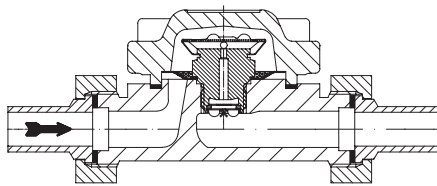


Operating and installation instructions

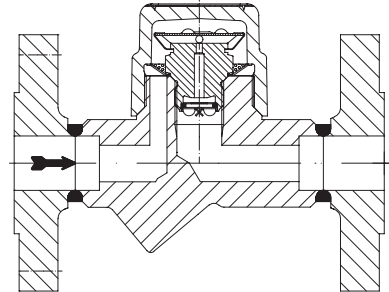
Thermostatic steam traps

CONA[®] M (PN16 - 40)



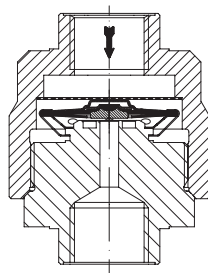
PN16

- with flanges (series 610/612....1)
- union with butt weld ends (series 610....1)



PN40

- with flanges (ser. 610/612/611/613....1)
- with screwed sockets (ser. 610/612/611/613....2)
- with socket weld ends (ser. 610/612/611/613....3)
- with butt weld ends (ser. 610/612/611/613....4)
- wafer pattern flange (ser. 619....6)



PN40

- with screwed sockets (series 614/615....2)
- with butt weld ends (series 614....4)
- union with butt weld ends (series 614....5)
- wafer pattern flange (series 619....6)
- clamp connection (series 614/615....a)

Contents

1.0 General information on operating instructions	2	5.5 Installation position.....	7
2.0 Notes on possible dangers	2	6.0 Putting the valve into operation	7
2.1 Significance of symbols	2	7.0 Care and maintenance	8
2.2 Explanatory notes on safety information	2	7.1 Cleaning / replacing controller assembly.....	8
3.0 Storage and transport	2	7.2 Option blow down valve	9
4.0 Description	3	7.3 Performance control of the membran capsule	10
4.1 Scope of applications	3	7.4 Tightening torques.....	10
4.2 Operating principles	3	8.0 Troubleshooting	11
4.3 Diagram.....	4	9.0 Troubleshooting table	11
4.4 Technical data - remarks	6	10.0 Dismantling the valve or the body	12
4.5 Marking	6	11.0 Warranty / Guarantee	12
5.0 Installation	6	12.0 EC declaration of conformity	13
5.1 General notes on installation.....	6		
5.2 Installation instructions for welding	7		
5.3 Controller adjustment	7		
5.4 Performance control with ultrasonic instrument	7		

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.

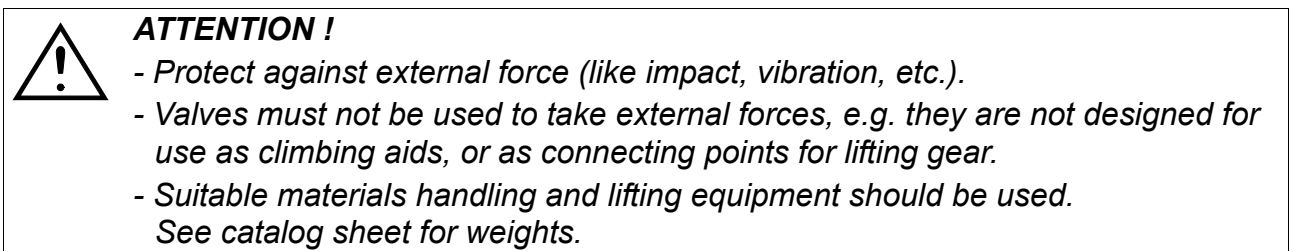
2.2 Explanatory notes on safety information

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



- 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

Thermostatic steam traps with thermal controller 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 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

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.

Four capsule types are available with different discharge temperatures:

Capsule	Discharge temperature
No 1	approx. 3-5 Kelvin (for controller R5 only)
No. 2	approx. 10 Kelvin below boiling temperature
No. 3	approx. 30 Kelvin below boiling temperature
No. 4	approx. 40 Kelvin below boiling temperature (not for type B) (refer to item 7.3)

The controller designation and capsule type are stated on the type plate

Series 610/612; 611/613:

The seat assembly has a fast-acting non-return safety feature and a downstream blast device which minimises body erosion caused by outflowing condensate (not for controller R5).

