

# Fisher™ Lever-Lock Handlever Actuators for POSI-SEAL™ A81 Rotary Valves

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Figure 1. Fisher Lever-Lock Handlever Actuator Mounted on Valve



## Introduction

### Scope of Manual

This instruction manual includes installation, maintenance, and parts information for the Fisher Lever-Lock handlever actuator (figure 1). Refer to separate instruction manuals for information covering the control valves.

Do not install, operate, or maintain a Lever-Lock actuator 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 sales office](#) or Local Business Partner before proceeding.

### Description

The Lever-Lock handlever is used for reliable manual operation of DN 50 through 150 (NPS 2 through 6) Fisher A81 high-performance butterfly valves. Spring-loading secures the handlever in the notched quadrant plate (figure 2), allowing the valve disk to be locked in intermediate positions. Additionally, the handlever can be locked with a user-supplied padlock with 4.8 to 5.2 mm (3/16 to 13/64 inch) shackle to prevent accidental or unauthorized adjustment (see figures 3 and 4).

Table 1. Specifications

|   |  |
|---|--|
| <p><b>Lever-Lock Handlever Actuator Sizes</b></p> <p>See table 2</p> <p><b>Valve Compatibility</b></p> <p>Mounts on A81 valves per table 2</p> <p><b>Maximum torque Output</b></p> <p>See table 3</p> | <p><b>Handlever Length</b></p> <p>Maximum of 432 mm (17 inches). See figure 2 and table 4</p> <p><b>Construction Materials</b></p> <p>Handle, quadrant plate, lever, and mounting bracket are all steel materials. Spring, set screws, and fasteners are stainless steel</p> <p><b>Dimension and Approximate Weights</b></p> <p>See figure 2 and table 4</p> |
|---|--|

1. The pressure/temperature limits in this manual, and any applicable code or standard limitation, should not be exceeded.

Table 2. Fisher A81 Valve / Lever-Lock Handlever Compatibility

| HANDLEVER ACTUATOR SIZE | VALVE SIZE |     | SHAFT SIZE |        | SQUARE SIZE |
|-------------------------|------------|-----|------------|--------|-------------|
|                         | DN         | NPS | mm         | Inches | mm          |
| I                       | 50         | 2   | 12.7       | 1/2    | 9           |
|                         | 80         | 3   | 15.9       | 5/8    | 11          |
| II                      | 100        | 4   | 19.1       | 3/4    | 14          |
|                         | 150        | 6   | 25.4       | 1      | 17          |

Table 3. Maximum Allowable Torques and Handlever Force Requirements

| VALVE DISK POSITION               | MAXIMUM TORQUE |       |         |       | HANDLEVER FORCE REQUIRED |     |
|-----------------------------------|----------------|-------|---------|-------|--------------------------|-----|
|                                   | Size I         |       | Size II |       | N                        | Lbf |
|                                   | N•m            | In•Lb | N•m     | In•Lb |                          |     |
| 0 Degrees (Breakout Torque)       | 119            | 1050  | 164     | 1450  | 423                      | 95  |
| All Other Angles (Dynamic Torque) | 47             | 420   | 70      | 620   | 178                      | 40  |

## Installation

The Lever-Lock handlever actuator is normally shipped mounted on the valve at the factory. If the handlever was ordered separately, install the handlever on the valve by following the instructions in this section.

### **⚠ WARNING**

**Sudden or unexpected movement of the handle can result from unbalanced flow forces. Firmly grip the handlever and ensure stable footing when operating the handlever to avoid personal injury or property damage.**

## Installing the Handlever

### Orientation

Mount the Lever-Lock bracket assembly, less the handle, to the valve body. The handle is perpendicular to the pipeline when the valve is in the shut position. Rotation of the lever/valve shaft in the counter-clockwise direction will open the valve. Attach the Lever-Lock Handlever actuator to the valve in this orientation but do not fully tighten (torque) the bracket to valve bolting until after the zeroing process below.

