

Fisher™ GX Bolted Bonnet Control Valve and Actuator System



Fisher GX Bolted Bonnet Control Valve and Actuator System

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

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

Features

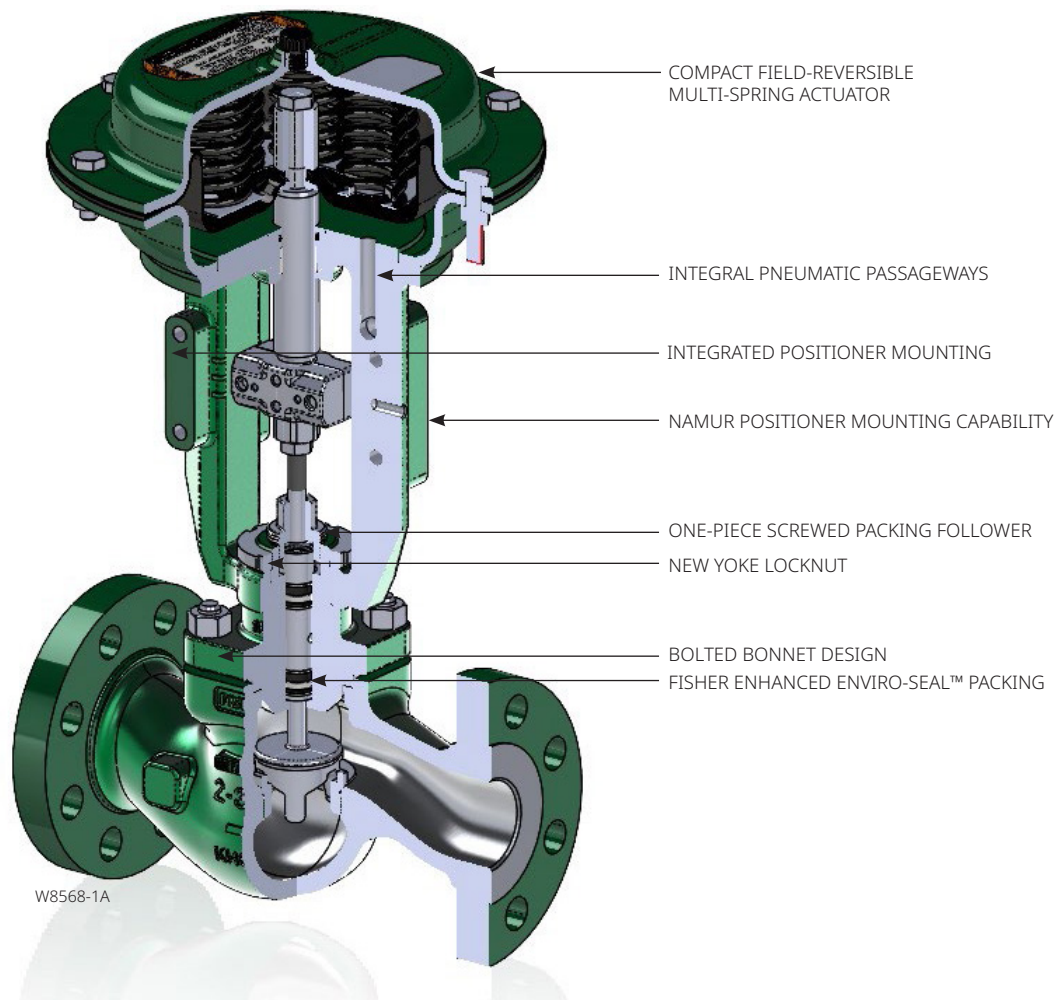
- Compact and robust bolted bonnet design
 - Easy to size and select
 - No actuator sizing required – selection is automatic
 - Optimized actuator allows for a wide range of air supply
 - Engineered for easy maintenance
 - Maximum part commonality across sizes
 - Replaceable trim
 - Low lifetime costs
 - Robust, low-profile design
 - Compact multi-spring pneumatic actuator
 - Available with integrated, easy-to-calibrate Fisher FIELDVUE 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)
 - Extended-travel metal bellows seal enabling full valve capacity
 - ISO 5210 F07, F10, F12, F14 mounting available for use with electric actuators

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



W8861-2

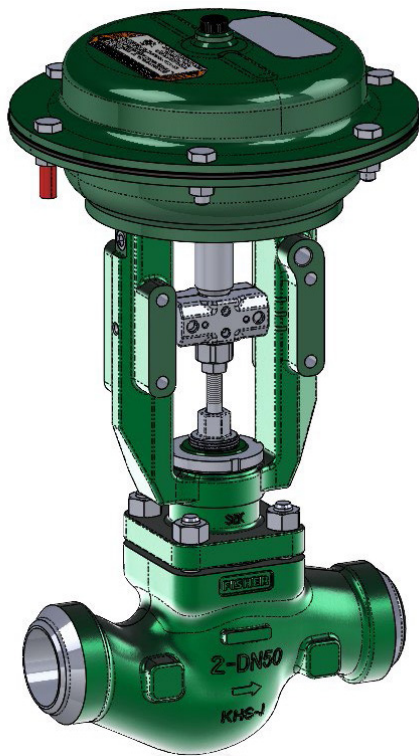
Figure 2. Fisher GX Bolted Bonnet Control Valve Assembly with Port-Guided Contoured Plug (Port Sizes 36 to 136 mm)



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 Fisher GX Bolted Bonnet provides high performance control across a wide range of process applications.

