

Fisher™ 525 Manual Pneumatic Override

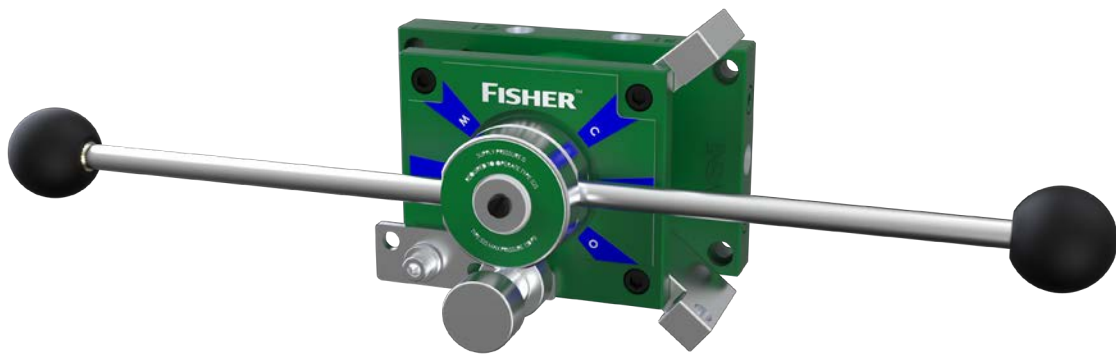


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Section 1: Introduction

1.1 Scope of the Manual

This instruction manual provides installation, operation and maintenance information for the Fisher 525 Manual Pneumatic Override.

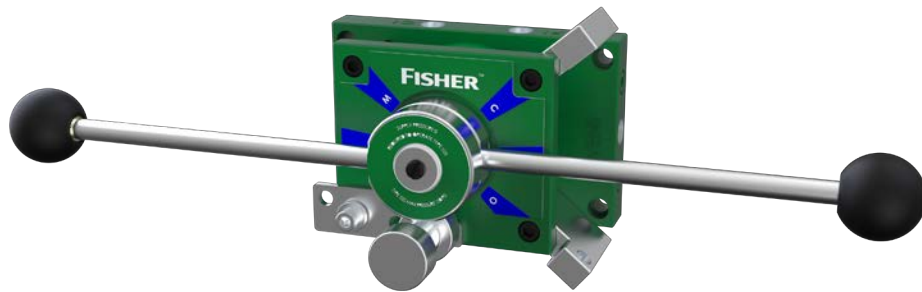
WARNING

 Do not install, operate or maintain a 525 Manual Pneumatic Override without being fully trained and qualified in valve, actuator and accessory installation, operation and maintenance. To avoid personal injury and 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 sales office](#) before proceeding.

1.2 Description

The Fisher 525 Manual Pneumatic Override is a manual switching valve. The 525 MPO is installed between a positioner/controller and a pneumatic actuator, allowing an operator to switch between instrument control and manual control of a pneumatically actuated valve. The 525 MPO includes Lockout/Tagout features to lock the 525 MPO and valve in a desired position and prevent accidental or unauthorized operation.

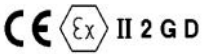
Figure 1. Fisher 525 Manual Pneumatic Override



1.3 Specifications

Specifications for the 525 MPO are listed in Table 1.

Table 1. Specifications

Available Configurations	Supply and Output Connections
Single or Double-Acting	1/4 NPT internal
Supply Pressure ⁽¹⁾	Ambient Operating Temperature Limits ⁽¹⁾
Maximum: 10.3 bar / 150 psig or maximum pressure rating of the actuator, whichever is lower	-40 to +71°C / -40 to +160°F
Supply Pressure Medium	Hazardous Area Classification
Air or Natural Gas Supply medium must be clean, dry and non-corrosive Per ISA Standard 7.0.01 A maximum 40 micrometer particle size in the air system is acceptable. Further filtration down to 5 micrometer particle size is recommended. Lubricant content is not to exceed 1 ppm weight (w/w) or volume (v/v) basis. Condensation in the air supply should be minimized. Pressure Dew Point: At least 10°C less than the lowest ambient temperature expected Per ISO 8573-1 Maximum particle density size: Class 7 Oil content: Class 3 Pressure Dew Point: Class 3 or at least 10°C less than the lowest ambient temperature expected	Complies with the requirements of ATEX Group II Category 2 Gas and Dust  Ex h IIC Tx Gb Ex h IIIC Tx Db Maximum surface temperature (Tx) depends on operating condition Gas: T6 Dust: T71 Refer to Figure 15 for location of ATEX marking.
	Approximate Weight
	4.7 kg / 10.4 lbs
1. The pressure/temperature limits in this document and any applicable standard or code limitation should not be exceeded.	

1.4 Education Services

Emerson Education Services
 Phone: +1-800-338-8158
 E-mail: education@emerson.com
emerson.com/mytraining

Section 2: Installation

⚠ WARNING

To avoid personal injury or property damage resulting from the sudden release of pressure:

- Always wear protective clothing, gloves and eyewear when performing any installation operations.
- Personal injury or system damage may result when service conditions exceed controller or other equipment ratings. Exceeding the pressure specifications in Table 1 may cause leakage, parts damage or personal injury due to bursting of pressure-containing parts or explosion of accumulated gas.
- Check with your process or safety engineer for any additional measures that must be taken to protect against process media.

