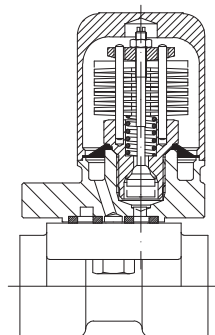


Operating and installation instructions

Steam traps for quick assembly/disassembly

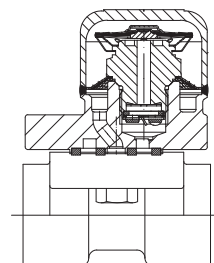
CONA® Universal/ CONA® Connector



ANSI300

- with Universal-Flange
2 x 3/8" UNC thread

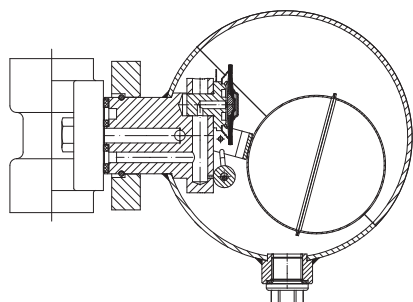
(BR 604)



ANSI300

- with Universal-Flange
2 x 3/8" UNC thread

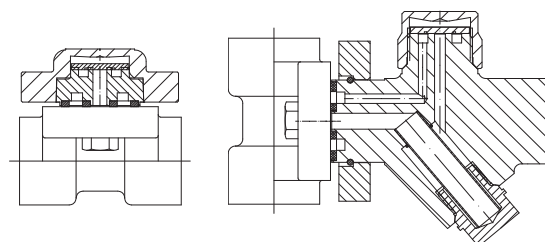
(BR 622)



ANSI300

- with Universal-Flange
2 x 3/8" UNC thread

(BR 628)



ANSI300

- with Universal-Flange
2 x 3/8" UNC thread

(BR 642/643)

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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.

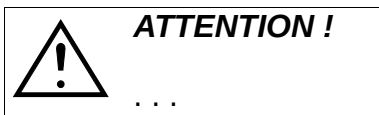
- In addition, current regional safety requirements must be applied and observed when taking the fittings out of service as well as when maintaining and repairing them.

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



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 catalog 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

CONA Universal Steam traps for quick assembly/disassembly to CONA Connector or foreign system connectors are used for the drainage of industrial steam facilities.



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.
- Valves made from grey cast iron are not authorised for use in systems subject to TRD 110.

The information complies to the Pressure Equipment Directive 2014/68/EU.

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

4.2.1 CONA Universal

a) Bimetallic steam trap BR604

(refer to Fig. 1 page 6)

(detailed description of the control system Operating and installation instructions CONA B BR600)

For regulation the steam trap uses both condensate temperature as well as available upstream pressure and back pressure.

The steam trap vents air automatically during system start-up and operation.

The steam trap has a corrosion-resistant, water hammer-proof bimetallic controller, non-return protection, and a factory setting for average condensate sub-cooling of approx. 15K (PN16-40)

b) Thermostatic steam trap BR622

(refer to Fig. 2 page 6)

(detailed description of the control system Operating and installation instructions CONA M BR610)

The steam trap uses the condensate temperature and available upstream pressure for control. It vents automatically during system start-up and operation. It has a corrosion-resistant, water hammer-proof diaphragm capsule which always discharges the consistently supercooled condensate a few degrees below the upstream pressure-dependent boiling temperature (ca. 10K).

c) Thermodynamic steam trap BR642/643

(refer to Fig. 4 page 6)

(detailed description of the control system Operating and installation instructions CONA TD BR640)

For control the steam trap uses the condensate temperature as well as the available upstream pressure and back pressure (intermittent operation).

The steam trap vents air automatically during system start-up and operation, but with a time lag. The steam trap acts as a non-return valve.

d) Ball float steam trap BR628

(refer to Fig. 5 page 6)

(detailed description of the control system Operating and installation instructions CONA SC BR634)

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

An integrated diaphragm capsule (pos. 24.17) ensures automatic start-up air venting when cold.