Compact actuator design — The Fisher GX Bolted Bonnet utilizes a compact, multi-spring actuator. The Fisher 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 Fisher enhanced 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 — Fisher enhanced ENVIRO-SEAL packing systems provide reliable low-emission sealing to help prevent the loss of valuable or hazardous process fluids. The Fisher GX Bolted Bonnet is available with enhanced ENVIRO-SEAL PTFE packing. For certified fugitive emission compliance per ISO 15848-1, optional solutions include enhanced ENVIRO-SEAL IS (ISO-Seal) PTFE, Class BH-CC3 up to 232°C / 450°F, and enhanced ENVIRO-SEAL Graphite ULF, Class CH-CC3 up to 371°C / 700°F, both available through CL300.

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 Fisher FIELDVUE 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

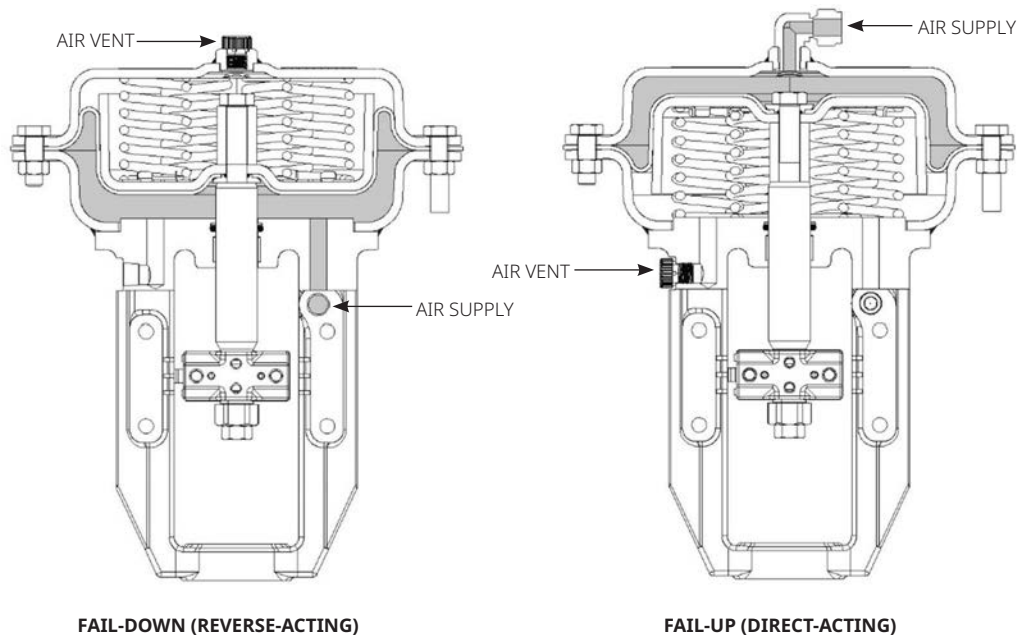
Long life — Alloy valve constructions and hardened trim materials are available in the GX Bolted Bonnet to increase valve body, bonnet and trim life.

High-temperature extension bonnet — Designed for elevated temperature service, maintaining packing performance and valve integrity.

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 Fisher 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 Fisher 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 — Fisher FIELDVUE digital valve controllers integrally mount to the Fisher GX Bolted Bonnet actuator, eliminating the need for mounting brackets. The Fisher FIELDVUE digital valve controller 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 — Fisher FIELDVUE 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 Fisher GX Bolted Bonnet is available with a variety of digital or analog positioners besides the Fisher FIELDVUE digital valve controller, 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 Fisher FIELDVUE digital valve controller, the Fisher 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)

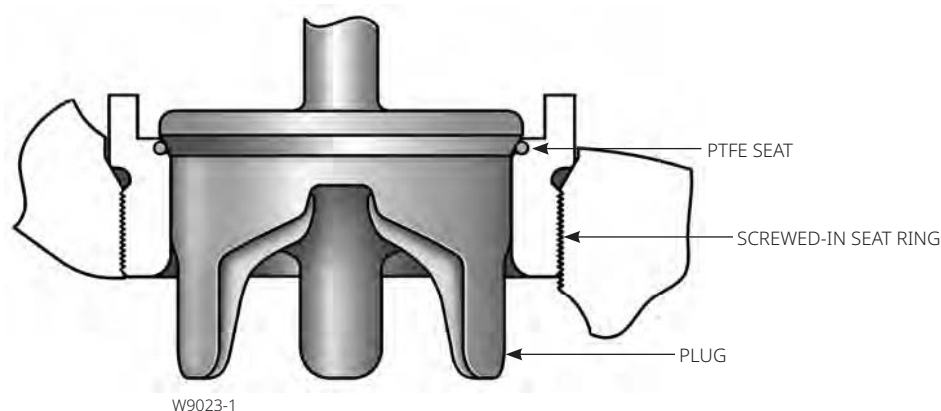


Figure 7. Fisher GX Bolted Bonnet Control Valve with Port-Guided Plug (DN 40 to 150 and NPS 1-1/2 to 6, Port Sizes of 36 to 136 mm)

