# Fisher® GX Control Valve and Actuator System

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D103175X012

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Figure 1. Fisher GX Control Valve, Actuator, and FIELDVUE DVC2000 Digital Valve Controller



### Introduction

# Scope of Manual

This instruction manual includes installation, maintenance, and parts information for the Fisher GX control valve and actuator system.

Do not install, operate, or maintain a GX valve without being fully trained and qualified in valve, actuator, and accessory installation, operation, and maintenance. To avoid personal injury or property damage, it is important to carefully read, understand, and follow all the contents of this manual, including all safety cautions and warnings. If you have any questions about these instructions, contact your Emerson Process Management sales office before proceeding.

### Description

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

The GX 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 GX meets the requirements of both EN and ASME standards. It is available with a complete accessory package, including the FIELDVUE DVC2000 integrated digital valve controller.





**Table 1. Fisher GX 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	r EN 1092-1	CL150 / 300 per ASME B16.34	
End Connections	Flanged raised face per	r EN 1092-1	Flanged raised face per ASME B16.5	
	1.0619 steel		ASME SA216 WCC steel	
	1.4409 stainless	steel	ASME SA351 CF3M stainless steel	
	CW2M (sizes DN 25 throug	Jh DN 100 only)	CW2M (NPS 1 through 4 only)	
	ASME SA352 L	.CC	ASME SA352 LCC	
	CN7M Alloy 2		CN7M Alloy 20	
	(sizes DN 25 through D	• • • • • • • • • • • • • • • • • • • •	(NPS 1 through 4 only)	
Valve Body/Bonnet Materials	CDMN Duplex S		CDMN Duplex SST	
_	(sizes DN 25 through D	* * * * * * * * * * * * * * * * * * * *	(NPS 1 through 4 only)	
	CF3 304L SST (sizes DN 25 through DN 100 only)		CF3 304L SST (NPS 1 through 4 only)	
-	(Sizes bit 25 tillough bit 100 only)		M35-2 (NPS 1 through 4 only)	
-			N7M Alloy B2	
			(NPS 1 through 4 only)	
Face-to-Face Dimensions	Consistent with EN 55	8-1 Series 1	Consistent with ANSI/ISA 75.08.01	
		Metal seat	t - Class IV (standard)	
Shutoff per IEC 60534-4 — and ANSI/FCI 70-2 —		Metal sea	t - Class V (optional)	
and ANSI/FCI 70-2		PTFE seat -	· Class VI (optional) <sup>(1)</sup>	
Flow Direction		Flow-up (Cavit	trol™ III trim, Flow down)	
Flow Control Characteristics		Equal Per	rcentage and Linear	
	Port Diameters		Trim Style Description	
	4.8 mm		Micro-Flow trim (unbalanced)	
Trim Style	9.5, 14, 22 mm		rem-Guided with Contoured Plug (unbalanced)	
, <u> </u>	36, 46 mm	or Port-Guided with Cavitrol III trim (unbalanced)		
<u> </u>	<u> </u>	Port-Guided Plug (unbalanced)		
Handrida al	70, 90, 136 mm Balanced Trim with Contoured plug or Unbalanced Port-Guided Plug			
Handwheel	Available as an option			
Travel Stop  1. For 4.8 to 14 mm ports, Class VI shutof		Availa	able as an option	

## Valve Installation

### **▲** WARNING

Always wear protective gloves, clothing, and eyewear when performing any installation operations to avoid personal injury.

Personal injury or equipment damage caused by sudden release of pressure or bursting of pressure retaining parts might result if service conditions exceed those for which the product was intended. To avoid injury or damage, provide a relief valve for over pressure protection as required by government or accepted industry codes and good engineering practices.

Check with your process or safety engineer for any additional measures that must be taken to protect against process media.

If installing into an existing application, also refer to the WARNING at the beginning of the Maintenance section in this instruction manual.

#### **CAUTION**

This valve is intended for a specific range of pressures, temperatures and other application specifications. Applying different pressure and temperatures to the valve could result in parts damage, malfunction of the control valve or loss of

control of the process. Do not expose this product to service conditions or variables other than those for which the product was intended. If you are not sure what these conditions are you should contact your Emerson Process Management sales office for more complete specifications. Provide the product serial number (shown on the nameplate, figure 2) and all other pertinent information.

Figure 2. Fisher GX Nameplate Examples (Key 35) **CL300** DESIGN FISHER' www.fisher.com SN 0987654321 **C €** 0041 **]1234567890** GE01296-H WITHOUT SPRING INFORMATION **DN100 CL300** 100.5Cv/86.9Kv **台 Ø70mm** IF MAX 12345N **FISHER** SN 0987654321 GG12198-A **ELECTRIC ACTUATOR** 1234567890 ESIGN **CL300** 100.5Cv/86.9 Kv Ø70mm 4-6bar GE41229-D WITH SPRING INFORMATION

#### **A** WARNING

If you move or work on an actuator installed on a valve with loading pressure applied, keep your hands and tools away from the stem travel path to avoid personal injury. Be especially careful when removing the stem connector to release all loading on the actuator stem whether it be from air pressure on the diaphragm or compression in the actuator springs. Likewise take similar care when adjusting or removing any optional travel stop. Refer to the relevant actuator Maintenance Instructions.

If hoisting the valve take care to prevent people from being injured in case the hoist or rigging slips. Be sure to use adequately sized hoists and chains or slings to handle the valve.

- 1. Before installing the valve, inspect it to be certain that the valve body cavity is free of all foreign material. Clean out all pipelines to remove scale, welding slag and other foreign material.
- 2. The control valve assembly may be installed in any orientation unless limited by seismic criteria. However, the normal method is with the actuator vertical above the valve. Flow through the valve must be in the direction indicated by the arrow cast on the valve.
- 3. Use accepted piping practices when installing the valve in the pipeline. Use a suitable gasket between the valve and the pipeline flanges.

4. If continuous operation is required during inspection or maintenance, install isolating valves on either side of the control valve with a bypass valve to control the flow while the control valve is receiving maintenance.

#### **A** WARNING

Personal injury could result from packing leakage. Valve packing is tightened before shipment; however the packing might require some readjustment to meet specific service conditions.

### Maintenance

#### **A** WARNING

Avoid personal injury or property damage from sudden release of process pressure or bursting of parts. Before performing any maintenance operations:

- Do not remove the actuator from the valve while the valve is still pressurized.
- Always wear protective gloves, clothing, and eyewear when performing any maintenance operations to avoid personal
  injury.
- Disconnect any operating lines providing air pressure, electric power or a control signal to the actuator. Be sure the actuator cannot suddenly open or close the valve.
- Use bypass valves or completely shut off the process to isolate the valve from the process pressure. Relieve the process pressure from both sides of the valve.
- Depending on the actuator construction, it will be necessary to manage the pneumatic actuator loading pressure and any actuator spring pre-compression. It is essential to refer to the relevant actuator instructions in this manual to ensure safe removal of the actuator from the valve.
- Use lock-out procedures to be sure that the above measures stay in effect while you work on the equipment.
- The valve packing box may contain process fluids that are pressurized, even when the valve has been removed from the
  pipeline. Process fluids may spray out under pressure when removing the packing hardware or packing rings, or when
  loosening the packing box pipe plug.
- Check with your process or safety engineer for any additional measures that must be taken to protect against process media.

#### Note

Whenever a gasket seal is disturbed by removing or shifting gasketed parts, install a new gasket during reassembly. This ensures a good gasket seal because the used gasket may not seal properly.

### Actuator Maintenance

For electric actuators, see the supplier's instruction manual.

The following sections provide procedures for actuator maintenance. Refer to figures 18, 19, 20, and 21.

The actuator soft parts may require periodic replacement. This includes the diaphragm (key 10), diaphragm O-ring (key 109), actuator rod bushing (key 19), and the actuator rod seal (key 20).

If the actuator stroking direction (air-to-open or air-to-close) is unknown, refer to the nameplate on top of the actuator casing and figure 2.

There are several optional actuator constructions, depending on supply pressure. Refer to the nameplate on the top of the actuator to determine the construction installed. Refer to figure 3 and table 2 for proper spring configuration.

#### Note

Older GX actuator nameplates do not contain spring configuration information. If you require replacement springs or wish to switch to an optional actuator construction, consult your Emerson Process Management sales office.

#### Note

When the GX actuator is equipped with the integrated FIELDVUE DVC2000 digital valve controller (figure 1), additional considerations may be required. Refer to the FIELDVUE DVC2000 Digital Valve Controller Mounting section of this manual for additional instruction.

### Actuator Disassembly (For Air-to-Open Constructions - see figures 18 or 19)

- 1. Connect a separate air supply to the lower diaphragm casing via the air supply connection on the yoke (as shown in figure 18 or 19) and apply sufficient air pressure to raise the valve plug/stem off the seat to mid-travel.
- 2. Remove the stem connector nut half (key 23), stem connector bolt half (key 24), and travel indicator (key 26).
- 3. Push the valve plug/stem (key 3) down until it contacts the seat.
- 4. Loosen the locknut (key 28) and thread the stem adjustor nut (key 27) down until it clears the top of the valve plug/stem (key 3).
- 5. Shut off the air pressure and disconnect the separate air supply to the lower diaphragm casing (as shown in figure 18 or 19).

#### **A** WARNING

To avoid personal injury or property damage due to actuator springs (keys 12 and 82) being under compression, remove the long cap screws (key 16) last.

The upper actuator casing may remain fixed to the diaphragm and lower casing during disassembly, even if the casing cap screws have been loosened. If this happens, the actuator springs are still under compression. The upper casing could suddenly come loose and jump, due to the compressed energy of the springs. If the upper casing is stuck to the diaphragm and lower casing when you begin loosening the casing cap screws, pry the casings apart with a prying tool. Always ensure that the springs are dispersing energy and the upper casing is moving against the long bolts during disassembly.

- 6. Remove the **short** actuator casing cap screws and hex nuts (keys 17 and 18) first. Once these have been removed from the actuator assembly, carefully remove the **long** actuator cap screws and hex nuts (keys 16 and 18), alternating between them to gradually release the spring energy (compression).
- 7. Remove the upper diaphragm casing (key 9) and the actuator springs (key 12 and/or 82).
- 8. Lift off the actuator stem/diaphragm assembly (includes keys 22, 11, 10, 14, 13, 109, and 15) and remove the cap screw (key 14), actuator spacer (key 13), actuator rod (key 22), and washer (key 15).
- 9. Replace the diaphragm (key 10), diaphragm O-ring (key 109), actuator rod bushing (key 19), and actuator rod seal (key 20), as needed.

Figure 3. Spring Configuration

ACTUATOR	TRAVEL	GX Act	uator – Spring Qu	antity and Arran <u>c</u>	jement	
225	20	0 0 0 0 0 0		O <sub>A3</sub> O	A2 O	
		6 - GE37264X012	4 - GE37264X012	3 - GE37264X012	2 - GE37264X012	
750	20	(OB6 OO)	©B40			
		6 - GE00366X012	4 - GE00366X012			
750	40	©C12 000	(OC8) (OC8)	(C6) (C6)	(C40)	(O <sub>C3</sub> O)
		6 - GE37344X012 & 6 - GE40917X012	6 - GE37344X012 & 2 - GE40917X012	6 - GE37344X012	4 - GE37344X012	3 - GE37344X012
1200	40 & 60	8 - GE13551X 8 7 - GE13552X				
Note: Concentric c Spring arran						

### Actuator Disassembly (For Air-to-Close Constructions - see figure 20 or 21)

1. Remove the stem connector nut half (key 23), stem connector bolt half (key 24), and travel indicator (key 26).

### **A** WARNING

GG00398-B

To avoid personal injury or property damage due to actuator springs (key 12) being under compression, remove the long cap screws (key 16) last.

The upper actuator casing may remain fixed to the diaphragm and lower casing during disassembly, even if the casing cap screws have been loosened. If this happens, the actuator springs are still under compression. The upper casing could

suddenly come loose and jump, due to the compressed energy of the springs. If the upper casing is stuck to the diaphragm and lower casing when you begin loosening the casing cap screws, pry the casings apart with a prying tool. Always ensure that the springs are dispersing energy and the upper casing is moving against the long bolts during disassembly.

- 2. Remove the **short** actuator casing cap screws and hex nuts (keys 17 and 18) first. Once these have been removed from the actuator assembly, carefully remove the long actuator cap screws and hex nuts (keys 16 and 18), alternating between them to gradually release the spring energy (compression).
- 3. Remove the upper diaphragm casing (key 9).
- 4. Lift off the actuator stem/diaphragm assembly (includes keys 22, 11, 10, 14, 13, 109, and 15) and remove the cap screw (key 14), actuator spacer (key 13), actuator rod (key 22), and washer (key 15).
- 5. Remove the actuator springs (key 12 and/or 82).
- 6. Replace the diaphragm (key 10), diaphragm O-ring (key 109), actuator rod bushing (key 19), and actuator rod seal (key 20), as needed.

Table 2. Actuator Spring Configuration Based on Minimum Supply Pressure<sup>(1)</sup>

A CTUATOR CITE	TRAVEL	CTEMANATEDIA!	MINIMUM SUPPLY	SPRING CON	FIGURATION
ACTUATOR SIZE mm	STEM MATERIAL	PRESSURE	Air-to-Open	Air-to-Close	
			4   (50 :)	A6	A3
225	20	S20910, N05500	4 bar (58 psi)	A4(2)	A4(2)
225	20	S31603	3 bar (44 psi)	A4	A3
			2 bar (29 psi)	A3	A2
		621002 N10665	4 bar (58 psi)	A6	A3
225	20	S31803, N10665, N06022	3 bar (44 psi)	A4	A3
			2 bar (29 psi)	A3	A2
			4 han (F0 mai)	В6	B4
750 20	S20910, N05500	4 bar (58 psi)	B6 <sup>(2)</sup>	B6 <sup>(2)</sup>	
	S31603	3 bar (44 psi)	В6	B4	
		2 bar (29 psi)	B4	B4	
		621002 N10665	4 bar (58 psi)	B4	B4
750	20	S31803, N10665, N06022	3 bar (44 psi)	B4	B4
		100022	2 bar (29 psi)	B4	B4
		620010 NOFF00	4 bar (58 psi)	C12	C6
750	40	S20910, N05500 S31603	3 bar (44 psi)	C8	C3
		331003	2 bar (29 psi)	C4	C3
		621002 N10665	4 bar (58 psi)	C8	C6
750	40	S31803, N10665, N06022	3 bar (44 psi)	C8	C3
		100022	2 bar (29 psi)	C4	C3
		620010 NOFF63	4 bar (58 psi)	D15	D15
1200	40 or 60	S20910, N05500 S31603	3 bar (44 psi)	D15	D15
		331003	2 bar (29 psi)	N/A	N/A

<sup>2.</sup> Only applicable to Cavitrol III constructions.

Table 3. Fisher GX Maximum Rated Travel

ACTUATOR SIZE	NUMBER OF CASING BOLTS	TRAVEL
ACTUATOR SIZE	NUMBER OF CASING BOLTS	mm
225	6	20
750	10	20 or 40
1200	16	40 or 60

Tab	le 4.	Bod	y Nut (	(Ke	y 7)	) Torq	jue Red	quirements
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VALVE SIZE	TORQUE				
VALVE SIZE	N•m	lbf•ft			
DN 15, 20, 25 (NPS 1/2, 3/4, 1)	45.5	33.5			
DN 40 (NPS 1-1/2)	79.8	58.9			
DN 50 (NPS 2)	79.8	58.9			
DN 80 (NPS 3)	163	120			
DN 100 and DN 150 (NPS 4 and 6)	282	208			

# Table 5. Yoke/Extension Bonnet Nut (Key 46) Torque Requirements (used on Extension Bonnet and Bellows Bonnet constructions)

VALVE SIZE	TORQUE				
VALVE SIZE	N•m	lbf•ft			
DN 15, 20, 25, 40, and 50 (NPS 1/2, 3/4, 1, 1-1/2, and 2)	79.8	58.9			
DN 80 and 100 (NPS 3 and 4)	163	120			

# Actuator Assembly For Air-to-Open Constructions (or to Change Action to Air-to-Open - see figure 18 or 19)

- 1. Install the diaphragm (key 10) on the diaphragm plate (key 11). Insert the cap screw (key 14) through the actuator spacer (key 13) and place this assembly through the diaphragm/diaphragm plate assembly.
- 2. Place the diaphragm O-ring (key 109) and the washer (key 15) over the center hole of the diaphragm, so that the convex part of the washer is facing down toward the diaphragm and contains the O-ring. Ensure the convex part of the washer is guided in the diaphragm center hole as shown in figure 18 or 19.
- 3. Screw the actuator rod (key 22) onto the cap screw (key 14) and torque to 80 N•m (59.1 lbf•ft). Install the actuator stem/diaphragm assembly back into the actuator yoke (key 8).
- 4. Place the actuator springs (key 12 and/or 82) onto the spring locators in the diaphragm plate (key 11). See figure 3 and table 2 for proper spring quantity and arrangement.
- If the nameplate does not contain spring information, use the same quantity and arrangement as originally installed.
- 5. Install the upper diaphragm casing (key 9) so that the ribs on the top of the upper diaphragm casing are perpendicular with the yoke legs.
- For size 225 and 750 actuators, install the 2 long cap screws (key 16) and hex nuts (key 18) 180 degrees apart from each other and in line with the actuator yoke legs.
- For size 1200 actuators, install the 4 long cap screws (key 16) and hex nuts (key 18) 90 degrees from each other, with two of them in line with the actuator yoke legs.
- 6. Tighten the **long** cap screws (key 16) and hex nuts (key 18), alternating between them to gradually compress the springs, until the two casing halves and diaphragm touch.
- 7. Install the remaining **short** cap screws (key 17) and hex nuts (key 18) to the casing.
- 8. Tighten the actuator casing cap screws evenly using a cross-tightening procedure. Torque to 55 N•m (40 lbf•ft).
- 9. If you had previously removed the actuator assembly from the valve, place the actuator assembly back onto the valve body (key 1). Install the four body nuts (key 7), but tighten them only finger-tight.

10. Connect a separate air supply to the actuator air supply connection (as shown on the yoke in figure 18 or 19) and apply sufficient air pressure to raise the actuator rod (key 22) to the travel stop.

#### Note

If converting from air-to-close to air-to-open action, first move the vent cap (key 21) from the air supply connection on the yoke leg (see figure 20 or 21) to the top of the casing (see figure 18 or 19).

- 11. For standard bonnet constructions (figures 18, 19, 20, and 21), tighten the body nuts (key 7) evenly using a cross-tightening procedure. See table 4 for torque requirements.

  For extension and bellows bonnet constructions (figures 22 and 23), tighten the bonnet nuts (key 46) evenly using a cross-tightening procedure. See table 5 for torque requirements.
- 12. With the valve plug/stem (key 3) on the seat, thread the stem adjustor nut (key 27) up until it is the rated travel distance specified in table 3 from the actuator rod (key 22). Thread the locknut (key 28) up against the stem locknut and tighten per table 6.

**Table 6. Stem Connector Torque Values** 

PART	CTEMAMATERIAL	TORQUE		
PAKI	STEM MATERIAL	N•m	Lbf•ft	
M8 Stem Connector Cap Screws	All	35	26	
M10 Stem Connector Jam Nut	S31603, S20910, N05500	48	35	
(Rie 4606 Coated)	N06022, S31803, N10665	35	26	
M14 Stem Connector Jam Nut	S31603, S20910, N05500	175	129	
	N06022, S31803, N10665	138	102	

- 13. Stroke the actuator rod until it contacts the stem adjuster nut (key 27) and install the stem connector halves and travel indicator (keys 23, 24, and 26) with the cap screws (key 25). Install the stem connector halves in the proper orientation so that when looking at the inside of the stem connector halves, the flats are down and the beveled surfaces are up.
- 14. Align the pointer of the travel indicator (key 26) with the appropriate mark on the travel scale.
- 15. Tighten the stem connector cap screws (key 25) to 35 N•m (26 lbf•ft).
- 16. Release the actuator pressure.

#### Note

For air-to-open action, the air supply tubing must be connected to the actuator yoke at the air supply connection, see figure 18 or 19. (If converting from air-to-close to air-to-open, the tubing will need to be re-routed to this location).

# Actuator Assembly For Air-to-Close Constructions (or to Change Action to Air-to-Close - see figure 20 or 21)

1. Position the upper diaphragm casing (key 9) upside down on the bench so that it lays flat and not off balance.

#### Note

If converting from air-to-open to air-to-close action, first move the vent cap (key 21) from the top of the casing (see figure 18 or 19) and thread into the air supply connection on the yoke leg (see figure 20 or 21).

2. Install the diaphragm (key 10) on the diaphragm plate (key 11). Place the diaphragm O-ring (key 109) and the washer (key 15) over the center hole of the diaphragm, so that the convex part of the washer is facing down toward the diaphragm and contains the O-ring. Ensure the convex part of the washer is guided in the diaphragm center hole as shown in figure 20 or 21.

- 3. Insert the cap screw (key 14) through the washer and diaphragm, install the actuator spacer (key 13), and screw the actuator rod (key 22) onto the cap screw (key 14) finger-tight.
- 4. Radially align the spring locators in the diaphragm plate assembly (key 11) with the casing cap screw holes in the diaphragm (key 10). This will ensure that the springs do not cover the air path in the yoke.
- 5. Torque the cap screw (key 14) to the actuator rod (key 22) to 80 N•m (59.1 lbf•ft) and lay this assembly into the upper diaphragm casing (key 9).
- 6. Place the actuator springs (key 12 and/or 82) onto the spring locators in the diaphragm plate (key 11). See figure 3 and table 2 for proper spring quantity and arrangement.
- If the nameplate does not contain spring information, use the same quantity and arrangement as originally installed.
- 7. Remove and replace the actuator rod bushing (key 19) and actuator rod seal (key 20) in the actuator yoke (key 8), if necessary.
- 8. Set the actuator yoke (key 8) down onto the assembly that is resting in the upper diaphragm casing (key 9) so that the yoke legs are perpendicular with the ribs on the top of the upper diaphragm casing (key 9).
- For size 225 and 750 actuators, install the 2 long cap screws (key 16) and hex nuts (key 18) 180 degrees apart from each other and in line with the actuator yoke legs.
- For size 1200 actuators, install the 4 long cap screws (key 16) and hex nuts (key 18) 90 degrees from each other, with two of them in line with the actuator yoke legs.
- 9. Tighten the **long** cap screws (key 16) and hex nuts (key 18), alternating between them to gradually compress the springs, until the two casing halves and diaphragm touch.
- 10. Install the remaining **short** cap screws (key 17) and hex nuts (key 18) to the casing.
- 11. Tighten the actuator casing cap screws evenly using a cross-tightening procedure. Torque to 55 N·m (40 lbf•ft).
- 12. If you had previously removed the actuator assembly from the valve, place the actuator assembly back onto the valve body (key 1). For standard bonnet constructions (figures 18, 19, 20, and 21), install the body nuts (key 7) and tighten evenly using a cross-tightening procedure. See table 4 for torque requirements.

