

HOVAP SERIES 8700 VARIOFLOW DOUBLE SAFETY PROCESS VALVES

INSTRUCTION MANUAL DN 125 - 150

1 CONTENTS

| | | |
|----------|--|----------|
| 2 | Introduction | 2 |
| 2.1 | Valve use | 2 |
| 2.2 | Application area | 2 |
| 2.3 | Incorrect use | 2 |
| 3 | Safety | 2 |
| 4 | Transport and storage | 2 |
| 5 | Installation instructions | 2 |
| 5.1 | Mounting | 2 |
| 5.2 | Installation into pipework | 2 |
| 5.3 | Operating space | 2 |
| 5.4 | Mounting space | 2 |
| 6 | Operation | 3 |
| 6.1 | Operation with air | 3 |
| 6.2 | Connection of flushing chambers | 3 |
| 6.3 | Indication of valve position | 3 |
| 6.4 | Control unit | 3 |
| 7 | Cleaning and maintenance | 3 |
| 7.1 | Cleaning | 3 |
| 7.2 | Lead-time | 3 |
| 7.3 | Safety measures during maintenance | 3 |
| 7.4 | Grease to be used | 4 |
| 7.5 | Disassembling the valve | 4 |
| 7.6 | Disassembling the actuator | 4 |
| 7.7 | Assembling the actuator | 5 |
| 7.8 | Assembling the valve | 5 |
| 7.9 | Faults | 5 |
| | Appendix A: Cross-section | 6 |
| | Appendix B: Parts and spare parts | 7 |
| | Parts | 7 |
| | Spare parts | 7 |
| | Ordering spare parts | 7 |
| | Appendix C: Technical specification | 8 |
| | Valve material | 8 |
| | Gasket material | 8 |
| | Noise level | 8 |
| | Air supply pressure | 8 |
| | Air consumption | 8 |
| | Version and ordering code | 8 |

2 INTRODUCTION

2.1 Valve use

The Hovap Varioflow double safety valve is a valve with a double seat. Mixture of products is prevented in case of seat leakage. The drain removes any leakage liquid.

2.2 Application area

The valve has been designed for use in the food and beverage and pharmaceutical industries.

2.3 Incorrect use

The valve is not suitable for use in gas systems. Liquids with hard solid parts cause increased wear of the gaskets.

3 SAFETY

The valve must be installed or protected in such a way that cleaning- or draining liquids that leave the drainpipe from the valve or flushing chambers cannot cause harm or damage to anyone who might be present in the area.

There must be a free space of at least 200 mm above or below the valve. This prevents the jamming of parts of the body during opening/closing of the valve.

Prevent that, during maintenance, liquids can pressurize the pipework in which the valve has been installed.

Prevent that fingers or hand get jammed between valve and seats during operation of a disconnected valve.

During maintenance of the actuator, the indications according to 7.6 and 7.7 must be followed carefully to avoid injury caused by the expanding pressure springs.

During cleaning and operation at elevated temperatures, the valve can become so hot that touching the surface causes burning.

4 TRANSPORT AND STORAGE

The valve has been wrapped in plastic. This prevents dust and dirt to enter the valve interior.

Re-wrap the interior when the valve is unpacked for installation of the body into the pipework.

The quality of O-rings may deteriorate during long-term storage.

5 INSTALLATION INSTRUCTIONS

5.1 Mounting

To ensure a correct operation of the leakage indication, it is essential that the valve will be installed vertically with the actuator upwards.

5.2 Installation into pipework

The valve can be installed directly into the pipework. The body can be welded after removing the valve interior, including all O-rings/gaskets.

The drainpipe and the flushing chambers must not be connected to the pipework. There must be no pressure build-up to ensure smooth operation.

5.3 Operating space

Above and below the valve, a free space is required of at least 110 mm.