4.3 Diagram

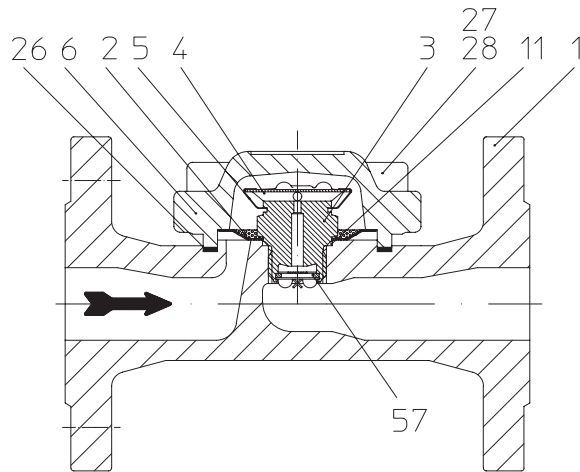


Fig. 1: CONA[®]M - series 610 PN16

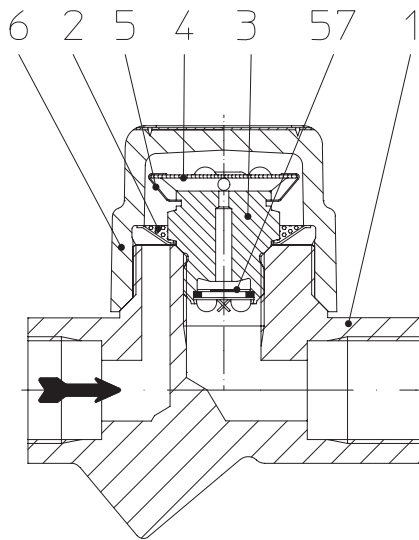


Fig. 2: CONA[®]M - series 610 PN40

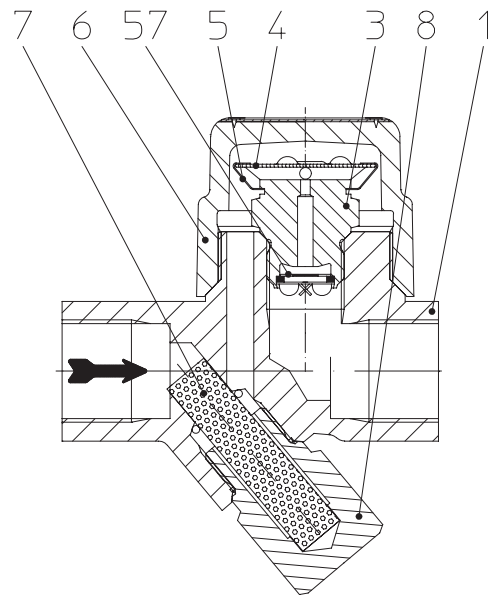


Fig. 3: CONA[®]M - series 612 PN40

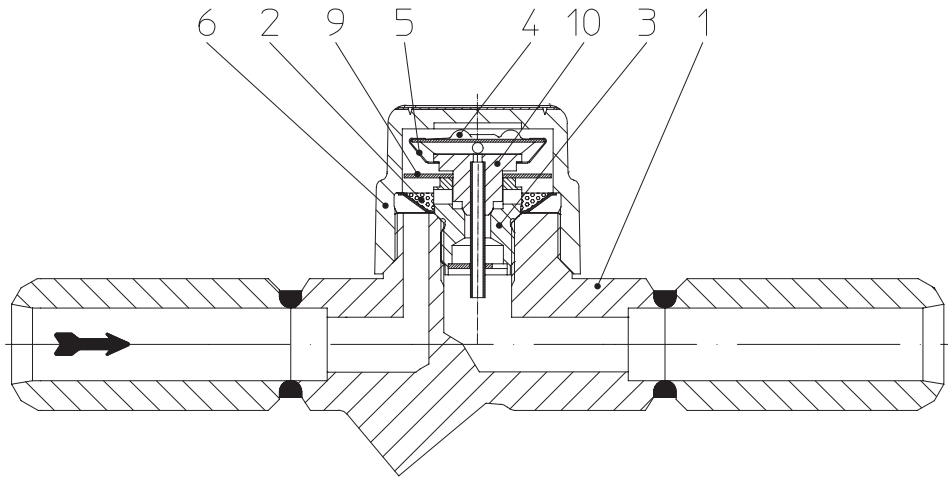


Fig. 4: CONA[®]M - series 611 PN40

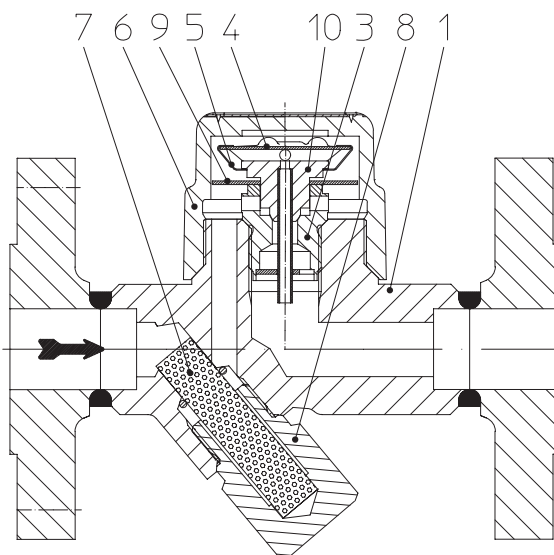


Fig. 5: CONA[®]M - series 613 PN40

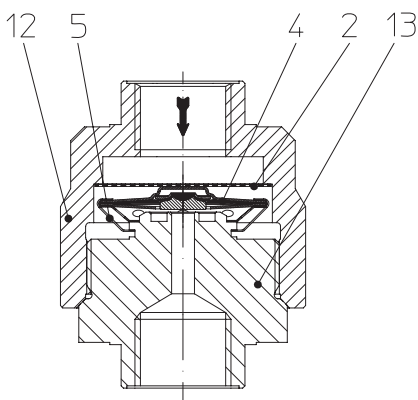


Fig. 6: CONA[®]M - series 614 PN40

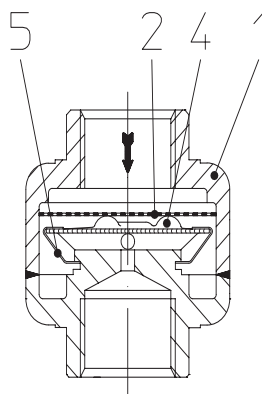


Fig. 7: CONA[®]M - series 615 PN40

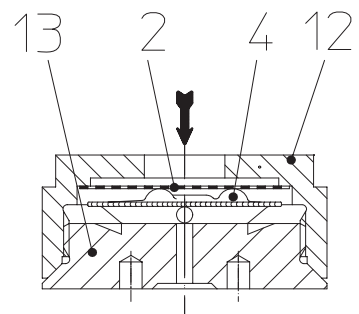


Fig. 8: CONA[®]M - series 619 PN40

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

Address of manufacturer:

Typ Type

refer to item 11.0 Warranty / Guarantee

Bj. Year of manufacture

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

(see Fig. 4 page 5)

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. 26). The heat-affected zone should be restricted to the immediate weld seam area!

Note pre- and post-welding heat treatment in accordance with Material Fact Sheet DIN EN 10222.

5.3 Controller adjustment

The steam trap is manufactured with 4 different capsule types (3 capsule types at type B). Adjustment is not possible.

5.4 Performance control with ultrasonic instrument

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

Refer to data sheet „ARImetec[®]-S“.

5.5 Installation position

The steam trap can be installed in any position except with the sealing cap / cover (Pos. 6) down.

Note direction of flow when installing, see marking on valve.

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 Cleaning / replacing controller assembly

(refer to Fig. 1 page 4 - Fig. 8 page 5)

- Release sealing cap (Pos. 6) and cover screw connection (Pos. 28).
- Pull spring clip (Pos. 5) off radially and remove diaphragm capsule (Pos. 4) from seat (Pos. 3).

Series 612/613:

- Unscrew strainer plug (Pos. 8), removed strainer sleeve (Pos. 7) and clean components / seal faces.
- Fit strainer sleeve (Pos. 7), making sure that the sealing faces are clean.
- Tighten strainer plug (Pos. 8) (see 7.4).