  For extension and bellows bonnet constructions (figures 22 and 23), install the bonnet nuts (key 46) and tighten evenly using a cross-tightening procedure. See table 5 for torque requirements.
- 13. With the valve plug/stem (key 3) in the closed position (on the seat), thread the stem adjustor nut (key 27) up until it is at the rated travel (see table 3) from the actuator rod (key 22). Thread the locknut (key 28) up against the stem locknut and tighten per table 6.
- 14. Stroke the actuator rod until it contacts the stem adjuster nut (key 27) and install the stem connector halves and travel indicator (keys 23, 24, and 26) with the cap screws (key 25). Install the stem connector halves in the proper orientation so that when looking at the inside of the stem connector halves, the flats are down and the beveled surfaces are up.
- 15. Align the pointer of the travel indicator (key 26) with the appropriate mark on the travel scale.
- 16. Tighten the stem connector cap screws (key 25) to 35 N•m (26 lbf•ft).

#### Note

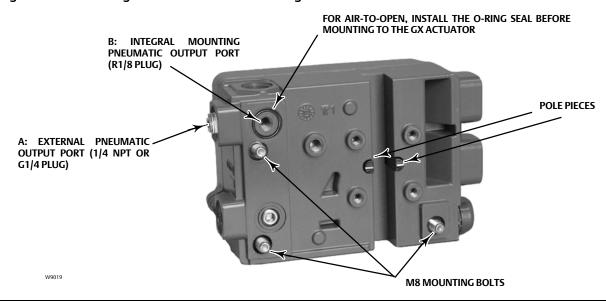
For air-to-close action, the air supply tubing must be connected to the actuator upper casing at the air supply connection, see figure 20 or 21. (If converting from air-to-open to air-to-close, the tubing will need to be re-routed to this location).

## FIELDVUE DVC2000 Digital Valve Controller Mounting

This section provides instruction on mounting the FIELDVUE DVC2000 digital valve controller to the GX control valve. For further detail on the operation and maintenance of the DVC2000, refer to the DVC2000 instruction manual.

The FIELDVUE DVC2000 digital valve controller mounts directly to an interface pad on the GX actuator yoke leg, eliminating the need for mounting brackets (see figure 1). Internal passageways in the actuator route the pneumatic output to the actuator casing, which eliminates the need for external air supply tubing in the air-to-open (spring-to-close) constructions. (The GX will also accommodate other valve positioners, using the NAMUR mounting pads on the side of the yoke legs.)

Figure 4. DVC2000 Digital Valve Controller Mounting Details



The DVC2000 features linkage-less position feedback when mounted to the GX control valve. There are no touching parts between the controller and the valve stem, which simplifies controller installation. If maintenance is required, the DVC2000 can be easily removed from the valve.

In the air-to-open (spring-to-close) configuration, the air signal to the actuator casing is supplied through the air supply connection on the GX actuator yoke leg (see figure 18 or 19). In the air-to-close (spring-to-open) configuration, the air signal is supplied to the actuator through the air supply connection on the top of the actuator casing (see figure 20 or 21).

**For an air-to-open construction,** a DVC2000 will mount to the actuator (figure 18 or 19). The air signal is transmitted to the lower casing through the pneumatic passageway marked "air supply connection" in figure 18 or 19.

For an air-to-close construction, DN 15 through DN 100 (NPS 1/2 through 4) only: in the actuator design (figure 20 or 21), the pneumatic signal is connected directly to the air supply connection in the upper actuator casing. The yoke is symmetrical and the air passageways serve as a vent, whereby the DVC2000 can be easily moved from one side of the valve to the other without rotating the actuator.

### **DVC2000 Mounting Procedures**

Steps A and B of the following instructions apply to the actuator construction shown in figures 18, 19, 20, and 21.

- A. Mounting the DVC2000 to an air-to-open GX actuator (spring-to-close) (see figure 4 and figure 18 or 19):
- 1. Attach the magnetic feedback array (supplied with the DVC2000) to the valve stem connector using the alignment template (supplied with the mounting kit) for accurate alignment.
- 2. Remove the plug (R1/8) from the back of the DVC2000 housing (Port B in figure 4). This pneumatic output port on the DVC2000 lines up with the integral GX actuator air supply connection (see figure 18 or 19).
- 3. Install the plug (either G1/4 or 1/4 NPT, included in the mounting kit) to the external output pneumatic port (Port A in figure 4).
- 4. Remove the digital valve controller's cover.
- 5. Using a 6mm hex wrench, attach the digital valve controller to the GX actuator mounting pad on the side that has the open pneumatic port. Be sure to place the O-ring seal between the digital valve controller's pneumatic output and the actuator mounting pad (Port B, as shown in figure 4). Pneumatic tubing is not required because the air passages are internal to the actuator. Also, install the insulating gaskets around the mounting bolts.
- 6. Check for clearance between the magnet assembly and the DVC2000 feedback slot. The magnet assembly should be positioned such that the index mark in the feedback slot of the DVC2000 housing is between the valid range on the magnet assembly throughout the range of travel. (See figure 4).
- B. For air-to-close GX actuator (spring-to-open) (see figure 4 and figure 20 or 21):
- 1. Attach the magnetic feedback array (supplied with the DVC2000) to the valve stem connector using the alignment template (supplied with the mounting kit) for accurate alignment.
- 2. In the air-to-close configuration it is required that an R1/8 plug be installed into the integral mount pneumatic port on the back of the DVC2000 housing (Port B of figure 4).
- 3. Remove the digital valve controller's cover.
- 4. Using a 6mm hex wrench, attach the digital valve controller to the GX actuator mounting pad.

#### Note

The O-ring seal and G1/4 or 1/4 NPT plugs (supplied in the mounting kit) are not used with this actuator construction.

- 5. Check for clearance between the magnet assembly and the DVC2000 feedback slot. The magnet assembly should be positioned such that the index mark on the pole pieces (back of the controller housing) is between the marks on the magnet assembly throughout the range of travel. (See figure 4.)
- 6. Install tubing between the external pneumatic output connection of the DVC2000 (Port A of figure 4) to the air supply connection (see figure 20 or 21) on top of the actuator casing.

When changing actuator action:

When field converting a GX actuator from air-to-open to air-to-close closed (or vice-versa), you will need to change the plugs for the pneumatic passages in the DVC2000 housing.

- To convert from air-to-close to air-to-open (spring-to-close), remove the R1/8 pneumatic plug on the back of the DVC2000 housing and install an O-ring (Port B of figure 4). Plug the external pneumatic output with a 1/4 NPT or G1/4 plug (depending on the housing version). (Port A of figure 4.)
- To convert from air-to-open to air-to-close (spring-to-open), remove the external pneumatic plug (1/4 NPT or G1/4 plug, depending on the housing version from Port A of figure 4). Install an R1/8 plug on the back of the DVC2000 housing (Port B of figure 4). Install tubing between the pneumatic output connection of the DVC2000 (Port A) to the air supply connection on top of the actuator casing (see figure 20 or 21).

## **Packing Maintenance**

Key numbers refer to figures 15, 18, 19, 20, 21, 22, and 23.

### **Packing Adjustment**

For spring-loaded single PTFE V-ring packing (figure 15) or for Graphite ULF packing (figure 16), the Belleville spring pack (key 34) maintains a sealing force on the packing. If leakage is detected around the packing follower (key 29) check to be sure that the packing follower (key 29) is tight. Using a wrench, tighten the packing follower (key 29) in 1/4 turn intervals until the leakage is stopped. If leakage cannot be stopped in this manner, proceed to the Replacing Packing section in this manual.

# Replacing Packing (Pneumatic Actuators)

This section provides instruction on replacing packing in standard bonnets, extension bonnets, and bellows extension bonnets.

Isolate the control valve from the line pressure, release pressure from both sides of the valve body and drain the process media from both sides of the valve. Shut off all pressure lines to the actuator and release all pressure from the actuator. Use lock-out procedures to ensure that the above measures stay in effect while you work on the equipment.

#### 1. For air-to-open constructions:

- a. Connect a separate air supply to the lower diaphragm casing via the air supply connection on the yoke (as shown in figure 18 or 19) and apply sufficient air pressure to raise the valve plug/stem off the seat to mid travel.
- b. Remove the stem connector nut half (key 23), stem connector bolt half (key 24), and travel indicator (key 26).
- c. Push the valve plug stem (key 3) down until it contacts the seat.
- d. Loosen the locknut (key 28) and thread the stem adjustor nut (key 27) down until it clears the top of the valve plug stem (key 3).
- e. Shut off the air pressure and disconnect the separate air supply to the lower diaphragm casing (as shown in figure 18 or 19).
- 2. For air-to-close constructions, as shown in figure 20 or 21, remove the stem connector nut half (key 23), stem connector bolt half (key 24), and travel indicator (key 26).

#### **A** WARNING

To avoid personal injury or property damage by uncontrolled movement of the actuator yoke (key 8), loosen the body/yoke nuts (figures 18, 19, 20, and 21, key 7) or bonnet/yoke nuts (figures 22 and 23, key 46) by following the instructions in the next step. Do not remove a stuck actuator yoke by pulling on it with equipment that can stretch or store energy in any other manner. The sudden release of stored energy can cause uncontrolled movement of the actuator yoke.

#### Note

The following step also provides additional assurance that the valve body fluid pressure has been relieved.

3. For standard bonnet constructions (figures 18, 19, 20, and 21), body nuts (key 7) attach the actuator yoke (key 8) to the valve body (key 1). Loosen these nuts approximately 3mm (1/8 inch).

For extension and bellows bonnet constructions, bonnet nuts (key 46) attach the actuator yoke (key 8) to the extension bonnet (key 39). Loosen these nuts approximately 3mm (1/8 inch).

4. Then loosen the valve-to-yoke gasketed joint by either rocking the actuator yoke or prying between the valve and actuator voke. Work the prying tool around the actuator voke until it loosens.

#### **A** WARNING

If there is evidence of process fluid under pressure leaking from the joint, retighten the valve body/joint nuts and return to the Warning at the beginning of the Maintenance section to ensure proper steps have been taken to isolate the valve and relieve process pressure, thus avoiding property damage or personal injury.

- 5. If no fluid leaks from the joint, loosen the packing follower (key 29) two turns to relieve the packing compression load.
- 6. For standard bonnet constructions (figures 18, 19, 20, and 21), remove the body nuts (key 7) completely. For extension and bellows bonnet constructions (figures 22 and 23), remove the bonnet nuts (key 46) completely.

#### **CAUTION**

To avoid property damage, place the actuator yoke on a protective surface, as described in the following procedure.

7. Carefully lift off the actuator yoke and set it on a protective surface to prevent damage.
For standard bonnet constructions, if the bonnet (key 4) together with the valve stem plug assembly has a tendency to lift with the actuator yoke, ensure it does not drop from the actuator.
For extension and bellows constructions, ensure the bonnet (key 4) does not lift with the actuator yoke.
For DN150 balanced constructions, if the bonnet, guide sleeve, or valve stem assembly have a tendency to lift with the actuator yoke, ensure they do not drop from the actuator.

### **CAUTION**

For extension and bellows bonnet constructions, lifting the bonnet with the actuator yoke may cause possible damage to the valve plug and to the bellows.

- 8. Remove the stem adjustor nut (key 27) and locknut (key 28).
- 9. **For standard bonnet constructions**, remove the bonnet and the valve plug/stem assembly and set on a protective surface.

For extension and bellows bonnet constructions, remove only the bonnet (key 4). For DN150 balanced constructions, remove the guide sleeve, bonnet, and valve plug stem assembly.

#### Table 7. Packing Follower Torque

Valve Size	Packing Style	Torque N•m (lbf•ft)	Packing Style	Torque N•m (lbf•ft)
DN15, 20, 25, 40, and 50	PTFE	10 (7.4)	ULF	35 (26)
DN80 and 100	PTFE	23 (17)	ULF	50 (37)
DN150	PTFE	36 (26)	ULF	68 (50)

- 10. Remove the valve/yoke gasket (figures 18, 19, 20, and 21 key 5, figures 22 and 23 key 47) and cover the opening of the valve to protect the gasket surface and prevent foreign matter from getting into the valve cavity.
- 11. Remove the packing follower (key 29) from the bonnet (key 4).
- 12. Remove the Belleville spring pack (key 34) and packing spacer (key 30) from the bonnet (key 4). Carefully push out the remaining packing box parts from the bonnet (key 4) using a rounded rod or other tool which will not scratch the packing box wall. Clean the packing box and the metal packing box parts.

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#### **CAUTION**

Inspect the valve stem, threads and packing box surfaces for any sharp edges that might cut the packing. Scratches or burrs could cause packing box leakage or damage the new packing.

- 13. Inspect the valve stem, threads and packing box surfaces for any sharp edges that might cut the packing. Scratches or burrs could cause packing box leakage or damage the new packing. If the surface condition cannot be improved by light sanding, replace the damaged parts.
- 14. Remove the covering protecting the valve cavity and install a new valve/yoke gasket (figures 18, 19, 20, and 21 key 5, figures 22 and 23 key 47) making sure that the gasket seating surfaces are clean and smooth. For DN150 balanced constructions, two gaskets are required; one between the valve body and guide sleeve, and the other between the guide sleeve and bonnet. Ensure the gasket seating surfaces are clean and smooth for both gaskets.
- 15. Carefully install the bonnet (key 4) onto the valve stem.
- 16. Install the new packing and the metal packing box parts according to figure 15 for PTFE packing and according to figure 16 for Graphite ULF packing. Place a smooth-edged pipe over the valve stem and gently tap each soft packing part into the packing box. Apply anti-seize lubricant to the threads and install the packing follower (key 29).
- 17. Install the locknut (key 28) and stem adjustor nut (key 27). **For standard bonnet constructions**, install the valve plug/bonnet sub assembly into the valve body (key 1).
- 18. Mount the actuator onto the valve and install the body nuts (figures 18, 19, 20, 21 key 7, figures 22 and 23 key 46), but tighten them only finger-tight.
- 19. **For air-to-open**, connect a separate air supply to the lower diaphragm casing air supply connection (as shown in figure 18 or 19) and apply sufficient air pressure to raise the actuator rod (key 22) to the travel stop. Proceed to the next step.

For air-to-close, proceed to the next step.

- 20. **For standard bonnet constructions**, tighten the body nuts (key 7) evenly using a cross-tightening procedure. See table 4 for torque requirements.
  - **For extension and bellows bonnet constructions**, tighten the bonnet nuts (key 46) evenly using a cross-tightening procedure. See table 5 for torque requirements.
- 21. Thread the stem lock adjustor (key 27) up until it is the rated travel distance specified in table 3 from the actuator rod (key 22). Thread the locknut (key 28) up against the stem locknut and tighten to the torque specified in table 6.
- 22. Stroke the actuator rod until it contacts the stem adjuster nut (key 27) and install the stem connector halves and travel indicator (keys 23, 24, and 26) with the cap screws (key 25). Install the stem connector halves in the proper orientation so that when looking at the inside of the stem connector halves, the flats are down and the beveled surfaces are up.
- 23. Align the pointer of the travel indicator (key 26) with the appropriate mark on the travel scale.
- 24. Tighten the stem connector cap screws (key 25) to 35 N•m (26 lbf•ft).

Table 8. Seat Ring / Cage Torque Requirements

VALVE SIZE		TORQUE	
DN	NPS	N•m	lbf•ft
15, 20, 25	1/2, 3/4, 1	170	124
40	1-1/2	320	234
50	2	460	337
80	3	1020	747
100	4	1520	1113
150	6	3400	2500

Table 9. Stem	Extension To	orque Rec	uirements
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VALV	E SIZE	TORQUE			
DN	NPS	N•m	Lbf•ft		
15, 20, 25, 40, 50	1/2, 3/4, 1, 1-1/2, 2	40	30		
80, 100	3, 4	120	89		

#### Table 10. Bellows Nut Torque Requirements

VALV	E SIZE	TORQUE			
DN	NPS	N•m	Lbf•ft		
15, 20, 25, 40, 50	1/2, 3/4, 1, 1-1/2, 2	350	260		
80, 100	3, 4	650	480		

25. Tighten the packing follower (key 29) to the torque specified in table 7.

Alternately, the packing follower can be tightened by the following method:

- a. Tighten the packing follower until the Belleville springs are compressed 100% (or completely flat), as detected by a rapid increase in nut torque.
- b. For DN 15 through DN 100 (NPS 1/2 through 4), loosen the packing follower 60° of rotation. For DN 150 (NPS 6), loosen the packing follower 90° of rotation.
- 26. **For air-to-open**, release the actuator pressure.
- 27. **For air-to-open**, ensure the vent (key 21) is installed into the upper diaphragm casing (see figure 18 or 19). **For air-to-close**, ensure the vent (key 21) is installed into the actuator yoke air supply connection (see figure 20 or 21).

# Replacing Packing (Electric Actuators)

This section provides instruction on replacing packing in standard bonnets, extension bonnets, and bellows extension bonnets.

Isolate the control valve from the line pressure, release pressure from both sides of the valve body and drain the process media from both sides of the valve. Use lock-out procedures to ensure that the above measures stay in effect while you work on the equipment.

- 1. Stroke the actuator so the valve plug/stem (key 3) is at mid travel.
- 2. Remove the stem connector nut half (key 23), stem connector bolt half (key 24), and travel indicator (key 26).
- 3. Use precaution to ensure the actuator is locked in position and cannot stroke.
- 4. Mark the position of the locknut (key 28) on the stem for reassembly.
- 5. Push the valve plug/stem (key 3) down until it contacts the seat.
- 6. Loosen the locknut (key 28) and thread the stem adjustor nut (key 27) down until it clears the top of the valve plug stem (key 3).

### **A** WARNING

To avoid personal injury or property damage by uncontrolled movement of the actuator yoke (key 8), loosen the body/yoke nuts (figures 18, 19, 20, and 21, key 7) or bonnet/yoke nuts (figures 22 and 23, key 46) by following the instructions in the following step 7. below. Do not remove a stuck actuator yoke by pulling on it with equipment that can stretch or store energy in any other manner. The sudden release of stored energy can cause uncontrolled movement of the actuator yoke.

#### Note

The following step also provides additional assurance that the valve body fluid pressure has been relieved.

7. **For standard bonnet constructions (figures 18, 19, 20, and 21)**, body nuts (key 7) attach the actuator yoke (key 8) to the valve body (key 1). Loosen these nuts approximately 3mm (1/8 inch).

For extension and bellows bonnet constructions, bonnet nuts (key 46) attach the actuator yoke (key 8) to the extension bonnet (key 39). Loosen these nuts approximately 3mm (1/8 inch).

8. Then loosen the valve-to-yoke gasketed joint by either rocking the actuator yoke or prying between the valve and actuator yoke. Work the prying tool around the actuator yoke until it loosens.

#### **A** WARNING

If there is evidence of process fluid under pressure leaking from the joint, retighten the valve body/joint nuts and return to the Warning at the beginning of the Maintenance section to ensure proper steps have been taken to isolate the valve and relieve process pressure, thus avoiding property damage or personal injury.

- 9. If no fluid leaks from the joint, loosen the packing follower (key 29) two turns to relieve the packing compression load.
- 10. For standard bonnet constructions (figures 18, 19, 20, and 21), remove the body nuts (key 7) completely. For extension and bellows bonnet constructions (figures 22 and 23), remove the bonnet nuts (key 46) completely.

#### **CAUTION**

To avoid property damage, place the actuator yoke on a protective surface, as described in the following procedure.

11. Carefully lift off the actuator yoke and set it on a protective surface to prevent damage.

For standard bonnet constructions, if the bonnet (key 4) together with the valve stem plug assembly has a tendency to lift with the actuator yoke, ensure it does not drop from the actuator.

For extension and bellows constructions, ensure the bonnet (key 4) does not lift with the actuator yoke.

#### **CAUTION**

For extension and bellows bonnet constructions, lifting the bonnet with the actuator yoke may cause possible damage to the valve plug and to the bellows.

- 12. Remove the stem adjustor nut (key 27) and locknut (key 28).
- 13. **For standard bonnet constructions**, remove the bonnet and the valve plug/stem assembly and set on a protective surface.

For extension and bellows bonnet constructions, remove only the bonnet (key 4).

- 14. Remove the valve/yoke gasket (figures 18, 19, 20, and 21 key 5, figures 22 and 23 key 47) and cover the opening of the valve to protect the gasket surface and prevent foreign matter from getting into the valve cavity.
- 15. Remove the packing follower (key 29) from the bonnet (key 4).

16. Remove the Belleville spring pack (key 34) and packing spacer (key 30) from the bonnet (key 4). Carefully push out the remaining packing box parts from the bonnet (key 4) using a rounded rod or other tool which will not scratch the packing box wall. Clean the packing box and the metal packing box parts.

Table 11. GX Electric Actuator Maximum Allowable Thrust

VALVE SIZE	STEM DIAMETER	TRAVEL	DOMNIET CTV// F	STEM MATERIAL	MAXIMUM THRUST		
VALVE SIZE	mm	mm	BONNET STYLE	STRENGTH	N	lbf	
	10	20	Plain	High <sup>(1)</sup>	17000	3820	
DN25-DN50			Pidili	Low <sup>(2)</sup>	7600	1710	
(NPS 1 to 2)			Bellows/Extension	High	11400	2560	
				Low	6700	1500	
DN80-DN100 (NPS 3 to 4)			Plain	High	20000	4500	
	1.4	20.40	Plain	Low	Low 20000	4500	
	14	20, 40	Dallana /Fratanaian	High	20000	4500	
			Bellows/Extension	Low	14500	3260	
1. High strength stem materials consist of \$200910, N05500, \$31603. 2. Low strength materials consist of \$31803, N10665, N06022.							

