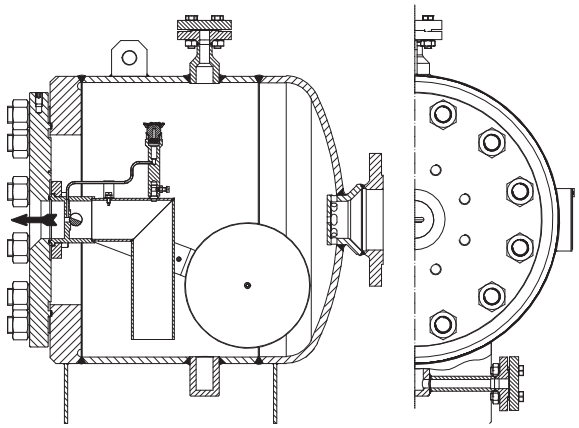
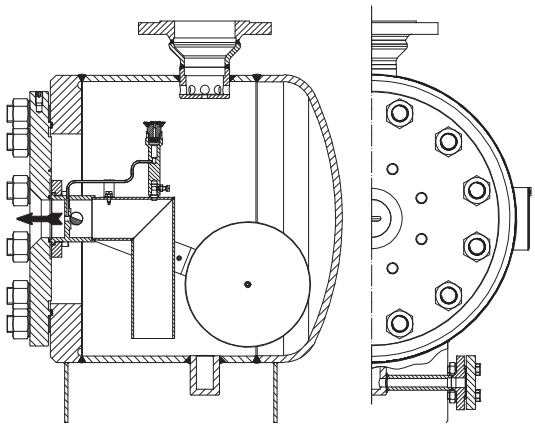
Operating and installation instructions

Ball float steam traps
CONA®S (PN16/25/40)



PN16/25/40
- with flanges (series 637....1)



PN16/25/40 Angle pattern
- with flanges (series 638....1)

Contents

Rev. 0040805005 3614 englisch

1.0 General information on operating instructions

These operating instructions provide information on mounting and maintaining the fittings. Please contact the supplier or the manufacturer in case of problems which cannot be solved by reference to the operating instructions.

They are binding on the transport, storage, installation, start-up, operation, maintenance and repair.

The notes and warnings must be observed and adhered to.

- Handling and all work must be carried out by expert personnel or all activities must be supervised and checked.

It is the owner's responsibility to define areas of responsibility and competence and to monitor the personnel.

- In addition, current regional safety requirements must be applied and observed when taking the fittings out of service as well as when maintaining and repairing them.

The manufacturer reserves the right to introduce technical modifications at any time.

These Operating Instructions comply with the requirements of EU Directives.

2.0 Notes on possible dangers

2.1 Significance of symbols

ATTENTION !

. . .

Warning of general danger.

2.2 Explanatory notes on safety information

In these Operating and Installation Instructions dangers, risks and items of safety information are highlighted to attract special attention.

Information marked with the above symbol and "***ATTENTION***!" describe practices, a failure to comply with which can result in serious injury or danger of death for users or third parties or in material damage to the system or the environment. It is vital to comply with these practices and to monitor compliance.

All other information not specifically emphasised such as transport, installation, operating and maintenance instructions as well as technical data (in the operating instructions, product documentation and on the device itself) must also be complied with to the fullest extent in order to avoid faults which in turn can cause serious injury to persons or damage to property.

3.0 Storage and transport

ATTENTION !

- Protect against external force (like impact, vibration, etc.).

- Valves must not be used to take external forces, e.g. they are not designed for use as climbing aids, or as connecting points for lifting gear.

- Suitable materials handling and lifting equipment should be used. See catalogue sheet for weights.

- At -20°C to +65°C.
- The paint is a base coat to protect against corrosion during transportation and storage. Do not damage paint protection.

4.0 Description

4.1 Scope of applications

Float-type steam traps with level- and thermal control are used for the drainage of condensate from steam systems.

ATTENTION !

- *Refer to the data sheet for applications, limits on use and possibilities.*
- *Certain media require or preclude the use of special materials.*
- *The valves are designed for standard operating conditions. If conditions exceed these requirements, e.g. aggressive or abrasive media, the operator should state the higher requirements when ordering.*

The information complies to the Pressure Equipment Directive 97/23/EC.
It is the responsibility of the machine planner to ensure compliance.
The special markings on the valve must be taken into account.

Refer to the catalogue sheet to see which materials are used in standard versions.