5.4 Mounting space

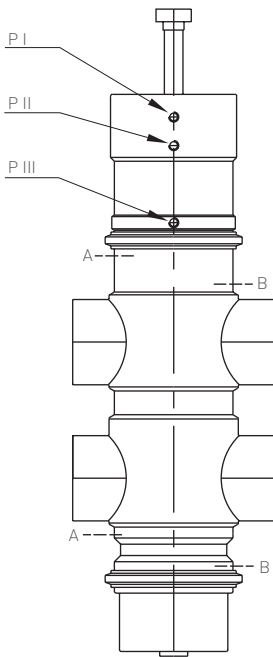
To enable valve maintenance, a free space above the valve is required of at least 700 mm for the DN 125 valve and 800 mm for the DN 150 valve.

Lifting

A lifting tackle must be present above the valve, to allow lifting the valve interior from the body during maintenance.

HOVAP SERIES 8700 VARIOFLOW DOUBLE SAFETY PROCESS VALVES

INSTRUCTION MANUAL DN 125 - 150



6 OPERATION

6.1 Operation with air

The valve is provided with three air connections with 1/8" BSP female-thread.

- P I: Clean drain space via lower valve body.
- P II: Open valve.
- P III: Clean drain space via upper valve body.

The air supply must be connected to the valve such that it is impossible to pressurize more than one connection at a time. During cleaning it must be impossible to pressurize P II and P III simultaneously. There must be a delay of about 10 s when changing from one connection to another.

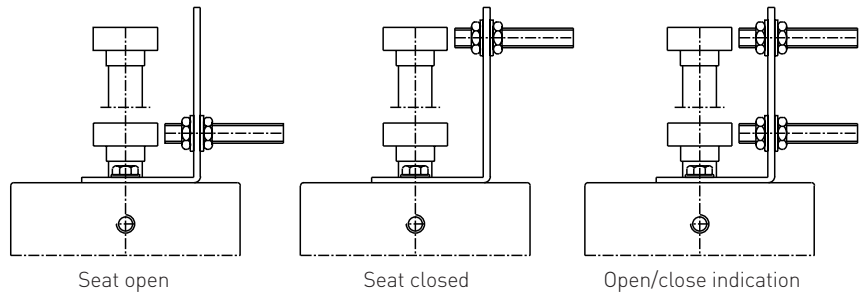
Air connections that are not used must be equipped with bleed nipples.

6.2 Connection of flushing chambers

The flushing chamber has feed and drain connections with 1/8" G (up to 4" - DN 100) or 1/4" G (DN 125-150) female thread. To prevent internal contamination or ingress of pollutants, cleaning liquid or steam (standard of up to 121°C) be applied to the flushing chambers. Liquids enter at the bottom (B) and exit at the top (A) of the flushing chambers. Steam enters at the top (A) and exits at the bottom (B). See also 5.2.

6.3 Indication of valve position

The valve can be provided with a bracket for proximity switches. The following situations are possible:



6.4 Control unit

The valve can also be provided with a control unit. Most commercially available unites can be fitted.

7 CLEANING AND MAINTENANCE

7.1 Cleaning

The valve is suitable for C.I.P. cleaning. The drain space can be cleaned by supplying pressurized air for a few seconds to P III (to clean the upper body) or P I (to clean the bottom body). See 6.1. The flushing chambers can be cleaned with water or detergents. Low pressure steam (standard of up to 121°C) can be used for sterilization. The valve material is resistant to detergents that are commonly used in the food industry, such as a lye (NaOH) or acid (HNO₃) solution of about 2 1/2% at a temperature of about 80°C. After cleaning, the system must be rinsed with clean water to prevent corrosion.

7.2 Lead-time

Sealing and wearing parts of the valve must be checked once a year. For special applications (such as highly viscous or crystallizing liquids) the lead-time must be adjusted in consultation with the manufacturer.