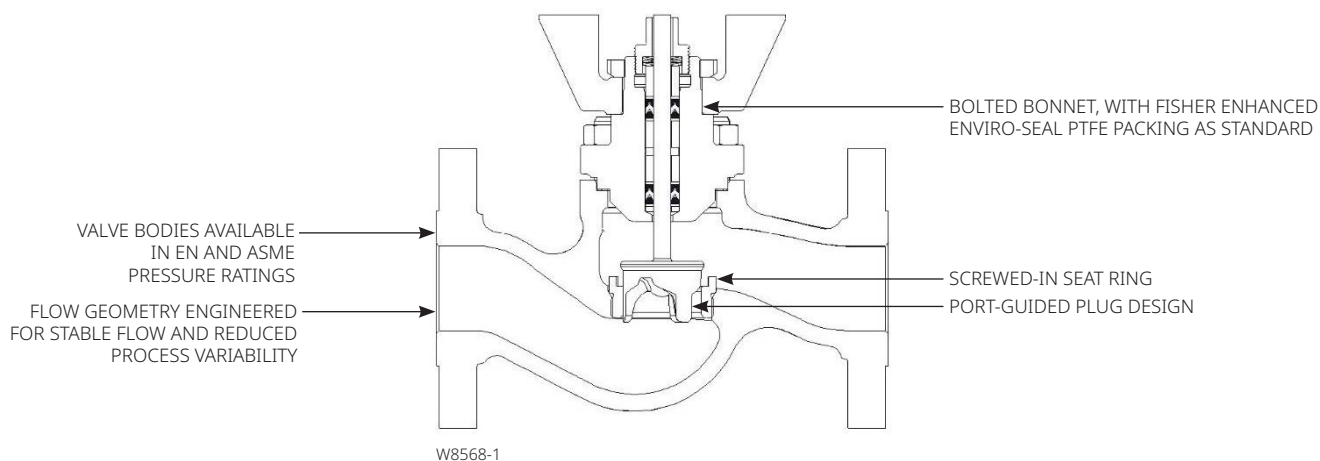


Figure 8. Fisher GX Bolted Bonnet Control Valve with Balanced Trim (DN 80 to 150 and NPS 3 to 6, Port Sizes of 70, 90 and 136 mm Only)

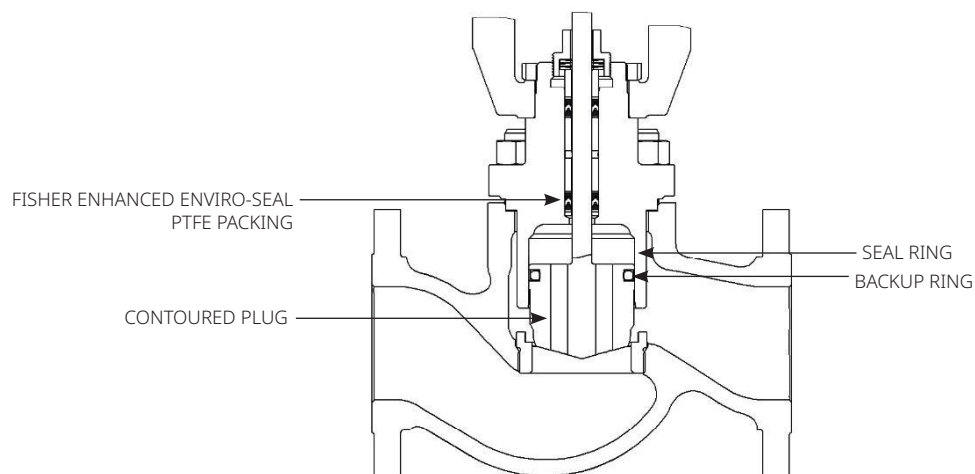
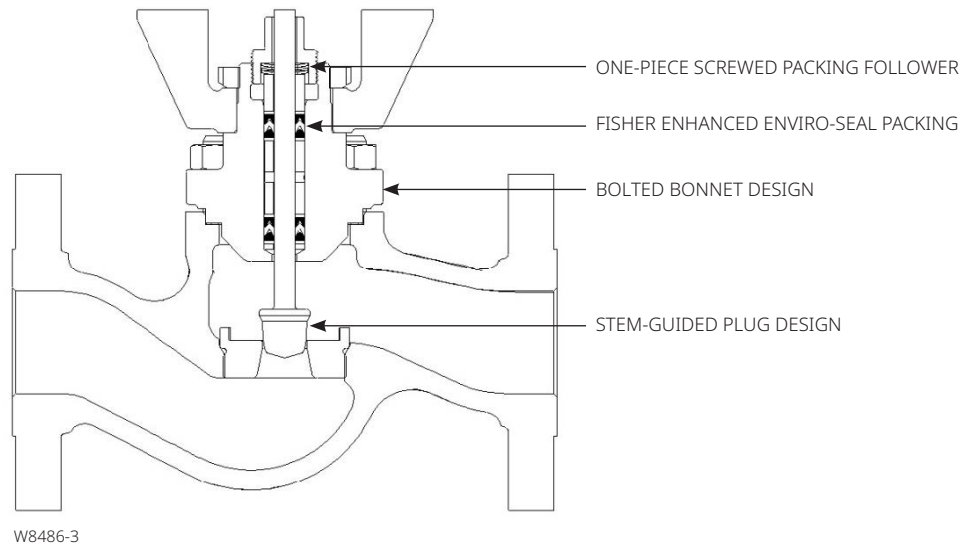


Figure 9. Fisher GX Bolted Bonnet Control Valve Assembly with Stem-Guided Contoured Plug (Size DN 25 and NPS 1)



Fisher GX Bolted Bonnet Control Valve

The Fisher 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 Fisher 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 Table 1 and Table 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 (Fisher 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 Fisher 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	Fisher enhanced ENVIRO-SEAL PTFE V-ring with N07718 Belleville springs – standard	
	Fisher enhanced ENVIRO-SEAL Graphite ULF with N07718 Belleville springs – optional	
	Fisher enhanced ENVIRO-SEAL IS (ISO-Seal) PTFE 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	
	Fisher enhanced 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/ Fisher 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)
	Fisher 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/ Fisher 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)
	Fisher 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. Fisher 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 7. 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/ Fisher 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/ Fisher 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 Fisher Whisper Trim III in DN 150 / NPS 6 136 mm port diameter only.
5. Environmental restrictions may apply.