If the amount of inflowing condensate is less than the possible valve output or if there is no condensate flow, the ball float (pos. 24.16) falls and the valve ball (pos. 24.4) rolls back onto the valve bore. The valve is now closed.

4.2.2 CONA Connector

System connector for minimization of installation and maintenance space saving and compact design.

a) System connector BR681

(refer to Fig. 6 page 7)

b) System connector with outside strainer BR682

(refer to Fig. 7 page 7)

c) System connector with stop function at inlet BR683

(refer to Fig. 8 page 7)

The valve is based on an integrated, Low-maintenance stop valves with gland seal (also as low-maintenance bellows seal stop valve with approval acc. to TA-Luft):

(refer to Fig. 10 page 11 - Fig. 11 page 12)

- safety back-sealing mechanism
 - with stuffing box: stem (pos. 11) / screw fitting (pos. 15)
 - with bellows seal: stem (pos. 11) / stem guide (pos. 16)

This valve is recommended specially for the CODI as steam trap.

**ATTENTION !**

Do not use shut-off valves for OPEN-SHUT function to throttle volume flow.

Valve position:

OPEN - Safety back-sealing mechanism effective when valve fully open.

SHUT - Valve plug (pos. 4) / chamfer at seat (Pos 3) seal effective.

d) System connector with stop function at inlet and outlet BR684

(refer to Fig. 9 page 7)

same as c) but with two stop valves

Easy replacement of the connected steam traps by shutting-off of inlet and outlet.

4.3 Diagram

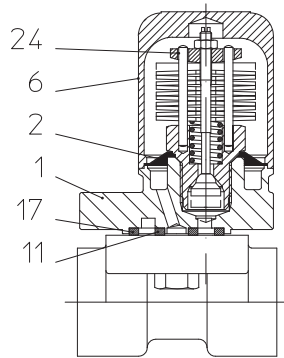


Fig. 1: CONA®B Universal - BR604

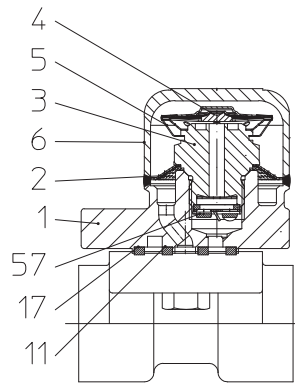
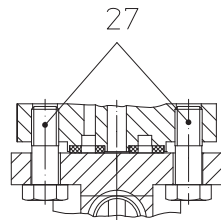


Fig. 2: CONA®M Universal - BR622

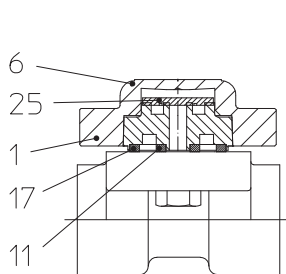
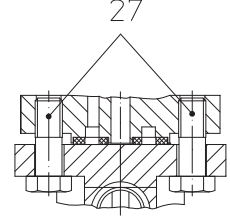


Fig. 3: CONA®TD Universal - BR642

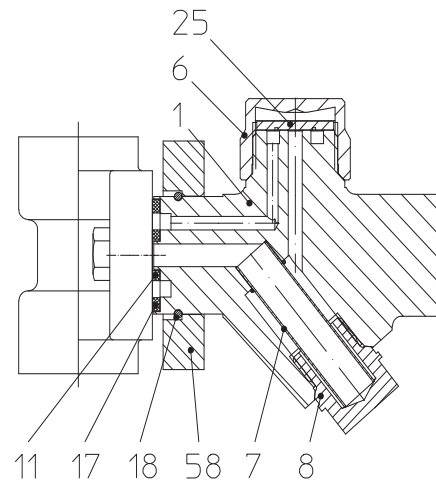
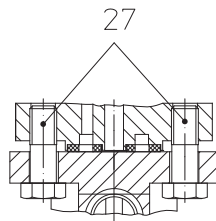


