

SAUNDERS® diaphragm valve installation maintenance and spare parts

14

List No. DVSP/974



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Introduction

'SAUNDERS' diaphragm valves should remain maintenance-free for long periods but eventually a diaphragm change will become necessary. The procedure for this simple operation is fully detailed on the following pages for each design of valve.

Where more detailed replacement is desired, the perspective drawings with named parts show the assembly of components and give the correct nomenclature for the ordering of spare parts.

In addition we offer below some advice as an aid to the initial installation of Saunders diaphragm valves.

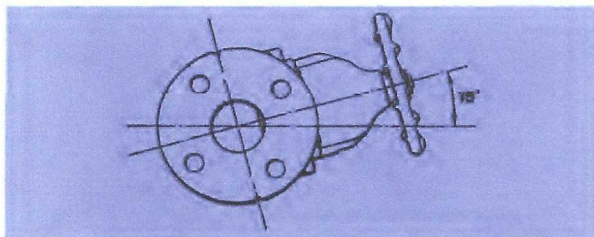
Installation Notes for 'SAUNDERS'

Diaphragm Valves

POSITION

1. Saunders Diaphragm Valves can be installed in any convenient position in horizontal, vertical or sloping pipelines.

An 'A' type Saunders valve set at an angle of 15° for self draining.



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FITTING

2. (a) When fitting the valves, allow reasonable access for the operator. The maximum recommended working pressures given in the Saunders Technical Handbook are based on the assumption that the operator will have reasonably convenient access to the handwheel.
- (b) In cases of difficult access, use should be made of extended spindle or chainwheel operation; in some cases remotely controlled power operated valves may prove the best solution.
- (c) When refitting the bonnet assembly after replacing the diaphragm do not tighten bonnet bolts more than is necessary to hold the line pressure.

SELF DRAINING

3. (a) Type 'A' Saunders diaphragm valves are self draining if installed in a horizontal pipeline with the axis of the spindle inclined at an angle of 15° above the horizontal position (see sketch). This involves special drilling of the valve flanges and can be provided during manufacture if we are notified at the time of ordering.
- (b) Where inconvenient to mount valve as 3(a) above, a considerable degree of self draining can be obtained by mounting the valve with the spindle horizontal. In this case the pipe line will be drained, but a small quantity of fluid will be retained in the valve body.
- (c) Right angled flanged valves in sizes $\frac{3}{4}$ "-5" are completely self draining when the valve is mounted with the spindle horizontal.

QUICK ACTING

4. When installing Quick Acting Valves allowance should be made for the swing of the lever.

GLASS LINING

5. Glass lined valves should have soft flange gaskets to protect the glass. Rubber sheet of a grade resistant to the fluid being handled is recommended. Smooth face flanges are available for glass piping.

UNDERGROUND

6. Replacement of the diaphragm eventually becomes inevitable with any type of diaphragm valve so we do not recommend Saunders Valves to be buried below ground level unless convenient means of access are provided for the purpose of bonnet removal.

OPERATION

7. Never use a wrench for the purpose of closing a Saunders valve. Ordinary manual effort according to the size of the valve will be found sufficient against the recommended pressures.

CHANGING DUTY

8. If it is desired to change the duty from that originally specified consult the Saunders Technical Handbook or refer the matter to us. A different grade of diaphragm or type of body may be needed.

BALL THRUST

9. Valves fitted with ball thrust are recognisable by the letter 'B' stamped on the end of the spindle which protrudes from the handwheel boss. Ball thrust bearings are standard on 'A' type valves, 7" and over; 'KB' type valves, 6" and over.

COMPRESSORS

10. In handwheel operated 'A' type valves sizes 6"-12", a compressor plate is used to retain the spindle nut in the compressor. In the 14" valve a matching piece connects the compressor to a rising spindle. (16" 'A' type valves are also supplied. This design has a double weir and two 12" bonnet assemblies).

CHAINWHEEL

11. On 'A' type Chainwheel Operated valves sizes 8"-14", and on 'KB' type 10" Chainwheel valves the chainwheel nut is replaced by a plate and four set screws.

STORAGE

12. If valve is to be stored for a long period of time the following should be noted:—
 - (a) Store valve with diaphragm in "relaxed" position i.e. all 'KB' type and 'A' type $\frac{3}{4}$ "-3" and 5" in nearly closed position, all other 'A' type in open position.
 - (b) Store away from ozone atmosphere i.e. away from electrical equipment.
 - (c) Release spring tension from air operated valves (D.O.P.C. and D.O.P.O.).