Table 6. 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		
100	4	70		40
		46		20
		70		40
		90 - balanced		20
		90		40
150	6	90		40
		136	19	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 ⁽³⁾	232	-20	450
	Extension		Graphite laminate	Metal-to-metal; hard-faced	-29 ⁽³⁾	427	-20	800
	Bellows		Graphite laminate or PTFE/N10276	Metal-to-metal; hard-faced; soft seat	-29 ⁽³⁾	232	-20	450
			Graphite laminate	Metal-to-metal; hard-faced; PTFE bushing	-29 ⁽³⁾	427	-50	800
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	427	-50	800
	Cryogenic Extension		Graphite laminate	Metal-to-metal; hard-faced	⁽²⁾	427	⁽²⁾	800
	Bellows		Graphite laminate or PTFE/N10276	Metal-to-metal; hard-faced; soft seat	-46	232	-50	450
			Graphite laminate	Metal-to-metal; hard-faced; PTFE bushing	-46	427	-50	800
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; PTFE bushing	-46	232	-50	450
	Extension		Graphite laminate	Metal-to-metal; hard-faced	-46	343	-50	650
	Bellows		Graphite laminate or PTFE/N10276	Metal-to-metal; hard-faced; soft seat	-46	232	-50	450
			Graphite laminate	Metal-to-metal; hard-faced; PTFE bushing	-46	343	-50	650
CN3MCu/CN7M	Standard	PTFE or Graphite ULF	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. In case of PED for EU, minimum temperature is limited to -10°C / 14°F.

Figure 10. Fisher GX Bolted Bonnet Packings

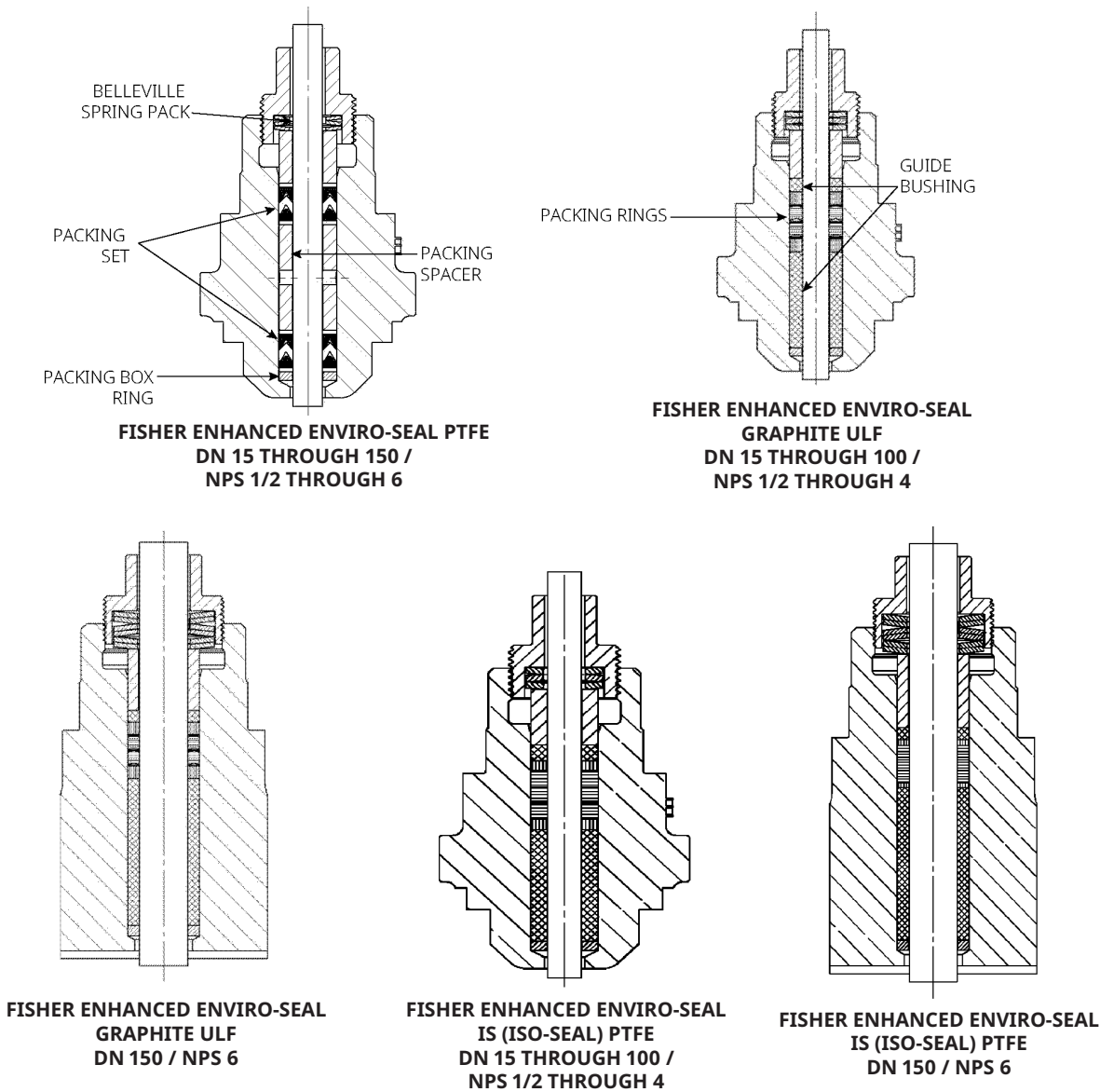


Figure 11. Fisher GX Bolted Bonnet with Fisher Cavitrol III Trim

X0112

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

Fisher 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 Fisher Cavitrol III Trim

