Table 17.

Valve-Actuator Dimensions and Weights

See Figure 15 and Table 17.

Figure 15. Fisher GX Bolted Bonnet Dimensions (also see Tables 17 and 18)

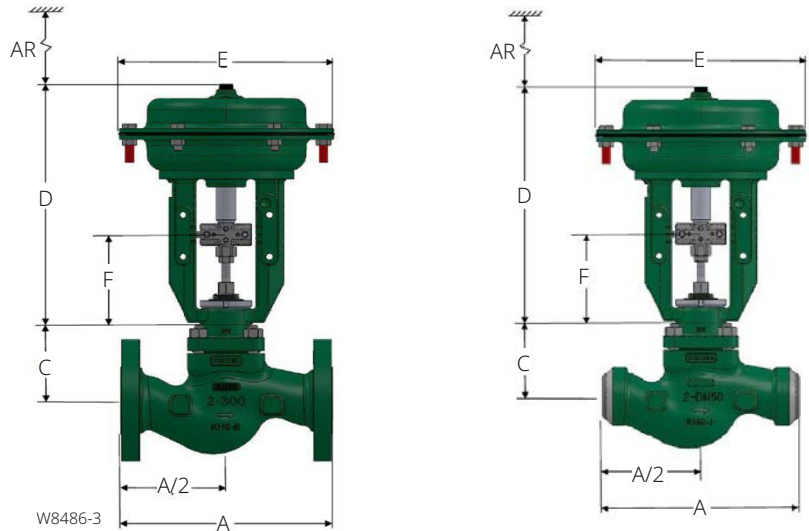


Table 17. Fisher GX Bolted Bonnet Flanged Dimensions and Weights

| VALVE SIZE | | PORT DIAMETER | ACTUATOR SIZE | A | | | C | | D ACTUATOR HEIGHT | E CASING DIAMETER | F (AR) REMOVAL HEIGHT ⁽²⁾ | TOTAL WEIGHT | |
|------------|-------|------------------|---------------|---------------------|-------|-------|-----------------|----------------------------|-------------------|-------------------|--------------------------------------|----------------------|---------------------------------|
| | | | | PN10/16 and PN25/40 | CL150 | CL300 | Standard Bonnet | Extended or Bellows Bonnet | | | | With Standard Bonnet | With Extended or Bellows Bonnet |
| DN | NPS | mm | | mm | mm | mm | mm | mm | mm | mm | mm | kg | kg |
| 15 | 1/2 | 4.8, 9.5 | 225 | 130 | 184 | 190 | 101 | 341 | 330 | 270 | 125 | 22 | 26 |
| 20 | 3/4 | 4.8, 9.5, 14 | 225 | 150 | 184 | 194 | 101 | 341 | 330 | 270 | 125 | 23 | 27 |
| 25 | 1 | 4.8, 9.5, 14, 22 | 225 | 160 | 184 | 197 | 93 | 333 | 330 | 270 | 125 | 23 | 27 |
| 40 | 1-1/2 | 14, 22, 36 | 225 | 200 | 222 | 235 | 97 | 337 | 330 | 270 | 125 | 26 | 30 |
| | | 36 | 750 | 200 | 222 | 235 | 97 | 337 | 358 | 430 | 125 | 53 | 57 |
| 50 | 2 | 22, 36, 46 | 225 | 230 | 254 | 267 | 103 | 343 | 330 | 270 | 125 | 30 | 34 |
| | | 36, 46 | 750 | 230 | 254 | 267 | 103 | 343 | 358 | 430 | 125 | 57 | 61 |
| 80 | 3 | 36, 46 | 750 | 310 | 298 | 318 | 158 | 428 | 393 | 430 | 135 | 75 | 84 |
| | | 70 balanced | 750 | 310 | 298 | 318 | 158 | 428 ⁽¹⁾ | 393 | 430 | 135 | 77 | 86 |
| | | 70 unbalanced | 750 | 310 | 298 | 318 | 158 | 428 | 414 | 430 | 135 | 79 | 88 |

