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## Actuated Valves Rubber Diaphragms Installation & Maintenance Instructions

Saunders<sup>®</sup> HC4 Diaphragm Valves

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 CAUTION

READ INSTRUCTIONS BEFORE INSTALLATION or valve service. Failure to follow instructions could result in death or serious injury. If there is any question, contact the factory at U.S: 936-588-8360 or UK: +44 1633 486666

 WARNING

**Proper installation plays an important role in valves performance. Installation must be performed by qualified technicians only. Customer assumes all responsibility for valve performance on valves installed in the field by non-Crane ChemPharma & Energy, Saunders personnel. Improper installation will result in damage to the valve.**

## Installation & Operation

### IMPORTANT:

Before removing the valve/actuator fastenings, note the following:

- For normally closed (NC) valves, apply air to activate the actuator to the open position.
- For normally open (NO) valves, no air is required for this step.

Ensure that the line pressure has been removed and the system is drained and flushed.

Please ensure that you have the correct tools and safety equipment to disassemble valves correctly and ensure you follow recommended safe working practices.

1. Start to loosen the fastenings.

**IMPORTANT: Do not remove the fastenings completely as there may be pressure remaining in the system. Wait for any excess pressure to finish venting.**

2. Remove the fasteners and the valve actuator.



## Installation & Operation

3. Inspect the valve body sealing surfaces for damage.



5. Remove diaphragm from actuator by turning anti-clockwise.



4. Set actuator in its closed position:

- Release air pressure to "NC' actuators.
- Apply air pressure to "NO' actuators.

*Compressor face must be exposed. This will provide better access to the diaphragm compressor and fixing.*



## Installation & Operation

### Attach new diaphragm:

6. Engage diaphragm stud into the compressor by turning clockwise.



7. Set actuator in its fully-open position:

- Release air pressure on 'NO' actuators.
- Apply air pressure to "NC" actuators.



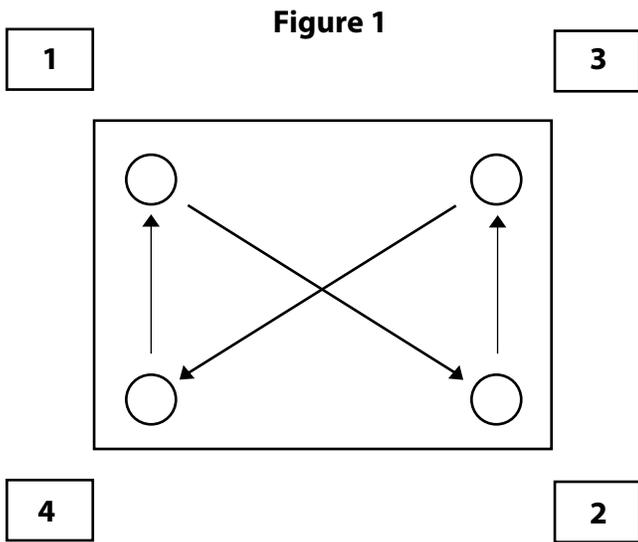
8. Attach the actuator to the valve body; insert the retaining fasteners.



## Installation & Operation

Hand tighten fasteners as shown below in Figure 1

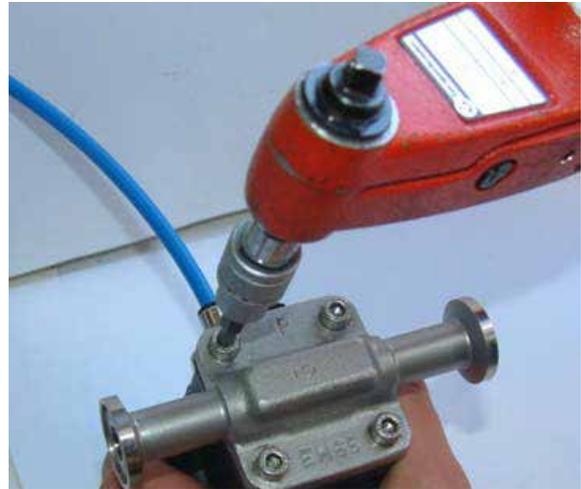
Use diagonally opposing technique to tighten fastenings at all times.



**9.** Set actuator in its closed position:

- Release air pressure to "NC" actuators.
- Apply air pressure to "NO" actuators.

**10.** Gradually tighten the fasteners as per figure 1, to  $\frac{3}{4}$  of full torque. (See torque spec table).



*This ensures that the diaphragm correctly seats before further tightening.*

**11.** Set actuator in its open position:

- Release air pressure to "NO" actuators.
- Apply air pressure to "NC" actuators.

**12.** Fully tighten all fasteners to the specified torque setting, (see torque spec table) using method shown in Figure 1.

**13.** Remove air pressure from actuator (only applicable to spring closing mode).

## Torque Spec Table

Valve Size (DN)	Maximum Torque (Nm)
8	3
15	6.6
20	6.6
25	8
40	17
50	33
65	47
80	67

**IMPORTANT:**

**14.** Re-tighten fastenings to the maximum torque after 24 hours or first heat cycle, ideally the retightening operation should be carried out with the valve in the open position and the valve temperature at 40°C or below.



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CPE-SAUNDERS-ACTUATED PTFE-IOM-EN-L15-6-30-2014

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