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

Figure 12. Fisher GX Bolted Bonnet with Fisher Whisper Trim III

X0336

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

Fisher 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

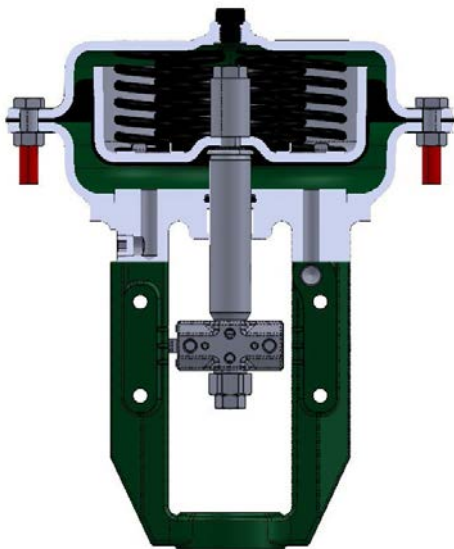
Table 10. Materials of Construction for Fisher Whisper Trim III⁽¹⁾

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

The Fisher GX Bolted Bonnet is available with the integrated Fisher 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 Fisher 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 Fisher 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 Fisher 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 Fisher 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](#).

Fisher 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 Fisher 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	40.600	9.130	
				Bellows/Extension	High	Low	F07, F10 and F12	18.300	4.110
						F07	20.000	4.500	
							F10 and F12	20.400	4.590
150	6	19	40 and 60	High	Low	F07, F10 and F12	14.500	3.260	
					F10	40.000	8.990		
						F12 and F14	40.600	9.130	
				Bellows/Extension		F10, F12 and F14	20.400	4.590	
1. High strength stem materials consist of S20910, N05500, S31603. Low strength stem materials consist of S31803, N10665, N06022.									

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

Bellows Extension Bonnet

The Fisher 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 150 / NPS 1/2 through 6 (see Tables 15 and 16).

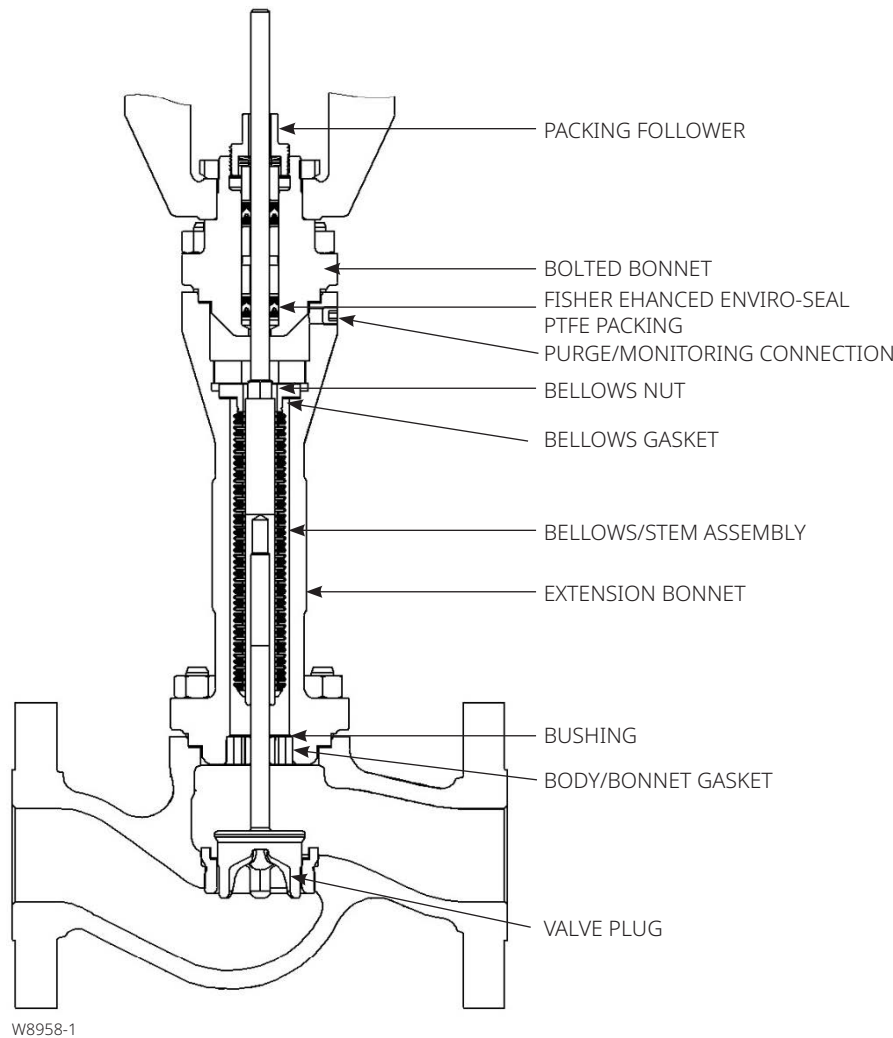
The Fisher GX Bolted Bonnet bellows system is capable of full Class 300 for all constructions.