#### **CAUTION**

Inspect the valve stem, threads and packing box surfaces for any sharp edges that might cut the packing. Scratches or burrs could cause packing box leakage or damage the new packing.

- 17. Inspect the valve stem, threads and packing box surfaces for any sharp edges that might cut the packing. Scratches or burrs could cause packing box leakage or damage the new packing. If the surface condition cannot be improved by light sanding, replace the damaged parts.
- 18. Remove the covering protecting the valve cavity and install a new valve/yoke gasket (figures 18, 19, 20, and 21 key 5, figures 22 and 23 key 47) making sure that the gasket seating surfaces are clean and smooth.
- 19. Carefully install the bonnet (key 4) onto the valve stem.
- 20. Install the new packing and the metal packing box parts according to figure 15 for PTFE packing and according to figure 16 for Graphite ULF packing. Place a smooth-edged pipe over the valve stem and gently tap each soft packing part into the packing box. Apply anti-seize lubricant to the threads and install the packing follower (key 29).
- 21. Install the locknut (key 28) and stem adjustor nut (key 27). Ensure they are aligned with the mark made on the stem disassembly and tighten
  - For standard bonnet constructions, install the valve plug/bonnet sub assembly into the valve body (key 1).
- 22. Mount the actuator onto the valve and install the body nuts (figures 18, 19, 20, 21 key 7, figures 22 and 23 key 46), but tighten them only finger-tight.
- 23. **For standard bonnet constructions**, tighten the body nuts (key 7) evenly using a cross-tightening procedure. See table 4 for torque requirements.
  - For extension and bellows bonnet constructions, tighten the bonnet nuts (key 46) evenly using a cross-tightening procedure. See table 5 for torque requirements.
- 24. Push the valve plug/stem to the valve seat. Thread the stem adjustor nut (key 27) and locknut (key 28) to the previously marked position. Thread the locknut (key 28) up against the stem locknut and tighten to the torque specified in table 6.
- 25. Stroke the actuator rod until it contacts the stem adjuster nut (key 27) and install the stem connector halves and travel indicator (keys 23, 24, and 26) with the cap screws (key 25). Install the stem connector halves in the proper orientation so that when looking at the inside of the stem connector halves, the flats are down and the beveled surfaces are up.
- 26. Align the pointer of the travel indicator (key 26) with the appropriate mark on the travel scale.

- 27. Tighten the stem connector cap screws (key 25) to 35 N•m (26 lbf•ft).
- 28. Tighten the packing follower (key 29) to the torque specified in table 7.

Alternately, the packing follower can be tightened by the following method:

- a. Tighten the packing follower until the Belleville springs are compressed 100% (or completely flat), as detected by a rapid increase in nut torque.
- b. For DN 15 through DN 100 (NPS 1/2 through 4), loosen the packing follower 60° of rotation.
- 29. Ensure that the electric actuator maximum thrust output does not exceed the values in table 11.

#### Valve Trim Maintenance

Key numbers in this section refer to figures 18, 19, 20, 21, 22, and 23.

### Valve Trim Disassembly

- 1. Remove the actuator and bonnet assembly as described in the Replacing Packing section (steps 1 through 10).
- For standard bonnet constructions (figures 18, 19, 20, 21, and 25), proceed to the Seat Ring / Cage Removal section.
- For extension bonnet constructions (figure 22), proceed to step 3.
- For bellows bonnet constructions (figure 23), proceed to step 2.
- 2. For bellows bonnet constructions (figure 23), use a bellows nut tool made according to the dimensions in figure 26 and table 13 to remove the bellows nut (key 51) as follows:
  - a. Insert the bellows nut tool into the extension bonnet (key 39). Be certain the tool lugs are engaged in the corresponding recesses in the bellows nut.
  - b. Use a torque gun or driver having sufficient torque capabilities according to table 10. Connect the gun to a socket that snugly fits the hex head on the bellows nut tool.
  - c. Insert the socket onto the hex head of the bellows nut tool.

#### **▲** WARNING

Be careful to hold the torque gun, attached socket, and tool at right angles to the bellows nut when applying torque. Tilting the gun and socket while applying torque may cause the lugs on the bellows nut tool to suddenly disengage from the lugs on the bellows nut thus causing possible damage to the bellows nut and possible personal injury.

- d. Remove the bellows nut (key 51).
- 3. **For both extension and bellows bonnet constructions:** Body nuts (key 7) attach the extension bonnet (key 39) to the valve body (key 1). Loosen these nuts approximately 3mm (1/8 inch). Then loosen the extension bonnet-to-body gasketed joint by either rocking the extension bonnet or prying between the body and extension bonnet. Work the prying tool around the extension bonnet until it loosens.
- 4. Remove the body nuts (key 7) completely and carefully lift the extension bonnet (key 39), and valve plug/stem extension assembly (key 3, 40 and 48) or plug/bellows/stem extension assembly (key 3, 49 and 48) from the top of the valve body.

- 5. Use a wrench to unscrew the plug/stem assembly (key 3) from the stem extension (key 40) or from bellows/stem assembly (key 49) as follows:
  - a. Insert the wrench onto the stem extension hex flats (see figures 22 and 23).

#### **CAUTION**

In the following procedure, take precautions to ensure the valve plug and stem finish are not damaged.

b. Clamp the plug/stem assembly (key 3) and holding it stable, unscrew the stem extension (key 40) or bellows/stem assembly (key 49). Take precautions to ensure the valve plug and stem finish are not damaged.

#### Note

There is a stem assembly locking insert (figures 22 and 23, key 48) in the valve plug/stem extension assembly. It is possible this insert may drop out during stem disassembly. If this is the case, ensure it is retained for reassembly of the valve stem to the stem extension.

- 6. Remove the plug/stem assembly (key 3) and bellows/stem assembly (key 49) from the extension bonnet. Remove the bellows gasket (key 50).
- 7. Proceed to the Seat Ring Removal section.

### Seat Ring / Cage Removal

### **CAUTION**

Use care to avoid damaging the gasket sealing surfaces.

The surface finish of the valve stem (key 3) is critical for making a good packing seal. The seating surfaces of the seat ring (key 2), cage (key 99), and the valve plug (key 3) are critical for tight shutoff and should therefore also be treated with care and properly protected.

- 1. Packing parts can be removed from the bonnet if desired. Replace these parts as described in the section on Packing Maintenance.
- 2. Use a seat ring tool made according to the dimensions in figure 5 and table 12 to remove the seat ring (key 2) as follows:
  - a. Insert the tool into the valve body. Be certain the tool lugs are engaged in the corresponding recesses in the seat ring.
  - b. Use a torque gun or driver having sufficient torque capabilities according to table 8. Connect the gun to a socket that snugly fits the hex head on the seat ring tool.
  - c. Insert the socket onto the hex head of the seat ring tool.

### **WARNING**

Be careful to hold the torque gun, attached socket, and tool at right angles to the seat ring when applying torque. Tilting the gun and socket while applying torque may cause the lugs on the seat ring tool to suddenly disengage from the lugs on the seat ring thus causing possible damage to the seat ring and possible personal injury.

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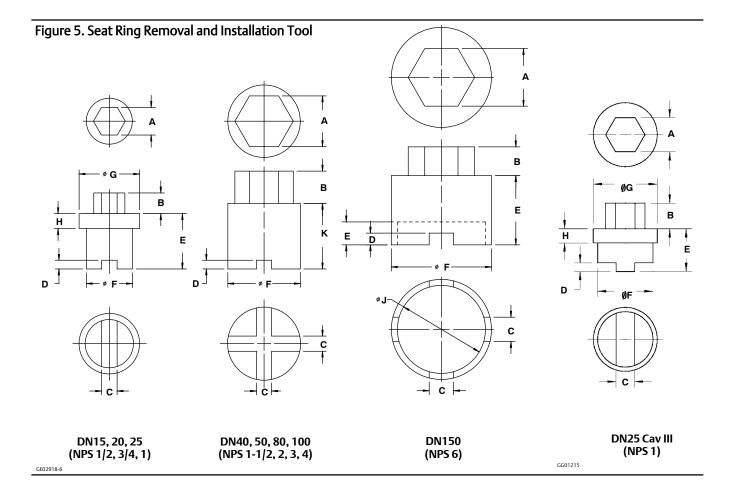


Table 12. Seat Ring Removal and Installation Tool Dimensions

Valve Size		Part Number	Α	В	С	D	E	FØ	GØ	Н	JØ	К
DN	NPS	Ture Number	mm									
15, 20, 25	1/2, 3/4, 1	GE02918X012	24	15	15.2	9	54	40	45	10		
25 (Cavitrol III)	1 (Cavitrol III)	Not Available	24	18	13	6	30	39	45	10		
40 <sup>(1)</sup>	1-1/2 <sup>(1)</sup>	GE02918X022	36	20	2X 13.2	7.5	58	53				
50 <sup>(1)</sup>	2 <sup>(1)</sup>	GE02918X032	46	28	2X 13.2	7.5	63	63				
80	3	GE02918X042	60	36	2X 15.2	8.5	100	93				
100	4	GE02918X052	70	44	2X 17.2	9.5	114	113				
150	6	GE02918X062	100	50	2X 43	10.5	170.5	174			153	20
1. Also used for Cavitrol III cage removal.												

- 3. Remove the seat ring (key 2) from the valve body.
- 4. Inspect parts for wear or damage that would prevent proper operation of the valve body.
- 5. Replace trim parts as necessary.

### **Valve Trim Assembly**

Assembly of Unbalanced Trim

Refer to figures 12, 18, 19, 20, 21, 22, 23, and 25.

1. Before installing the new seat ring / cage, thoroughly clean the threads in the valve body port. Apply suitable lubricant to the threads and to the 60° surface of the new seat ring (key 4). Screw the seat ring into the valve body. Using the seat ring tool, tighten the seat ring and torque according to the values in table 8. Remove all excess lubricant after tightening.

- 2. For standard bonnet constructions, perform the following. (Proceed to step 3 for extension and bellows bonnets.)
  - a. Clean the body/yoke gasket seating surfaces and install a new body/yoke gasket (key 5).
  - b. Remove any protective tape or covering from the valve plug/stem assembly.
  - c. Insert the valve plug/stem assembly into the seat ring.

#### **CAUTION**

If the packing is to be reused and was not removed from the bonnet, perform the following step carefully to avoid damaging the packing with the stem threads.

- d. Install bonnet and actuator yoke onto the valve body by completing the assembly according to steps 15 to 27 of the section Replacing Packing, omitting step 16 if new packing is not being installed.
- 3. For extension and bellows bonnet constructions, perform the following.
  - a. **For bellows bonnet constructions**, clean the extension bonnet/bellows gasket seating surfaces and install a new bellows gasket (key 50).
  - b. Remove any protective tape or covering from the valve plug/stem assembly (key 3). Then insert the plug/stem assembly (key 3) through the extension bonnet bushing (key 41).
  - c. Remove any protective tape or covering from the stem extension (key 40) or the bellows stem assembly (key 49). Screw the plug/stem assembly (key 3) into the stem extension or bellows/stem assembly. **Note: Do not apply lubricant to the threads of the plug/stem assembly (key 3) or the bellows/stem assembly (key 49).**

#### Note

Ensure the stem assembly locking insert (figures 22 and 23, key 48) has been first inserted in the bottom of the threaded hole in the stem extension.

#### **CAUTION**

In the following procedure, take precautions to ensure the valve plug and stem finish are not damaged.

- d. Clamp the plug/stem assembly (key 3) and hold it stable. Using a box spanner tool tighten the plug/stem assembly (key 3) into the stem extension (key 40) or into the bellows/stem assembly (key 49) according to the stem extension torque requirements listed in table 9. Take precautions to ensure the valve plug and stem finish are not damaged.
- e. **For bellows bonnet constructions**, apply suitable lubricant to the threads and to the bottom surface of the bellows nut (key 51). Screw the bellows nut into the extension bonnet. Using the bellows nut tool, a lathe or boring mill, tighten the bellows nut or torque according to the values in table 10. Remove all excess lubricant.

- f. Clean the body/extension bonnet seating gasket surface and install the gasket (key 5).
- g. Install the extension bonnet and plug/stem assembly onto the valve body. Install the body/yoke nuts (key 7) and tighten evenly using a cross-tightening procedure. See table 4 for torque requirements.

#### **CAUTION**

If the packing is to be reused and was not removed from the bonnet, perform the following step carefully to avoid damaging the packing with the stem threads.

h. Install the bonnet and actuator yoke onto the extension bonnet by completing the assembly according to steps 15 to 27 of the section Replacing Packing, omitting step 16 if new packing is not being installed.

### Assembly of Balanced Trim

(Available in DN 80, 100, and 150 [NPS 3, 4, and 6] only)

Refer to figure 10.

#### **CAUTION**

To protect the valve plug seal ring (key 37) and to ensure it seals properly, be careful not to scratch the surfaces of the ring groove in the valve plug or any of the surfaces of the replacement ring.

1. With the valve plug (key 3) removed according to the Disassembly portion of the Valve Trim Maintenance procedure, proceed as appropriate:

The seal ring (key 37) cannot be reused because it is a closed ring which must be pried and/or cut from the groove. Once the seal ring is removed, the elastomeric backup ring (key 38), which is also a closed ring, can be pried from the groove.

To install a new backup ring and seal ring onto the valve plug, apply a general purpose silicone-base lubricant to both rings (keys 38 and 37). Place the backup ring over the valve plug (key 3) and into the groove. Place the seal ring over the top edge of the valve plug (key 3) so that it enters the groove on one side of the valve plug. Slowly and gently stretch the seal ring and work it over the top edge of the valve plug. The PTFE material in the seal ring must be permitted time to cold-flow during the stretching procedure, so avoid jerking sharply on this ring. Stretching the seal ring over the valve plug may make it seem unduly loose when in the groove, but it will contract to its original size after insertion into the bonnet.

2. Install the seat ring, valve plug/stem, bonnet and actuator yoke into the valve body by completing the assembly according to steps 1 to 3 of the section Assembly of Unbalanced Trim.

### Repair Nameplate

If required by the end-user, an optional repair nameplate is available for recording changes made to the valve trim during maintenance (see figure 29). This nameplate can be ordered as a spare part, and is easily mounted to the actuator casing using a casing bolt. (Reference the Parts Ordering section of this manual.)

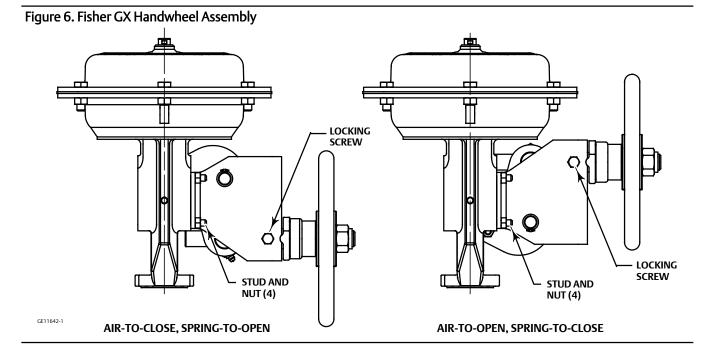
As shown in figure 29, the repair nameplate provides locations for maintenance personnel to record trim data, such as:

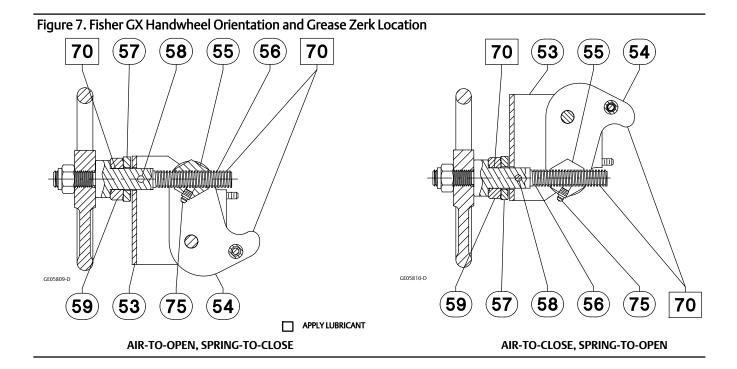
- Date of maintenance
- Trim material
- Port diameter
- Flow capacity (C<sub>v</sub> / K<sub>v</sub>)
- Flow characteristic
- Actuator Action ATO/ATC

#### **Bellows Maintenance**

This section provides instruction on the replacement of the bellows / stem assembly (see key 49 in figure 23).

- 1. Remove the actuator, bonnet assembly as described in the Replacing Packing section (steps 1 through 10).
- 2. Remove the plug/stem assemblies as described in the Valve Trim Disassembly section (steps 2 through 6).
- 3. To install the new bellows / stem assembly (key 49), perform the Valve Trim Assembly (step 3).





# **Handwheel Operation**

#### **CAUTION**

This handwheel is designed only for use with size 225 and 750 actuators with 20 mm travel. To avoid equipment damage, do not assemble this handwheel on size 750 actuators with 40 mm travel or size 1200 actuators.

# Principle of Operation

The GX handwheel is designed to compress the actuator springs and override the actuator fail action. Turning the handwheel drives the screw, nut, and levers. The levers push against the stem connector to transfer this motion. Reversing the direction of the handwheel will move the nut and levers in the opposite direction. Once the levers are no longer in contact with the stem connector, the locking screw should be used to secure the handwheel against undesired movement. To prevent damage due to overtravel, the handwheel should not be turned more than 2 full turns past the point at which the levers no longer contact the stem connector.

#### **A** WARNING

To avoid personal injury or loss of process control due to equipment damage, ensure the levers are completely disengaged and the locking screw is tight while the valve is in normal pneumatic operation.

During normal pneumatic operation when the handwheel is not needed, a locking screw (see figure 6) is provided on the side of the handwheel housing to lock the handwheel levers out of the way.

#### **▲** WARNING

To avoid personal injury or equipment damage due to possible sudden shifting or falling of the valve assembly, do not lift the valve assembly by the handwheel.

# GX Handwheel Installation (for use with 20mm travel only)

- 1. Note the orientation of the levers to the stem connector for either the air-to-close, spring-to-open configuration or for the air-to-open, spring-to-close configuration, as shown in figure 7.
- 2. Adjust the handwheel to allow positioning the levers above the stem connector before installation.
- 3. Install the handwheel to the GX mounting pad with four studs and nuts, as shown in figure 6. Torque to 24 N•m (18 lbf•ft).
- 4. Apply lithium grease to the grease zerk and to the tip of the levers (where they contact the stem connector), as shown in figure 7.

# **Travel Stop Operation**

# Principle of Operation

#### **CAUTION**

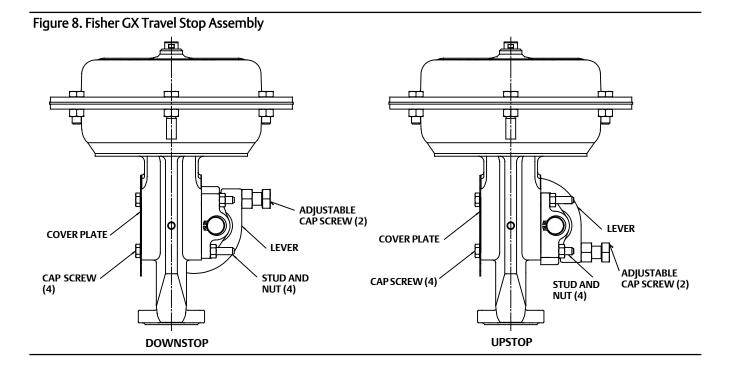
This travel stop is designed only for use with size 225 and 750 actuators with 20 mm travel. To avoid equipment damage, do not assemble this travel stop on size 750 actuators with 40 mm travel or size 1200 actuators.

The GX travel stop is designed to mechanically limit and stop the valve at a preset position in an emergency or upon loss of instrument air. This assembly is mounted on the yoke with four studs. The lever pushes against the stem connector to stop the travel. Travel position can be adjusted by two adjustable cap screws on the lever, as shown in figure 8. A cover plate assembly is available to prevent pinch point damage caused by the lever, as shown in figure 8.

#### **A** WARNING

To avoid personal injury or equipment damage due to possible sudden shifting or falling of the valve assembly, do not lift the valve assembly by the travel stop.

To avoid personal injury or loss of process control due to equipment damage, screw the adjustable cap screws to ensure the lever is completely disengaged while the valve is in normal pneumatic operation.



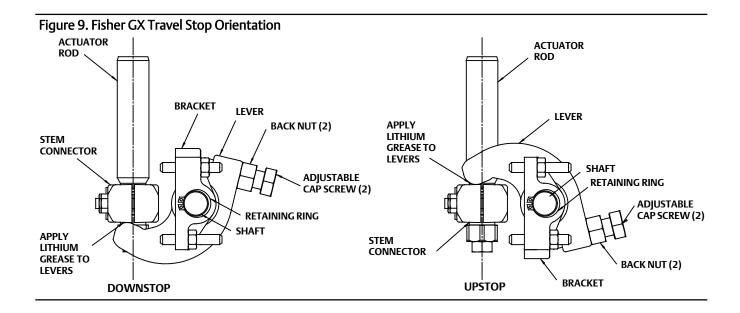
# **GX Travel Stop Installation**

### **Downstop**

- 1. Note the orientation of the lever to the stem connector for downstop positioning, as shown in figure 9. Adjust the travel stop to allow positioning the lever below the stem connector before installation.
- 2. Install the travel stop to the GX mounting pad with four studs and nuts, as shown in figure 8. Torque to 24.5 N•m (18 lbf•ft).
- 3. Apply lithium grease to the tip of the lever (where it contacts the stem connector) and to the two adjustable cap screws, as shown in figure 9.

### **Upstop**

- 1. Note the orientation of the lever to the stem connector for upstop positioning, as shown in figure 9. Adjust the travel stop to allow positioning the lever above the stem connector before installation.
- 2. Install the travel stop to the GX mounting pad with four studs and nuts, as shown in figure 8. Torque to 24.5 N•m (18 lbf•ft).
- 3. Apply lithium grease to the tip of the lever (where it contacts the stem connector) and to the two adjustable cap screws, as shown in figure 9.