- continued -

Table 17. Fisher GX Bolted Bonnet Flanged Dimensions and Weights (continued)

| VALVE SIZE | | PORT DIAMETER | ACTUATOR SIZE | A | | | C | | D ACTUATOR HEIGHT | E CASING DIAMETER | F (AR) REMOVAL HEIGHT ⁽²⁾ | TOTAL WEIGHT | |
|------------|-----|----------------|---------------|---------------------|-------|-------|-----------------|----------------------------|-------------------|-------------------|--------------------------------------|----------------------|---------------------------------|
| | | | | PN10/16 and PN25/40 | CL150 | CL300 | Standard Bonnet | Extended or Bellows Bonnet | | | | With Standard Bonnet | With Extended or Bellows Bonnet |
| DN | NPS | mm | | mm | mm | mm | mm | mm | mm | mm | mm | kg | kg |
| 100 | 4 | 46 | 750 | 350 | 352 | 368 | 173 | 448 | 393 | 430 | 135 | 93 | 105 |
| | | 70 | 750 | 350 | 352 | 368 | 173 | 448 | 414 | 430 | 135 | 96 | 107 |
| | | 90 balanced | 750 | 350 | 352 | 368 | 173 | 448 ⁽¹⁾ | 393 | 430 | 135 | 101 | 111 |
| | | 90 unbalanced | 750 | 350 | 352 | 368 | 173 | 448 | 414 | 430 | 135 | 96 | 107 |
| 150 | 6 | 90 | 1200 | 480 | 451 | 473 | 257 | --- | 542 | 566 | 155 | 239 | --- |
| | | 136 unbalanced | 1200 | 480 | 451 | 473 | 257 | --- | 542 | 566 | 135 | 239 | --- |
| | | 136 balanced | 1200 | 480 | 451 | 473 | 268 | --- | 542 | 566 | 135 | 251 | --- |
| | | 136 Whisper | 1200 | 480 | 451 | 473 | 289 | --- | 542 | 566 | 135 | 251 | --- |

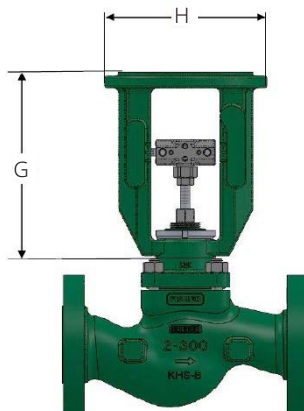
1. Bellows bonnets are available for these constructions. However, extension bonnets are not available with balanced trim due to the temperature limitation of the trim seals.
2. Clearance required for removing the actuator from the installed valve body.

Table 18. Fisher GX Bolted Bonnet BWE, SWE and NPT Dimensions and Weights

| VALVE SIZE | | PORT DIAMETER | ACTUATOR SIZE | A | | | | C | | D ACTUATOR HEIGHT | E CASING DIAMETER | F (AR) REMOVAL HEIGHT ⁽²⁾ | TOTAL WEIGHT | |
|---------------|-------|------------------|------------------|-------|-----|-------------|-----------|--------------------|----------------------------------|-------------------------|-------------------------|--|----------------------------|---|
| | | | | CL300 | | | PN40 | Standard Bonnet | Extended or Bellows Bonnet | | | | With Standard Bonnet | With Extended or Bellows Bonnet |
| | | | | NPT | SWE | ASME BWE | EN BWE | | | | | | | |
| DN | NPS | mm | | mm | mm | mm | mm | mm | mm | mm | mm | kg | kg | |
| 15 | 1/2 | 4.8, 9.5 | 225 | 165 | 170 | 187 | 130 | 101 | 341 | 330 | 270 | 125 | 22 | 26 |
| 20 | 3/4 | 4.8, 9.5, 14 | 225 | 165 | 170 | 187 | 150 | 101 | 341 | 330 | 270 | 125 | 22 | 26 |
| 25 | 1 | 4.8, 9.5, 14, 22 | 225 | 197 | 197 | 187 | 160 | 93 | 333 | 330 | 270 | 125 | 23 | 27 |
| 40 | 1-1/2 | 14, 22, 36 | 225 | 235 | 235 | 222 | 200 | 97 | 337 | 330 | 270 | 125 | 25 | 29 |
| | | 36 | 750 | 235 | 235 | 222 | 200 | 97 | 337 | 358 | 430 | 125 | 52 | 56 |
| 50 | 2 | 22, 36, 46 | 225 | 267 | 267 | 254 | 230 | 103 | 343 | 330 | 270 | 125 | 28 | 32 |
| | | 36, 46 | 750 | 267 | 267 | 254 | 230 | 103 | 343 | 358 | 430 | 125 | 55 | 59 |
| 80 | 3 | 36, 46 | 750 | --- | --- | 318 | 310 | 158 | 428 | 393 | 430 | 135 | 70 | 79 |
| | | 70 balanced | 750 | --- | --- | 318 | 310 | 158 | 428 ⁽¹⁾ | 393 | 430 | 135 | 72 | 81 |
| | | 70 unbalanced | 750 | --- | --- | 318 | 310 | 158 | 428 | 414 | 430 | 135 | 74 | 83 |