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

The Fisher 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 Fisher GX Bolted Bonnet bellows bonnet comes standard with a Fisher enhanced 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 Cycle Life

Bellows service life is affected by several factors, including process pressure, temperature, and plug travel. Tables 15, 16, 17 and 18 provide estimates of cycle life for several cases.

Table 15. Estimated Cycle Life at 51.7 bar (750 psi) and 20°C (68°F)

VALVE SIZE		STEM SIZE, mm	VALVE TRAVEL	BELLOWS MATERIAL	PLYS	BELLOWS PRESSURE	BELLOWS TEMP	ESTIMATED CYCLE LIFE 100% STROKE	ESTIMATED CYCLE LIFE 50% STROKE (25-75%)
DN	NPS								
15 to 50	1/2 to 2	10	20mm	1.4571 (316Ti)	3	51.7 bar (750 psi)	20°C (68°F)	100,000	800,000
				2.4819 (C276)	3			100,000	800,000
80 to 100	3 to 4	14	20mm	1.4571 (316Ti)	3			100,000	>1,000,000
				2.4819 (C276)	2			100,000	300,000
			40mm	1.4571 (316Ti)	3			20,000	250,000
				2.4819 (C276)	2			20,000	100,000
150	6	19	40mm	1.4571 (316Ti)	3			100,000	800,000
				2.4819 (C276)	3			100,000	800,000
			60mm	1.4571 (316Ti)	3			20,000	250,000
				2.4819 (C276)	3			20,000	250,000

Table 16. Estimated Cycle Life at 10.3 bar (150 psi) and 20°C (68°F)

VALVE SIZE		STEM SIZE, mm	VALVE TRAVEL	BELLOWS MATERIAL	PLYS	BELLOWS PRESSURE	PROCESS TEMP	ESTIMATED CYCLE LIFE 50% STROKE (25-75%)
DN	NPS							
15 to 50	1/2 to 2	10mm	20mm	1.4571 (316Ti)	3	10.3 bar (150 psi)	20°C (68°F)	>1,000,000
				2.4819 (C276)	3			
80 to 100	3 to 4	14mm	20mm	1.4571 (316Ti)	3			
				2.4819 (C276)	2			
			40mm	1.4571 (316Ti)	3			
				2.4819 (C276)	2			
150	6	19mm	40mm	1.4571 (316Ti)	3			
				2.4819 (C276)	3			
			60mm	1.4571 (316Ti)	3			
				2.4819 (C276)	3			

Table 17. Estimated Cycle Life at 47.2 bar (685 psi) and 232°C (450°F)

VALVE SIZE		STEM SIZE, mm	VALVE TRAVEL	BELLOWS MATERIAL	PLYS	BELLOWS PRESSURE	PROCESS TEMP	ESTIMATED CYCLE LIFE 50% STROKE (25-75%)
DN	NPS							
15 to 50	1/2 to 2	10mm	20mm	1.4571 (316Ti)	3	47.2 bar (685 psi)	232°C (450°F)	>1,000,000
				2.4819 (C276)	3			>1,000,000
80 to 100	3 to 4	14mm	20mm	1.4571 (316Ti)	3			>1,000,000
				2.4819 (C276)	2			450,000
			40mm	1.4571 (316Ti)	3			300,000
				2.4819 (C276)	2			100,000
150	6	19mm	40mm	1.4571 (316Ti)	3			>1,000,000
				2.4819 (C276)	3			>1,000,000
			60mm	1.4571 (316Ti)	3			300,000
				2.4819 (C276)	3			300,000

Table 18. Estimated Cycle Life at 28.3 bar (410 psi) and 427°C (800°F)

VALVE SIZE		STEM SIZE, mm	VALVE TRAVEL	BELLOWS MATERIAL	PLYS	BELLOWS PRESSURE	PROCESS TEMP	ESTIMATED CYCLE LIFE 50% STROKE (25-75%)
DN	NPS							
15 to 50	1/2 to 2	10mm	20mm	1.4571 (316Ti)	3	28.3 bar (410 psi)	427°C (800°F)	>1,000,000
				2.4819 (C276)	3			>1,000,000
80 to 100	3 to 4	14mm	20mm	1.4571 (316Ti)	3			>1,000,000
				2.4819 (C276)	2			>1,000,000
			40mm	1.4571 (316Ti)	3			>1,000,000
				2.4819 (C276)	2			500,000
150	6	19mm	40mm	1.4571 (316Ti)	3			>1,000,000
				2.4819 (C276)	3			>1,000,000
			60mm	1.4571 (316Ti)	3			>1,000,000
				2.4819 (C276)	3			>1,000,000

Table 19. Bellows Materials of Construction

VALVE BODY/ BONNET	BELLOWS	BELLOWS STEM EXTENSION	TRIM MATERIALS		BOLTING	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 coat- ing	S31600 with R31233 or PTFE insert	S31600
	N10276	S31603	S31603 or CF3M	S31603	SA193-B7 with NCF2 coat- ing	S31600 with R31233 PTFE insert	S31600
	N10276	N06022 ⁽²⁾	N06022 ⁽²⁾ or CW2M	N06022 ⁽²⁾	SA193-B7 with NCF2 coat- ing	N10276 with R31233 PTFE insert	N10276
Stainless Steel (1.4409/CF3M)	SST (1.4571/316Ti)	S31603	S31603 or CF3M	S31603	S20910	S31600 with R31233 PTFE insert	S31600
	N10276	S31603	S31603 or CF3M	S31603	S20910	S31600 with R31233 PTFE insert	S31600
	N10276	N06022 ⁽²⁾	N06022 ⁽²⁾ or CW2M	N06022 ⁽²⁾	S20910	N10276 with R31233 PTFE insert	N10276 ⁽²⁾
CW2M	N10276	N06022 ⁽²⁾	N06022 ⁽²⁾ or CW2M	N06022 ⁽²⁾	S20910	N10276 with R31233 PTFE insert	N10276 ⁽²⁾
1. Plug material for the 4.8 mm port is R31233. 2. Not available for DN 150/NPS 6.							

