

## Diaphragms – Recommended Procedure for Routine Maintenance

### HC4 Diaphragm Valves

HC4/050/01/06.04

The hygienic and aseptic stainless steel diaphragm valve is recognized as the benchmark product in the clean process industries. As such, many valves are installed in manufacturing processes world-wide, producing high value sterile products.

As with all equipment, correct maintenance, use of genuine replacement parts and setting to manufacturers' recommended procedures is essential for trouble free operation and best service life.

Generally with the diaphragm valve the only routine maintenance required is replacement of the line diaphragm that comes into contact with the process media.

### Diaphragm Replacement Routine:

- Ensure diaphragm is correct grade material for application including in normal and design process conditions.
  - Ensure diaphragm grade complies with FDA or other approvals as required.
  - Check age of diaphragm – refer to technical data sheet Storage and Shelf life of Rubber/PTFE Diaphragms. If diaphragm age is outside specification discard and renew.
- Use only Saunders spare diaphragms. These are fully traceable and dated; for information refer to technical data sheet Traceable Diaphragms.

- Determine the optimum change cycle. This will be influenced by the line media, including pressure and temperature. Also, most importantly, the frequency, duration and temperature of steam sterilization between process runs.

As this varies considerably from process to process, contact Saunders for recommendations for the change cycle or monitor the diaphragm performance during routine maintenance intervals.

- Ensure if possible the system cools before removing the valve top works and diaphragm. This will prevent some rubber grades of diaphragm adhering to the valve body which can make removal difficult.
- Relieve the system pressure and make sure all line media has drained, wear appropriate protective clothing before removing valve top works.
- Remove the used diaphragm and if possible wash and clean the weir area of the valve body with alcohol or detergent, rinse with clean water and dry before fitting a new diaphragm.

This procedure is recommended at least once a year.

- If the diaphragm is washed before installation ensure it is dry before fitting to the valve body.

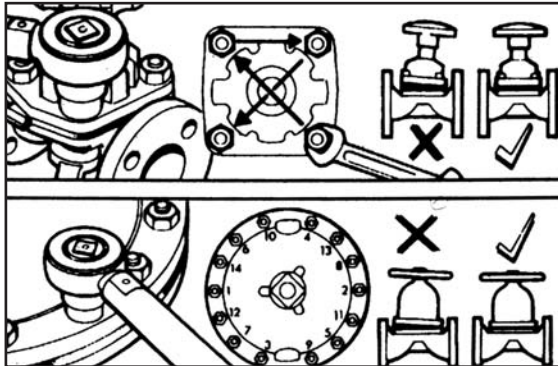
## Diaphragm centralization

Fix the diaphragm to the top works. Ensure the actuator or manual bonnet is in the open position then mount onto the body and finger tighten the fastenings. Turn the valve to close and semi-tighten the fastenings, open the valve then tighten the fastenings fully, use bolting torques provided for the EC actuator and Performance polymer bonnet range.

Recommended bolting torques:

Size (DN)	Maximum Torque (Nm)
0.50" (15)	3.7 lbf ft (5)
0.75" (20)	3.7 lbf ft (5)
1.00" (25)	4.4 lbf ft (6)
1.50" (40)	9.6 lbf ft (13)
2.00" (50)	18.4 lbf ft (25)
2.50" (65)	25.8 lbf ft (35)
3.00" (80)	36.9 lbf ft (50)

Recommended bolting sequence:



Before commissioning, the system must be thoroughly flushed through to remove all traces of foreign matter such as rust, pipescale, beads of welding metal etc. that could cause damage to the valve seating faces. Before putting the valve into service ensure that the bonnet nuts of all valves are correctly adjusted to provide seal to atmosphere using the correct bolting torques. During the first 24 hours of service, further adjust the bonnet nuts to follow any relaxation of the diaphragm.

**The diaphragm is correctly installed and will provide the longest possible service life.**