Saunders®
the science inside

brands you trust.

Installation & Maintenance Instructions
Saunders® S360 Actuator

CRANE

Crane ChemPharma & Energy

www.cranecpe.com

Saunders®
the science inside

Table of Contents

Safety Instructions

Basic Safety Instructions

These safety instructions do not make allowance for the following :

- Contingencies and events which may arise during the installation, operation and maintenance of the Actuator.
- Local safety regulations - the operator is responsible for observing these regulations, also with reference to the installation personnel.

CAUTION

High Pressure:
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 following the recommended safe working practices.

Hazardous Situation
To avoid injury, ensure the following:
- The system cannot be activated unintentionally.
- Installation and maintenance may be carried out by authorized technicians only.
- After an interruption in the power or pneumatic supply, ensure that the process will be restarted in a defined and controlled manner.

Saunders® S360 Actuator
Installation, Operation & Maintenance

Actuator Change Out Disassembly Procedure

1

Start to loosen the fastenings.

IMPORTANT: Ensure that excess pressure has vented prior to fastening removal.

2

Remove the fasteners and the valve actuator.

Diaphragm Removal

3

Inspect the valve body sealing surfaces for damage.

4

Ensure actuator is in the closed position:

- Release air pressure on '**NC**' Actuators.
- Apply air pressure to '**NO**' Actuators.

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

Diaphragm Replacement

5

Remove diaphragm from actuator :

- If one piece elastomer (threaded attachment), rotate anticlockwise.
- If PTFE with elastomer backing (bayonet attachment), turn through 90º.

6

Elastomer Single Piece Diaphragm
Engage diaphragm threaded stud into the compressor by applying pressure to the centre of the diaphragm. Ensure correct engagement and continue to rotate clockwise until resistance is felt. Rotate diaphragm anti-clockwise until diaphragm / bonnet hole alignment is achieved.

PTFE Faced Two Piece Diaphragm
Engage diaphragm bayonet into the compressor slot by applying pressure to the centre of the diaphragm. Ensure correct engagement and continue to apply pressure to the centre of the diaphragm and turn through 90°.

Saunders® S360 Actuator
Installation, Operation & Maintenance

Assembly Procedure

7

Ensure actuator is full open
- Apply air pressure to '**NC**' actuators.
- Release air pressure on '**NO**' actuators.

8

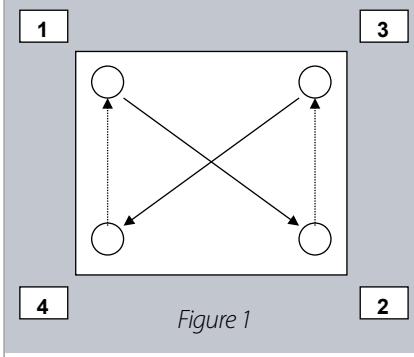

Figure 1

Attach the actuator to valve body; Insert the retaining fasteners.

Hand tighten fasteners in the order shown in Figure 1.

Use diagonally opposing technique to tighten fastenings at all times.

9

Ensure actuator is in the closed position:
- Release air pressure on '**NC**' actuators.
- Apply air pressure to '**NO**' actuators.

10

Gradually tighten the fasteners as per figure 1 to approximately 3/4 of full torque.

(See torque specification table).

This ensures that the diaphragm seats correctly before further tightening.

11

Ensure Actuator is fully open:
- Apply air pressure to '**NC**' actuators
- Release air pressure on '**NO**' actuators

12

Tighten all fasteners to the specified torque setting as per figure 1. (see torque specification table)
- It is recommended that torque is applied to the nut. (For DN8 (¼") Actuators, apply torque to the bolt head.)
- It is recommended that the final torque is applied in three passes following the correct sequence.
- Re-apply the final torque to the first nut after the third pass to ensure the application of a consistent torque across all fastenings.
- The compression of the diaphragm periphery should be consistent.
- The exposed threads at the top of the nuts should be consistent in length.

This determines that even compression has been applied to all fastenings.

13

Remove air pressure from Actuator (only applicable to '**NC**' actuators)

Saunders® S360 Actuator
Installation, Operation & Maintenance

Torques

14

Torque Specification 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
100	53

IMPORTANT: Re-tighten fastenings to the maximum torque after 24 hours or first heat cycle.

It is recommended that the retightening operation should be carried out with the valve in the open position and the valve temperature 40°C or below.

Compressor Change - Elastomer (Screw) or PTFE (Bayonet) Diaphragm Connection

Before a compressor change can take place, steps 1–5 need to be undertaken

15

Insert flat head screwdriver (3mm x 100mm) through the compressor.

16

Engage screwdriver into spindle adaptor slot.

17

Unwind the spindle adaptor releasing the compressor.

18

Assemble replacement compressor/ spindle adaptor sub assembly and apply Loctite 222 to thread.

19

Assemble replacement spindle adaptor/compressor sub assembly to master spindle on actuator with flat head screwdriver.

Saunders® S360 Actuator
Product Marking & Weights

Product Marking

All actuators will be labelled incorporating the following information.

1. Actuator Model
2. Valve Size
3. Mode of Operation
4. Operating Pressure
5. Air Port connection
6. Warnings (English, French & German)

Weights Table

Model	Weight Kg (LBS)
DN8 SC (0.25 in.)	0.5 Kg (1.1 lbs)
DN15 SC LITE(0.5 in.)	1.06 Kg (2.3 lbs)
DN15 SC POWER (0.5 in.)	1.10 Kg (2.4 lbs)
DN20 SC LITE (0.75 in.)	1.93 Kg (4.3 lbs)
DN20 SC POWER (0.75 in.)	2.5 Kg (5.5 lbs)
DN25 SC LITE (1 in.)	2.56 Kg (5.6 lbs)
DN25 SC POWER (1 in.)	2.57 Kg (5.7 lbs)
DN40 SC LITE (1.5 in.)	3.30 Kg (7.7 lbs)
DN40 SC POWER(1.5 in.)	5.30 Kg (11.7 lbs)
DN50 SC LITE (2 in.)	6.05 Kg (13.4 lbs)
DN50 SC POWER (2 in.)	8.80 Kg (19.4 lbs)
DN65 SC (2.5 in.)	16.5 Kg (36.4 lbs)
DN80 SC (3 in.)	31.5 Kg (69.4 lbs)
DN100 SC (4 in.)	33.5 Kg (73.9 lbs)

Power Range

Lite Range

Crane ChemPharma & Energy
Crane Process Flow Technologies Ltd.
Grange Road
Cwmbran, Gwent NP44 3XX
UNITED KINGDOM
Tel: +44 163 348 6666
Fax: +44 163 348 6777
www.cranecpe.com

Crane Process Flow Technologies SPRL / BV
Avenue Franklin No. 1
Wavre, B-1300 , Belgium
Tel: +32 10 8184 44
Fax: +32 10 8184 58

Crane Process Flow Technologies (India) Ltd
Solitaire, 5th & 6th Floor, S.No. 131 / 1+2 ,
ITI Road, Aundh, Pune - 411007, India
Tel: +91 20 3056 7800
Fax:+91 20 3056 7812

Crane ChemPharma & Energy
4526 Research Forest Dr, Suite 400
The Woodlands, TX 77381, USA
PH: (936)-588-8360
SaundersOrders@CraneCPE.com
SaundersQuotes@CraneCPE.com

brands you trust.

CPE-SAUNDERS-S360-IM-EN-A4-2019_10_02