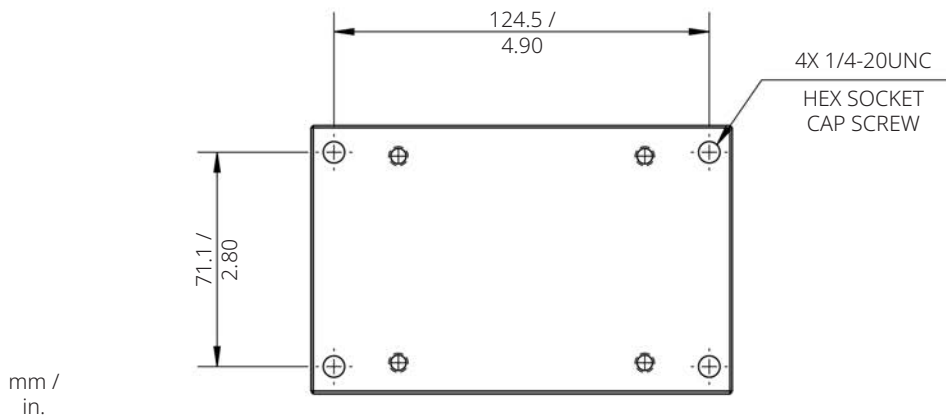
NOTICE

Do not use sealing tape on pneumatic connections. This instrument contains small passages that may become obstructed by detached sealing tape. Thread sealant paste should be used to seal and lubricate pneumatic threaded connections.

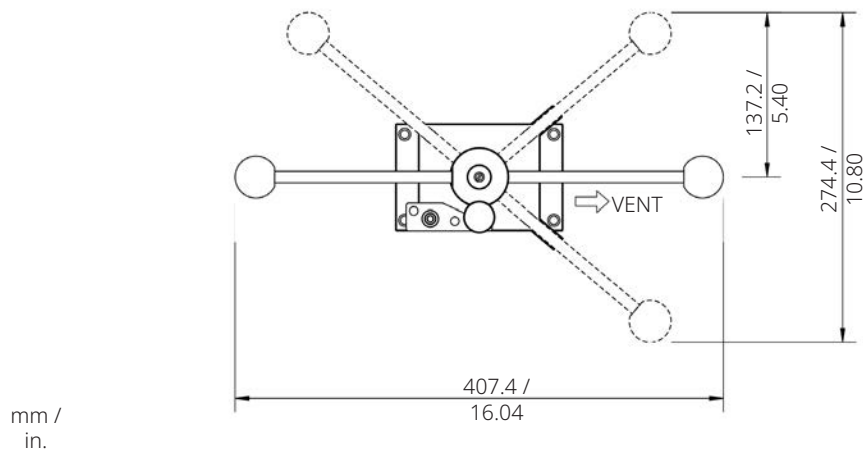
2.1 Field Mounting

525 MPO specified for mounting on a valve actuator is mounted at the factory. If the controller is ordered separately for field installation, mount the controller according to the following instructions.

Figure 2. 525 MPO Mounting Dimensions



For installation orientation, ensure that sufficient clearance is provided for proper operation and that the vent port remains unobstructed. Refer to Figure 3.

Figure 3. 525 MPO Mounting Space

To ensure proper operation, the mode indicator label/handles located on the top view of the 525 MPO must always remain unobstructed and clearly visible during operation. Operators are required to maintain a forward-facing orientation toward the label/handles throughout the entire operation process.