7.3 Safety measures during maintenance

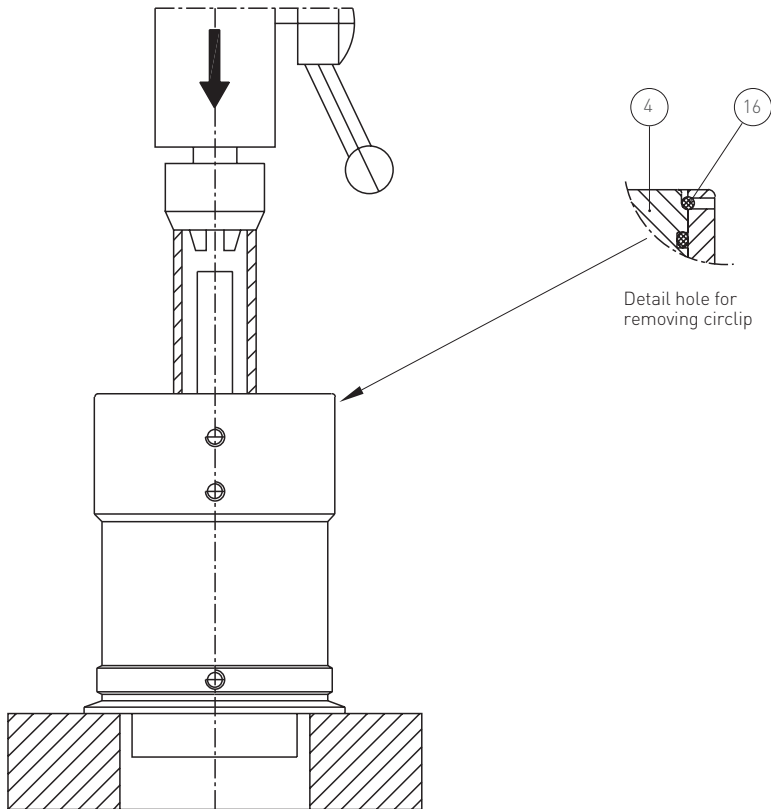
When disassembling the valve, the pipework must be empty. With disassembled valves, it must be prevented that the pipework can be filled accidentally by, e.g., starting a pump or activating a valve.

When disassembling or assembling the actuator, the instructions must be followed. Please take special care when the pressure springs expand!

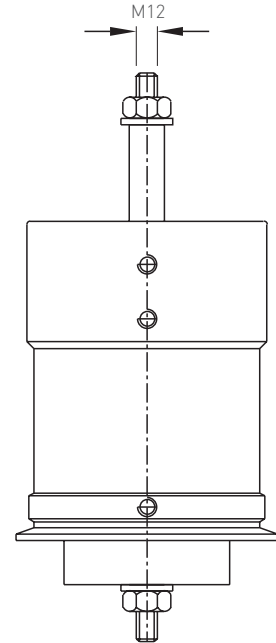
HOVAP SERIES 8700 VARIOFLOW DOUBLE SAFETY PROCESS VALVES

INSTRUCTION MANUAL DN 125 - 150

DISASSEMBLING WITH DRILLING MACHINE



DISASSEMBLING WITH THREADED END



7.4 Grease to be used

See Appendix A

Product side

Quad-rings 17 and O-rings 23, 40 and 41 may only be greased with Molykote 111. Other grease has an adverse effect on valve operation. O-ring 25 must be installed dry.

Non-product side

These O-rings can be greased with grease that has been approved for use in the food industry.

7.5 Disassembling the valve

See Appendix A

- A - Remove, if present, the indicators from the top of the valve.
- B - Remove the nipples from the air connections.
- C - Loosen clamp 7.
- D - Use a tackle to pull actuator 3 with lower valve 31 and upper valve 32 out of valve body 1. Use eye bolts 37. A hoisting accessory can be supplied by Hovap.
- E - Remove positioner 26.
- F - Pull lower valve 31 and upper valve 32 out of actuator 3.
- G - Use a pin spanner to remove insert 39 from upper valve 32.
- H - Loosen clamp 43.
- I - Remove protection body 2.
- J - Check all O-rings, both bearings 11 and cylindrical bearings 36.