EMERGENCY HANDWHEEL

13. 'A' type Diaphragm Operated Pressure Opening valves, Diaphragm Operated High Pressure Closing valves, Piston Operated valves and 'KB' type Diaphragm Operated Pressure Closing valves are also obtainable with emergency handwheel control, as are 'KB' Diaphragm Operated Pressure Opening valves.

ACCESSORIES

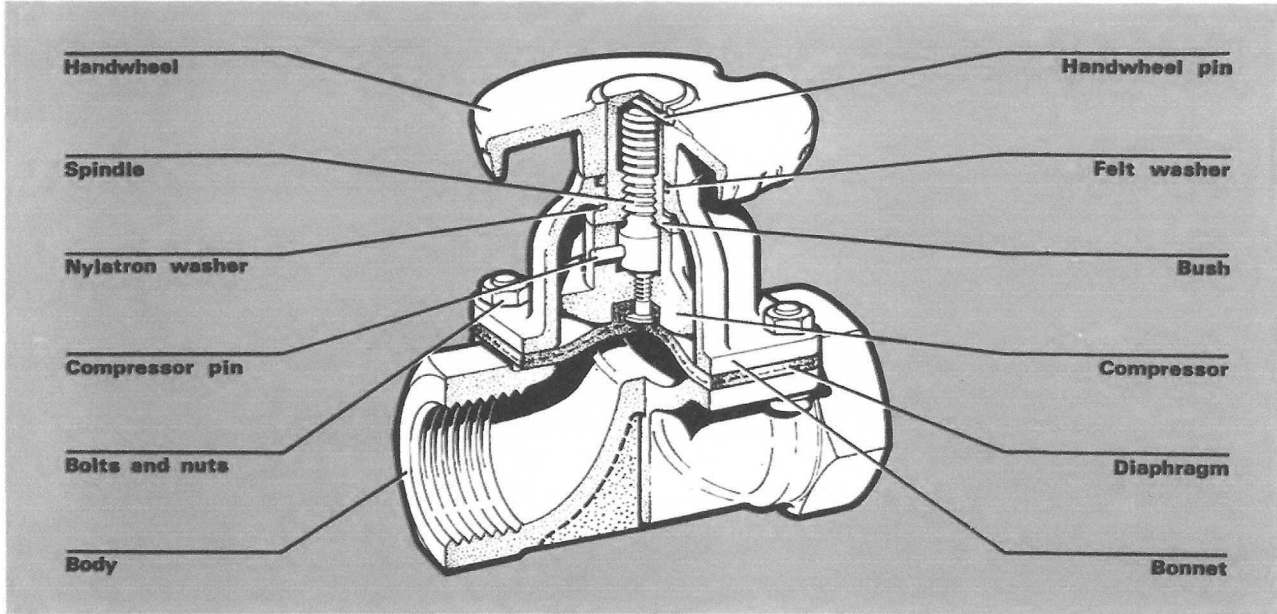
14. (a) Accessories such as Microswitches or Positioners should be disconnected from valves before maintenance is carried out.
 - (b) Maintenance on accessories should be carried out as per manufacturer's instructions, available on demand from Saunders Valve Company.

OPERATING AIR OR OIL

15. If oil or oily air is used to operate valve 'C' grade operating diaphragm must be used.

WHEN ORDERING SPARES please specify size and type of valve, and nature of fluid with temperature, pressure, concentration, etc. (1939 and subsequent manufacture have a "V" notch on the bonnet-diaphragm-body flanges). When replacing parts of Saunders diaphragm valves it is essential that genuine Saunders spares should be used and that parts of appropriate type and size should be fitted. It is important, for example, that such matters as size of handwheel be observed as by using too large a wheel the leverage exerted can be too great and therefore harmful to the valve. In the matter of diaphragms the grade, letter or number and colour mark should be quoted and, if it is intended to use the valve on some service different from its original duty, the temperature, pressure and concentration of the fluid should be specified.

Type 'A' Standard Handwheel Operated, Sizes $\frac{1}{2}$ " - $1\frac{1}{4}$ ".



Type 'A' Standard Handwheel Operated, Sizes $1\frac{1}{2}$ " - 14".