2.2 Pressure Connections

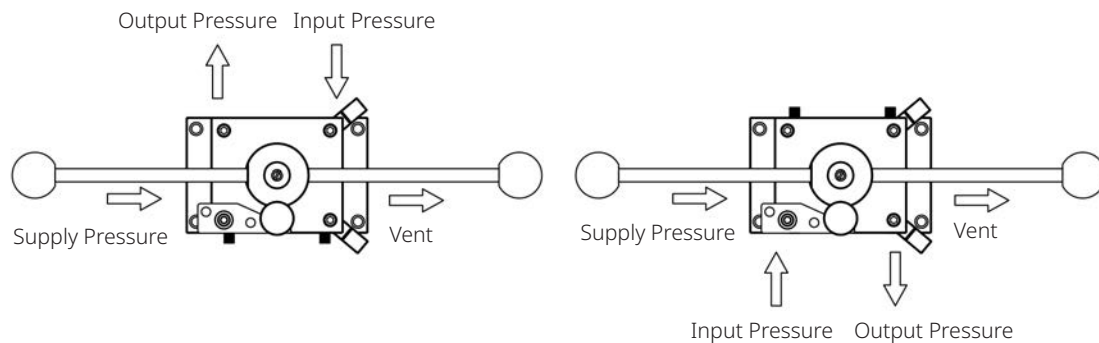
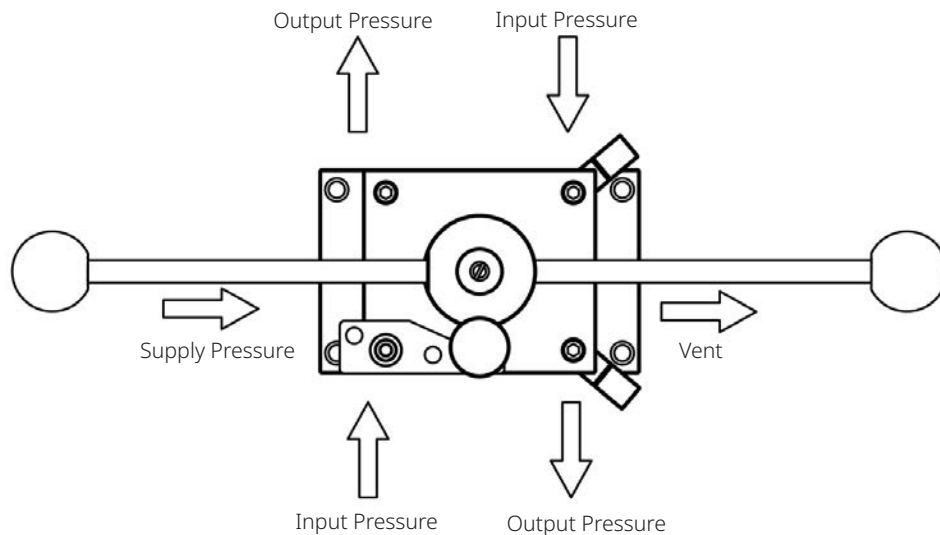
⚠ WARNING

To avoid personal injury or property damage resulting from the sudden release of pressure, do not install any system component where service conditions could exceed the limits given in this manual. Use pressure-relieving devices as required by government or accepted industry codes and good engineering practices.

NOTICE

Do not use sealing tape on pneumatic connections. This instrument contains small passages that may become obstructed by detached sealing tape. Thread sealant paste should be used to seal and lubricate pneumatic threaded connections.

All pressure connections on the 525 MPO are 1/4 NPT internal. Use 10 mm / 3/8-in. pipe or tubing for supply, input and output piping. The pressure connection locations are shown in Figures 4 and 5.

Figure 4. Single-Acting Pressure Connection**Figure 5. Double-Acting Pressure Connection**

2.3 Supply Pressure

⚠ WARNING

Severe personal injury or property damage may occur from an uncontrolled process if the instrument supply medium is not clean, dry, oil-free and non-corrosive. A regularly maintained air filter removing particles larger than 40 micrometers in diameter will suffice in most applications. Further filtration down to 5 micrometer particle size is recommended. If you are unsure of your filtration needs or use a hazardous gas, check with an [Emerson sales office](#) or industry instrument supply medium quality standard.

Supply pressure must be filtered, clean, dry and non-corrosive gas. It must meet the requirements of ISA Standard 7.0.01 or ISO 8573-1. A maximum 40 micrometer particle size in the air system is acceptable. Further filtration down to 5 micrometer particle size is recommended. Lubricant content is not to exceed 1 ppm weight (w/w) or volume (v/v) basis. Condensation in the supply medium should be minimized.

Use a suitable supply pressure regulator to reduce the supply pressure source to the normal operating supply pressure shown in Table 1.

WARNING

To avoid personal injury or property damage resulting from the sudden release of process pressure, use a pressure regulator system when operating 525 MPO from a high-pressure source. Ensure that supply pressure does not exceed the maximum pressure rating of the 525 MPO, actuator or any instruments.

2.4 Vent Port

WARNING

Personal injury or property damage could result from fire or explosion of accumulated gas or from contact with hazardous gas. The controller will exhaust pressure when operating it. If a flammable or hazardous gas is used as the supply pressure medium, adequate ventilation and necessary safety measures should be used to prevent the accumulation of flammable or hazardous gas.

Vent to the atmosphere is through VENT port in the side of the unit. Keep the VENT port free of any obstructions or foreign materials that might clog them.

2.5 Typical Application

WARNING

Avoid personal injury and property damage caused by supply pressure exceeding pressure rating of 525 MPO or attached other instruments.

Refer to Figures 6, 7, 8 and 9.

This section provides typical applications with different types of pneumatic actuator.