## Setting the Travel Stop Position

After sending the required position air signal to the actuator, screw the adjustable cap screws to assure the lever contacts with the stem connector tightly, then tighten the back nut. Check the actual stem position when giving the 100% air signal.

Standard Accuracy for the travel stop position is +/-10% for 20 mm travel. For added precision, use the following procedure.

- 1. Send the desired position air signal to the actuator.
- 2. Set the travel stop, screw the adjustable cap screws to assure the lever contacts with the stem connector tightly, then tighten the back nut.
- 3. Send a 100% air signal.
- 4. Measure the difference between the actual stem position and the desired position.
- 5. Send the air signal for the desired position minus the differential position measured in step 4.
- 6. Reset the travel stop by adjusting the two cap screws and then tighten the back nut.

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Figure 10. Fisher GX Balanced Trim (Standard for DN 80 and 100 [NPS 3 and 4])

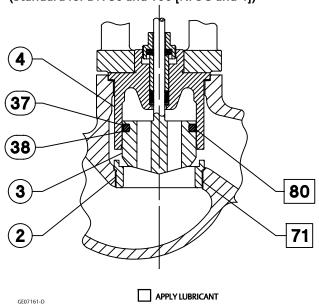


Figure 12. Fisher GX Unbalanced Port-Guided Trim (DN 40 to 150 [NPS 1-1/2 to 6])

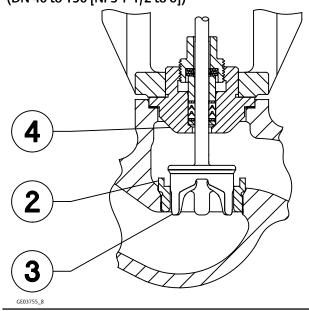


Figure 11. Fisher GX Balanced Trim (DN 150 [NPS 6])

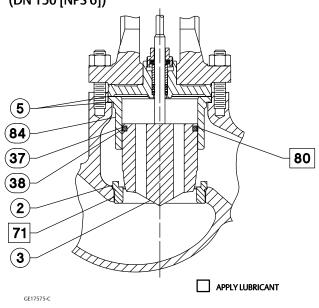


Figure 13. Fisher GX Whisper Trim™ III (DN 150 [NPS 6])

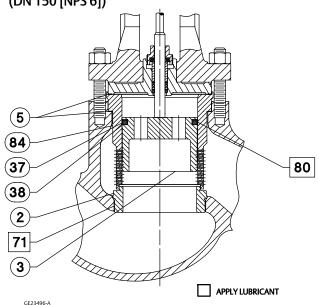


Figure 14. Fisher GX Control Valve with Typical Soft Seat Trim Construction (Port Sizes of 36mm - 136mm)

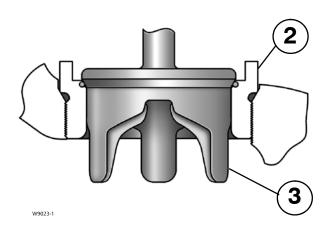


Figure 16. Fisher GX Graphite ULF Packing DN15 through DN100 (NPS 1/2 through 4)

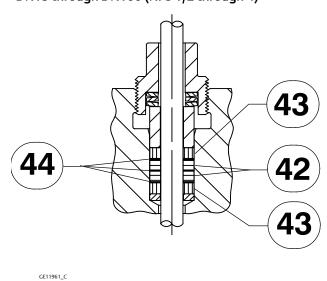


Figure 15. Fisher GX PTFE Packing DN15 through DN150 (NPS 1/2 through 6)

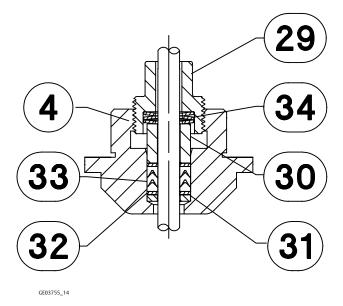
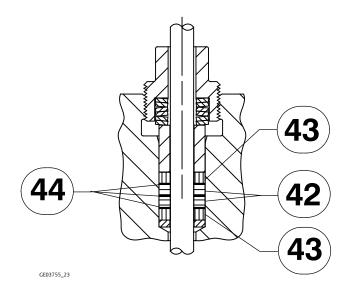
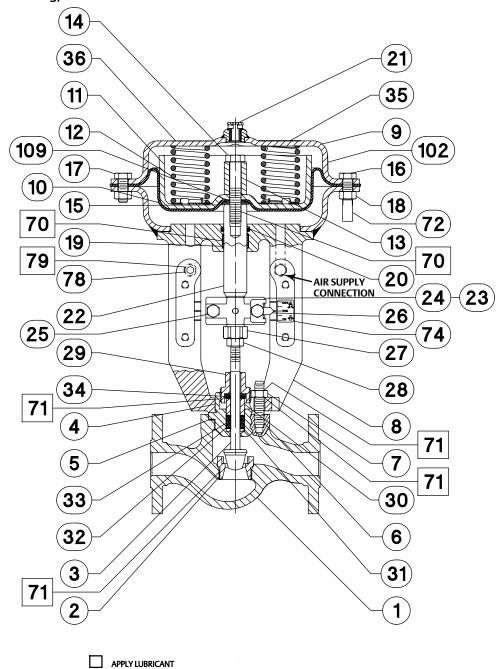


Figure 17. Fisher GX Graphite ULF Packing DN150 Only (NPS 6 Only)



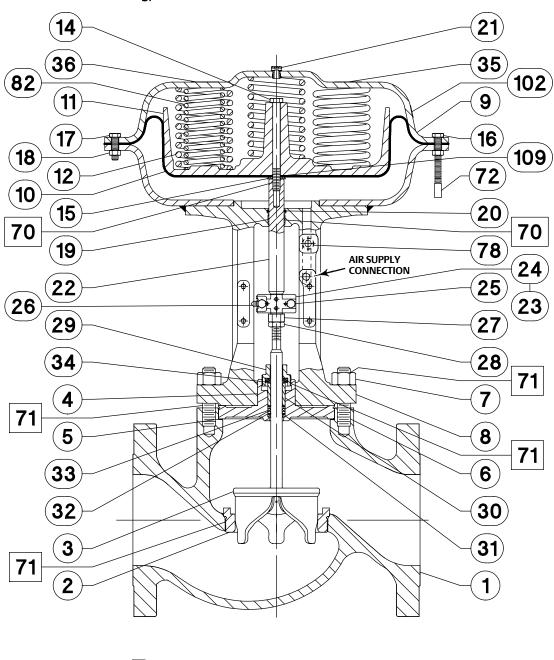
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Figure 18. Fisher GX Control Valve and Actuator System Assembly, Air-to-Open (Spring-to-Close) (DN25 (NPS 1) with Unbalanced Contoured Plug)



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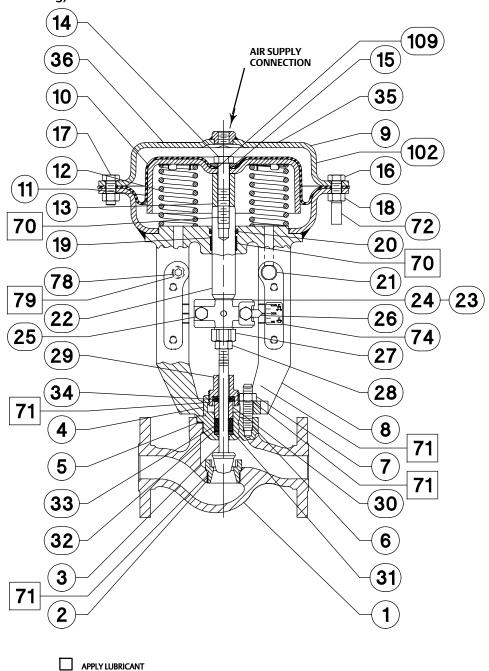
Figure 19. Fisher GX Control Valve and Actuator System Assembly, Air-to-Open (Spring-to-Close) (DN150 (NPS 6) with Unbalanced Contoured Plug)



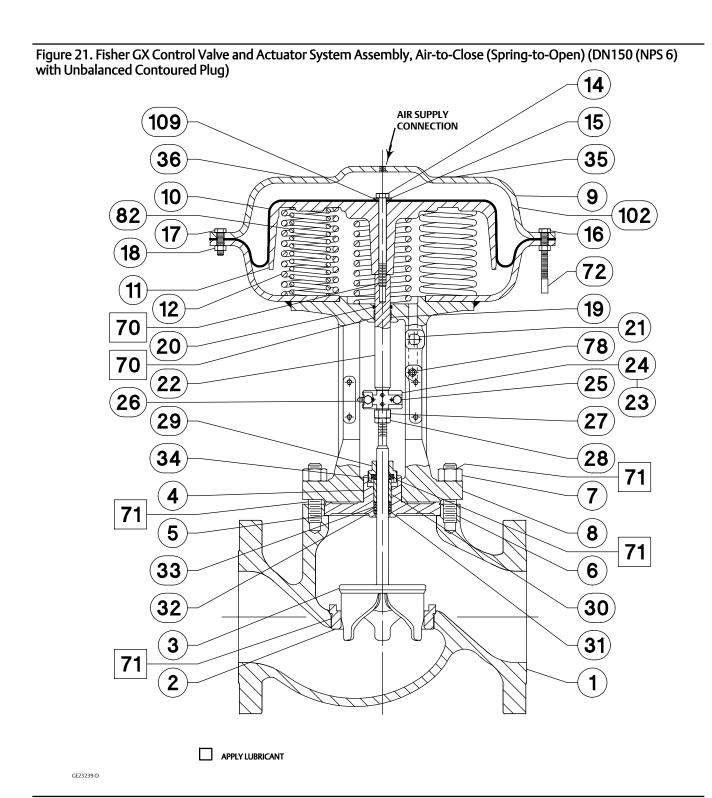
☐ APPLY LUBRICANT

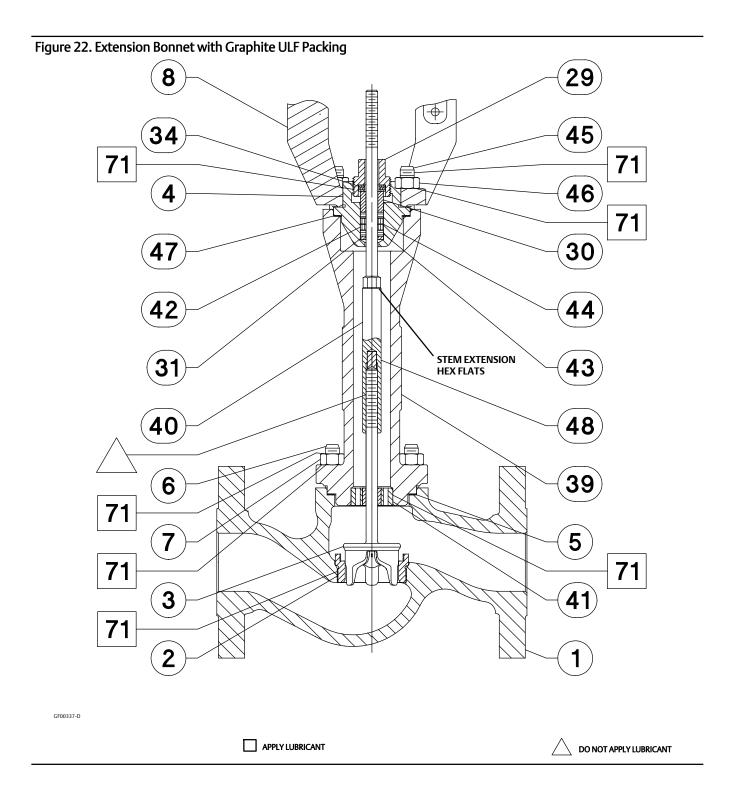
GE17517-F

Figure 20. Fisher GX Control Valve and Actuator System Assembly, Air-to-Close (Spring-to-Open) (DN25 (NPS 1) with Unbalanced Contoured Plug)



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August 2011

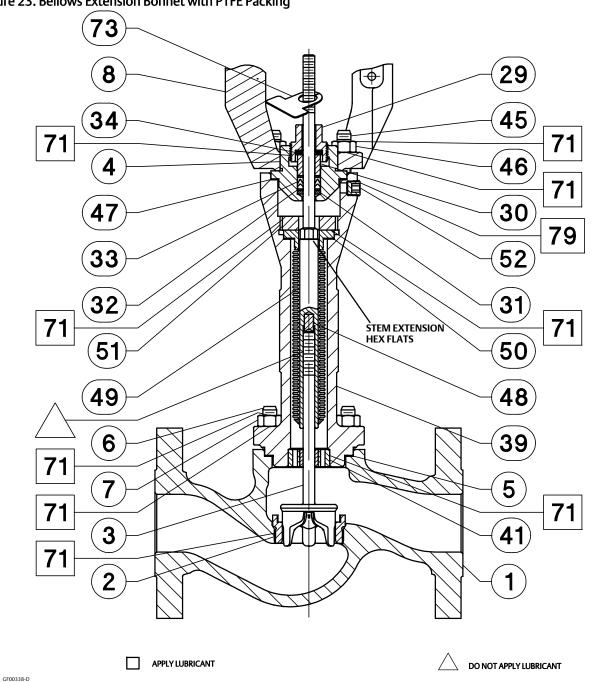


Figure 24. Cryogenic Extension Bonnet

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98

71

Figure 25. Fisher Cavitrol III Trim, DN25 and DN50 (NPS 1 and NPS 2)

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Figure 26. Bellows Nut Removal and Installation Tool

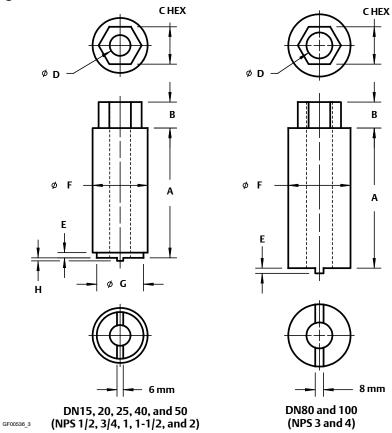
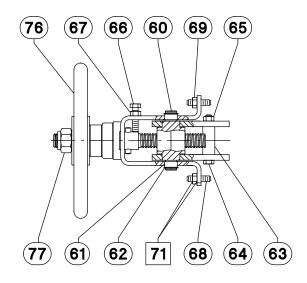
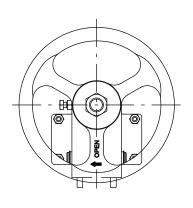


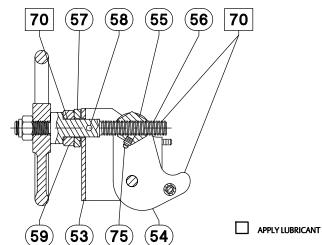
Table 13. Bellows Nut Removal and Installation Tool Dimensions

Valve	e Size	Α	В	С	D	E	FØ	GØ	Н
DN	NPS					mm			
15, 20, 25, 40, 50	1/2, 3/4, 1, 1-1/2, 2	125	25	36	20	5	53	45	3
80, 100	3, 4	135	25	1.42	25	5	60		

Figure 27. Handwheel Assembly

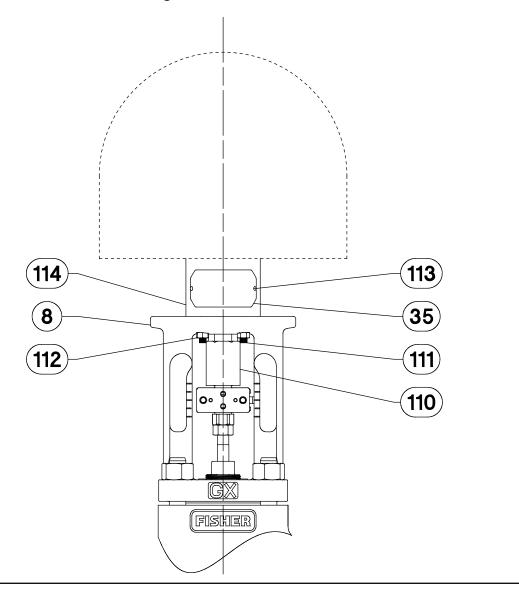






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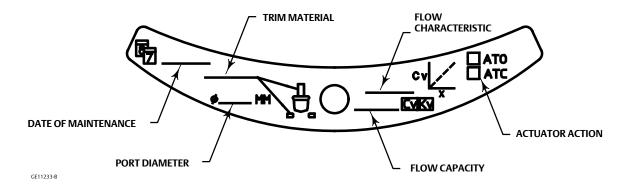
Figure 28. Fisher GX Electric Actuator Mounting



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Figure 29. Repair Nameplate (Spaces Provided for Recording Trim Maintenance Data)



### **Parts Ordering**

Each valve is assigned a serial number which can be found on the valve or on the nameplate (figure 2 and key 35, not shown). The nameplate will normally be fitted to the actuator. Refer to this serial number when contacting your Emerson Process Management sales office for technical assistance. When ordering replacement parts refer to this serial number and give the part description from the following parts list.

#### **A** WARNING

Use only genuine Fisher replacement parts. Components that are not supplied by Emerson Process Management should not, under any circumstances, be used in any Fisher valve, because they may void your warranty, might adversely affect the performance of the valve, and could cause personal injury and property damage.

### **Parts Kits**

PACKING	Valve Size Stem Diameter	DN 25, 40, and 50 (NPS 1, 1-1/2, and 2) 10 mm	DN 80 and 100 (NPS 3 and 4) 14 mm	DN 150 (NPS 6) 19 mm
KITS	PTFE packing (Contains keys 32 and 33)	RGXPACKX012	RGXPACKX022	RGXPACKX072
	Graphite ULF packing (Contains keys 42, 43, and 44)	RGXPACKX052	RGXPACKX042	RGXPACKX082

ACTUATOR	Actuator Size	225	750	1200
KITS	Actuator (Contains keys 10, 19, 109, and 20)	RGX225X0022	RGX750X0032	RGX1200X042

	Valve Size	DN 80 (NPS 3)	DN 100 (NPS 4)	DN 150 (NPS 6)							
BALANCED	Nitrile (Contains keys 37 and 38)	RGXSEALX012	RGXSEALX022	RGXSEALX072							
SEAL KITS <sup>(1)</sup>	Ethylene Propylene (EPDM) (Contains keys 37 and 38)	RGXSEALX032	RGXSEALX042	RGXSEALX082							
	FKM Fluorocarbon (Contains keys 37 and 38)	RGXSEALX052	RGXSEALX062	RGXSEALX092							
	Graphite Piston Ring (Contains key 100) GE26910X012 GE26911X012 GE26912X012										
1. A Gasket Kit is require	ed when replacing the seals.										

	Valve Size	DN 25 (NPS 1)	DN 40 (NPS 1-1/2)	DN 50 (NPS 2)	DN 80 (NPS 3)	DN 100 (NPS 4)	DN 150 (NPS 6)
GASKET KITS	Body / Bonnet Gasket Kit (Graphite Laminate) (Contains key 5)	GE00077X012	GE00078X012	GE00079X012	GE00080X012	GE00052X012	RGASKETXA62
KIIS	Body / Bonnet Gasket and Extension Bonnet Gasket Kit (Graphite Laminate) (Contains keys 5 and 47)	RGASKETXA12	RGASKETXA22	RGASKETXA32	RGASKETXA42	RGASKETXA52	

REPAIR NAMEPLATE	Description	DN15 to 150 (NPS 1/2 to 6)
REPAIR NAIVIEF LATE	18-8 stainless steel nameplate. Will mount to all GX actuator sizes using casing bolt. See figure 29.	GE11233X012

				Valve Size		
	Description	DN15, 20, 25 (NPS 1/2, 3/4, 1)	DN40 (NPS 1-1/2)	DN50 (NPS 2)	DN80 (NPS 3)	DN100 (NPS 4)
	1.4571 (316Ti) bellows with S31603 extension stem (key 49), graphite laminate body/bonnet gasket (key 5), graphite laminate extension bonnet gasket (key 47), graphite laminate bellows gasket (key 50), S31603 extension stem insert (key 48), anti-extrusion washer (key 32 - quantity of 2); PTFE packing set (key 33)	RGXBELLX012	RGXBELLX042	RGXBELLX072	RGXBELLX102	RGXBELLX132
BELLOWS KITS	N10276 bellows with S31603 extension stem (key 49), graphite laminate body/bonnet gasket (key 5), graphite laminate extension bonnet gasket (key 47), graphite laminate bellows gasket (key 50), S31603 extension stem insert (key 48), anti-extrusion washer (key 32 - quantity of 2); PTFE packing set (key 33)	RGXBELLX022	RGXBELLX052	RGXBELLX082	RGXBELLX112	RGXBELLX142
	N10276 bellows with N06022 extension stem (key 49), PTFE / N10276 body/bonnet gasket (key 5), PTFE / N10276 extension bonnet gasket (key 47), PTFE / N10276 bellows gasket (key 50), N10276 extension stem insert (key 48), anti-extrusion washer (key 32 - quantity of 2); PTFE packing set (key 33)	RGXBELLX032	RGXBELLX062	RGXBELLX092	RGXBELLX122	RGXBELLX152

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Key

Description

### **Parts List**

#### Note

For part numbers not shown, contact your Emerson Process Management sales office.