Please contact the supplier or the manufacturer if you have any questions.

4.2 Operating principles

(refer to Fig. 3 page 8)

The steam trap is controlled by a swivel-mounted ball float (Pos. 24.16).

An additional diaphragm capsule controller (Pos. 24.4) in the top part trap body (Pos. 1) provides automatic air venting during start-up when the ball float (Pos. 24.16) is still in a state of rest.

If the condensate level in the body (Pos. 1) rises, the ball float (Pos. 24.16) moves up and the valve (Pos. 24.17) opens an appropriate area of flow. The condensate is discharged.

If the amount of condensate decreases or if there is no condensate, the ball float (Pos. 24.16) drops and the rotary valve (Pos. 24.17) closes.

If the steam trap is only acted upon by steam, the condensate-flooded rotary valve (Pos. 24.17) stays shut.

4.3 Diagram

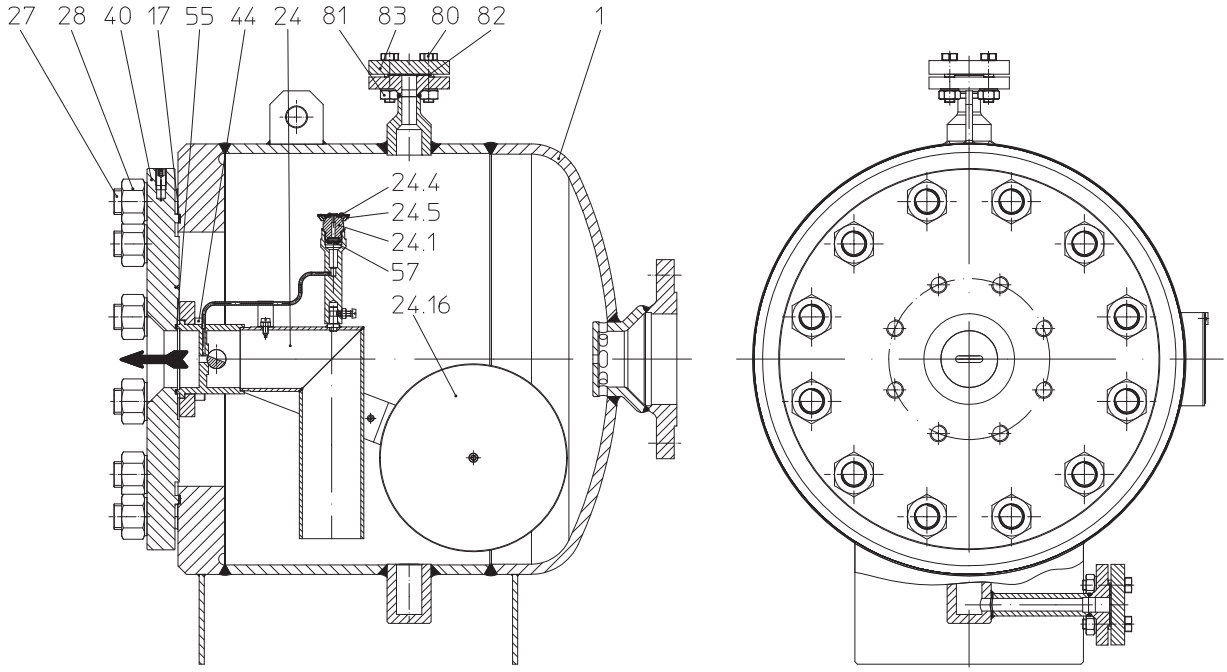


Fig. 1: CONA®S - series 637 PN16/25/40
DN50-100

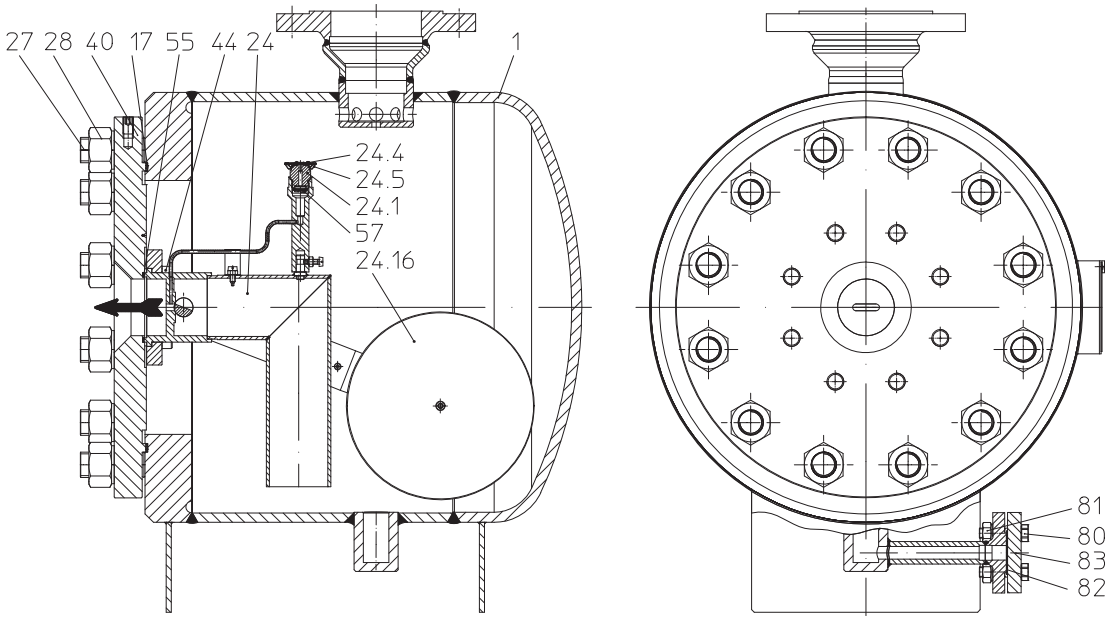


Fig. 2: CONA®S - series 638 PN16/25/40
DN50-100

Refer to the data sheet for information about materials with designations and figure numbers.

4.4 Technical data - remarks

for

- Principal dimensions,

- Pressure-temperature-ratings, operating limits,

- Valves with different types of connection , etc.
refer to datasheet.

4.5 Marking

Details of the CE-marking on the valve:

CE	CE-marking	
0090	Notified body	
AWH	Manufacturer	Address of manufacturer: Refer to section 11.0 Warranty / Guarantee
Type	Type	
Bj.	Year of manufacture	

No. of manufacture

Testing pressure

Permissible temperature

Nominal diameter

Nominal pressure

Date of testing

The valve is subject to EC individual testing (category III and IV) in accordance with the Pressure Equipment Directive, Article 1 paragraph 2.1.1. “Vessels”.

5.0 Installation

5.1 General notes on installation

The following points should be taken into account besides the general principles governing installation work:

ATTENTION !

- Remove flange covers if present.

- The interior of valve and pipeline must be free from foreign particles.

- It is possible to install the float steam trap for horizontal flow. Note installation position with reference to flow, see mark on valve.