Figure 6. Single-Acting Actuator with Push-Down-to-Close

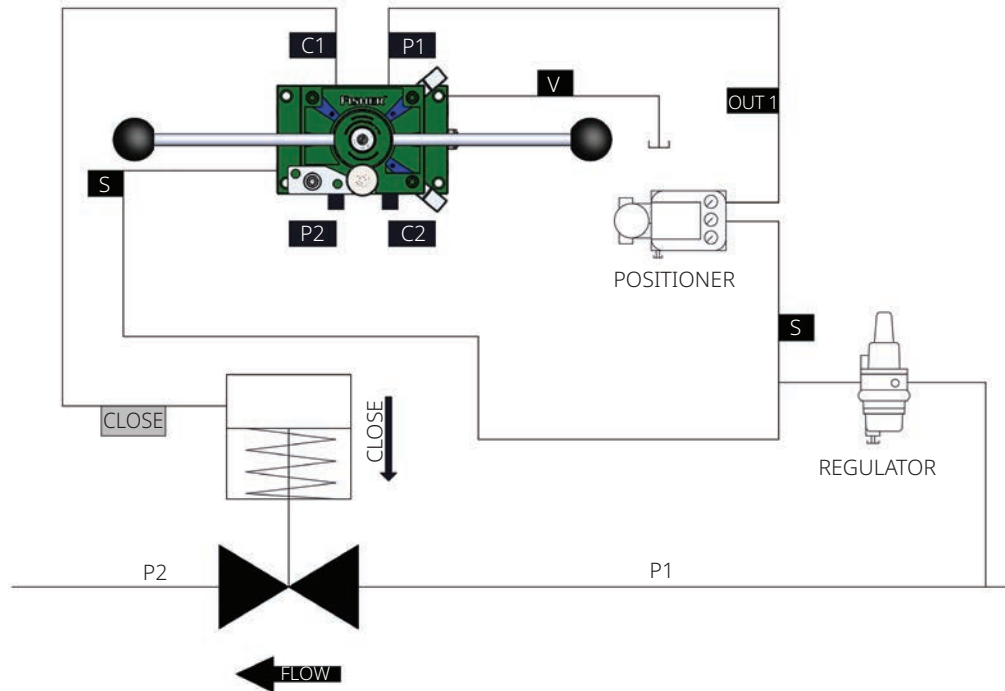


Figure 7. Single-Acting Actuator with Push-Down-to-Open

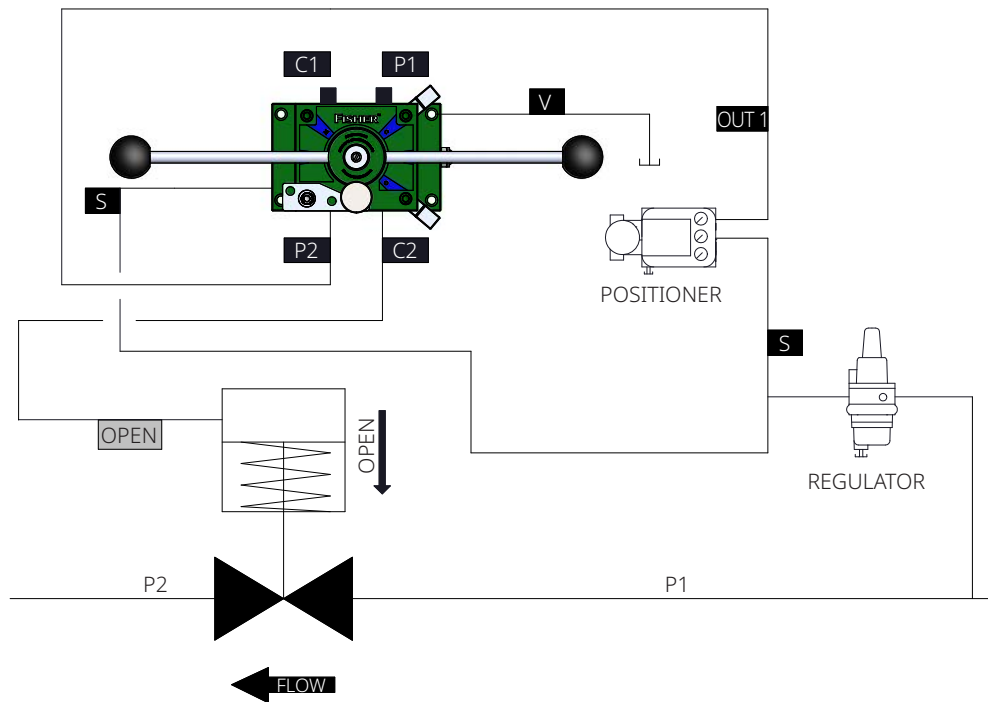


Figure 8. Double-Acting Actuator with Push-Down-to-Close

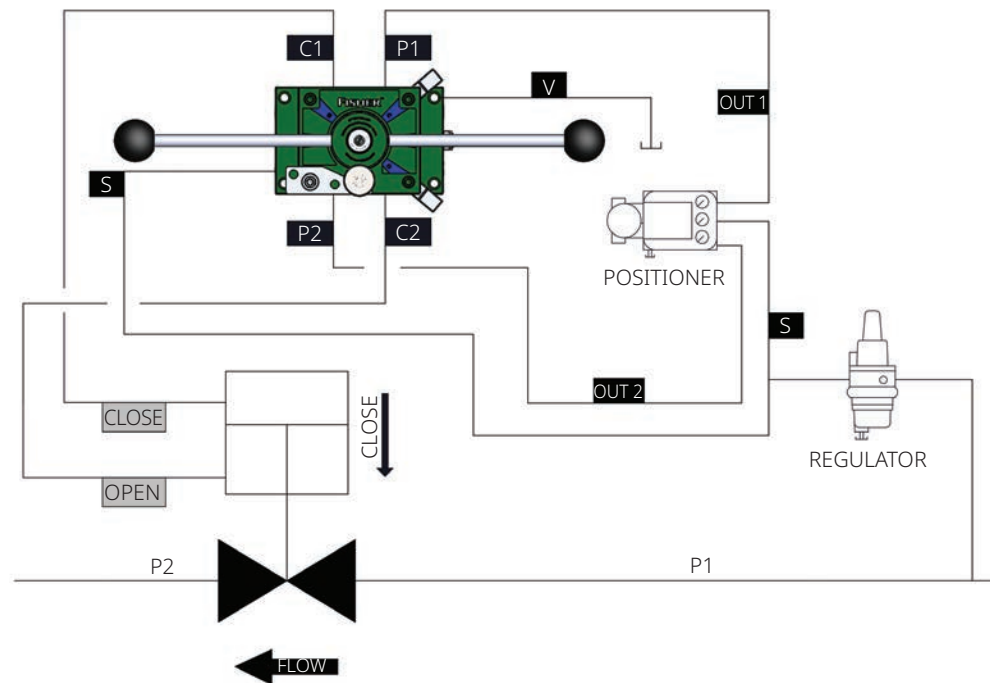


Figure 9. Double-Acting Actuator with Push-Down-to-Open

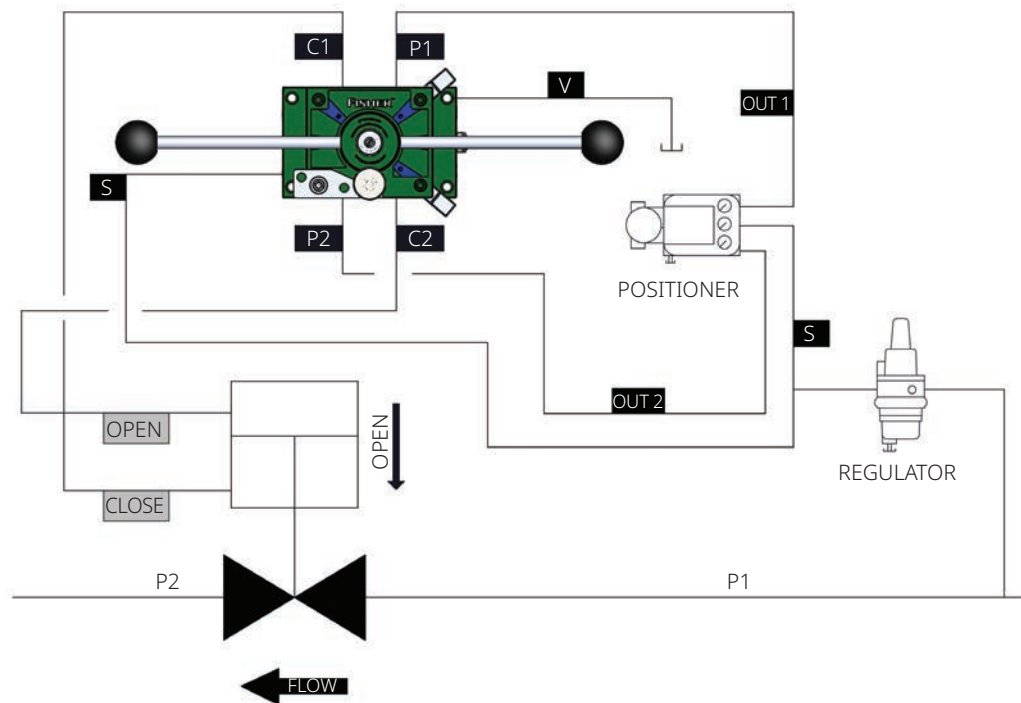


Table 2 illustrates the port cross-connections corresponding to each operational mode of the 525.

Table 2. Double-Acting Configuration⁽¹⁾

525 Modes	Connected Ports	Isolated Ports
Automatic	P1 ↔ C1, P2 ↔ C2	Supply, Vent
Manual-Lock	None	All ports isolated
Manual-Open	C1 ↔ Vent, C2 ↔ Supply	P1, P2
Manual-Close	C1 ↔ Supply, C2 ↔ Vent	P1, P2

1. Single-acting configuration will plug C1 and P1 or C2 and P2 ports, see Figures 6 and 7.

Section 3: Operation

⚠ WARNING

Avoid personal injury and property damage caused by supply pressure exceeding pressure rating of the 525 MPO or other attached instruments or equipment.