For bellows height dimensions, see Table 20.

Valve-Actuator Dimensions and Weights

See Figure 15 and Table 20.

Figure 15. Fisher GX Bolted Bonnet Dimensions (also see Table 20 and Table 21)

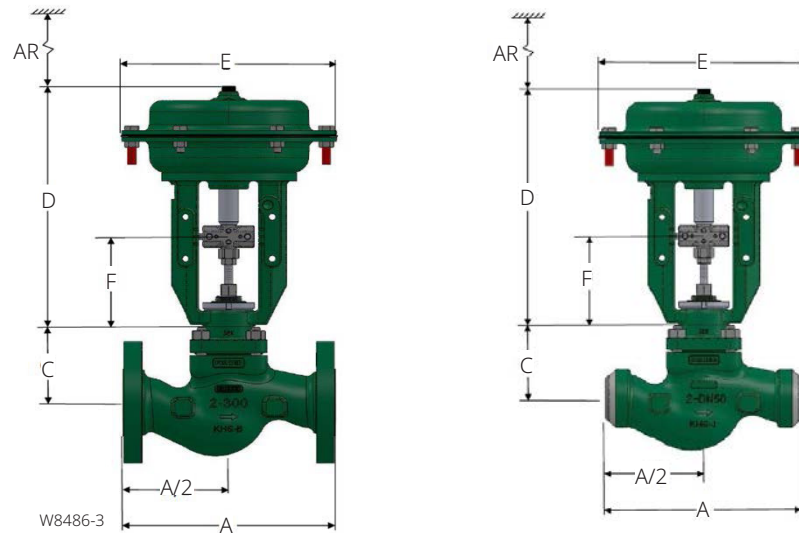


Table 20. Fisher GX Bolted Bonnet Flanged Dimensions and Weights

VALVE SIZE		PORT DIAMETER	ACTUATOR SIZE	A			C			D ACTUATOR HEIGHT	E CASING DIAMETER	F (AR) REMOVAL HEIGHT ⁽¹⁾	TOTAL WEIGHT	
				PN10/16 and PN25/40	CL150	CL300	Standard Bonnet	Extension Bonnet	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	341	330	270	125	22	26
20	3/4	4.8, 9.5, 14	225	150	184	194	101	341	341	330	270	125	23	27
25	1	4.8, 9.5, 14, 22	225	160	184	197	93	333	333	330	270	125	23	27
40	1-1/2	14, 22, 36	225	200	222	235	97	337	337	330	270	125	26	30
		36	750	200	222	235	97	337	337	358	430	125	53	57
50	2	22, 36, 46	225	230	254	267	103	343	343	330	270	125	30	34
		36, 46	750	230	254	267	103	343	343	358	430	125	57	61
80	3	36, 46	750	310	298	318	158	428	428	393	430	135	75	84
		70 balanced	750	310	298	318	158	---	428	393	430	135	77	86
		70 unbalanced	750	310	298	318	158	428	464	414	430	135	79	88

- continued -

Table 20. Fisher GX Bolted Bonnet Flanged Dimensions and Weights (continued)

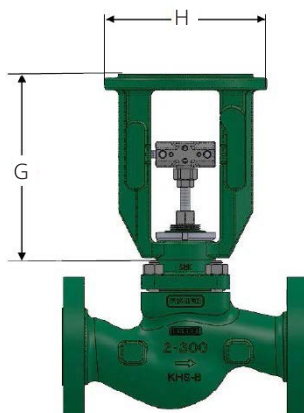
VALVE SIZE		PORT DIAMETER	ACTUATOR SIZE	A			C			D ACTUATOR HEIGHT	E CASING DIAMETER	F (AR) REMOVAL HEIGHT ⁽¹⁾	TOTAL WEIGHT	
				PN10/16 and PN25/40	CL150	CL300	Standard Bonnet	Extension Bonnet	Bellows Bonnet				With Standard Bonnet	With Extended or Bellows Bonnet
DN	NPS	mm		mm	mm	mm	mm		mm	mm	mm	mm	kg	kg
100	4	46	750	350	352	368	173	448	448	393	430	135	93	105
		70	750	350	352	368	173	448	448	414	430	135	96	107
		90 balanced	750	350	352	368	173	---	448	393	430	135	101	111
		90 unbalanced	750	350	352	368	173	448	448	414	430	135	96	107
150	6	90	1200	480	451	473	257	675	675	542	566	155	239	264
		136 unbalanced	1200	480	451	473	257	675	675	542	566	135	239	264
		136 balanced	1200	480	451	473	268	686	686	542	566	135	251	276
		136 Whisper	1200	480	451	473	289	707	707	542	566	135	251	276
1. Clearance required for removing the actuator from the installed valve body.														