7.6 Disassembling the actuator

See Appendix A

- A - Place the actuator on the table of a drill. Put a length of tube on cover 4 over spring cup 10. If no drill is available, a threaded end with nuts can be used.
- B - Press cover 4 about 10 mm downward against the spring pressure.
- Caution: springs under pressure!**
- C - Use a pin to remove circlip 16 from its groove.
- D - Allow the springs to expand and disassemble the actuator.
- E - Check gaskets, O-rings and cylindrical bearing 15.

HOVAP SERIES 8700 VARIOFLOW DOUBLE SAFETY PROCESS VALVES

INSTRUCTION MANUAL DN 125 - 150

7.7 Assembling the actuator

See Appendix A

- A - Place the O-rings.
- B - Loosely assemble all parts.
- C - Put the actuator on the table of a drill or use a threaded end.
- D - Mount circlip 16.
- F - Allow the springs to expand. Check carefully if circlip 16 fits correctly in the groove of cover 4.

7.8 Assembling the valve

See Appendix A

- A - Use a pin spanner to mount insert 39, together with O-rings 25, 40, 41 and guide ring 44, to upper valve 32.
- B - Place O-rings 20 and 23, TV O-ring 18 in upper valve 32.
- C - Place TV O-ring 18 in lower valve 31.
- D - Place O-ring 22 and spring 27 around valve stem 6.
- E - Slide lower valve 31 into upper valve 32 and place tube 46.
- F - Place valve set 31/32 in actuator 3.
- G - Fasten positioner 26.
- H - Place both bearings 11 in valve body 1.
- I - Slightly stretch quad-rings 17, which have been greased with Molykote 111, and place them into valve body 1.
- J - Use a tackle to lower actuator 3 with valve set 31/32 into valve body 1. Use eye bolts 37. A hoisting accessory can be supplied by Hovap.
- K - Check the correct installation of quad-rings 17 by blowing into the leakage holes of the connecting pieces.
- L - Fasten clamp 7.
- M - Place protection body 2 and fasten clamp 43.
- N - Connect the air supply.
- O - Check if the valve operates smoothly.

7.9 Failures

See Appendix A

Leakage out of holes at clamp 7 or 43

Check quad-rings 17.

Leakage via drainpipe 30

Check TV ring 18 if leakage occurs in closed position of valve.
Check O-ring 25 if leakage occurs in open position of the valve.

Air leakage via cover 4

Check O-rings 20 and 21.

Air leakage via connections P II or P III (see 6.1)

Check O-rings 20.

Liquid in the actuator

Check O-ring 23 or quad ring 17 at the actuator side, in case of upper valve flushing.