- Steam line systems should be designed to prevent water accumulation.

- Lay pipelines so that damaging transverse, bending and torsional forces are avoided.

- Protect valves from dirt during construction work.

- Connection flanges must mate precisely.

- Valves must not be used to take external forces, e.g. they are not designed for use as climbing aids, or as connecting points for lifting gear.

- Suitable materials handling and lifting equipment should be used. See data sheet for weights.

- Centre gaskets between the flanges.

- Precautions against freezing should be taken in any facilities susceptible to frost. After shutting down the system, we recommend draining off any residual condensate from the unpressurised steam trap at points which are susceptible to frost. When the steam trap is installed, the planner should provide a drain pipe underneath the vessel, which can be connected to the valve after removing the blind flange (83).

- Planners / construction companies or operators are responsible for positioning and installing products.
- The valves are designed for application, not influenced from weather.
- For application outside or in adverse environments like corrosion-promoting conditions (sea water, chemical vapours, etc.), special constructions or protective measures are recommended.

5.2 Controller adjustment

The controller is produced in 3 pressure stages and does not need changing.

5.3 Steam trap testing through ultrasonic measurement

Testing the operation of the steam trap in the installed state is straightforward with the “ARImetec®-S” mulitfunctional testing device.

Refer to data sheet “ARImetec®-S”.

5.4 Installation position

Installation positions as shown in Fig. 1 and Fig. 2 page 4

6.0 Putting the valve into operation

ATTENTION !

- Before putting the valve into operation, check material, pressure, temperature and direction of flow.

- Regional safety instructions must be adhered to.

- Residues in piping and valves (dirt, weld beads, etc.) inevitably lead to leakage.

- Touching the valve when it is operating at high (> 50 °C) or low (< 0 °C) media temperatures can cause injury.
Affix warning notice or protective insulation as appropriate!