3.1 Principle of Operation

Figure 10. 525 MPO Modes

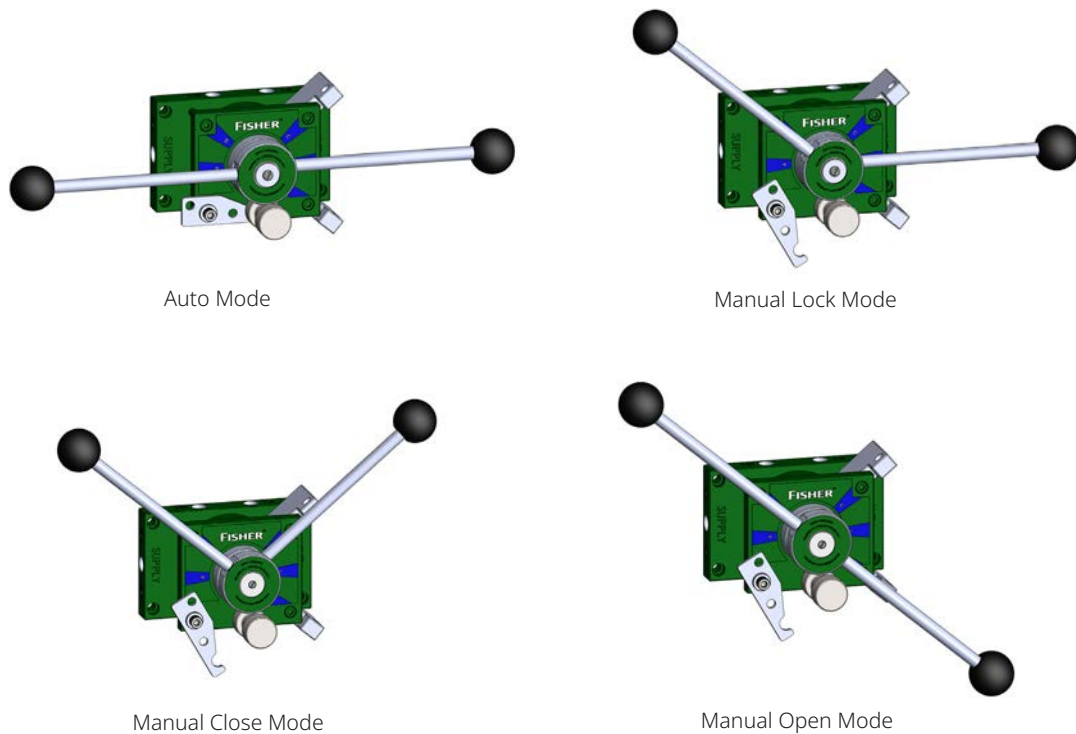
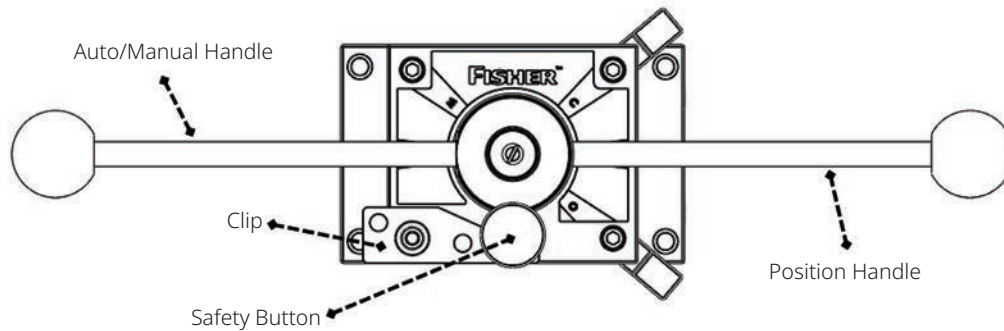


Figure 11. 525 MPO Construction

Auto Mode to Manual Modes Operation

1. AUTO mode is limited by a safety button to prevent accidental mode changes.
2. Rotate the clip clockwise to disengage the limit position, press the safety button, rotate the Auto/Manual handle to MANUAL (M) position, the 525 MPO will be operated to the MANUAL LOCK mode.