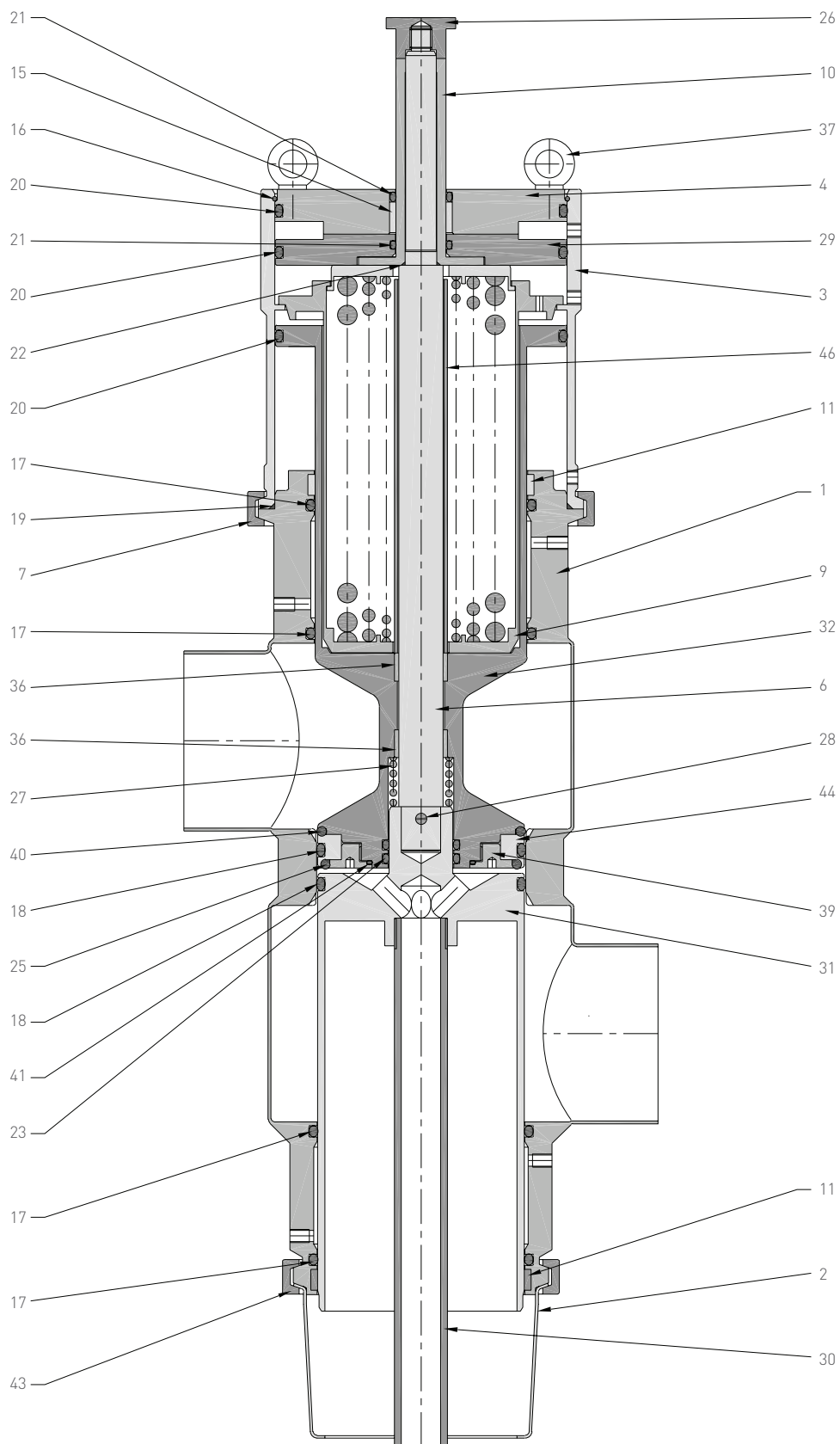
Valve opens/closes slowly

Air supply pressure is below 6 bar.
Air tube is too long, is pinched or the diameter is too small.
Liquid in the actuator.

Valve opens/closes with irregular movement

Quad-rings pos. 17 are dry. Remove these quad-rings and install new ones that have been greased with Molykote 111.