- continued -

Figure 16. Fisher GX Bolted Bonnet Electric Actuator Mounting Dimensions (also see Table 19)



GX BOLTED BONNET ELECTRIC ACTUATOR MOUNTING

Table 18. Fisher GX Bolted Bonnet BWE, SWE and NPT Dimensions and Weights (continued)

| VALVE SIZE | | PORT DIAMETER | ACTUATOR SIZE | A | | | | C | | D ACTUATOR HEIGHT | E CASING DIAMETER | F (AR) REMOVAL HEIGHT ⁽²⁾ | TOTAL WEIGHT | |
|---------------|-----|-------------------|------------------|-------|-----|-------------|-----------|--------------------|----------------------------------|-------------------------|-------------------------|--|----------------------------|---|
| | | | | CL300 | | | PN40 | Standard Bonnet | Extended or Bellows Bonnet | | | | With Standard Bonnet | With Extended or Bellows Bonnet |
| | | | | NPT | SWE | ASME BWE | EN BWE | | | | | | | |
| DN | NPS | mm | | mm | mm | mm | mm | mm | mm | mm | mm | kg | kg | |
| 100 | 4 | 46 | 750 | --- | --- | 368 | 350 | 173 | 448 | 393 | 430 | 135 | 85 | 97 |
| | | 70 | 750 | --- | --- | 368 | 350 | 173 | 448 | 414 | 430 | 135 | 88 | 99 |
| | | 90 balanced | 750 | --- | --- | 368 | 350 | 173 | 448 ⁽¹⁾ | 393 | 430 | 135 | 93 | 103 |
| | | 90 unbalanced | 750 | --- | --- | 368 | 350 | 173 | 448 | 414 | 430 | 135 | 88 | 99 |
| 150 | 6 | 90 | 1200 | --- | --- | 451 | 480 | 257 | --- | 542 | 566 | 155 | 214 | --- |
| | | 136 unbalanced | 1200 | --- | --- | 451 | 480 | 257 | --- | 542 | 566 | 135 | 214 | --- |
| | | 136 balanced | 1200 | --- | --- | 451 | 480 | 268 | --- | 542 | 566 | 135 | 226 | --- |
| | | 136 Whisper | 1200 | --- | --- | 451 | 480 | 289 | --- | 542 | 566 | 135 | 226 | --- |

1. Bellows bonnets are available for these constructions. However, extension bonnets are not available with balanced trim due to the temperature limitation of the trim seals.

2. Clearance required for removing the actuator from the installed valve body.

Table 19. Fisher GX Bolted Bonnet Electric Actuator Mounting Dimensions and Weights

| VALVE SIZE | | PORT DIAMETER | ISO 5210 | G YOKE HEIGHT | H FLANGE DIAMETER | TOTAL WEIGHT | | | |
|------------|-------|-----------------------|---------------|---------------|-------------------|----------------------|---------------------------------|----------------------|---------------------------------|
| | | | | | | Flanged | | SWE, BWE, NPT | |
| | | | | | | With Standard Bonnet | With Extended or Bellows Bonnet | With Standard Bonnet | With Extended or Bellows Bonnet |
| DN | NPS | mm | | mm | mm | kg | kg | kg | kg |
| 15 | 1/2 | 4.8, 9.5 | F07, F10 | 218 | 176 | 13 | 17 | 13 | 17 |
| 20 | 3/4 | 4.8, 9.5, 14 | F07, F10 | 218 | 176 | 14 | 18 | 13 | 17 |
| 25 | 1 | 4.8, 9.5, 14, 22 | F07, F10 | 218 | 176 | 14 | 18 | 14 | 18 |
| 40 | 1-1/2 | 14, 22, 36 | F07, F10, F12 | 218 | 176 | 17 | 21 | 16 | 20 |
| 50 | 2 | 22, 36, 46 | F07, F10, F12 | 218 | 176 | 21 | 25 | 19 | 23 |
| 80 | 3 | 36, 46, 70 unbalanced | F07, F10, F12 | 251 | 176 | 48 | 57 | 43 | 52 |
| | | 70 balanced | F07, F10, F12 | 251 | 176 | 49 | 58 | 44 | 53 |
| 100 | 4 | 46, 70, 90 unbalanced | F07, F10, F12 | 251 | 176 | 65 | 79 | 57 | 71 |
| | | 90 balanced | F07, F10, F12 | 251 | 176 | 66 | 80 | 58 | 72 |
| 150 | 6 | 90, 136 unbalanced | F10, F12, F14 | 303 | 180 | 141 | --- | 116 | --- |
| | | 136 balanced | F10, F12, F14 | 303 | 180 | 154 | --- | 129 | --- |
| | | 136 Whisper | F10, F12, F14 | 303 | 180 | 154 | --- | 129 | --- |

Manual Handwheels

The GX Bolted Bonnet is available with an optional, side-mounted manual handwheel (see Figure 17). These handwheels provide a robust method of manually operating the valve in an emergency or upon loss of instrument air.