#### Description Part Number Key Valve Body 2\* Seat Ring see following table 3\* Valve Plug/Stem see following table 4 Bonnet 5\* Body/Bonnet Gasket, graphite laminate see gasket kits table Body/Bonnet Bolting (4 req'd) 6 Body/Bonnet Nut (4 req'd) 7 Actuator Yoke 9 Upper Diaphragm Casing 10\* Diaphragm Diaphragm Plate 11 Actuator Springs 12 13 **Actuator Spacer** Cap Screw 14 15 Washer Cap Screw, long 16 Size 225 Actuator (2 reg'd) Size 750 Actuator (2 req'd) Size 1200 Actuator (4 req'd) Cap Screw, short Size 225 Actuator (4 req'd) Size 750 Actuator (8 reg'd) Size 1200 Actuator (12 req'd) 18 Hex Nut Size 225 Actuator (6 req'd) Size 750 Actuator (10 req'd) Size 1200 Actuator (16 reg'd) 19\* Actuator Rod Bushing Actuator Rod Seal 20\* 21 Vent Cap Actuator Rod 22 23 Stem Connector Nut Half Stem Connector Bolt Half 24 25 Cap Screw (2 req'd) Travel Indicator 26 27 Stem Adjustor Nut 28 Locknut Packing Follower 29 30 Packing Spacer Packing Box Ring 31 Anti-Extrusion Washer (2 req'd) 32\*

35	Nameplate
36	Warning Tag
37*	Seal Ring
38*	Backup Ring
39	Extension Bonnet
40	Stem Extension
41	Extension Bonnet Lower Bushing
42*	Graphite ULF Packing Ring (2 reg'd)
43*	Packing Ring (2 reg'd)
43 44*	Packing Washer (3 reg'd)
45 46	Yoke/Extension Bonnet Bolting (4 reg'd)
	Yoke/Extension Bonnet Nut (4 req'd)
47*	Extension Bonnet Gasket
48*	Insert (req'd for assembly of valve stem to extension stem)
49*	Bellows/Stem Assembly
50*	Bellows Gasket
51	Bellows Nut
52	Pipe Plug
53	Handjack Body
54	Lever
55	Operating Nut
56	Drive Screw
57	Pivot Washer
58	Grooved Pin
59	Bearing
60	Pivot Pin
61	Bushing
62	Retainer Ring
63	Spacer
64	Cap Screw
65	Hex Nut
66	Lock Screw
67	Hex Nut
68	Stud
69	Hex Nut
70	Lubricant, Lithium Grease
71	Lubricant, Anti-Seize
72	Cap Plug
73	Warning Tag
74	Travel Indicator Scale
7 <del>5</del>	Zerk Fitting
75 76	Handwheel
70 77	Locknut
78	Pipe Plug
78 79	Anti-seize sealant
80	
	Lubricant, silicone sealant
81	Pipe Plug
82	Inner Actuator Spring
84	Guide Sleeve or Cage
98	Low Temp Bushing
99	Cavitrol III cage
100	Piston Ring
109*	O-ring
110	Rod Adaptor

\*Recommended spare parts 43

111

112

113

114

115

Stud

Nut

**Drive Screw** 

**Electric Actuator Spacer** 

Lead Seal and Wire (not shown)

PTFE Packing Set

Belleville Spring (3 req'd)

33\*

34

Martinal   Martinal		PORT			VALVE		, = = =,	,	. =,	VALVE	,,	
A.S.		SIZE	TRAVEL	PLUG STYLE	PLUG			TRIM STY	LE	PLUG/STEM		
A.B.   20		111111	111111		WATERIAL				1001	_	(1)	
A.B.											(17	
A.B.   20							CF3M	Micro-Flow Flat			CE042E2V012	
A.B.											GE04252X012	
A.S.						S31603					(1)	
A-8											(.,	
DN15 (NPS   1/2)   ND6022   CW2M		4.8	20	Unbalanced	R31233			Micro-Flow Flat			CE0.43E3V0E3	
Policy							COCI-A Seat				GE04252X052	
DN15 (NP5   1/2)   PN06022   CW2M											(1)	
Position   Position											(1)	
1/2   1/2	DN15					N06022	CW2M	Micro-Flow Flat				
Part											GE04252X042	
Part	1/2)							F 15				
Part					S31603	S31603	CF3M		tage		GE00051X012	
9.5   20												
P.5   P.5						S20910 SST			tage		GE00051X062	
No				(Standard)	CoCr-A Seat		CoCr-A Seat					
Note		9.5	20		N06022	N06022	CW2M		tage		GE00051X052	
Part												
Part				Linhalanced		S31603		Equal Percen	tage	GE08919X012	GE00051X012	
Parameter   Par				(Reduced	CoCr-A Seat		CoCr-A Seat					
Parameter   Par				. ,,	N06022	N06022	CW2M	Equal Percen				
A.8   20									1°8'	GE04253X032	(1)	
A.8   20							CE3M	Micro-Flow Flat	2°15'	GE04255X032		
A.8   20							CI SIVI	WICTO-Flow Flat	4°39'	GE04256X032	GE04252X012	
A.B.   20					\$31	\$21602			9°30'	GE13780X012	(3)	
A.8   20						331003			1°8'	GE04253X112	(1)	
Part		10	20	Unhalanced	021222		S31603/	Micro Flow Flat	2°15'	GE04255X032		
DN20 (NPS 3/4)   P9.5   P9.		4.0	∠0	Undalanced	Olibalanced	K31233		CoCr-A Seat	WIICIO-FIOW FIAL	4°39'	GE04256X032	GE04252X052
DN20 (NPS 3/4)   P.5   P.5									9°30'	GE13780X012		
DN20									1°8'	GE04253X072	(1)	
DN20 (NPS 3/4)   P.5   P.5						NOCOZZ	CWOM	Micro FlourFlot	2°15'	GE04255X072		
DN20 (NPS 3/4)						100022	CVVZIVI	MICTO-FIOW FIAL	4°39'	GE04256X072	GE04252X042	
No									9°30'	GE13780X032		
Note					621602	621602	CEDM	Equal Percen	tage	GE03891X012	CE000E1V013	
Part					221003	33 1003	CF3IVI	Linear		GE03893X012	GEUUUS IXU IZ	
9.5   20     (Standard)     CoCr-A Seat   S20910 SST   CoCr-A Seat   Linear   GE03893X022   GE00051X062				Unbalanced	S31603/	C20010 CCT	CF3M/	Equal Percen	tage	GE03891X022	CE000E1V0C2	
14   20   N06022   N06022   CW2M   Linear   GE03893X052   GE00051X052	, ,			(Standard)		320910331		Linear		GE03893X022	GE00051X062	
14   20   Unbalanced (Reduced Capacity)   S31603   S31603   CF3M   Equal Percentage   GE08919X012   GE00051X012		0.5	20		Nocon	Nocoss	CMOM	Equal Percen	tage	GE03891X052	CE000E1V0E2	
Unbalanced (Reduced Capacity)		9.5	20		N06022	N06022	CW2M	Linear		GE03893X052	GE00051X052	
CoCr-A Seat   S20910 SST   CoCr-A Seat   Equal Percentage   GE08919X022   GE00051X062					S31603	S31603	CF3M	Equal Percen	tage	GE08919X012	GE00051X012	
No   No   No   No   No   No   No   No				(Reduced		S20910 SST		Equal Percen	tage	GE08919X022	GE00051X062	
14   20   Unbalanced   S31603   S31603   CF3M   Linear   GE03892X012   GE00049X012				Capacity)	N06022	N06022	CW2M	Equal Percen	tage	GE08919X052	GE00051X052	
14 20 Unbalanced S31603/CoCr-A Seat S20910 SST CF3M/CoCr-A Seat N06022 N06022 CW2M Equal Percentage GE03890X022 GE00049X062 GE00049X052 GE00049X052					621602	621622	CE214	Equal Percen	tage	GE03890X012	CE000 40V013	
14					531603	531603	CF3M	Linear		GE03892X012	3892X012 GE00049X012 3890X022 GE00049X063	
14			22		S31603/	520012.55	CF3M/	Equal Percen	tage	GE03890X022		
N06022 N06022 CW2M Equal Percentage GE03890X052 GE00049X052		14	20	Unbalanced		S20910 SST			-			GE00049X062
N06022 N06022 CW2M Linear GE03892X052 GE00049X052									tage	GE03890X052		
					N06022	N06022	CW2M				GE00049X052	
	1. The se	at ring is inc	luded in the Va	alve Plug / Stem Pa	rt Number.	1	1	ı		ı	1	

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VALVE	PORT SIZE	TRAVEL	PLUG STYLE	VALVE PLUG	STEM	SEAT RING	TRIM STY	<u> </u>	VALVE PLUG/STEM	SEAT RING				
SIZE	mm	mm		MATERIAL	MATERIAL	MATERIAL			PART NUMBER	PART NUMBER				
								1°8'	GE04253X032	(1)				
						CF3M	Micro-Flow Flat	2°15'	GE04255X032	GE04252X012				
						CF3IVI	MICIO-FIOW FIAL	4°39'	GE04256X032					
					621602			9°30'	GE13780X012					
					S31603		1°8'	GE04253X112	(1)					
	4.8	20	Unbalanced	R31233		S31603/	Micro-Flow Flat	2°15'	GE04255X032					
	4.0	20	Ulibalaticed	K31233		CoCr-A Seat	MICIO-FIOW FIAL	4°39'	GE04256X032	GE04252X052				
								9°30'	GE13780X012					
								1°8'	GE04253X072	(1)				
					N06022	CM2M Micro Flow Flat	Micro Flow Flat	2°15'	GE04255X072					
					1100022		4°39'	GE04256X072	GE04252X042					
								9°30'	GE13780X032					
				521602	C21C02	CEAM	Equal Percen	tage	GE03891X012	CE000E1V013				
				S31603	S31603	CF3M	Linear		GE03893X012	GE00051X012				
			Unbalanced	S31603/	C20010 CCT	CF3M/	Equal Percentage		GE03891X022	CE000E1V0C2				
			(Standard)	CoCr-A Seat	S20910 SST	CoCr-A Seat	Linear		GE03893X022	GE00051X062				
	9.5	20	Habalan and	Nocoss	Nocona	CMOM	Equal Percentage		GE03891X052	GE00051X052				
	5.5	20		N06022	N06022	CW2M	Linear		GE03893X052	GE00051X052				
				S31603	S31603	CF3M	Equal Percen	tage	GE08919X012	GE00051X012				
DN25 (NPS 1)			Unbalanced (Reduced Capacity)	S31603/ CoCr-A Seat	S20910 SST	CF3M/ CoCr-A Seat	Equal Percen	itage	GE08919X022	GE00051X062				
			Сарасіту)	N06022	N06022	CW2M	Equal Percen	tage	GE08919X052	GE00051X052				
								521602	621602	CE2N4	Equal Percen	tage	GE03890X012	CE000 40 VO 1 2
				S31603	S31603	CF3M	Linear		GE03892X012	GE00049X012				
	1.4	20	Habalan a d	S31603/	C20010 CCT	CF3M/	Equal Percen	itage	GE03890X022	CE000 40V0C2				
	14	20	Unbalanced	CoCr-A Seat	S20910 SST	CoCr-A Seat	Linear		GE03892X022	GE00049X062				
				Nocoss	Nocona	CIA/ONA	Equal Percen	tage	GE03890X052	CE000 40 VOE 2				
				N06022	N06022	CW2M	Linear		GE03892X052	GE00049X052				
						CEDM	Equal Percen	tage	GE00081X012	CE00047V012				
				521602	621602	CF3M	Linear		GE00082X012	GE00047X012				
				S31603	S31603	CF3M/	Equal Percen	tage	GE00081X012	CE0E240V012				
						PTFE Seat	Linear		GE00082X012	GE05240X012				
						CF3M/	Equal Percen	itage	GE00081X022	GE000 47V0G2				
	22	20	Unbalanced	S31603/	S20910 SST	CoCr-A Seat	Linear		GE00082X022	GE00047X062				
	22	20	Unbalanced CoCr-A Seat	320310331	S17400 Cage	Cavitrol III T	rim	GG00409X012	GE35685X012					
						CWON	Equal Percen	itage	GE00081X052	CE000 471/052				
				Nocess	N06022	CW2M	Linear		GE00082X052	GE00047X052				
				N06022		N06022	CW2M/	Equal Percentage		GE00081X052	CE0E2 40VC 12			
						PTFE Seat	Linear		GE00082X052	GE05240X042				
1. The se	at ring is inc	luded in the Va	alve Plug / Stem Pa	rt Number.		-	•							

	PORT	TRAVEL		VALVE			-/ 1.0019 and Ci 514/1.	VALVE										
VALVE	SIZE	IKAVEL	PLUG STYLE	PLUG	STEM MATERIAL	SEAT RING MATERIAL	TRIM STYLE	PLUG/STEM	SEAT RING PART NUMBER									
SILL	mm	mm		MATERIAL	100 treito te	100 ti Eito te		PART NUMBER	TAIRT HOMBER									
				S31603	S31603	CF3M	Equal Percentage	GE03890X012	GE00057X012									
				33.003	33.003		Linear	GE03892X012	020003771012									
	14	20	Unbalanced	S31603/	S20910 SST	CF3M/	Equal Percentage	GE03890X022	GE00057X062									
				CoCr-A Seat		CoCr-A Seat	Linear	GE03892X022										
				N06022	N06022	CW2M	Equal Percentage	GE03890X052	GE00057X052									
							Linear	GE03892X052										
						CF3M	Equal Percentage	GE00081X012	GE00055X012									
				S31603	S31603		Linear	GE00082X012										
					\$20010 SST	CF3M/	Equal Percentage	GE00081X012	GE05240X052									
						PTFE Seat	Linear	GE00082X012										
	22	20	Unbalanced	S31603/		CoCr-A Seat	Equal Percentage	GE00081X022	GE00055X062									
				CoCr-A Seat		CoCr-A Seat	Linear	GE00082X022										
						CW2M	Equal Percentage	GE00081X052	GE00055X052									
				N06022	N06022		Linear	GE00082X052										
						CW2M/	Equal Percentage	GE00081X052	GE05240X082									
						PTFE Seat	Linear	GE00082X052										
DN40 (NPS						CF3M	Equal Percentage	GE00083X012	GE12607X012									
1-1/2)					CF3M	S31603		Linear	GE00084X012									
/_/						CF3M/ PTFE Seat	Equal Percentage	GE00083X012	GE12745X012									
							Linear	GE00084X012										
						CF3M/ CoCr-A Seat	Equal Percentage	GE00083X022	GE00053X062									
				CF3M/	S20910 SST	and Guide	Linear	GE00084X022	GE00033X002									
				CoCr-A Seat		S17400 Cage	Cavitrol III Trim	GG00410X012	GE35686X012									
	26	20	l			CEDM	Equal Percentage	GE00083X092	CE12C07V012									
	36	20	Unbalanced			CF3M	Linear	GE00084X082	GE12607X012									
				CF3M		CF3M/PTFE	Equal Percentage	GE00083X092	CE1274EV012									
				CF3M Nitride	S31603	Seat	Linear	GE00084X082	GE12745X012									
							CF3M/CoC	CF3M/CoCr- A Seat and	Equal Percentage	GE00083X092	GE00053X062							
						Guide	Linear	GE00084X082	GE00053X062									
						CW2M	Equal Percentage	GE00083X072	CE12607X032									
				CW2M	NOGOZZ	CVVZIVI	Linear	GE00084X072	GE12607X032									
				CVVZIVI	NU6U22	NU6U22	NU6U22	N06022	N06022	N06022	N06022	N06022	N06022	N06022	CW2M/	Equal Percentage	GE00083X072	GE12745X102
						PTFE Seat	Linear	GE00084X072	GL12/4JA102									

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PLUG/STEM PART NUMBER  GE00081X012 GE00081X012 GE00081X012 GE00082X012 GE00081X022 GE00082X022 GE00081X052	- GE00063X012 - GE05240X092	
GE00082X012 GE00081X012 GE00082X012 GE00081X022 GE00082X022		
GE00081X012 GE00082X012 GE00081X022 GE00082X022		
GE00082X012 GE00081X022 GE00082X022	GE05240X092	
GE00081X022 GE00082X022	02032 1071032	
GE00082X022		
	GE00063X062	
C-EOOOXTXOS2		
	GE00063X052	
GE00082X052		
GE00081X052	GE05240X122	
	GE12609X012	
	GE12745X022	
	GE00061X062	
GE00084X022		
GE00083X092	GE12609X012	
GE00084X082	3212003/(012	
GE00083X092	GE12745X022	
GE00084X082	GE12743X022	
GE00083X092	55000541/053	
GE00084X082	GE00061X062	
GE00083X072		
GE00084X072	GE12609X032	
GE00083X072	CE1274EV112	
GE00084X072	GE12745X112	
GE00085X012	CE12C00V012	
GE00086X012	GE12608X012	
GE00085X012	GE12745X032	
GE00086X012	GE12743X032	
GE00085X022		
GE00086X022	GE00059X062	
GG00414X012	GE35687X012	
GE00085X092		
GE00086X082	GE12608X012	
GE00085X092	654.07.45.400.0	
GE00086X082	GE12745X032	
GE00085X092		
	GE00059X062	
GE00085X072	GE12608X032	
	/2	
GE00085X072	I	
	GE00084X082 GE00083X092 GE00084X082 GE00083X092 GE00084X082 GE00083X072 GE00084X072 GE00084X072 GE00085X012 GE00085X012 GE00085X012 GE00085X012 GE00085X022 GE00086X012 GE00085X022 GE00085X092	

	PORT		I				_/ 1.0619 and CF3M/ 1.	VALVE	
VALVE SIZE	SIZE	TRAVEL	PLUG STYLE	VALVE PLUG MATERIAL	STEM MATERIAL	SEAT RING MATERIAL	TRIM STYLE	PLUG/STEM PART NUMBER	SEAT RING PART NUMBER
						CF3M	Equal Percentage	GE00097X012	GE12612X012
				CF3M	S31603	CI SIVI	Linear	GE00098X012	GETZOTZAOTZ
				CISW	331003	CF3M/	Equal Percentage	GE00097X012	GE12745X042
						PTFE Seat	Linear	GE00098X012	GE127 13/10 12
				CF3M/	530040 SST	CF3M/	Equal Percentage	GE00097X022	65000000000
				CoCr-A Seat	S20910 SST	CoCr-A Seat and Guide	Linear	GE00098X022	GE00069X062
						CF3M	Equal Percentage	GE00097X092	CE12612V012
	36	20	Unbalanced			CF3IVI	Linear	GE00098X082	GE12612X012
	30	20	Ulibalanced			CF3M/PTFE	Equal Percentage	GE00097X092	GE12745X042
				CF3M Nitride	S31603	Seat	Linear	GE00098X082	GE12743X042
						CF3M/CoCr- A Seat and	Equal Percentage	GE00097X092	GE00069X062
						Guide	Linear	GE00098X082	GE000037002
							Equal Percentage	GE00097X072	
						CW2M	Linear	GE00098X072	GE12612X032
				CW2M	N06022	CW2M/	Equal Percentage	GE00097X072	
						PTFE Seat	Linear	GE00098X072	GE12745X132
							Equal Percentage	GE00095X012	
				65314	524.502	CF3M	Linear	GE00096X012	GE12611X012
				CF3M	S31603	CF3M/	Equal Percentage	GE00095X012	65437.45\/053
						PTFE Seat	Linear	GE00096X012	GE12745X052
				CF3M/	S20910 SST	CF3M/ CoCr-A Seat	Equal Percentage	GE00095X022	CE00067V063
				CoCr-A Seat	320910331	and Guide	Linear	GE00096X022	GE00067X062
						CEDM	Equal Percentage	GE00095X092	CE12C11V012
DN80	46	20	Link dan ad			CF3M	Linear	GE00096X082	GE12611X012
(NPS 3)	46	20	Unbalanced			CF3M/PTFE	Equal Percentage	GE00095X092	CE1274EV0E2
				CF3M Nitride	S31603	Seat	Linear	GE00096X082	GE12745X052
						CF3M/CoCr- A Seat and	Equal Percentage	GE00095X092	GE00067X062
						Guide	Linear	GE00096X082	GLOOGOTAGOZ
						CW2M	Equal Percentage	GE00095X072	GE12611X032
				CW2M	N06022	CVVZIVI	Linear	GE00096X072	GETZOTTAOSZ
				CWZW	1100022	CW2M/	Equal Percentage	GE00095X072	GE12745X142
						PTFE Seat	Linear	GE00096X072	92127 1371 12
						CF3M	Equal Percentage	GE00093X012	GE12610X012
				CF3M	S31603		Linear	GE00094X012	
						CF3M/	Equal Percentage	GE00093X012	GE12745X062
						PTFE Seat	Linear	GE00094X012	
				CF3M/		CF3M/	Equal Percentage	GE00093X022	GE00065X062
				CoCr-A Seat	S20910 SST	CoCr-A Seat and Guide	Linear	GE00094X022	CEOOOCEVOCA
						and duide	Whisper Trim III	GE20152X012	GE00065X062
						CF3M	Equal Percentage	GE00093X092	GE12610X012
	70	40	Unbalanced				Linear Equal Percentage	GE00094X092	
				CF3M Nitride	S31603	CF3M/PTFE Seat	Equal Percentage Linear	GE00093X092 GE00094X092	GE12745X062
				CI SIVI MILITUE	33,1003	CF3M/CoCr-	Equal Percentage	GE00094X092 GE00093X092	
						A Seat and Guide	Linear	GE00093X092 GE00094X092	GE00065X062
						Guide			
					CW2M	Equal Percentage Linear	GE00093X072	GE12610X032	
			CW2M N06022 —	CMSSS	Equal Percentage	GE00094X072 GE00093X072			
						CW2M/ PTFE Seat	Linear	GE00093X072 GE00094X072	GE12745X152
			1		]	LILE SEAL	Lilledi	GL00034X072	