NOTE

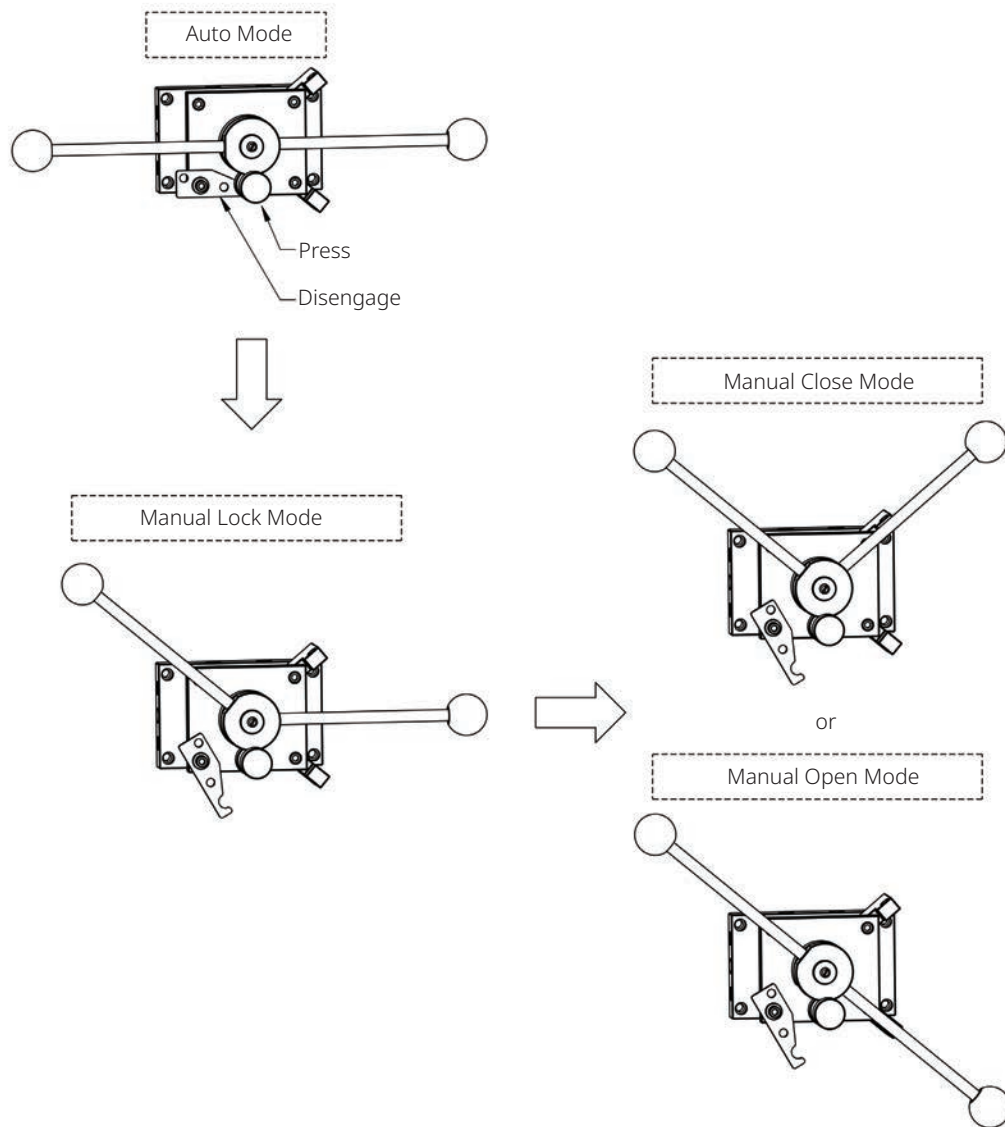
Pressure will exhaust from vent port when changing modes.

NOTE

Slow changes in valve travel may occur if the 525 MPO is left in manual-lock mode for extended periods of time.

3. Rotate the Position handle to MANUAL OPEN (O) or CLOSE (C) position, the 525 MPO will override any control instruments to position valve open or close.

Figure 12. Auto Mode to Manual Modes Operation



Manual Modes to Auto Mode Operation

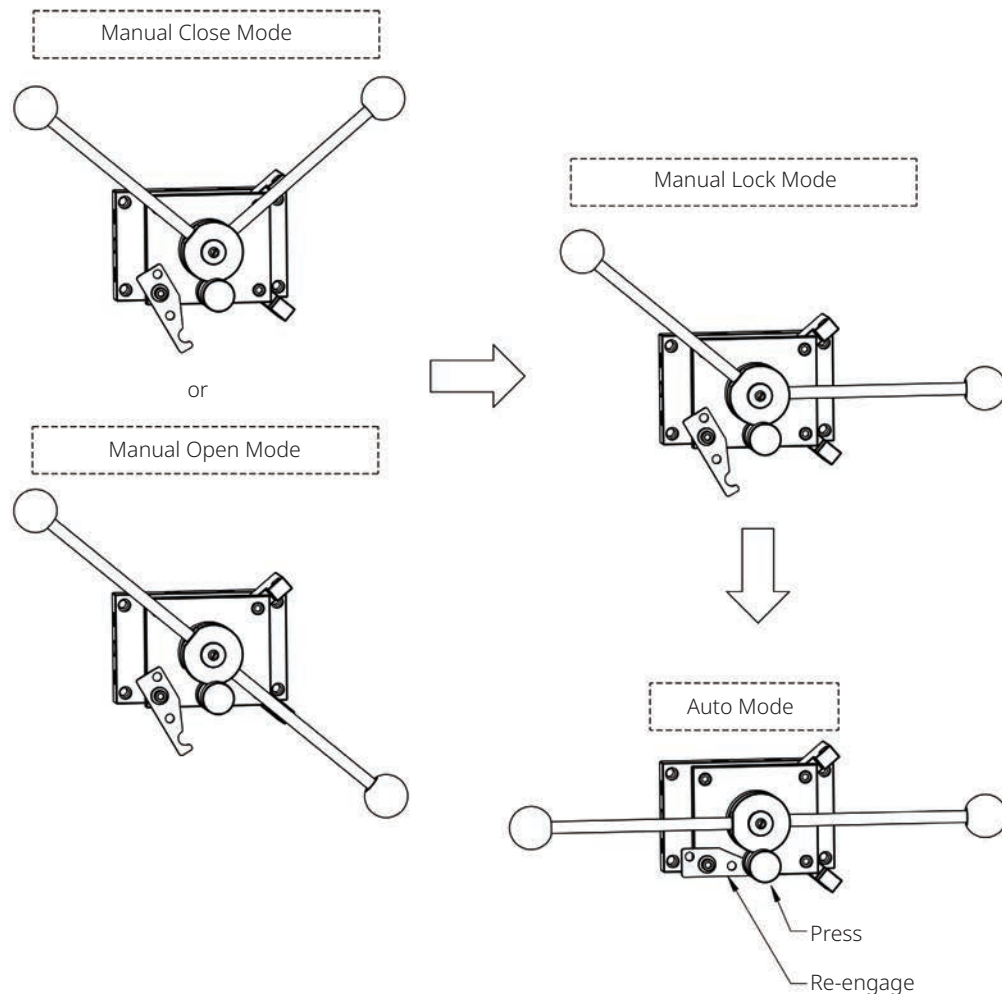
1. When the 525 MPO is in MANUAL CLOSE (C) or OPEN (O) mode, rotate the position handle, return to MANUAL LOCK (L) mode.