The GX Bolted Bonnet handwheel will stroke the valve up to 20 mm travel and is available on the size 225 and 750 actuators. Dimensions are provided in Figure 17 and Table 20.

When mounted to a fail-up actuator, rotating the handwheel clockwise moves the stem downward. When mounted to a fail-down actuator, turning the handwheel in the clockwise direction causes the stem to move upward. Disengagement of the handwheel to allow automatic operation is accomplished by turning the handwheel in the counterclockwise direction.

Figure 17. Fisher GX Bolted Bonnet with Handwheel Dimensions (also see Table 20)

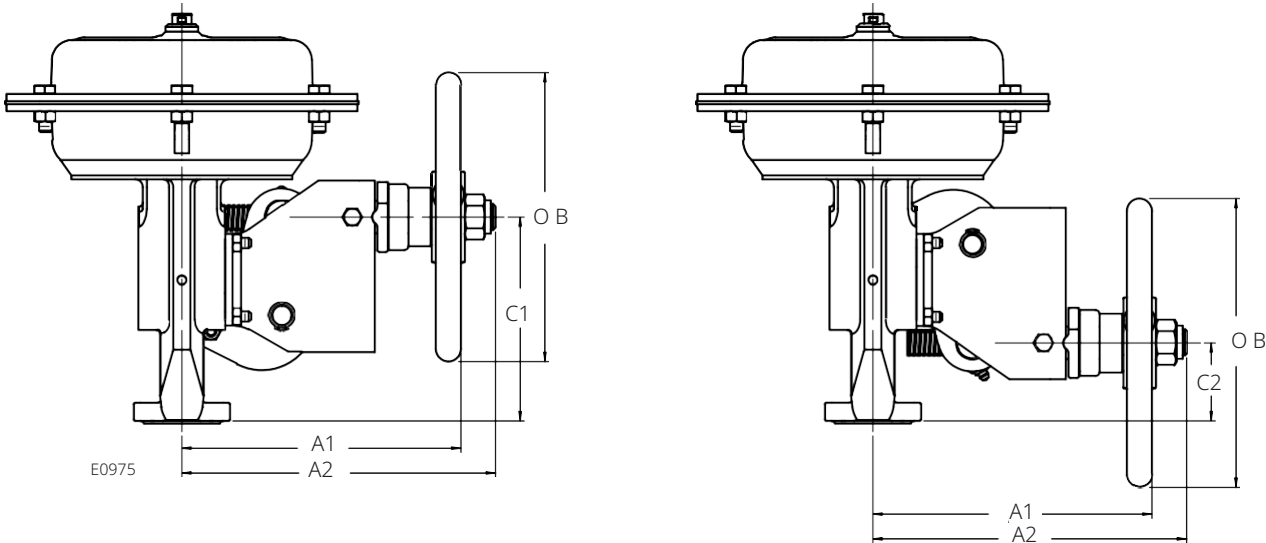




Table 20. Fisher GX Bolted Bonnet Handwheel Dimensions and Weights

| VALVE SIZE | | ACTUATOR SIZE | TRAVEL | A1 | A2 | B | C1 ⁽¹⁾ | C2 ⁽²⁾ | HANDWHEEL WEIGHT |
|--|-------------|---------------|-----------|-----|-----|-----|-------------------|-------------------|------------------|
| DN | NPS | | mm | mm | mm | mm | mm | mm | kg |
| 15 to 25 | 1/2 to 1 | 225 | 20 | 215 | 242 | 223 | 170 | 73 | 5.6 |
| 40 and 50 | 1-1/2 and 2 | 225 | 20 | 215 | 242 | 223 | 170 | 73 | 5.6 |
| | | 750 | 20 | 293 | 317 | 356 | 170 | 73 | 12.2 |
| 80 and 100 | 3 and 4 | 750 | 20 | 293 | 317 | 356 | 184 | 87 | 12.2 |
| | | | 40 | --- | --- | --- | --- | --- | --- |
| 150 | 6 | 1200 | 40 and 60 | --- | --- | --- | --- | --- | --- |
| 1. C1 is fail-down. 2. C2 is fail-up. | | | | | | | | | |

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