VALVE SIZE	PORT SIZE	TRAVEL	PLUG STYLE	VALVE PLUG	STEM MATERIAL	SEAT RING MATERIAL	TRIM STYLE	VALVE PLUG/STEM	SEAT RING PART NUMBER
SILL	mm	mm		MATERIAL	100 treito te	100 ti Eito te		PART NUMBER	TART HOMBER
				S31603	S31603	CF3M	Equal Percentage	GE00087X012	GE12610X012
							Linear	GE00088X012	
DN80	70	20	D-ld	S31603/	C20010 CCT	CF3M/	Equal Percentage	GE00087X022	CENNACEVACA
(NPS 3)	70	20	Balanced	CoCr-A Seat	S20910 SST	CoCr-A Seat and Guide	Linear	GE00088X022	GE00065X062
				Nacana	1105022	614/214	Equal Percentage	GE00087X062	65436461/033
				N06022	N06022	CW2M	Linear	GE00088X062	GE12610X032
						CESM	Equal Percentage	GE01114X012	CF12C1EV012
				CF3M	S31603	CF3M	Linear	GE01115X012	GE12615X012
				CF3IVI	331003	CF3M/	Equal Percentage	GE01114X012	GE12745X072
						PTFE Seat	Linear	GE01115X012	GL12743X072
				CF3M/	S20910 SST	CF3M/ CoCr-A Seat	Equal Percentage	GE01114X022	GE00075X062
				CoCr-A Seat	320910331	and Guide	Linear	GE01115X022	GE00075X062
						CESM	Equal Percentage	GE01114X092	CF13C1EV013
	46	20	Unbalanced			CF3M	Linear	GE01115X082	GE12615X012
	40	20	Ulibalaliced			CF3M/PTFE	Equal Percentage	GE01114X092	GE12745X072
				CF3M Nitride	S31603	Seat	Linear	GE01115X082	GE12/43AU/2
						CF3M/CoCr-	Equal Percentage	GE01114X092	CE0007EV0C2
						A Seat and Guide	Linear	GE01115X082	GE00075X062
						CIMOM	Equal Percentage	GE01114X052	CE12C1EV022
				CW2M	N06022	CW2M	Linear	GE01115X052	GE12615X032
				CVVZIVI	100022	CW2M/	Equal Percentage	GE01114X052	GE12745X162
DN100						PTFE Seat	Linear	GE01115X052	GE12743X102
(NPS 4)						CF3M	Equal Percentage	GE01112X012	GE12614X012
				CF3M	S31603	CI SIVI	Linear	GE01113X012	GE12014/1012
				CISW	331003	CF3M/	Equal Percentage	GE01112X012	GE12745X082
						PTFE Seat	Linear	GE01113X012	GE127 137,002
				CF3M/	S20910 SST	CF3M/ CoCr-A Seat	Equal Percentage	GE01112X022	GE00073X062
				CoCr-A Seat	320310331	and Guide	Linear	GE01113X022	GL00073X002
						CF3M	Equal Percentage	GE01112X092	GE12614X012
	70	40	Unbalanced			CF3IVI	Linear	GE01113X082	GE12014AU12
	70	40	Officed			CF3M/PTFE	Equal Percentage	GE01112X092	GE12745X082
				CF3M Nitride	S31603	Seat	Linear	GE01113X082	GE12743X002
						CF3M/CoCr- A Seat and	Equal Percentage	GE01112X092	CE00072V062
						Guide	Linear	GE01113X082	GE00073X062
						CW2M	Equal Percentage	GE01112X072	CE1261/(Y032
				CW2M	NOGOZZ	CW2M	Linear	GE01113X072	GE12614X032
			CW2M	N06022	CW2M/	Equal Percentage	GE01112X072	GE12745X172	
					PTFE Seat	Linear	GE01113X072		

VALVE	PORT SIZE	TRAVEL	PLUG STYLE	VALVE PLUG	STEM	SEAT RING	TRIM STYLE	VALVE PLUG/STEM	SEAT RING
SIZE	mm	mm	TEOGSTILE	MATERIAL	MATERIAL	MATERIAL	TRIIVISTTEE	PART NUMBER	PART NUMBER
						CF3M	Equal Percentage	GE00091X012	GE12613X012
				CF3M	S31603		Linear	GE00092X012	
						CF3M/ PTFE Seat	Equal Percentage	GE00091X012	GE12745X092
							Linear Equal Percentage	GE00092X012 GE00091X022	
				CF3M/	S20910 SST	CF3M/ CoCr-A Seat	Linear	GE00091X022	GE00071X062
				CoCr-A Seat	320910 331	and Guide	Whisper Trim III	GE20049X012	GE00071X062
							Equal Percentage	GE00091X092	
		40	Unbalanced			CF3M	Linear	GE00092X082	GE12613X012
		40	Onbalanced			CF3M/PTFE	Equal Percentage	GE00091X092	CE1274EV002
				CF3M Nitride	S31603	Seat	Linear	GE00092X082	GE12745X092
						CF3M/CoCr-A	Equal Percentage	GE00091X092	65000741/062
						Seat and Guide	Linear	GE00092X082	GE00071X062
							Equal Percentage	GE00091X072	
DN100	90			G.LO.		CW2M	Linear	GE00092X072	GE12613X032
(NPS 4)	30			CW2M	N06022	CW2M/PTFE	Equal Percentage	GE00091X072	CE1374EV103
						Seat	Linear	GE00092X072	GE12745X182
				S31603	S31603	CF3M	Equal Percentage	GE00099X012	GE12613X012
				33.003	33.003		Linear	GE00100X012	02120137012
			Balanced	S31603/	S20910 SST	CF3M/ CoCr-A Seat	Equal Percentage	GE00099X022	GE00071X062
			(Standard)	CoCr-A Seat	320910 331	and Guide	Linear	GE00100X022	GL000717002
				Nocozz	Nocoza	CMOM	Equal Percentage	GE00099X062	CE13C13V033
		20		N06022	N06022	CW2M	Linear	GE00100X062	GE12613X032
		20		S31603	S31603	CF3M	Equal Percentage	GE00089X012	GE12613X012
				33.003	33.003		Linear	GE00090X012	02120137.012
			Balanced (Reduced	S31603/	S20910 SST	CF3M/ CoCr-A Seat	Equal Percentage	GE00089X022	GE00071X062
			Capacity)	CoCr-A Seat	320310 331	and Guide	Linear	GE00090X022	GE000717002
				N06022	N06022	CW2M	Equal Percentage	GE00089X062	GE12613X032
				1400022	1400022	CVVZIVI	Linear	GE00090X062	GE12013X032
						CF3M /	Equal Percentage	GE22427X012	GE16389X032
						CoCr-A Seat and Guide	Linear	GE22429X012	GE10369A032
				CF3M	S31603	CF3M /	Equal Percentage	GE22427X012	
	90	40	Unbalanced			PTFE Seat / CoCr-A Guide	Linear	GE22429X012	GE27317X022
				CF3M /		CF3M /	Equal Percentage	GE22427X022	
				CoCr-A Seat	S20910 SST	CoCr-A Seat and Guide	Linear	GE22429X022	GE16389X032
						CF3M /	Equal Percentage	GE16192X012	
						CoCr-A Seat and Guide	Linear	GE22423X012	GE15221X032
DN150				CF3M	S31603	CF3M /	Equal Percentage	GE16192X012	
(NPS 6)			Unbalanced			PTFE Seat /	Linear	GE22423X012	GE27317X012
						CoCr-A Guide CF3M /			
				CF3M / CoCr-A Seat	S20910 SST	CoCr-A Seat	Equal Percentage	GE16192X022	GE15221X032
	136	60		edel Albeut		and Guide	Linear	GE22423X022	
				S31603	S31603	CF3M	Equal Percentage  Linear	GE16210X012 GE16211X012	GE15221X012
						CF3M /			
			Balanced	S31603 / CoCr-A Seat	S20910 SST	CoCr-A Seat	Equal Percentage	GE16210X022	GE15221X032
			Salariced			and Guide	Linear	GE16211X022	
				S31603 / CoCr-A Seat and Guide	S20910 SST	CF3M / CoCr-A Seat	Whisper Trim III Level A1	GE22226X012	GE15223X012

### Key 3 Valve Plug/Stem and Key 2 Seat Ring (Plain Bonnet, CD3MN Valve Body Material)

VALVE SIZE	PORT SIZE mm	TRAVEL	PLUG STYLE	VALVE PLUG MATERIAL	STEM MATERIAL	SEAT RING MATERIAL	TRIM STY	LE	VALVE PLUG/STEM PART NUMBER	SEAT RING PART NUMBER
				WITTERITE				1°8'	GE04253X052	(1)
								2°15'	GE04255X052	
	4.8	20	Unbalanced	R31233	S31803	CD3MN	Micro-Flow Flat	4°39'	GE04256X052	GE04252X022
								9°30'	GE13780X022	GEO 1232/1022
			Unbalanced				Equal Percer		GE03891X032	
			(Standard)	S31803	S31803	CD3MN	Linear		GE03893X032	
DN25 (NPS 1)	9.5	20	Unbalanced (Reduced Capacity)	S31803	S31803	CD3MN	Equal Percer	•	GE08919X032	GE00051X022
	14	20	Unbalanced	C21002	C21902	CD3MN	Equal Percer	itage	GE03890X032	GE00049X022
	14	20	Unbalanced	S31803	S31803	CD3IVIN	Linear		GE03892X032	GE00049X022
				C21002	C21002	CD2MN	Equal Percer	ıtage	GE00081X032	CE00047V022
	22	20	Unbalanced	S31803	S31803	CD3MN	Linear		GE00082X032	GE00047X022
	22	20	Offibalariced	S31803	S31803	CD3MN/	Equal Percer	itage	GE00081X032	GE05240X022
				331803	331003	PTFE Seat	Linear		GE00082X032	GE03240X022
	14	20	Unbalanced	S31803	S31803	CD3MN	Equal Percer	itage	GE03890X032	GE00057X022
	14	20	Offibalariced	331003	331003	CDSIVIN	Linear		GE03892X032	GE00037X022
				S31803	S31803	CD3MN	Equal Percer	ıtage	GE00081X032	GE00055X022
	22	20	Unbalanced	331003	331803	CDSIVIIV	Linear		GE00082X032	GL00033X022
DN40 (NPS	22	20	Offibalariced	S31803	S31803	CD3MN/	Equal Percer	itage	GE00081X032	GE05240X062
1-1/2)				331003	331003	PTFE Seat	Linear		GE00082X032	GE032407002
, ,				CD3MN	S31803	CD3MN	Equal Percer	itage	GE00083X032	GE12607X052
	36	20	Unbalanced	CDSIVIIV	331003	CDSIVIIV	Linear		GE00084X032	GE120077032
	30	20	Onbalancea	CD3MN	S31803	CD3MN/	Equal Percer	itage	GE00083X032	GE12745X282
				CDSWIIV	331003	PTFE Seat	Linear		GE00084X032	GE127 137/202
				S31803	S31803	CD3MN	Equal Percer	itage	GE00081X032	GE00063X022
	22	20	Unbalanced	33.003	33.003	255	Linear		GE00082X032	020000371022
				S31803	S31803	CD3MN/	Equal Percer	itage	GE00081X032	GE05240X102
						PTFE Seat	Linear		GE00082X032	
				CD3MN	S31803	CD3MN	Equal Percer	itage	GE00083X032	GE12609X052
DN50	36	20	Unbalanced				Linear		GE00084X032	
(NPS 2)				CD3MN	S31803	CD3MN/	Equal Percer	itage	GE00083X032	GE12745X292
						PTFE Seat	Linear		GE00084X032	
				CD3MN	S31803	CD3MN	Equal Percer	itage	GE00085X032	GE12608X052
	46	20	Unbalanced				Linear		GE00086X032	
				CD3MN	S31803	CD3MN/	Equal Percer	ntage	GE00085X032	GE12745X302
			alve Plug / Stem Pa			PTFE Seat	Linear		GE00086X032	

Key 3 Valve Plug/Stem and Key 2 Seat Ring (Plain Bonnet, CD3MN Valve Body Material)

VALVE	PORT SIZE	TRAVEL		VALVE	STEM	SEAT RING	aive body iviaterial)	VALVE	SEAT RING
SIZE	mm	mm	PLUG STYLE	PLUG MATERIAL	MATERIAL	MATERIAL	TRIM STYLE	PLUG/STEM PART NUMBER	PART NUMBER
				CDAMN	S31803	CD3MN	Equal Percentage	GE00097X032	CE12C12V0E2
	36	20	Unbalanced	CD3MN	531803	CD3IVIN	Linear	GE00098X032	GE12612X052
	30	20	Ulibalaticed	CD3MN	S31803	CD3MN/	Equal Percentage	GE00097X032	GE12745X312
				CD3IVIN	331003	PTFE Seat	Linear	GE00098X032	GE12745X312
				CD3MN	S31803	CD3MN	Equal Percentage	GE00095X032	GE12611X052
DNIGO	46	20	Unbalanced	CDSWIN	331803	CDSWIN	Linear	GE00096X032	GETZOTTXO32
DN80 (NPS 3)	40	20	Olibalariced	CD3MN	S31803	CD3MN/	Equal Percentage	GE00095X032	GE12745X322
(11133)				CD3WIN	331003	PTFE Seat	Linear	GE00096X032	GE12745X322
				CD3MN	S31803	CD3MN	Equal Percentage	GE00093X032	GE12610X052
		40	Unbalanced	CDSWIN	331803	CDSWIN	Linear	GE00094X032	GE12010X032
	70	40	Olibalariced	CD3MN	S31803	CD3MN/	Equal Percentage	GE00093X032	GE12745X332
				CD3WIN	331003	PTFE Seat	Linear	GE00094X032	GE12745X332
		20	Balanced	S31803	S31803	CD3MN	Equal Percentage	GE00087X032	GE12610X052
				CD3MN	S31803	CD3MN	Equal Percentage	GE01114X032	GE12615X052
	46	20	Unbalanced	CDSWIN	331003	CDSWIN	Linear	GE01115X032	GETZOTSKOSZ
	40	20	Olibalariced	CD3MN	S31803	CD3MN/	Equal Percentage	GE01114X032	GE12745X342
				CDSWIN	331003	PTFE Seat	Linear	GE01115X032	GETZ7 43/K342
				CD3MN	S31803	CD3MN	Equal Percentage	GE01112X032	GE12614X052
	70	40	Unbalanced	CDSWIN	331003	CDSWIN	Linear	GE01113X032	GE12014/032
	70	40	Olibalariced	CD3MN	S31803	CD3MN/	Equal Percentage	GE01112X032	GE12745X352
DN100				CDSWIN	331003	PTFE Seat	Linear	GE01113X032	GE12743X332
(NPS 4)				CD3MN	S31803	CD3MN	Equal Percentage	GE00091X032	GE12613X052
		40	Unbalanced	CDSWIN	331003	CDSWIN	Linear	GE00092X032	GETZOTSKOSZ
		40	Olibalariced	CD3MN	S31803	CD3MN/	Equal Percentage	GE00091X032	GE12745X362
				CDSWIN	331003	PTFE Seat	Linear	GE00092X032	GE12743X302
	90		Balanced	S31803	S31803	CD3MN	Equal Percentage	GE00099X032	
		2.0	(Standard)	331003	331003	CDSWIN	Linear	GE00100X032	554364377653
	20	20	Balanced (Reduced S31803 Capacity)	†	6001111	<b>Equal Percentage</b>	GE00089X032	GE12613X052	
				231803	S31803	CD3MN	Linear	GE00090X032	

Key 3 Valve Plug/Stem and Key 2 Seat Ring (Plain Bonnet, CF3 Valve Body Material)

VALVE	PORT SIZE	TRAVEL	PLUG STYLE	VALVE PLUG	STEM	SEAT RING	e Body Materia TRIM STY	•	VALVE PLUG/STEM	SEAT RING
SIZE	mm	mm		MATERIAL	MATERIAL	MATERIAL			PART NUMBER	PART NUMBER
								1°8'	GE04253X092	(1)
	4.0	20	Umbalamaad	מבונת	C21002	CE3	Minna FlancFlat	2°15'	GE04255X052	
	4.8	20	Unbalanced	R31233	S31803	CF3	Micro-Flow Flat	4°39'	GE04256X052	GE04252X032
								9°30'	GE13780X022	
			Unbalanced	S30403	C21002	CF3	Equal Percer	tage	GE03891X042	
			(Standard)	530403	S31803	CF3	Linear		GE03893X042	
DN25 (NPS 1)	9.5	20	Unbalanced (Reduced Capacity)	S30403	S31803	CF3	Equal Percer	tage	GE08919X042	GE00051X042
	14	20	Unbalanced	S30403	S31803	CF3	Equal Percer	itage	GE03890X042	GE00049X042
	14	20	Unbalanced	530403	551803	CF3	Linear		GE03892X042	GE00049X042
				C20402	C21902	CF3	Equal Percer	tage	GE00081X042	CE00047V043
	22	20	Unbalanced	S30403	S31803	CF3	Linear		GE00082X042	GE00047X042
	22	20	Ulibalanced	S30403	C21002	CF3/	Equal Percer	itage	GE00081X042	GE05240X032
				330403	S31803	PTFE Seat	Linear		GE00082X042	GE03240A032
	14	20	Unbalanced	S30403	S31803	CF3	Equal Percer	tage	GE03890X042	GE00057X042
	14	20	Officed	330403	331003	Crs	Linear		GE03892X042	GE00037X042
				S30403	S31803	CF3	Equal Percer	tage	GE00081X042	GE00055X042
	22	20	Unbalanced	220702	331003	CIS	Linear		GE00082X042	GL00033X042
DN40 (NPS	22	20	Olibalariced	S30403	S31803	CF3/	Equal Percer	tage	GE00081X042	GE05240X072
1-1/2)				330403	331003	PTFE Seat	Linear		GE00082X042	GL03240X072
, ,				CF3	S31803	CF3	Equal Percer	tage	GE00083X042	GE12607X062
	36	20	Unbalanced	Cio	331803	Cis	Linear		GE00084X042	GL12007X002
	30	20	Olibalariced	CF3	S31803	CF3/	Equal Percer	tage	GE00083X042	GE12745X192
				Clo	331003	PTFE Seat	Linear		GE00084X042	GL12743X132
				S30403	S31803	CF3	Equal Percer	tage	GE00081X042	GE00063X042
	22	20	Unbalanced	220702	331003	CIS	Linear		GE00082X042	GL000037042
	22	20	Olibalariced	S30403	S31803	CF3/	Equal Percer	tage	GE00081X042	GE05240X112
				220702	331003	PTFE Seat	Linear		GE00082X042	GLUJZTONTTZ
				CF3	S31803	CF3	Equal Percer	tage	GE00083X042	GE12609X062
DN50	36	20	Unbalanced	Clo	331003	CIS	Linear		GE00084X042	GE12003X002
(NPS 2)	30	20	Officed	CF3	S31803	CF3/	Equal Percer	tage	GE00083X042	GE12745X202
				CF3	د ۱۵۵۱ د د	PTFE Seat	Linear		GE00084X042	GL12743A2U2
				CF3	S31803	CF3	Equal Percer	tage	GE00085X042	GE12608X062
	46	20	Unbalanced	CF3	د ۱۵۵۱ د د	Cro	Linear		GE00086X042	GL12000A002
	40	20	Officialitied	CF3	S31803	CF3/	Equal Percer	itage	GE00085X042	GE12745X212
					د ۱۵۵۱ د د	PTFE Seat	Linear		GE00086X042	GL12/4JAZ1Z
1. The se	at ring is inc	cluded in the V	alve Plug / Stem Pa	rt Number.						

#### Key 3 Valve Plug/Stem and Key 2 Seat Ring (Plain Bonnet, CF3 Valve Body Material)

VALVE	PORT SIZE	TRAVEL	PLUG STYLE	VALVE PLUG	STEM	SEAT RING	TRIM STYLE	VALVE PLUG/STEM	SEAT RING
SIZE	mm	mm		MATERIAL	MATERIAL	MATERIAL		PART NUMBER	PART NUMBER
				CF3	S31803	CF3	Equal Percentage	GE00097X042	CF12C12V0C2
	36	20	Unbalanced	CF3	531803	CF3	Linear	GE00098X042	GE12612X062
	30	20	Ulibalaticed	CF3	S31803	CF3/	Equal Percentage	GE00097X042	GE12745X222
				Cr3	331003	PTFE Seat	Linear	GE00098X042	GE12/45A222
				CF3	S31803	CF3	Equal Percentage	GE00095X042	GE12611X062
	46	20	Unbalanced	CF3	331003	CF3	Linear	GE00096X042	GETZOTTAUUZ
DN80	40	20	Ulibalaticed	CF3	S31803	CF3/	Equal Percentage	GE00095X042	GE12745X232
(NPS 3)				Cr3	331003	PTFE Seat	Linear	GE00096X042	GE12/45A232
				CF3	S31803	CF3	Equal Percentage	GE00093X042	GE12610X062
		40	Unbalanced	Cr3	331003	CF3	Linear	GE00094X042	GE12610A062
	70	40	Ulibalaticed	CF3	S31803	CF3/	Equal Percentage	GE00093X042	GE12745X242
	70			Cr3	331003	PTFE Seat	Linear	GE00094X042	GE12743A242
		20	Balanced	S30403	S31803	CF3	Equal Percentage	GE00087X042	GE12610X062
		20	Dalanced	330403	331003	CF3	Linear	GE00088X042	GE12610A062
				CF3	S31803	CF3	Equal Percentage	GE01114X042	GE12615X062
	46	20	Unbalanced	Cr3	331003	CF3	Linear	GE01115X042	GE12013A002
	40	20	Ulibalaticed	CF3	S31803	CF3/	Equal Percentage	GE01114X042	GE12745X252
				Cr3	331003	PTFE Seat	Linear	GE01115X042	GE12/43A232
				CF3	S31803	CF3	Equal Percentage	GE01112X042	GE12614X062
	70	40	Unbalanced	Cr3	331003	CF3	Linear	GE01113X042	GE12014A002
	70	40	Olibalaticed	CF3	S31803	CF3/	Equal Percentage	GE01112X042	GE12745X262
DN100				Cr3	331003	PTFE Seat	Linear	GE01113X042	GE12/45A202
(NPS 4)				CF3	S31803	CF3	Equal Percentage	GE00091X042	GE12613X062
		40	Unbalanced	Cr3	331003	CF3	Linear	GE00092X042	GE12013A002
		40	Ulibalaticed	CF3	S31803	CF3/	Equal Percentage	GE00091X042	GE12745X272
				Cr3	331003	PTFE Seat	Linear	GE00092X042	GE12/43A2/2
	90		Balanced	S30403	S31803	CF3	Equal Percentage	GE00099X042	
			(Standard)	330403	331003	CF3	Linear	GE00100X042	
		20	Balanced	ed ed		Equal Percentage	GE00089X042	GE12613X062	
			(Reduced Capacity)	S30403	S31803	CF3	Linear	GE00090X042	

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### Key 3 Valve Plug/Stem and Key 2 Seat Ring (Plain Bonnet, CN7M and CW2M Valve Body Material)