HOVAP SERIES 8700 VARIOFLOW DOUBLE SAFETY PROCESS VALVES
DN 125 - 150 / APPENDIX A - CROSS-SECTION



HOVAP SERIES 8700 VARIOFLOW DOUBLE SAFETY PROCESS VALVES

DN 125 - 150 / APPENDIX B - PARTS AND SPARE PARTS

PARTS

| Pos. | Qty. | Description | Pos. | Qty. | Description |
|------|------|---------------------|------|------|------------------------|
| 1 | 1 | Valve body | 23 | 2 | O-ring |
| 2 | 1 | Protection body | 25 | 1 | O-ring |
| 3 | 1 | Actuator | 26 | 1 | Positioner |
| 4 | 1 | Cover | 27 | 1 | Spring |
| 6 | 1 | Valve stem | 28 | 1 | Pin |
| 7 | 1 | Clamp | 29 | 1 | Auxiliary piston |
| 9 | 1 | Spring housing | 30 | 1 | Drain pipe |
| 10 | 1 | Spring dish | 31 | 1 | Lower valve |
| 11 | 2 | Bearing | 32 | 1 | Upper valve |
| 15 | 1 | Cylindrical bearing | 36 | 2 | Cylindrical bearing |
| 16 | 1 | Circlip | 37 | 2 | Lifting eye bolt |
| 17 | 4 | Quad-ring | 39 | 1 | Insert |
| 18 | 2 | TV-O-ring | 40 | 1 | O-ring |
| 19 | 1 | O-ring | 41 | 1 | O-ring |
| 20 | 3 | O-ring | 43 | 1 | Clamp |
| 21 | 2 | O-ring | 44 | 1 | Upper valve guide ring |
| 22 | 1 | O-ring | 46 | 1 | Tube |

SPARE PARTS

| Pos. | Qty. | Description | DN 125 | DN 150 |
|------|------|---------------------|--------------|--------------|
| 11 | 2 | Cylindrical bearing | | |
| 17 | 4 | Quad-ring | 148.6 x 7 | 160.5 x 7 |
| 18 | 2 | TV O-ring | 134 x 7 | 146 x 7 |
| 19 | 1 | O-ring | 208 x 3 | 208 x 3 |
| 20 | 3 | O-ring | 196.22 x 7 | 196.22 x 7 |
| 21 | 2 | O-ring | 22 x 3 | 22 x 3 |
| 22 | 1 | O-ring | 15 x 1.5 | 15 x 1.5 |
| 23 | 2 | O-ring | 43.82 x 5.33 | 43.82 x 5.33 |
| 25 | 1 | O-ring | 135.89 x 7 | 145.42 x 7 |
| 36 | 2 | Cylindrical bearing | | |
| 40 | 1 | O-ring | 135.89 x 7 | 145.42 x 7 |
| 41 | 1 | O-ring | 72 x 3 | 72 x 3 |

ORDERING SPARE PARTS

When ordering spare parts, please include the following information:

- The valve number.
- The valve ordering code. See Appendix C.
- The valve size.
- The valve part position number.
- The quality of any quad-rings and O-rings.

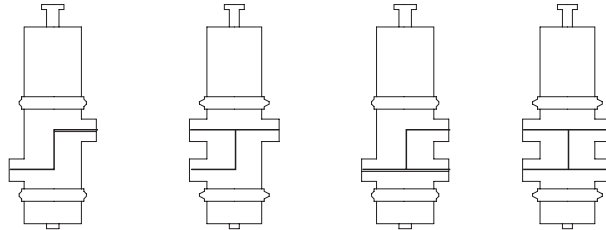
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DN 125 - 150 / APPENDIX C - TECHNICAL SPECIFICATION

VERSION AND ORDERING CODE

The following versions are available:

VERSION



ORDERING CODE

8711

8712

8721

8722

VALVE MATERIAL

All metal parts that come into contact with the liquid are made of stainless steel according to W.Nr. 1.4401. The metal parts that do not come into contact with the liquid are made of stainless steel W.Nr. 1.4301 or of plastics. The bearings in the actuator are made of self-lubricating bronze.

Gasket material

The quad- and O-rings on the product side are made of EPDM. The TV O-rings in the valve have a FPM core with a PTFE coating. The O-rings in cover 4 are of FPM, other O-rings are of NBR. Alternatives for the material of quad- and O-rings on the product side are available.

Noise level

The noise caused by the valve has an A-weighted equivalent continuous noise pressure of less than 70 dB(A).

Air supply pressure

The air supply pressure must be between 5 and 10 bar. Recommended is the use of dry air of 6 bar.

Air consumption

The air consumption in nl per stroke is given in the table below. Air consumption has been calculated at 6 bar air pressure.

| Size | Opening | Cleaning drain space via upper body | Cleaning drain space via lower body |
|--------|---------|--|--|
| DN 125 | 41 | 10.7 | 4.1 |
| DN 150 | 47 | 9.7 | 4.1 |



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