Fig. 4: CONA®TD Universal - BR643

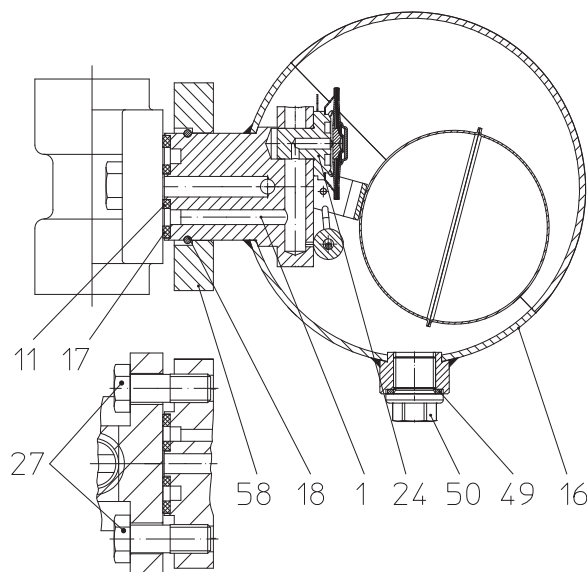


Fig. 5: CONA®S Universal - BR628

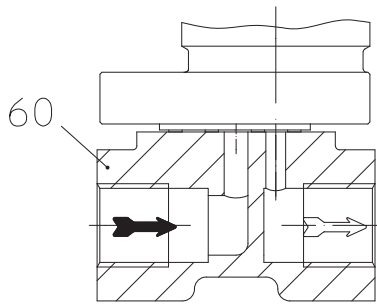


Fig. 6: CONA® Connector 681

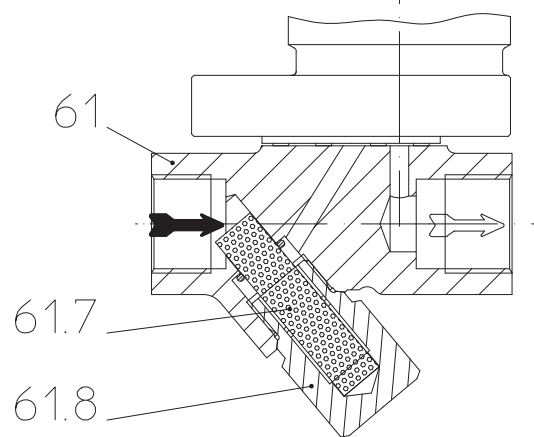


Fig. 7: CONA® Connector 682

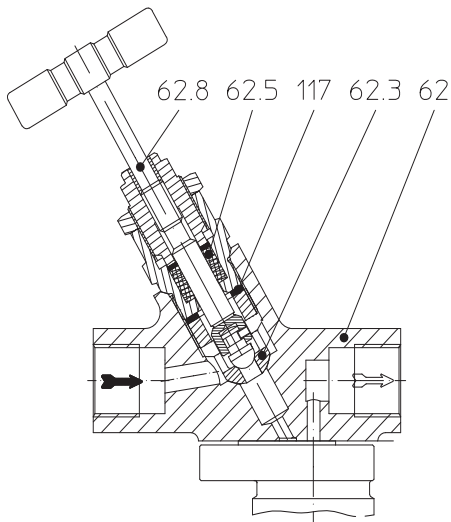


Fig. 8: CONA® Connector 683

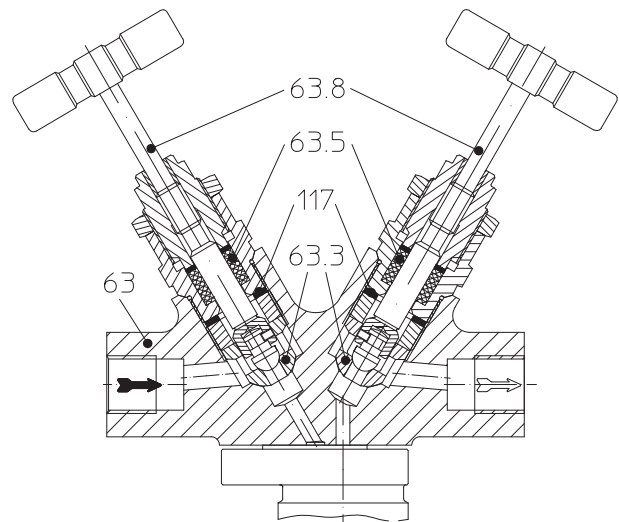


Fig. 9: CONA® Connector 684

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

AWH Manufacturer

Typ Type

Address of manufacturer:
refer to item 11.0 Warranty / Guarantee

Bj. Year of manufacture

PS/TS Pressure / Temperature indication

Material / Charge

According to the Pressure Equipment Directive appendix 2 diagram 7 valves acc. to article 1 paragraph 2.1.2 (pipes) only show the CE-marking from DN40 onwards.

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.
- Installation in any position (except screw cap/cover downwards). 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 exactly.
- 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 as a matter of course in any facilities susceptible to frost.

- 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 Installation instructions for welding

(refer to Fig. 1 - Fig. 5 page 6)

It should be noted that fittings must only be welded by qualified persons using appropriate equipment and working in accordance with technical regulations.

The responsibility lies with the system operator.

Please refer to the catalogue sheet for information on type and instructions relating to welding socket weld ends/butt weld ends.

When welding products to the pipeline system they should be adequately cooled to prevent any adverse effect on the complete controller assembly (pos. 24) or possibly the sealing ring (pos. 17). The heat-affected zone should be restricted to the immediate weld seam area!

If there are plans to acid clean the facility before putting it into operation the module stop valve cpl. (pos. 8) should be dismantled completely, replaced by acid cleaning inserts, and reassembled after acid cleaning (see item 7.1). In such an event please contact the manufacturer.