Series 614:

- Unscrew top part of body (Pos. 12) from bottom part of body (Pos. 13).
- Remove strainer (Pos. 2)
- Pull spring clip (Pos. 5) off radially and remove diaphragm capsule (Pos. 4) from bottom of body (Pos. 13).

Series 619:

- Unscrew top of body (Pos. 12) from bottom of body (Pos. 13).
- There are appropriate drillings in the bottom of the body (Pos. 13) to hold against. Please use special tool.
- Remove strainer (Pos. 2).
- Take out diaphragm capsule (Pos. 4).
- Clean all components as described above.

- Assemble in reverse order (see 7.4).

Series 615:

- Because of its welded construction, this version cannot be dismantled. It can therefore only be cleaned by reverse blowing with compressed air.
- Remove any blockage of the strainer (Pos. 2) through the inlet duct.

7.2 Option blow down valve



ATTENTION !

**Escape of hot medium under pressure!
 Observe item 2.2!**

Accumulated dirt can be blown out of the strainer sleeve (pos. 7) through the **blow down valve** (pos. 46) by opening the pressure screw (pos. 46.1).

When opening, hold against blow down valve (pos. 46).

Accumulated dirt can also be removed from screen by using a **ball valve** (pos. 56).

During operation it is imperative to observe general working safety conditions and possibly fit devices to guard against scalding/injury.

Note section 7.4 when installing and operating the option.

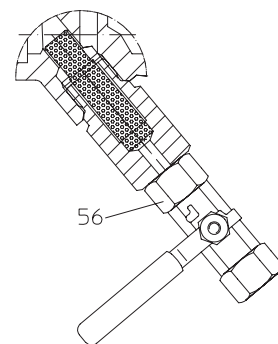
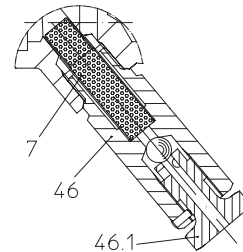


Fig. 9

7.3 Performance control of the membran capsule

When the diaphragm capsule is dry and cold, the diaphragm must be in contact with the top part of the wall (as shown in Fig. 10 and Fig. 12).

If the diaphragm is away from the top surface, and/or in contact with the bottom part of the wall (as shown in Fig. 11 and Fig. 13), the capsule is defective and should be replaced.