Before putting a new plant into operation or restarting a plant after repairs or modification, always make sure that:

- All works has been completed!

- The valve is in the correct position for its function.

- Safety devices have been attached.

7.0 Care and maintenance

Maintanance and maintenance-intervals have to be defined by the operator according to the requirements.

ATTENTION !

- refer to item 10.0 and 11.0 prior to dismantling and repair work!
- refer to item 6.0 before restarting the plant !

Prior to installation, threads and seal faces should be coated with temperature-stable lubricant (e.g. “OKS Anti-Seize Paste” white/metal-free for PN16-40 or “Rivolta” lubricant and parting agent silver for PN63 onwards).

7.1 Cleaning / replacing controller assembly

(see Fig. 1- Fig. 2 page 4 and Fig. 3 page 8)

- Remove pipe flange until there is a clearance of roughly 560mm in the pipeline axis to the left.
- Unscrew hexagon nuts (Pos. 28)
- Pull cover (Pos. 40) away from body until the studs (Pos. 27) no longer protrude into the cover (Pos. 40). Use lifting gear if necessary.
- Tilt cover (Pos. 40) and controller assy. (Pos. 24) and pull from body (Pos. 1) until diaphragm capsule (Pos. 24.4) protrudes from body (Pos. 1).
- Raise cover (Pos. 40) and controller assy. (Pos. 24) and withdraw from body (Pos. 1).
- Pull spring clip (Pos. 24.5) off radially and remove diaphragm capsule (Pos. 24.4) from seat (Pos. 24.1).
- Clean diaphragm capsule (Pos. 24.4) and check sealing components on seat (Pos. 24.1). If the operator thinks that there is unwarranted leakage at the steam trap we recommend replacing the diaphragm capsule (Pos. 24.4).
- If the sealing faces at the seat (Pos. 24.1) are damaged, this should also be replaced by a new component.
- Function test the diaphragm capsule in accordance with 7.
- If the non-return protection (Pos. 57) is faulty, the complete controller (Pos. 24) should be changed as an assembly.

- Form-fit new diaphragm capsule (Pos. 24.4) to seat (Pos. 24.1).
- Push spring clip (Pos. 24.5) radially into slot of seat (Pos. 3), at the same time pushing the two angled ends of the spring clip legs (Pos. 24.5) onto the diaphragm capsule (Pos. 24.4).
- Clean the body (1), the controller cpl. (24) and all sealing faces.

- Assemble in reverse order (see 7.3).

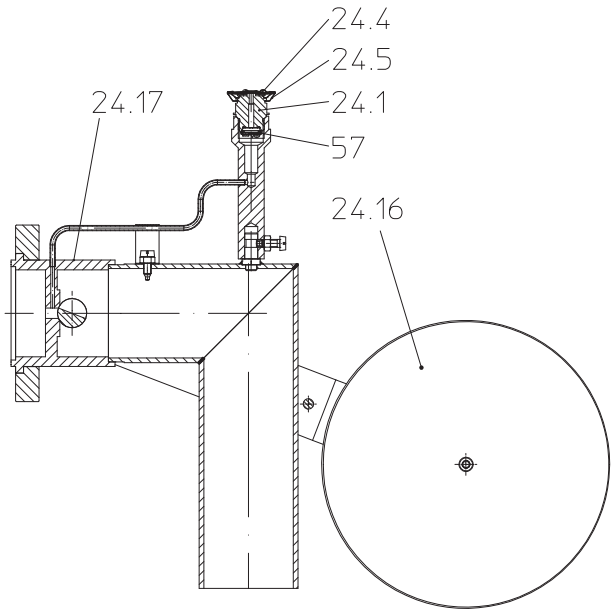


Fig. 3: Controller series 637/638, cpl.

7.2 Function testing of diaphragm capsule

When the diaphragm capsule is dry an cold, the diaphragm must be in contact with the top part of the wall as shown in „Fig. 4 : Capsule OPEN“.

If the diaphragm is away from the top surface, and/or in contact with the bottom part of the wall as shown in „Fig. 5 : Capsule CLOSED“, the capsule is defective and should be replaced.