5.3 Installation position

Note installation position relative to flow, see marking on the valve.

a) Bimetallic steam trap BR604 / Thermodynamic steam trap BR622

The steam trap can be installed in any position except screw cap (pos. 6) down.
(refer to **7.5 Changing the installation position**)

b) Thermodynamic steam trap BR642/643

Fig. 642: The steam trap can be installed in any position
(refer to **7.5 Changing the installation position**)

Fig.643: outside screen (pos. 7) always downwards.

c) Ball float steam trap BR628

Plug (pos. 50) always downwards.

5.4 Steam trap testing through ultrasonic measurement

Testing the operation of the steam trap in the installed state is straightforward with the "ARImetec[®]-S" multifunctional testing device.

Refer to data sheet "ARImetec[®]-S".

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

Maintenance 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).

7.1 Disassembling/assembling complete shut-off valve assembly

(refer to Fig. 8 page 7 - Fig. 9 page 7)

- Open stem (pos. 11) fully as far as the stop.
- Unscrew shut-off valve assembly (pos. 8) from body (pos. 1) by rotating to the left.
- Remove graphite insert (pos. 117).
- Unscrew hollow-core screw (pos. 14) using AWH assembly spanner.
- Remove seat (pos. 3).
- Assemble in reverse order (refer to item 7.6).

7.2 Replacing the packing rings

- Dismantle shut-off valve assembly (pos. 8) as described in 7.1.



ATTENTION !

It is vital to avoid damage to stem surface and packing chamber surface.

- Rotate stem (pos. 11) in closing direction.
- Slacken cheese-head screw (pos. 18).
- Pull handle (pos. 19) away from stem (pos. 11).
- Release lock nut (pos. 13).
- Unscrew threaded bush (pos. 12).
- Withdraw stem (pos. 11) downwards from threaded bush (pos. 12).
- Dismantle cover ring (pos. 20) and packing rings (pos. 5).
- Clean packing chamber and stem surface.
- Push stem (pos. 11) into screw fitting (pos. 15) and fit new packing rings (pos. 5).
- Assemble in reverse order (refer to item 7.6).