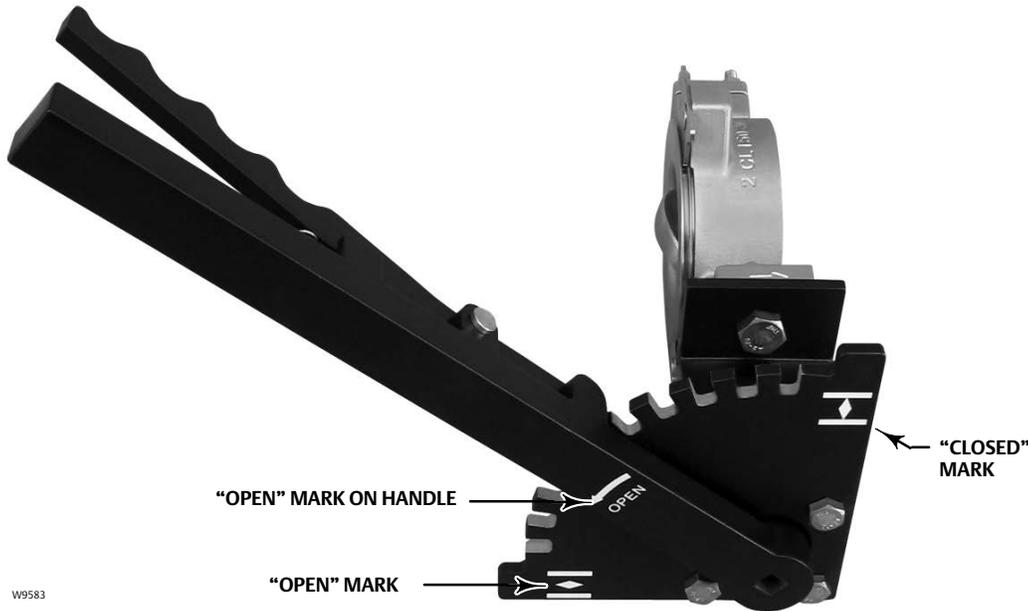
### Handle assembly

Place the handle and lever assembly on the valve shaft with the valve closed. Squeeze the lever to compress the spring, position the lever over the notch indicating the closed position, and slide the square cutout portion of the handle over the valve shaft as far as it will go. Maintain at least a 0.8 mm (1/32 inch) gap between the handle and the plate, so the handle doesn't rub on the plate during operation. Torque the two hex socket set screws against the shaft to 2.7 N•m (24 in•lbf).

### Zeroing

After tightening the set screws, check the orientation of the disk relative to the body seal retainer. Place a straight edge on the seal retainer which spans the valve opening. Visually check to ensure there is equal space (within 0.8 mm [1/32 inch]) between this straight edge and the top and bottom of the disk to ensure the valve is fully engaged in the seal. To adjust this position, rotate the bracket within the clearance of the mounting bolt holes between the valve body and bracket. Once there is equal distance between the disk and the straight edge, tighten the mounting bolts to 115 N•m (88 ft•lbf). After tightening, recheck disk position at shutoff to ensure nothing shifted during the tightening process.

Figure 2. Fisher Lever-Lock Handlever Actuator for A81 Valve (Open/Closed Marks)



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## Maintenance

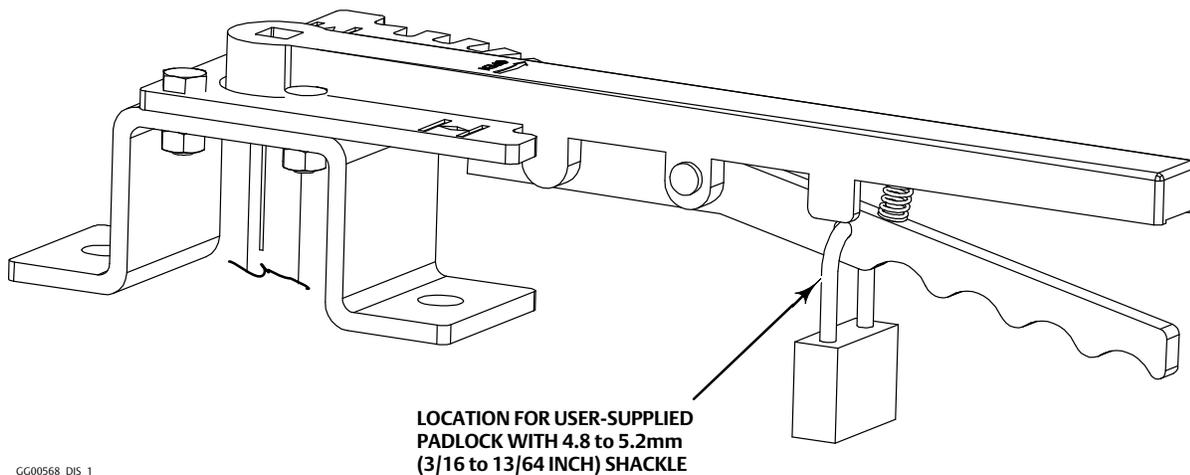
Handlever parts are subject to normal wear/corrosion and must be inspected and replaced when necessary. The frequency of inspection and replacement depends on the severity of service conditions.