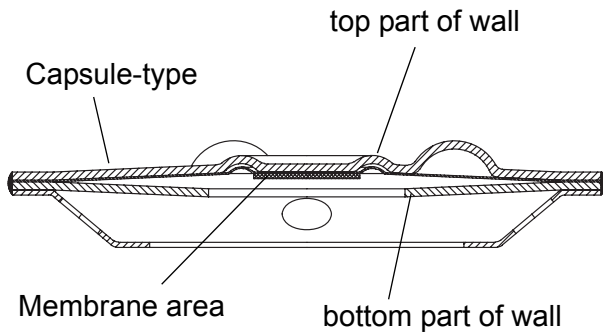


Fig. 10: Capsule OPEN

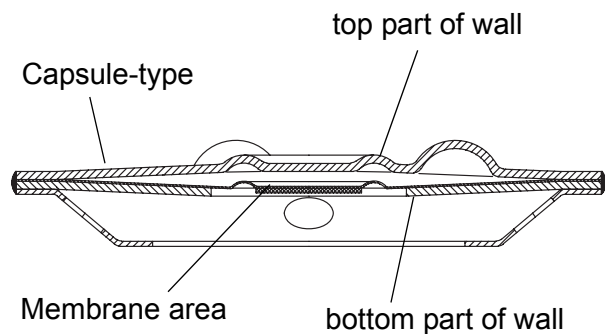


Fig. 11: Capsule CLOSED

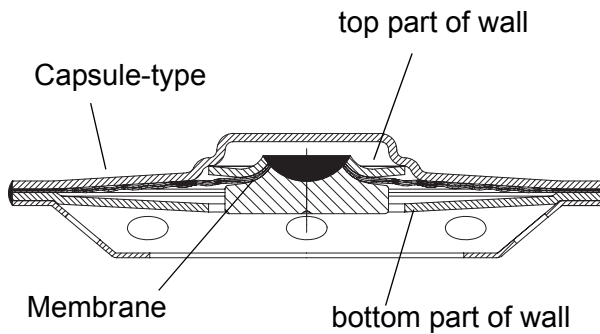


Fig. 12: Capsule (Type B) OPEN

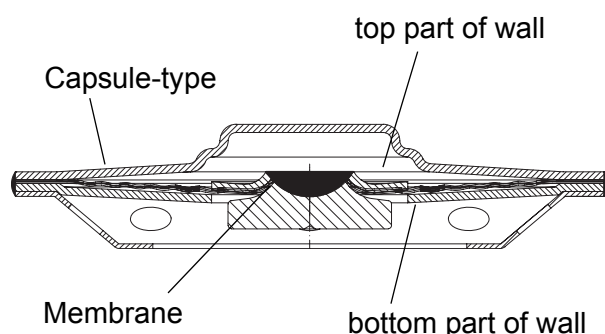


Fig. 13: Capsule (Type B) CLOSED


7.4 Tightening torques

(refert to Fig. 1 Page 4 - Fig. 9 Page 9)

Pos.	CONA M PN16	Torque (Nm)
27	Cheese head screw M10	30
3	Seat	60
Pos.	CONA M PN40	Torque (Nm)
6	Screw cap	100
3	Seat	80
8	Strainer plug	70
46	Blow down valve	70
46.1	Pressure screw	15
12	Body top (series 614)	120
12	Body top (series 619)	30


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.

	<p>ATTENTION ! <i>- It is essential that the safety regulations are observed when identifying faults.</i></p>
---	---

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

	<p>ATTENTION ! <i>- refer to item 10.0 and 11.0 prior to dismantling and repair work!</i> <i>- refer to item 6.0 before restarting the plant!</i></p>
---	--

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
Little flow	Strainer clogged (Pos. 2)	Clean / replace strainer; refer to item 7.1
	Piping system clogged	Check piping system
	Wrong controller size chosen	Correct selection acc. to flow diagram
	Changed upstream pressure or back pressure operating conditions	Correct selection acc. to flow diagram
No closure, or internal leakage	Diaphragm capsule (Pos. 4) clogged	Clean strainer and diaphragm capsule; refer to item 7.1
	Diaphragm capsule worn out	Replace diaphragm capsule; refer to item 7.1
	Seat (Pos. 3) incorrectly screwed into body	Check seal face between body and seat, tighten seat correctly; refer to item 7.4
External leakage	Sealing cap (Pos. 6), top part of body (Pos. 12) or cover with hex. nut (Pos. 28) not properly tightened	Tighten; refer to item 7.4
	Seal (Pos. 26) defective	Replace seal; see 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 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

ARI-Armaturen Albert Richter GmbH & Co. KG, D-33756 Schloß Holte-Stukenbrock

Telephone (+49 5207) 994-0 Telefax (+49 5207) 994-158 or 159

Internet: <http://www.ari-armaturen.com> E-mail: info.vertrieb@ari-armaturen.com

12.0 EC declaration of conformity



AWH Armaturenwerk Halle GmbH,
Turmstrasse 118, D-06110 Halle/Saale

EC declaration of conformity
as defined by
the Pressure Equipment Directive 97/23/EC

We hereby declare

that pursuant to the aforementioned Pressure Equipment Directive the products listed below were executed and classified in accordance with Directive 97/23/EC (Article 3, paragraph 3).

Pursuant to Article 3, paragraph 3 these products need not carry a CE mark.

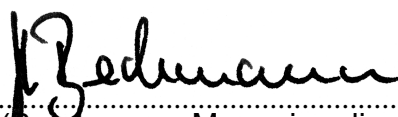
Thermostatic steam traps CONA[®]M

Series	Nom. pressure	Material	DN
610	PN 16	alle	15-25
610/612	PN 40	alle	15-25
611/613	PN 40	alle	15-25
614	PN16/40	1.4305	1/4"-1"
615	PN16/40	1.4301	1/4"-1"
619	PN40	1.4305	15-25
610/612	Class 150-300	alle	1/2" - 1"
611/613	Class 150-300	alle	1/2" - 1"

Applied standards:

DIN 3840
AD 2000-leaflet
ASME VIII/1

Halle/Saale, den 21.08.2009


.....
(Brechmann, Managing director)