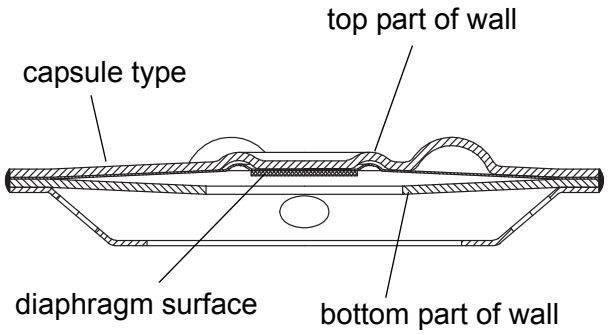


Fig. 4: Capsule OPEN

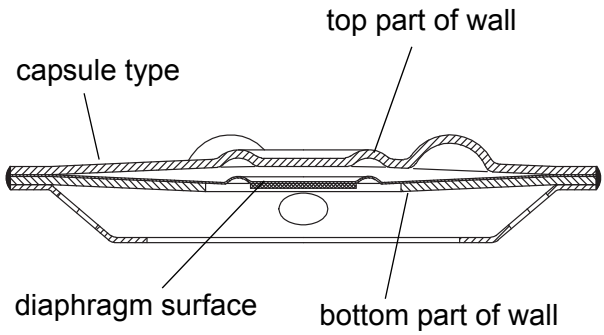


Fig. 5: Capsule CLOSED

7.3 Tightening torques

(refer to Fig. 1- Fig. 2 page 4 and Fig. 3 page 8)

Pos.	CONA S PN16/25/40	Torque (Nm) DN50-100
24.1	Seat	80
27	Stud M30	40
28	Hexagon nut M30	220
44	Hexagon screw M12 (DN50)	50
44	Cheese head screw M12 (DN65-100)	50
81	Hexagon nut M12	50

8.0 Troubleshooting

In the event of malfunction or faulty operating performance check that the installation and adjustment work has been carried out and completed in accordance with these Operating Instructions.

ATTENTION !

It is essential that the safety regulations are observed when identifying faults.

If malfunctions cannot be eliminate with the help of the following table "**9.0 troubleshooting table**", the supplier or manufacturer should be consulted.

9.0 Troubleshooting table

ATTENTION !

- refer to item 10.0 and 11.0 prior to dismantling and repair work!
- refer to item 6.0 before restarting the plant !

Fault	Possible cause	Corrective measures
No flow	Installed in wrong flow direction.	Fit valve in direction of flow arrow. Note installation position; refer to item 5.4!
	Flange covers not removed	Remove flange covers
	Ball float (Pos. 24.16) defective	Check lifting force; refer to item 7.1
Little flow	Piping system clogged	Check piping system
	Wrong controller size choosen	Correct selection acc. to flow diagram
	Changed upstream pressure or back pressure conditions	Correct selection acc. to flow diagram
No closure, or internal leakage	Controller clogged	Clean controller; refer to item 7.1
	Controller or diaphragm capsule clogged	Clean controller and/or diaphragm capsule; refer to item 7.1
	Controller worn out	Change controller; refer to item 7.1
	Controller or diaphragm capsule worn out	Change controller and/or diaphragm capsule; refer to item 7.1
	Controller incorrectly screwed into body	Check seal face between body and controller, tighten controller correctly; refer to item 7.3
	Controller operated above safe operating pressure	Observe operating limits as per data sheet, i.e. possibly select different controller
External leakage	Cover (Pos. 40) not properly tightened with hex. nut (Pos. 28)	Tighten; refer to item 7.3
	Flat gasket (Pos. 17) defective.	Replace sealing; refer to item 7.1

10.0 Dismantling the valve or the body

ATTENTION !

The following points must be observed:

- Pressureless pipe system.

- Medium must be cool.

- Plant must be drained.

11.0 Warranty / Guarantee

The extent and period of warranty cover are specified in the "Standard Terms and Conditions of Albert Richter GmbH & Co. KG“ valid at the time of delivery or, by way of departure, in the contract of sale itself.

We guarantee freedom of faults in compliance with state-of-the-art technology and the confirmed application.

No warranty claims can be made for any damage caused as the result of incorrect handling or disregard of operating and installation instructions, datasheets and relavant regulations.

This warranty also does not cover any damage which occurs during operation under conditions deviating from those laid down by specifications or other agreements.

Justified complaints will be eliminated by repair carried out by us or by a specialist appointed by us.

No claims will be accepted beyond the scope of this warranty. The right to replacement delivery is excluded.

The warranty shall not cover maintenance work, installation of external parts, design modifications or natural wear.

Any damage incurred during transport should not be reported to us but *rather* to the competent cargo-handling depot, the railway company or carrier company immediately or else claims for replacements from these companies will be invalidated.

Technology for the Future.
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