NOTE

Slow changes in valve travel may occur if the 525 MPO is left in manual-lock mode for extended periods of time.

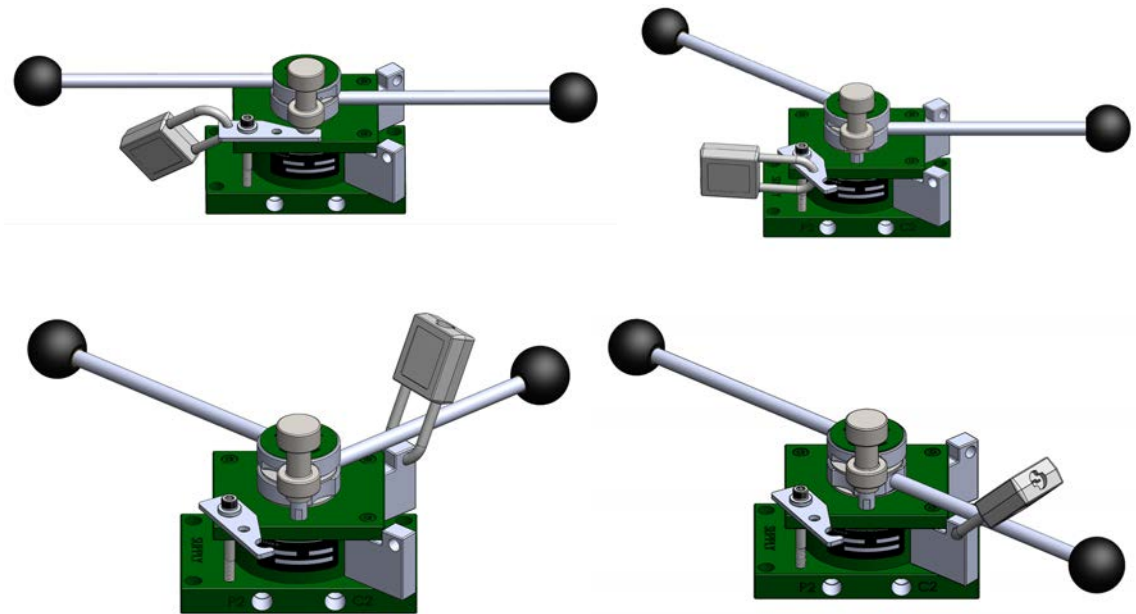
2. Press the safety button, rotate the Auto/Manual handle, return to AUTO mode, rotate the clip counterclockwise to re-engage it to the limit position.
-

Figure 13. Manual Modes to Auto Mode Operation



The 525 MPO includes features to lock the Manual Pneumatic Override in a desired position and prevent accidental or unauthorized operation. Proper selection of lockout padlock is essential to prevent accidental movement of the Type 525 MPO handles.

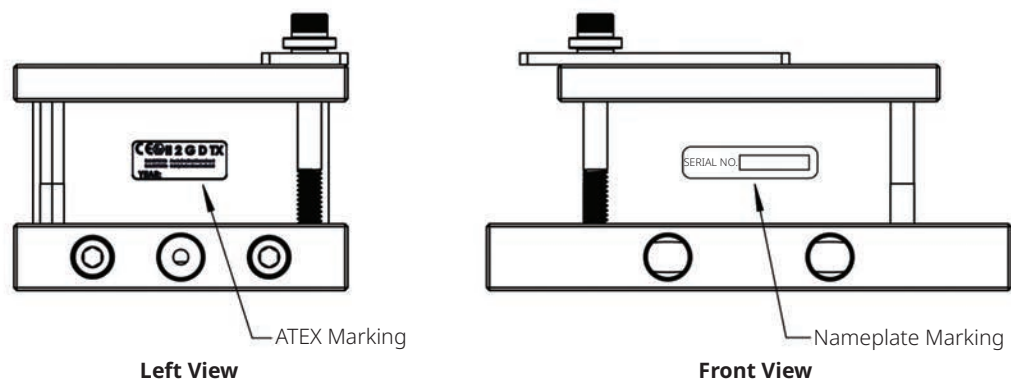
Figure 14. Lockout/Tagout Feature



Section 4: Maintenance

There are no repairable or replaceable parts on the 525 MPO. Contact your [Emerson sales office](#) if a replacement 525 MPO is needed, always mention the controller serial number. The serial number can be found on the nameplate.

Figure 15. 525 MPO Assembly Marking Locations



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