### **⚠ WARNING**

Avoid personal injury or damage to property from sudden release of pressure or uncontrolled process fluid. Before starting disassembly:

- 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.
- Use bypass valves or completely shut off the process to isolate the valve from process pressure. Relieve process pressure on both sides of the valve. Drain the process media from either side of 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.

Figure 3. Fisher Lever-Lock Handlever Actuator for A81 Valve (Showing Padlock Location)



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## Ordering Replacements

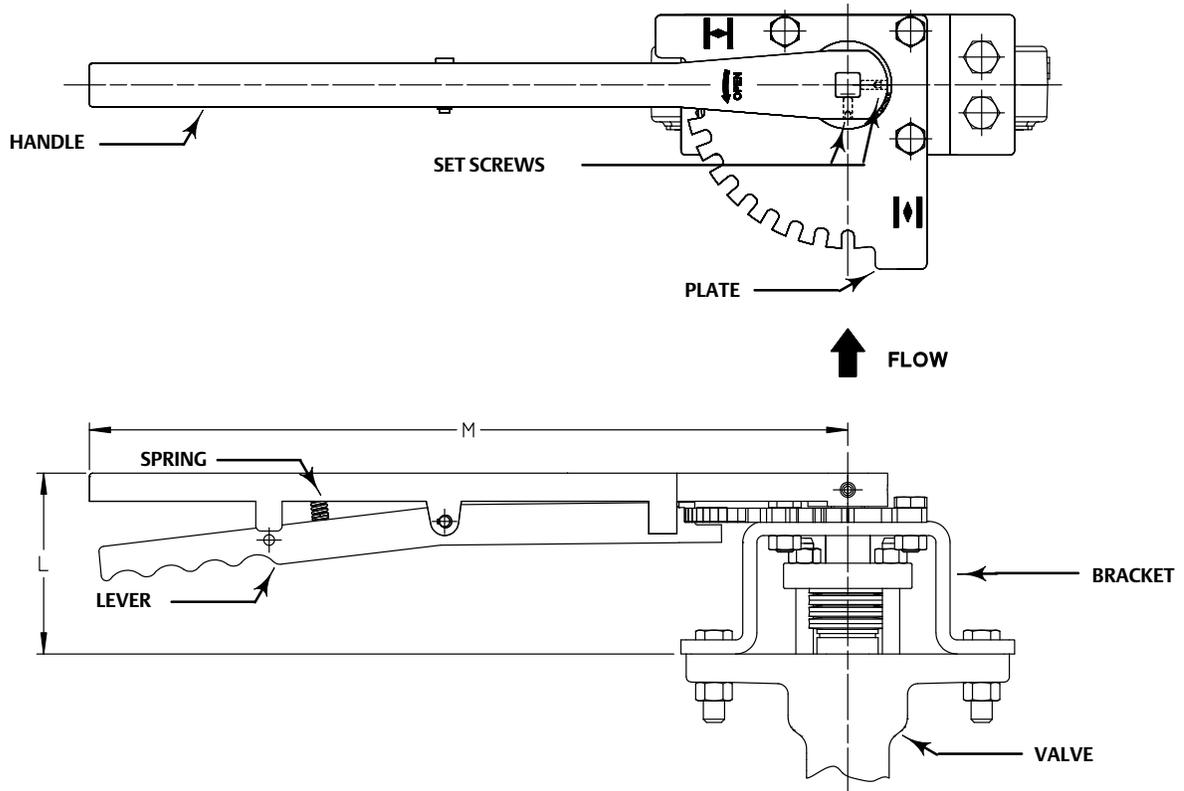
When corresponding with your [Emerson sales office](#) or Local Business Partner about this equipment, always mention the valve serial number. It is recommended that complete assemblies are considered for replacements to ensure the latest version of the product is supplied.

### **⚠ WARNING**

**Use only genuine Fisher replacement parts. Components that are not supplied by Emerson Automation Solutions 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.**

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Figure 4. Fisher Lever-Lock Handlever Actuator for A81 Valve (fully closed valve position shown)



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Table 4. Dimensions and Weights

| VALVE SIZE |     | M   |      | L   |      | WEIGHT |     |
|------------|-----|-----|------|-----|------|--------|-----|
| DN         | NPS | mm  | Inch | mm  | Inch | kg     | lbs |
| 50         | 2   | 315 | 12.4 | 85  | 3.35 | 2.72   | 3   |
| 80         | 3   | 315 | 12.4 | 85  | 3.35 | 2.72   | 3   |
| 100        | 4   | 432 | 17.0 | 103 | 4.06 | 3.63   | 4   |
| 150        | 6   | 432 | 17.0 | 103 | 4.06 | 3.63   | 4   |



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

[www.Fisher.com](http://www.Fisher.com)