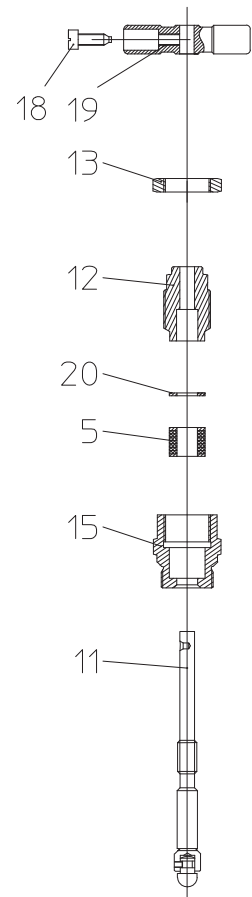


Fig. 10

7.3 Replacing packing rings of the secondary sealing gland packing

- Dismantle shut-off valve assembly (pos. 8) as described in item 7.1.



ATTENTION !

It is vital to avoid damage to stem surface and packing chamber surface.

- Rotate stem (pos. 11) in closing direction.
- Slacken cheese-head screw (pos. 18).
- Pull handle (pos. 19) away from stem (pos. 11).
- Unscrew sleeve nut (pos. 6).
- Remove pressure plate (pos. 21).
- Unscrew stem guide (pos. 16) from screw fitting (pos. 15) and withdraw from stem (pos. 11).
- Dismantle packing rings (pos. 10).
- Clean packing chamber and stem surface.
- Push stem (pos. 11) into stem guide (pos. 16) and fit new packing rings (pos. 10).
- Assemble in reverse order (see 7.6).

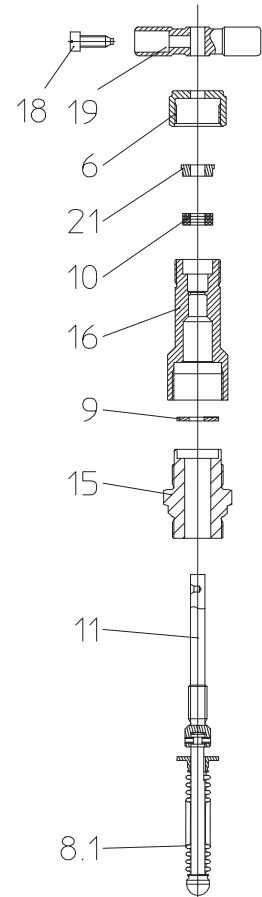


Fig. 11

7.4 Cleaning / replacing

a) Bimetallic steam trap BR604

(refer to Fig. 1 page 6)

The bimetallic steam trap is based on a compact welded structure. Disassembly is not possible therefore.

If the operator thinks there is unwarranted leakage of steam at the steam trap, we recommend replacing the complete bimetallic steam trap.

That means:

- Release pressure from the steam trap (shut-off inlet; with back pressure also shut-off behind the steam trap)
- Loosen the two hexagon screws (pos. 27)
- Remove steam trap and gaskets (pos. 11, 17)
- Clean the sealing surface of the CONA[®]-Connector
- install new trap with new gaskets

b) Thermostatic steam trap BR622

(refer to Fig. 2 page 6)

The thermostatic steam trap is based on a compact welded structure.

Disassembly is not possible therefore.

If the operator thinks there is unwarranted leakage of steam at the steam trap, we recommend replacing the complete steam trap.

That means:

- Release pressure from the steam trap (shut-off inlet; with back pressure also shut-off behind the steam trap)
- Loosen the two hexagon screws (pos. 27)
- Remove steam trap and gaskets (pos. 11, 17)
- Clean the sealing surface of the CONA[®]-Connector
- install new trap with new gaskets

c) Thermodynamic steam trap BR642/643

(refer to Fig. 2 page 6 -Fig. 4 page 6)

Fig. 642 is based on a compact structure.

Disassembly is not possible therefore.