Table 21. 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	Extension Bonnet	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	341	330	270	125	22	26	
20	3/4	4.8, 9.5, 14	225	165	170	187	150	101	341	341	330	270	125	22	26	
25	1	4.8, 9.5, 14, 22	225	197	197	187	160	93	333	333	330	270	125	23	27	
40	1-1/2	14, 22, 36	225	235	235	222	200	97	337	337	330	270	125	25	29	
		36	750	235	235	222	200	97	337	337	358	430	125	52	56	
50	2	22, 36, 46	225	267	267	254	230	103	343	343	330	270	125	28	32	
		36, 46	750	267	267	254	230	103	343	343	358	430	125	55	59	
80	3	36, 46	750	---	---	318	310	158	428	428	393	430	135	70	79	
		70 balanced	750	---	---	318	310	158	---	428	393	430	135	72	81	
		70 unbalanced	750	---	---	318	310	158	428	464	414	430	135	74	83	

- continued -

Figure 16. Fisher GX Bolted Bonnet Electric Actuator Mounting Dimensions (also see Table 21)



FISHER GX BOLTED BONNET ELECTRIC ACTUATOR MOUNTING

Table 21. 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	Extension Bonnet	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	mm	kg	kg
100	4	46	750	---	---	368	350	173	448	448	393	430	135	85	97
		70	750	---	---	368	350	173	448	448	414	430	135	88	99
		90 balanced	750	---	---	368	350	173	---	448	393	430	135	93	103
		90 unbalanced	750	---	---	368	350	173	---	484	414	430	135	88	99
150	6	90	1200	---	---	451	480	257	675	675	542	566	155	214	239
		136 unbalanced	1200	---	---	451	480	257	675	675	542	566	135	214	239
		136 balanced	1200	---	---	451	480	268	686	686	542	566	135	226	251
		136 Whisper	1200	---	---	451	480	289	707	707	542	566	135	226	251
1. Clearance required for removing the actuator from the installed valve body.															

Table 22. 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	166	116	141
		136 balanced	F10, F12, F14	303	180	154	179	129	154
		136 Whisper	F10, F12, F14	303	180	154	179	129	154

Manual Handwheels

The Fisher 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 Fisher 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 23.

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 23)

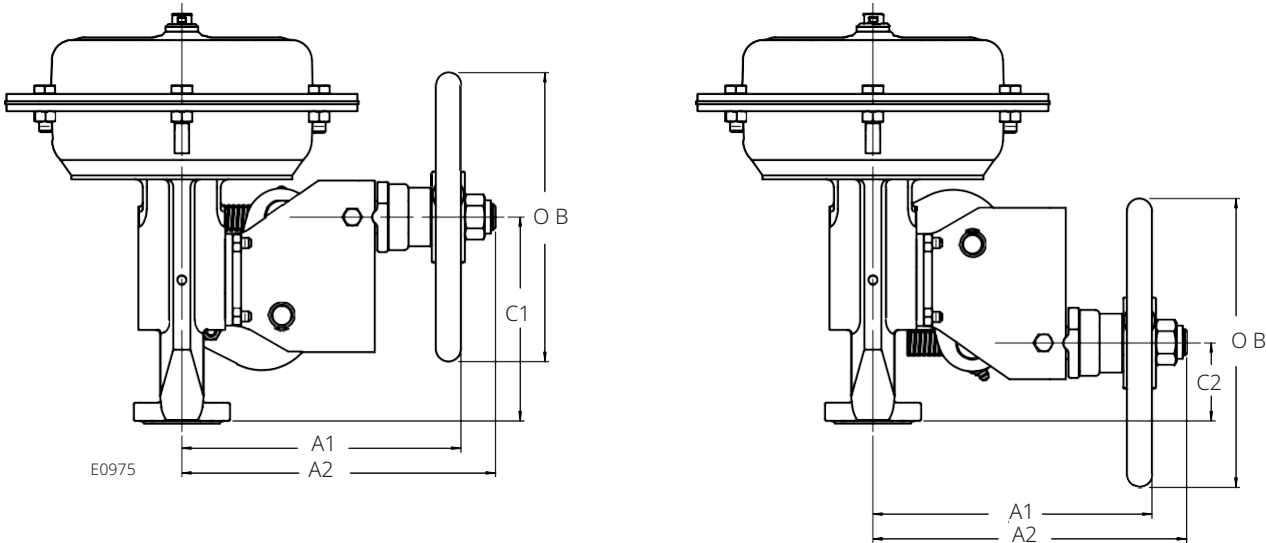


Table 23. Fisher GX Bolted Bonnet Handwheel Dimensions and Weights

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.

 [LinkedIn.com/groups/3941826](https://www.linkedin.com/groups/3941826)
 [Fisher.com](https://www.fisher.com)

 [Facebook.com/FisherValves](https://www.facebook.com/FisherValves)
 [X.com/FisherValves](https://www.x.com/FisherValves)

D104804X012 © 2025, 2026 Fisher Controls International LLC. All rights reserved.

Neither Emerson, nor any of its affiliated entities assume responsibility for the selection, use or maintenance of any product. Responsibility for proper selection, use, and maintenance of any product remains solely with the purchaser and end user.

Fisher, FIELDVUE, ENVIRO-SEAL, and Whisper Trim are marks owned by one of the companies in the Emerson business unit of Emerson Electric Co. Emerson and the Emerson logo are trademarks and service marks of Emerson Electric Co. All other marks are the property of their respective owners.

The contents of this publication are presented for informational purposes only, and while every effort has been made to ensure their accuracy, they are not to be construed as warranties or guarantees, express or implied, regarding the products or services described herein or their use or applicability. All sales are governed by our terms and conditions, which are available upon request. We reserve the right to modify or improve the designs or specifications of such products at any time without notice.

Emerson
Marshalltown, Iowa 50158 USA
Sorocaba, 18087 Brazil
Cernay, 68700 France
Dubai, United Arab Emirates
Singapore 128461 Singapore

www.fisher.com

FISHER™


EMERSON™