VALVE	PORT SIZE	TRAVEL	PLUG STYLE	VALVE PLUG	STEM	SEAT RING	TRIM STY		VALVE PLUG/STEM	SEAT RING
SIZE	mm	mm		MATERIAL	MATERIAL	MATERIAL			PART NUMBER	PART NUMBER
								1°8'	GE04253X072	(1)
	4.0	20	Link dan ad	D21222	Nocoss	CMOM	Minn Floor Flot	2°15'	GE04255X072	
	4.8	20	Unbalanced	R31233	N06022	CW2M	Micro-Flow Flat	4°39'	GE04256X072	GE04252X042
								9°30'	GE13780X032	]
			Unbalanced	N06022	N06022	CMOM	Equal Percer	ntage	GE03891X052	
			(Standard)	1100022	1100022	CW2M	Linear		GE03893X052	
DN25 (NPS 1)	9.5	20	Unbalanced (Reduced Capacity)	N06022	N06022	CW2M	Equal Percer	3	GE08919X052	GE00051X052
	14	20	Unbalanced	NOCOSS	NOCOSS	CMOM	Equal Percer	ntage	GE03890X052	CE00040V0E2
	14	20	Unbalanced	N06022	N06022	CW2M	Linear		GE03892X052	GE00049X052
				N06022	N06022	CW2M	Equal Percer	ntage	GE00081X052	GE00047X052
	22	20	Unbalanced	1100022	100022	CVVZIVI	Linear		GE00082X052	GE00047A032
	22	20	Offibalaficed	N06022	N06022	CW2M/	Equal Percer	ntage	GE00081X052	GE05240X042
				1100022	1100022	PTFE Seat	Linear		GE00082X052	GE03240A042
	14	20	Unbalanced	N06022	N06022	CW2M	Equal Percer		GE03890X052	GE00057X052
	14	20	Officed	100022	1100022	CVVZIVI	Linear		GE03892X052	GE00037X032
				N06022	N06022	CW2M	Equal Percer	ntage	GE00081X052	GE00055X052
	22	20	Unbalanced	1100022	1400022	CVVZIVI	Linear		GE00082X052	GE000337032
DN40	22	20	Oribalariced	N06022	N06022	CW2M/	Equal Percer	ntage	GE00081X052	GE05240X082
(NPS 1-1/2)				1100022	1100022	PTFE Seat	Linear		GE00082X052	GLOSZ-IO/COSZ
1-1/2)				CW2M	N06022	CW2M	Equal Percer	ntage	GE00083X072	GE12607X032
	26	20	l	CVVZIVI	1400022		Linear		GE00084X072	GE120077032
	36	20	Unbalanced	CW2M	N06022	CW2M/ CoCr-A Bore	Equal Percer	ntage	GE00083X072	GE12745X102
				CVVZIVI	100022	PTFE Seat	Linear		GE00084X072	GE12/43X102
				Nocona	Nocozz	CALONA	Equal Percer	ntage	GE00081X052	GE000G3V0E3
	22	20	Link dan sad	N06022	N06022	CW2M	Linear		GE00082X052	GE00063X052
	22	20	Unbalanced	Nocona	Nocoss	CW2M/	Equal Percer	ntage	GE00081X052	CE0E240V122
				N06022	N06022	PTFE Seat	Linear		GE00082X052	GE05240X122
				CW2M	N06022	CW2M	Equal Percer	ntage	GE00083X072	GE12609X032
DN50	36	20	Unbalanced	CVVZIVI	100022	CVVZIVI	Linear		GE00084X072	GE12009A032
(NPS 2)	30	20	Offibalaficed	CW2M	N06022	CW2M/	Equal Percer	ntage	GE00083X072	CE1274EV112
				CVVZIVI	NU6U22	PTFE Seat	Linear		GE00084X072	GE12745X112
				CW2M	N06022	CVV/2NA	Equal Percer		GE00085X072	GE12608X032
	46	20	Unbalanced	CVVZIVI	1100022	CW2M	Linear		GE00086X072	GE12006A032
	40	20	Olipalaticed	CW2M	N06022	CW2M/	Equal Percer	ntage	GE00085X072	GE12745X122
				CVVZIVI	NU0U22	PTFE Seat	Linear		GE00086X072	UE12/45X122
1. The se	at ring is in	cluded in the V	alve Plug / Stem Pa	rt Number.						

### Key 3 Valve Plug/Stem and Key 2 Seat Ring (Plain Bonnet, CN7M and CW2M Valve Body Material)

VALVE	PORT SIZE	TRAVEL		VALVE	STEM	SEAT RING		VALVE	SEAT RING
SIZE	mm	mm	PLUG STYLE	PLUG MATERIAL	MATERIAL	MATERIAL	TRIM STYLE	PLUG/STEM PART NUMBER	PART NUMBER
							Equal Percentage	GE00097X072	
				CW2M	N06022	CW2M	Linear	GE00098X072	GE12612X032
	36	20	Unbalanced			CW2M/	Equal Percentage	GE00097X072	
				CW2M	N06022	PTFE Seat	Linear	GE00098X072	GE12745X132
							Equal Percentage	GE00095X072	
				CW2M	N06022	CW2M	Linear	GE00096X072	GE12611X032
DN80	46	20	Unbalanced	61.61.6		CW2M/	Equal Percentage	GE00095X072	65407.4534.40
(NPS 3)				CW2M	N06022	PTFE Seat	Linear	GE00096X072	GE12745X142
				CINION	Nocoss	CINOM	Equal Percentage	GE00093X072	CE13C10V033
		40	Unbalanced	CW2M	N06022	CW2M	Linear	GE00094X072	GE12610X032
	70	40	Unbalanced	CW2M	Nocoss	CW2M/	Equal Percentage	GE00093X072	CE1274EV1E2
	70			CVVZIVI	N06022	PTFE Seat	Linear	GE00094X072	GE12745X152
		20	Balanced	N06022	N06022	CW2M	Equal Percentage	GE00087X062	GE12610X032
		20	Dalaliced	100022	100022	CVVZIVI	Linear	GE00088X062	GE12010X032
				CW2M	N06022	CW2M	Equal Percentage	GE01114X052	GE12615X032
	46	20	Unbalanced	CVVZIVI	100022	CVVZIVI	Linear	GE01115X052	GE12013X032
	40	20	Officed	CW2M	N06022	CW2M/	Equal Percentage	GE01114X052	GE12745X162
				CVVZIVI	100022	PTFE Seat	Linear	GE01115X052	GL12743X102
				CW2M	N06022	CW2M	Equal Percentage	GE01112X072	GE12614X032
	70	40	Unbalanced	CVVZIVI	100022	CVVZIVI	Linear	GE01113X072	GL12014X032
	/0	40	Officed	CW2M	N06022	CW2M/	Equal Percentage	GE01112X072	GE12745X172
DN100				CVVZIVI	1100022	PTFE Seat	Linear	GE01113X072	GL12743X172
(NPS 4)				CW2M	N06022	CW2M	Equal Percentage	GE00091X072	GE12613X032
		40	Unbalanced	CVVZIVI	1400022	CVVZIVI	Linear	GE00092X072	GE12013/k032
		10	Oribalaricea	CW2M	N06022	CW2M/	Equal Percentage	GE00091X072	GE12745X182
	00			CVVZIVI	1100022	PTFE Seat	Linear	GE00092X072	GE12745X102
	90		Balanced	N06022	N06022	CW2M	Equal Percentage	GE00099X062	
		20	(Standard)			2112.11	Linear	GE00100X062	CE12C12V022
		20	Balanced		CMOM	Equal Percentage	GE00089X062	GE12613X032	
			(Reduced Capacity)	N06022	NUOUZZ	CW2M	Linear	GE00090X062	

VALVE	PORT SIZE	TRAVEL	DI LIC CTVI F	VALVE	STEM	SEAT RING	TOIM CTV	1.5	VALVE	SEAT RING
SIZE	mm	mm	PLUG STYLE	PLUG MATERIAL	MATERIAL	MATERIAL	TRIM STY	LE	PLUG/STEM PART NUMBER	PART NUMBER
								1°8'	GE04253X032	(1)
						CE2N4	Missa Flass Flat	2°15'	GE04255X032	
						CF3M	Micro-Flow Flat	4°39'	GE04256X032	GE04252X012
	4.0	20	Unbalanaad	D21222	531503			9°30'	GE04253X112	
	4.8	20	Unbalanced	R31233	S31603			1°8'	GE04253X112	(1)
						S31603/	Micro-Flow Flat	2°15'	GE04255X032	
DN15						CoCr-A Seat	MICIO-FIOW FIAL	4°39'	GE04256X032	GE04252X052
(NPS								9°30'	GE04253X112	
1/2)				521602	C21602	CF3M	Equal Percen	itage	GE03891X012	GE00051X012
			Unbalanced	S31603	S31603	CF3IVI	Linear		GE03893X012	GE00051X012
			(Standard)	S31603/	S20910 SST	CF3M/	Equal Percen	itage	GE03891X022	CE000E1V062
	9.5	20		CoCr-A Seat	320910 331	CoCr-A Seat	Linear		GE03893X022	GE00051X062
			Unbalanced	S31603	S31603	CF3M	Equal Percen	itage	GE08919X012	GE00051X012
			(Reduced Capacity)	S31603/ CoCr-A Seat	S20910 SST	CF3M/ CoCr-A Seat	Equal Percen	itage	GE08919X022	GE00051X062
								1°8'	GE04253X032	(1)
						CE2N4	Missa Flass Flat	2°15'	GE04255X032	
						CF3M	Micro-Flow Flat	4°39'	GE04256X032	GE04252X012
	4.0	20	Unbalanced	D21222	S31603			9°30'	GE04253X112	
	4.8	20	Offibalaficed	R31233	331003			1°8'	GE04253X112	(1)
						S31603/	Micro-Flow Flat	2°15'	GE04255X032	
						CoCr-A Seat	MICIO-FIOW FIAL	4°39'	GE04256X032	GE04252X052
								9°30'	GE04253X112	
DN20				S31603	S31603	CF3M	Equal Percen	itage	GE03891X012	GE00051X012
(NPS			Unbalanced	331003	331003	CF3IVI	Linear		GE03893X012	GE00051X012
3/4)			(Standard)	S31603/	S20910 SST	CF3M/	Equal Percen	itage	GE03891X022	GE00051X062
	9.5	20		CoCr-A Seat	320910 331	CoCr-A Seat	Linear		GE03893X022	GE00031X002
			Unbalanced	S31603	S31603	CF3M	Equal Percen	itage	GE08919X012	GE00051X012
			(Reduced Capacity)	S31603/ CoCr-A Seat	S20910 SST	CF3M/ CoCr-A Seat	Equal Percen	tage	GE08919X022	GE00051X062
				521602	C21602	CESM	Equal Percen	itage	GE03890X012	CE00040V012
	1.4	20	Unhalanced	S31603	S31603	CF3M	Linear		GE03892X012	GE00049X012
	14	20	Unbalanced	S31603/	C20010 CCT	CF3M/	Equal Percen	itage	GE03890X022	CE00040V0C2
				CoCr-A Seat	S20910 SST	CoCr-A Seat	Linear		GE03892X022	GE00049X062
1. The se	at ring is inc	luded in the V	alve Plug / Stem Pa	rt Number.						

VALVE	PORT SIZE	TRAVEL	PLUG STYLE	VALVE PLUG	STEM	SEAT RING	TRIM STY	LE	VALVE PLUG/STEM	SEAT RING
SIZE	mm	mm		MATERIAL	MATERIAL	MATERIAL			PART NUMBER	PART NUMBER
								1°8'	GE04253X032	(1)
						CEDM	Minna FlancFlat	2°15'	GE04255X032	
						CF3M	Micro-Flow Flat	4°39'	GE04256X032	GE04252X012
	4.8	20	Unbalanced	D21222	S31603			9°30'	GE13780X012	
	4.8	20	Unbalanced	R31233	531603			1°8'	GE04253X112	(1)
						S31603/	Micro-Flow Flat	2°15'	GE04255X032	
						CoCr-A Seat	MICIO-FIOW FIAL	4°39'	GE04256X032	GE04252X052
								9°30'	GE13780X012	
				521502	521602	CEDM	Equal Percer	tage	GE03891X012	CE000E1V013
			Unbalanced	S31603	S31603	CF3M	Linear		GE03893X012	GE00051X012
DN25			(Standard)	S31603/	C20010 CCT	CF3M/	Equal Percer	tage	GE03891X022	CE000E1V0C2
(NPS 1)	9.5	20		CoCr-A Seat	S20910 SST	CoCr-A Seat	Linear		GE03893X022	GE00051X062
(11.51)			Unbalanced	S31603	S31603	CF3M	Equal Percer	itage	GE08919X012	GE00051X012
			(Reduced Capacity)	S31603/ CoCr-A Seat	S20910 SST	CF3M/ CoCr-A Seat	Equal Percer	tage	GE08919X022	GE00051X062
				621602	521502	CE2N4	Equal Percer	itage	GE03890X012	CE000 40V013
		20	l	S31603	S31603	CF3M	Linear		GE03892X012	GE00049X012
	14	20	Unbalanced	S31603/	C20010 CCT	CF3M/	Equal Percer	tage	GE03890X022	CE00040V0C3
				CoCr-A Seat	S20910 SST	CoCr-A Seat	Linear		GE03892X022	GE00049X062
				521502	521602	CEDM	Equal Percer	tage	GE00081X012	CE00047V012
	22	20	Unbalanced	S31603	S31603	CF3M	Linear		GE00082X012	GE00047X012
	22	20	Unbalanced	S31603/	S20910 SST	CF3M/	Equal Percer	tage	GE00081X022	GE00047X062
				CoCr-A Seat	320910331	CoCr-A Seat	Linear		GE00082X022	GE00047X062
				S31603	S31603	CF3M	Equal Percer	tage	GE03890X012	CE000E7V012
	14	20	Unbalanced	531603	531603	CF3IVI	Linear		GE03892X012	GE00057X012
	14	20	Ulibalanced	S31603/	C20010 CCT	CF3M/	Equal Percer	tage	GE03890X022	CE000E7V0C2
				CoCr-A Seat	S20910 SST	CoCr-A Seat	Linear		GE03892X022	GE00057X062
				521502	621602	CEDM	Equal Percer	tage	GE00081X012	CEOOOEEVO13
DN40	22	20	Unbalanced	S31603	S31603	CF3M	Linear		GE00082X012	GE00055X012
(NPS 1-1/2)	22	20	Unbalanced	S31603/	C20010 CCT	CF3M/	Equal Percer	tage	GE00081X022	CENNOLEVACA
1 1/2/				CoCr-A Seat	S20910 SST	CoCr-A Seat	Linear		GE00082X022	GE00055X062
				CEAM	C21602	CF3M/	Equal Percer	itage	GE00083X012	CEOOOESVOCS
	20	20	Unbalance	CF3M	S31603	CoCr-A Seat	Linear		GE00084X012	GE00053X062
	36	20	Unbalanced	CF3M/	C20010 CCT	CF3M/	Equal Percer	itage	GE00083X022	CEOOOESVOCS
				CoCr-A Seat	S20910 SST	CoCr-A Seat	Linear		GE00084X022	GE00053X062
1. The se	at ring is inc	luded in the V	alve Plug / Stem Pa	rt Number.			•		•	

VALVE	PORT SIZE	TRAVEL		VALVE	STEM	SEAT RING		VALVE	SEAT RING
SIZE	mm	mm	PLUG STYLE	PLUG Material	MATERIAL	MATERIAL	TRIM STYLE	PLUG/STEM PART NUMBER	PART NUMBER
							Equal Percentage	GE00081X012	
				S31603	S31603	CF3M	Linear	GE00082X012	GE00063X012
	22	20	Unbalanced	S31603/		CF3M/	Equal Percentage	GE00081X022	
				CoCr-A Seat	S20910 SST	CoCr-A Seat	Linear	GE00082X022	GE00063X062
						CF3M/	Equal Percentage	GE00083X012	
DN50	2.5	2.0		CF3M	S31603	CoCr-A Seat	Linear	GE00084X012	GE00061X062
(NPS 2)	36	20	Unbalanced	CF3M/	530040.557	CF3M/	Equal Percentage	GE00083X022	
				CoCr-A Seat	S20910 SST	CoCr-A Seat	Linear	GE00084X022	GE00061X062
						CF3M/	Equal Percentage	GE00085X012	
		2.0		CF3M	S31603	CoCr-A Seat	Linear	GE00086X012	GE00059X062
	46	20	Unbalanced	CF3M/	530040.557	CF3M/	Equal Percentage	GE00085X022	
				CoCr-A Seat	S20910 SST	CoCr-A Seat	Linear	GE00086X022	GE00059X062
				G53.4	624.602	CF3M/	Equal Percentage	GE00097X012	
	2.5	2.0		CF3M	S31603	CoCr-A Seat	Linear	GE00098X012	GE00069X062
	36	20	Unbalanced	CF3M/	530040.557	CF3M/	Equal Percentage	GE00097X022	
				CoCr-A Seat	S20910 SST	CoCr-A Seat	Linear	GE00098X022	GE00069X062
				CE2N4	621602	CF3M/	Equal Percentage	GE00095X012	CE000C7V0C2
DN80	4.6	20	l	CF3M	S31603	CoCr-A Seat	Linear	GE00096X012	GE00067X062
(NPS 3)	46	20	Unbalanced	CF3M/	620010 CCT	CF3M/	Equal Percentage	GE00095X022	CE000C7V0C2
				CoCr-A Seat	S20910 SST	CoCr-A Seat	Linear	GE00096X022	GE00067X062
				CEDIA	621602	CF3M/	Equal Percentage	GE00093X012	CEOOCEVOCA
	70	40	Link dan ad	CF3M	S31603	CoCr-A Seat	Linear	GE00094X012	GE00065X062
	70	40	Unbalanced	CF3M/	620010 CCT	CF3M/	Equal Percentage	GE00093X022	CEOOOCE VOC
				CoCr-A Seat	S20910 SST	CoCr-A Seat	Linear	GE00094X022	GE00065X062
				CEDM	621602	CF3M/	Equal Percentage	GE01114X012	CE0007EV0C3
	46	20	Link dan ad	CF3M	S31603	CoCr-A Seat	Linear	GE01115X012	GE00075X062
	46	20	Unbalanced	CF3M/	C20010 CCT	CF3M/	Equal Percentage	GE01114X022	CE0007EV0C3
				CoCr-A Seat	S20910 SST	CoCr-A Seat	Linear	GE01115X022	GE00075X062
				CF3M	S31603	CF3M/	Equal Percentage	GE01112X012	CE00073V0C3
DN100	70	40	Umbalanaad	CF3IVI	531603	CoCr-A Seat	Linear	GE01113X012	GE00073X062
(NPS 4)	70	40	Unbalanced	CF3M/	C20010 CCT	CF3M/	Equal Percentage	GE01112X022	CE00073V063
				CoCr-A Seat	S20910 SST	CoCr-A Seat	Linear	GE01113X022	GE00073X062
				CF3M	C21602	CF3M/	Equal Percentage	GE00091X012	CE00071V0C2
	00	40	Unbalanced	CF3IVI	S31603	CoCr-A Seat	Linear	GE00092X012	GE00071X062
	90	40	Unbalanced	CF3M/	S20910 SST	CF3M/	Equal Percentage	GE00091X022	GE00071X062
				CoCr-A Seat	320310331	CoCr-A Seat	Linear	GE00092X022	GEUUU/1XU02

VALVE SIZE	PORT SIZE mm	TRAVEL	PLUG STYLE	VALVE PLUG MATERIAL	STEM MATERIAL	SEAT RING MATERIAL	TRIM STY	LE	VALVE PLUG/STEM PART NUMBER	SEAT RING PART NUMBER
	111111	111111						1°8'	GE04253X032	(1)
								2°15'	GE04255X032	GE04252X012
						CF3M	Micro-Flow Flat	4°39'	GE04256X032	
								9°30'	GE13780X012	
					S31603			1°8'	GE04253X112	(1)
						S31603/		2°15'	GE04255X032	
	4.8	20	Unbalanced	R31233		CoCr-A Seat	Micro-Flow Flat	4°39'	GE04256X032	GE04252X052
								9°30'	GE13780X012	GEO 1232/1032
								1°8'	GE04253X072	(1)
								2°15'	GE04255X072	
DN15					N06022	CW2M	Micro-Flow Flat	4°39'	GE04256X072	GE04252X042
(NPS 1/2)								9°30'	GE13780X032	
1/2)							Equal Percen	tage	GE03891X012	
		20		S31603	S31603	CF3M	Linear		GE03893X012	GE00051X012
			Unbalanced	S31603/		CF3M/	Equal Percen	tage	GE03891X022	
			(Standard)	CoCr-A Seat	S20910 SST	CoCr-A Seat	Linear		GE03893X022	GE00051X062
							Equal Percen	tage	GE03891X052	+
	9.5			N06022	N06022	CW2M	Linear		GE03893X052	GE00051X052
				S31603	S31603	CF3M	Equal Percen	tage	GE08919X012	GE00051X012
			Unbalanced (Reduced	S31603/ CoCr-A Seat	S20910 SST	CF3M/ CoCr-A Seat	Equal Percen	tage	GE08919X022	GE00051X062
			Capacity)	N06022	N06022	CW2M	Equal Percen	tage	GE08919X052	GE00051X052
								1°8'	GE04253X032	(1)
								2°15'	GE04255X032	
						CF3M	Micro-Flow Flat	4°39'	GE04256X032	GE04252X012
								9°30'	GE13780X012	
					S31603			1°8'	GE04253X112	(1)
	4.8	20		R31233		S31603/		2°15'	GE04255X032	
		20	Unbalanced			CoCr-A Seat	Micro-Flow Flat	4°39'	GE04256X032	GE04252X052
								9°30'	GE13780X012	
								1°8'	GE04253X072	(1)
					Nacass	g.,,,,		2°15'	GE04255X072	GE04252X042
					N06022	CW2M	Micro-Flow Flat	4°39'	GE04256X072	
								9°30'	GE13780X032	
				524502	524.502	GE214	Equal Percen	tage	GE03891X012	55000541/042
DN20				S31603	S31603	CF3M	Linear		GE03893X012	GE00051X012
(NPS 3/4)			Unbalanced	S31603/	530040 557	CF3M/	Equal Percen	tage	GE03891X022	55000541/053
-/ -/			(Standard)	CoCr-A Seat	S20910 SST	CoCr-A Seat	Linear		GE03893X022	GE00051X062
	0.5	20		1105022	Nacass	GUO.	Equal Percen	tage	GE03891X052	55000541/052
	9.5	20		N06022	N06022	CW2M	Linear		GE03893X052	GE00051X052
				S31603	S31603	CF3M	Equal Percen	tage	GE08919X012	GE00051X012
			Unbalanced (Reduced Capacity)	S31603/ CoCr-A Seat	S20910 SST	CF3M/ CoCr-A Seat	Equal Percen	tage	GE08919X022	GE00051X062
		1	Сарасіту)	N06022	N06022	CW2M	Equal Percen	tage	GE08919X052	GE00051X052
				C21602	(21602	CEDM	Equal Percen	tage	GE03890X012	CE00040V012
				S31603	S31603	CF3M	Linear		GE03892X012	GE00049X012
	1.4	20	Unkal !	S31603/	C20010 CCT	CF3M/	Equal Percen	tage	GE03890X022	CE000 101/253
	14	20	Unbalanced	CoCr-A Seat	S20910 SST	CoCr-A Seat	Linear		GE03892X022	GE00049X062
					Nocc		Equal Percentage		GE03890X052	CE000 40V0E3
				N06022	N06022	CW2M	Linear		GE03892X052	GE00049X052
1. The se	at ring is inc	cluded in the Va	alve Plug / Stem Pa	rt Number.			•		•	