On Fig. 643 it is possible to change the valve plate under pressureless conditions. Thereto dismantle / fit the cap (pos. 6). Loosen the sealing cap (pos. 6) and unscrew.

If the operator thinks there is unwarranted leakage of steam at the steam trap, we recommend generally replacing the complete steam trap.

That means:

- Release pressure from the steam trap (shut-off inlet; with back pressure also shut-off behind the steam trap)
- Loosen the two hexagon screws (pos. 27)
- Remove steam trap and gaskets (pos. 11, 17)
- Clean the sealing surface of the CONA[®]-Connector
- install new trap with new gaskets

d) Ball float steam trap BR628

(refer to Fig. 5 page 6)

The ball float steam trap is based on a compact welded structure.

Disassembly is not possible therefore.

If the operator thinks there is unwarranted leakage of steam at the steam trap, we recommend replacing the complete steam trap.

That means:

- Release pressure from the steam trap (shut-off inlet; with back pressure also shut-off behind the steam trap)
- Loosen the two hexagon screws (pos. 27)
- Remove steam trap and gaskets (pos. 11, 17)
- Clean the sealing surface of the CONA[®]-Connector
- install new trap with new gaskets

7.5 Changing the installation position

a) Bimetallic steam trap BR604 / Thermostatic steam trap BR622

(refer to Fig. 1 page 6 bis Fig. 2 page 6)

Installation in any position, except cap (pos. 6) upside down :

- Release pressure from the steam trap (shut-off inlet; with back pressure also shut-off behind the steam trap)
- Loosen the two hexagon screws (pos. 27)
- Change installation position of the steam trap, take care of the position of the gaskets (pos. 11, 17)
- Tighten the two hexagon screws (pos.27) (refer to item 7.6).

b) Thermodynamic steam traps BR642

(refer to Fig. 2 page 6)

Installation in any position:

- Release pressure from the steam trap (shut-off inlet; with back pressure also shut-off behind the steam trap)
- Loosen the two hexagon screws (pos. 27)
- Change installation position of the steam trap, take care of the position of the gaskets (pos. 11, 17)
- Tighten the two hexagon screws (pos.27) (refer to item 7.6).

For **Fig.643** is no change of the installation position possible.

The steam trap must always be installed with strainer plug (pos. 7) downwards.

c) Ball float steam traps BR628

(refer to Fig. 5 page 6)

No change of the installation position possible.

The steam trap must always be installed with plug (pos. 50) downwards.

7.6 Tightening torques

(refer to Fig. 1 page 6 - Fig. 11 page 12)

pos.		Torque (Nm)
12	Theaded bush	10
13	Safety nut	70
14	Banjo bolt	70
15	Fitting	90
16	Stem guiding	90
27	Hexagon screws	20

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 eliminated 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
	Flange covers not removed	Remove flange covers
	At BR628: Ball float (pos. 24.16) defective	Change steam trap
Little flow	Piping system clogged	Check piping system
	At BR682: Strainer clogged (pos. 2)	Clean strainer; refer to item 7.4
	Changed upstream pressure or back pressure operating conditions	Correct selection acc. to flow diagram
	Wrong installation position	Note installation position; refer to item 5.3! Correct installation position; refer to item 7.5
No closure, or internal leakage	Shut-off valve clogged	Clean shut-off valve; refer to item 7.1
	Shut-off valve worn	Replace shut-off valve; refer to item 7.1
	Shut-off valve operated above safe operating pressure	Observe operating limits as per data sheet
	Controller worn out	Change steam trap; refer to item 7.4
	Diaphragm capsule worn out	Change steam trap; refer to item 7.4
External leakage	Shut-off valve not properly tightened	Tighten; refer to item 7.6
	Flat gasket (pos. 5, 10) defective	Replace sealing; refer to item 7.2 and 7.3
	Flat gasket (pos. 11, 17) defective	Replace sealing; refer to item 7.4

10.0 Dismantling the valve or the connector



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 relevant 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.
GERMAN QUALITY VALVES

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