D103175X012

VALVE SIZE	PORT SIZE mm	TRAVEL mm	PLUG STYLE	VALVE PLUG MATERIAL	STEM MATERIAL	SEAT RING MATERIAL	TRIM STYLE		VALVE PLUG/STEM PART NUMBER	SEAT RING PART NUMBER	
								1°8'	GE04253X032	(1) GE04252X012	
								2°15'	GE04255X032		
						CF3M	Micro-Flow Flat	4°39'	GE04256X032		
								9°30'	GE13780X012		
					S31603			1°8'	GE04253X112	(1)	
	4.0	20		D21222		S31603/	M. El El .	2°15'	GE04255X032		
	4.8	20	Unbalanced	R31233		CoCr-A Seat	Micro-Flow Flat	4°39'	GE04256X032	GE04252X052	
								9°30'	GE13780X012		
					N06022	CMOM	Micro-Flow Flat	1°8'	GE04253X072	(1)	
								2°15'	GE04255X072		
						CW2M		4°39'	GE04256X072	GE04252X042	
								9°30'	GE13780X032	1	
			Unbalanced (Standard)	621602	S31603	CF3M	Equal Percen	tage	GE03891X012	GE00051X012 GE00051X062	
				S31603	531603	CF3IVI	Linear		GE03893X012		
				S31603/	C20010 CCT	CF3M/	Equal Percen	tage	GE03891X022		
				CoCr-A Seat	S20910 SST	CoCr-A Seat	Linear		GE03893X022	GE00051X062	
	9.5	20		N06022	N06022	CW2M	Equal Percen	tage	GE03891X052	GE00051X052	
	5.5	20		1100022	100022	CVVZIVI	Linear		GE03893X052	GE00031X032	
DN25			Unbalancad	S31603	S31603	CF3M	Equal Percen	tage	GE08919X012	GE00051X012	
(NPS 1)			Unbalanced (Reduced Capacity)	S31603/ CoCr-A Seat	S20910 SST	CF3M/ CoCr-A Seat	Equal Percentage		GE08919X022	GE00051X062	
				N06022	N06022	CW2M	Equal Percentage		GE08919X052	GE00051X052	
		20	Unbalanced	\$21602	621602	CF3M	Equal Percentage		GE03890X012	GE00049X012	
				S31603	S31603		Linear		GE03892X012		
	14			S31603/	S20910 SST	CF3M/	Equal Percentage		GE03890X022	GE00049X062	
	14			CoCr-A Seat	320910 331	CoCr-A Seat	Linear		GE03892X022		
				N06022	N06022	CW2M	Equal Percentage		GE03890X052	GE00049X052	
				1100022	1100022	CVVZIVI	Linear		GE03892X052		
						CF3M	Equal Percen	tage	GE00081X012	GE00047X012	
				S31603	S31603	CISW	Linear		GE00082X012	GEOOOTINOTE	
				331003	331003	CF3M/	Equal Percen	tage	GE00081X012	GE05240X012	
						PTFE Seat	Linear		GE00082X012	GEOSETONOTE	
	22	20	Unbalanced	S31603/	S20910 SST	CF3M/	Equal Percen	tage	GE00081X022	GE00047X062	
	22	20	Silbalariced	CoCr-A Seat	320310331	CoCr-A Seat	Linear		GE00082X022	32000 177002	
						CW2M	Equal Percen	tage	GE00081X052	GE00047X052	
				N06022	N06022	CVVZIVI	Linear		GE00082X052	GLOOGTINOSE	
				NU6U22	NUOUZZ	CW2M/	Equal Percen	tage	GE00081X052	GE05240X042	
			alve Plug / Stem Pa			PTFE Seat	Linear		GE00082X052	GLUJZTUNUTZ	

VALVE SIZE	PORT SIZE	TRAVEL	PLUG STYLE	VALVE PLUG	STEM MATERIAL	SEAT RING MATERIAL	TRIM STYLE	VALVE PLUG/STEM	SEAT RING PART NUMBER	
J	mm	mm		MATERIAL				PART NUMBER	77110110211	
	14			S31603	S31603	CF3M	Equal Percentage	GE03890X012	GE00057X012	
					331003	Crown	Linear	GE03892X012	GE0003771012	
		20	Unbalanced	S31603/	S20910 SST	CF3M/	Equal Percentage	GE03890X022	GE00057X062	
		20	Onbalancea	CoCr-A Seat	320310331	CoCr-A Seat	Linear	GE03892X022	GLUUUJ/AUUZ	
				N06022	N06022	CW2M	Equal Percentage	GE03890X052	GE00057X052	
				1100022	100022	CVVZIVI	Linear	GE03892X052	GE000377032	
				S31603	S31603 ·	CF3M	Equal Percentage	GE00081X012	GE00055X012	
						CLOW	Linear	GE00082X012	GE00055X012	
						CF3M/	Equal Percentage	GE00081X012	GE05240X052	
						PTFE Seat	Linear	GE00082X012	GE032 10/1032	
	22	20	Unbalanced	S31603/ CoCr-A Seat	S20910 SST	CF3M/	Equal Percentage	GE00081X022	GE00055X062	
	22	20	Ulibalanced		320910331	CoCr-A Seat	Linear	GE00082X022	GE00033X002	
DN40				N06022		CW2M	Equal Percentage	GE00081X052	GE00055X052	
(NPS					N06022	CVVZIVI	Linear	GE00082X052	G20005577052	
1-1/2)						CW2M/	Equal Percentage	GE00081X052	GE05240X082	
						PTFE Seat	Linear	GE00082X052	GEU324UAU82	
						CF3M	Equal Percentage	GE00083X012	GE12607X012	
				CF3M	S31603	CF3IVI	Linear	GE00084X012		
				CF3IVI	33 1003	CF3M/	Equal Percentage	GE00083X012	GE12745X012	
						PTFE Seat	Linear	GE00084X012	GE12743X012	
	36	20	Unbalanced	CF3M/	S20910 SST	CF3M/ CoCr-A Seat	Equal Percentage	GE00083X022	GE00053X062	
	20	20	Oribalaricea	CoCr-A Seat	320310331	and Guide	Linear	GE00084X022	GE00033X062	
						CW2M	Equal Percentage	GE00083X072	GE12607X032	
				CW2M	N06022	CVVZIVI	Linear	GE00084X072	GL1200/X032	
					1400022	CW2M/ PTFE Seat	Equal Percentage	GE00083X072	CF127//5Y102	
							Linear	GE00084X072	GE12745X102	

Match										
VALVE SIZE	PORT SIZE	TRAVEL	PLUG STYLE	VALVE PLUG	STEM MATERIAL	SEAT RING MATERIAL	TRIM STYLE	VALVE PLUG/STEM	SEAT RING PART NUMBER	
	mm	mm		MATERIAL				PART NUMBER		
						CF3M	Equal Percentage	GE00081X012	GE00063X012	
				S31603	S31603	CI SIVI	Linear	GE00082X012	GE00003X012	
				331003	331003	CF3M/	Equal Percentage	GE00081X012	GE05240X092	
						PTFE Seat	Linear	GE00082X012	GL05240X052	
	22	20	Unbalanced	S31603/ CoCr-A Seat	S20910 SST	CF3M/	Equal Percentage	GE00081X022	GE00063X062	
		20	Olibalanced		320910331	CoCr-A Seat	Linear	GE00082X022		
				N06022	N06022	CW2M	Equal Percentage	GE00081X052	CENNOCSYNES	
						CVVZIVI	Linear	GE00082X052	GE00063X052	
						CW2M/	Equal Percentage	GE00081X052	CE0E240V122	
						PTFE Seat	Linear	GE00082X052	GE05240X122	
				CF3M	S31603	CF3M	Equal Percentage	GE00083X012	GE12609X012	
						CF3IVI	Linear	GE00084X012	GE12009X012	
					331003	CF3M/	Equal Percentage	GE00083X012	GE12745X022	
						PTFE Seat	Linear	GE00084X012	GE12/45X022	
DN50	36	20	Unbalanced	CF3M/ CoCr-A Seat	S20910 SST	CF3M/ CoCr-A Seat	Equal Percentage	GE00083X022	GE00061X062	
(NPS 2)		20	Olibalariced		320910 331	and Guide	Linear	GE00084X022		
				CW2M	N06022	CW2M	Equal Percentage	GE00083X072	GE12609X032	
							Linear	GE00084X072		
				CVVZIVI		CW2M/	Equal Percentage	GE00083X072	GE12745X112	
						PTFE Seat	Linear	GE00084X072	GL12/4JX112	
						CF3M	Equal Percentage	GE00085X012	GE12608X012	
				CF3M	S31603	CLOW	Linear	GE00086X012	GL12008X012	
				CLOW	331003	CF3M/	Equal Percentage	GE00085X012	GE12745X032	
						PTFE Seat	Linear	GE00086X012	GL12/43/032	
	46	20	Unbalanced	CF3M/	S20910 SST	CF3M/ CoCr-A Seat	Equal Percentage	GE00085X022	GE00059X062	
	40	20	Olibalariced	CoCr-A Seat	320910 331	and Guide	Linear	GE00086X022	1 GEUUUS9XU62	
						CW2M	Equal Percentage	GE00085X072	GE12608X032	
				CW2M	N06022 -	CVVZIVI	Linear	GE00086X072	GE12008A032	
						CW2M/	Equal Percentage	GE00085X072	GE12745X122	
						PTFE Seat	Linear	GE00086X072		

VALVE SIZE	PORT SIZE	TRAVEL	PLUG STYLE	VALVE PLUG	STEM MATERIAL	SEAT RING MATERIAL	TRIM STYLE	VALVE PLUG/STEM	SEAT RING PART NUMBER
SIZL	mm	mm		MATERIAL	WATERIAL	WATERIAL		PART NUMBER	PART NOIVIBLE
						CF3M	Equal Percentage	GE00097X012	GE12612X012
				CF3M	S31603	CLOW	Linear	GE00098X012	GE12012X012
				CI SIVI	331003	CF3M/	Equal Percentage	GE00097X012	GE12745X042
						PTFE Seat	Linear	GE00098X012	GE127+3/10+2
	36	20	Unbalanced	CF3M/ S20910 SST	CF3M/ CoCr-A Seat	Equal Percentage	GE00097X022	GE00069X062	
	30	20	Onbalanced	CoCr-A Seat	320310331	and Guide	Linear GE00098X0	GE00098X022	GE00005/X002
						CW2M	Equal Percentage	GE00097X072	GE12612X032
				CW2M	N06022	CVVZIVI	Linear	GE00098X072	GE12012A032
				CVVZIVI	1100022	CW2M/	Equal Percentage	GE00097X072	GE12745X132
						PTFE Seat	Linear	GE00098X072	GE12745X132
				CF3M		CF3M	Equal Percentage	GE00095X012	GE12611X012
					S31603	CLOW	Linear	GE00096X012	GETZOTTAGTZ
DN80					331003	CF3M/	Equal Percentage	GE00095X012	GE12745X052
(NPS 3)	46	20				PTFE Seat	Linear	GE00096X012	GE12743X032
			Unbalanced	CF3M/	S20910 SST	CF3M/ CoCr-A Seat	Equal Percentage	GE00095X022	- GE00067X062
			Officialiced	CoCr-A Seat		and Guide	Linear	GE00096X022	
						CW2M	Equal Percentage	GE00095X072	GE12611X032
				CW2M	N06022	CVVZIVI	Linear	GE00096X072	
				CVVZIVI	100022	CW2M/	Equal Percentage	GE00095X072	GE12745X142
						PTFE Seat	Linear	GE00096X072	GETZ745XT4Z
				S31603	S31603	CF3M	Equal Percentage	GE00087X012	GE12610X012
				331003	331003	Crown	Linear	GE00088X012	GETZOTOXOTZ
	70	20	20 Balanced	S31603/ CoCr-A Seat	S20910 SST	CF3M/ CoCr-A Seat	Equal Percentage	GE00087X022	GE00065X062
					320310331	and Guide	Linear	GE00088X022	GEOOOOOOO
				N06022	N06022	CW2M	Equal Percentage	GE00087X062	GE12610X032
					1100022	1400022	CVVZIVI	Linear	GE00088X062

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VALVE SIZE	PORT SIZE	TRAVEL	PLUG STYLE	VALVE PLUG	STEM MATERIAL	SEAT RING MATERIAL	TRIM STYLE	VALVE PLUG/STEM	SEAT RING PART NUMBER
SIZE	mm	mm		MATERIAL	IVIATERIAL	IVIATERIAL		PART NUMBER	PART NUIVIDER
						CF3M	Equal Percentage	GE01114X012	GE12615X012
	46			CF3M	S31603	CLOW	Linear	GE01115X012	GE12013X012
				CI SIVI	331003	CF3M/	Equal Percentage	GE01114X012	GE12745X072
						PTFE Seat	Linear	GE01115X012	GE12745X072
		20	Unbalanced	CF3M/	S20910 SST	CF3M/ CoCr-A Seat	Equal Percentage	GE01114X022	GE00075X062
		20	Onbalanced	CoCr-A Seat	320310331	and Guide	Linear	GE01115X022	22000737002
				CW2M	N06022	CW2M	Equal Percentage	GE01114X052	GE12615X032
						CVVZIVI	Linear	GE01115X052	2212013/1032
					100022	CW2M/	Equal Percentage	GE01114X052	GE12745X162
						PTFE Seat	Linear	GE01115X052	GE12745X102
DN100				S31603	S31603	CF3M	Equal Percentage	GE00099X012	GE12613X012
(NPS 4)				331003	331003	CISIVI	Linear	GE00100X012	GETZOTSKOTZ
			Balanced (Standard)	S31603/ CoCr-A Seat	S20910 SST	CF3M/ CoCr-A Seat - and Guide	Equal Percentage	GE00099X022	GE00071X062
							Linear	GE00100X022	
				N06022	N06022	CW2M	Equal Percentage	GE00099X062	GE12613X032
	90	20		100022	100022	CVVZIVI	Linear	GE00100X062	GE12013X032
	30	20		S31603	S31603	CF3M	Equal Percentage	GE00089X012	GE12613X012
				331003	33 1003	CI SIVI	Linear	GE00090X012	GE12013X012
			Balanced (Reduced Capacity)	S31603/ CoCr-A Seat S20910 SST	CF3M/ CoCr-A Seat	Equal Percentage	GE00089X022	GE00071X062	
					320310331	and Guide	Linear	GE00090X022	GL00071A002
				N06022	N06022	CW2M	Equal Percentage	GE00089X062	GE12613X032
					1100022	NU6022	CW2M	Linear	GE00090X062

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### Key 3 Valve Plug/Stem and Key 2 Seat Ring (Bellows Bonnet, CW2M Valve Body Material)

VALVE	PORT SIZE	TRAVEL	PLUG STYLE	VALVE PLUG	STEM	SEAT RING	TRIM STY		VALVE PLUG/STEM	SEAT RING	
SIZE	mm	mm		MATERIAL	MATERIAL	MATERIAL			PART NUMBER	PART NUMBER	
								1°8'	GE04253X072	(1)	
	4.0	20	Unbalanced	D21222	Nocoss	CMOM	Missa Flass Flat	2°15'	GE04255X072		
	4.8	20		R31233	N06022	CW2M	Micro-Flow Flat	4°39'	GE04256X072	GE04252X042	
								9°30'	GE13780X032		
		20	Unbalanced (Standard) Unbalanced (Reduced Capacity)	NOCODO	NOCOZZ	CMOM	Equal Percer	itage	GE03891X052		
				N06022	N06022	CW2M	Linear		GE03893X052		
DN25 (NPS 1)	9.5			N06022	N06022	CW2M	Equal Percer	Equal Percentage		GE00051X052	
	14	20	Unbalanced	N06022	NOCOSS	CW2M	Equal Percer	itage	GE03890X052	CE00040V0E3	
	14	20	Ulibalanced	1100022	N06022	CVVZIVI	Linear		GE03892X052	GE00049X052	
		20		N06022	N06022	CW2M	Equal Percer	itage	GE00081X052	CE00047Y052	
	22		Unbalanced	1100022	1100022		Linear		GE00082X052	GE00047X052	
	22			N06022	N06022	CW2M/	Equal Percentage		GE00081X052	GE05240X042	
				1100022	1100022	PTFE Seat	Linear		GE00082X052		
	14	20	Unbalanced	N06022	N06022	CW2M	Equal Percer	itage	GE03890X052	GE00057X052	
		20	Oribalaricea	1100022	1400022	CVVZIVI	Linear		GE03892X052	GE000377032	
				N06022	N06022	CW2M	Equal Percer	itage	GE00081X052	GE00055X052	
	22	20	Unbalanced		1100022	0.72	Linear		GE00082X052	020003371032	
DN40				N06022	N06022	CW2M/	Equal Percer	itage	GE00081X052	GE05240X082	
(NPS 1-1/2)						PTFE Seat	Linear		GE00082X052		
/_/		20		CW2M	N06022	CW2M	Equal Percer	itage	GE00083X072	GE12607X032	
	36		20 Unbalanced				Linear		GE00084X072		
	30			CW2M	N06022	CW2M/ CoCr-A Bore	Equal Percentage		GE00083X072	CE127//5X102	
				CVVZIVI	100022	PTFE Seat	Linear		GE00084X072	GE12745X102	
							Equal Percer	itage	GE00081X052	55000531/053	
	22	20	I believlesses d	N06022	N06022	CW2M	Linear		GE00082X052	GE00063X052	
	22	20	Unbalanced	NOCODO	NOCOZZ	CW2M/	Equal Percer	ntage	GE00081X052	CE0E240V122	
				N06022	N06022	PTFE Seat	Linear		GE00082X052	GE05240X122	
				CW2M	N06022	CW2M	Equal Percer	ntage	GE00083X072	GE12609X032	
DN50	36	20	Unbalanced	CVVZIVI	1100022	CVVZIVI	Linear		GE00084X072	GE12609A032	
(NPS 2)	30	20	Ulibalaliced	CW2M	N06022	CW2M/	Equal Percer	itage	GE00083X072	CE1274EV112	
				CVVZIVI	1100022	PTFE Seat	Linear		GE00084X072	GE12745X112	
				CW2M	N06022	CW2M	Equal Percer	ntage	GE00085X072	CE12608X032	
	46	20	Unhalanced	CVVZIVI	NUUUZZ	CVVZIVI	Linear		GE00086X072	GE12608X032	
	40	20	20 Unbalanced	CW2M N0602	N06022	CW2M/	Equal Percer	itage	GE00085X072	GE12745X122	
					NUUUZZ	PTFE Seat	Linear		GE00086X072	GLIZ/4JAIZZ	
1. The se	at ring is in	cluded in the V	alve Plug / Stem Pa	rt Number.							

### Key 3 Valve Plug/Stem and Key 2 Seat Ring (Bellows Bonnet, CW2M Valve Body Material)

VALVE SIZE	PORT SIZE	TRAVEL	PLUG STYLE	VALVE PLUG	STEM MATERIAL	SEAT RING	TRIM STYLE	VALVE PLUG/STEM	SEAT RING
SIZE	mm	mm		MATERIAL WATERIAL		MATERIAL		PART NUMBER	PART NUMBER
				CW2M	N06022	CW2M	Equal Percentage	GE00097X072	GE12612X032
	36	20	Unbalanced	CVVZIVI	1100022	CVVZIVI	Linear	GE00098X072	GE12012A032
	30	20	Ulibalanced	CW2M	N06022	CW2M/	Equal Percentage	GE00097X072	GE12745X132
				CVVZIVI	1106022	PTFE Seat	Linear	GE00098X072	GE12/45X132
DN80 (NPS 3)	46			CW2M	N06022 CW2M Equal Percent Linear	CW2M	Equal Percentage	GE00095X072	GE12611X032
		20	Unbalanced	CVVZIVI		Linear	GE00096X072	GLIZUTIAU3Z	
			Ulibalanced	CW2M	N06022	CW2M/	Equal Percentage	GE00095X072	GE12745X142
				CVVZIVI	NU6022	PTFE Seat	Linear	GE00096X072	GE12/45X142
	70	20	Balanced	N06022	N06022	CW2M	Equal Percentage	GE00087X062	GE12610X032
	70		DaidIICed			CVVZIVI	Linear	GE00088X062	
		20	Unkalanaad	CHOL	Nacazz	CW2M	Equal Percentage	GE01114X052	GE12615X032
	46			CW2M	N06022	CVVZIVI	Linear	GE01115X052	
	40	20	Unbalanced	CW2M	N06022	CW2M/	Equal Percentage	GE01114X052	GE12745X162
DN100				CVVZIVI	1100022	PTFE Seat	Linear	GE01115X052	
(NPS 4)			Balanced	Nocona	Nocoss	CMOM	Equal Percentage	GE00099X062	GE12613X032
		20	(Standard)	N06022	N06022	CW2M	Linear	GE00100X062	
	90		Balanced (Reduced	N06022	N06022 N06022	CW2M	Equal Percentage	GE00089X062	
			Capacity)	1100022	1100022		Linear	GE00090X062	

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#### **Emerson Process Management**

Marshalltown, Iowa 50158 USA Sorocaba, 18087 Brazil Chatham, Kent ME4 4QZ UK Dubai, United Arab Emirates Singapore 128461 Singapore

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