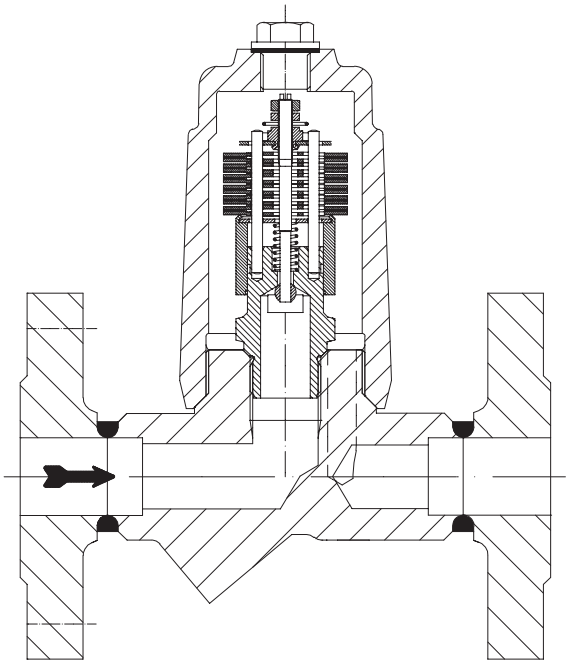
Operating and installation instructions

Liquid return temperature limiter (PN25/40)



PN25/40

- with flanges	**(series 650....1)**
- with screwed sockets	**(series 650....2)**
- with socket weld ends	**(series 650....3)**
- with butt weld ends	**(series 650....4)**

Contents

Rev. 0040807002 0405 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 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

Liquid return temperature limiters with temperature control are used for return control in heating 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.*
- *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

(refer to Fig. 1 - Fig. 2 page 4 and Fig. 3 page 6)

Liquid return temperature limiters maintain a constant returning water temperature in a water system; if the returning water temperature falls, the valve will open wider to allow a greater flow into the water heater, and the reverse occurs with a rising temperature in the return line.

When the valve is in the closed position, a snall amount of water will still flow through the valve. This is to ensure that the valve is sensing a representative sample of water in the system and allow rapid response to load changes.

The bi-metallic discs (Pos. 24.6) in the controller (Pos. 24) arch when heated, moving the annular slide valve (Pos. 24.18) to the „closed“ position. Conversely, if the discs are cooled by the process fluid, the flatten out, moving the annular slide valve towards the „open“ position.

4.3 Diagram

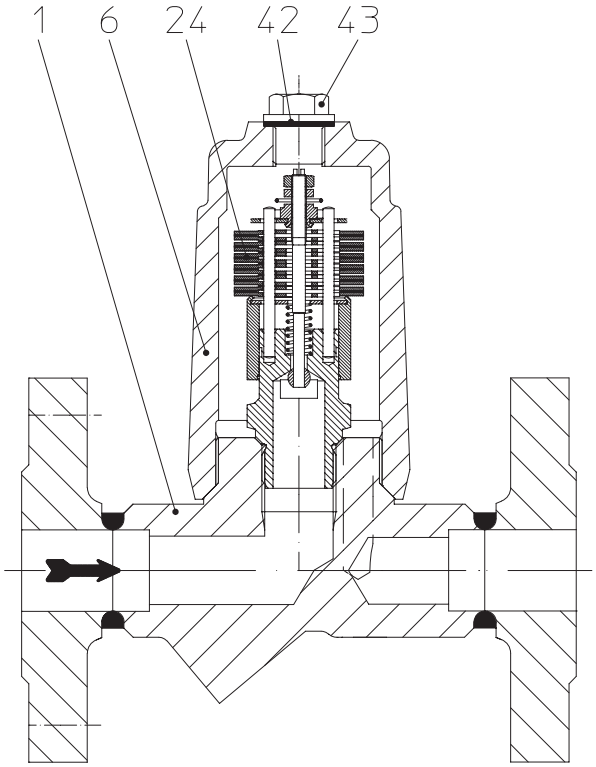


Fig. 1: Liquid return temperature limiter - series 650 PN25/40
DN15-25 (with flanges)

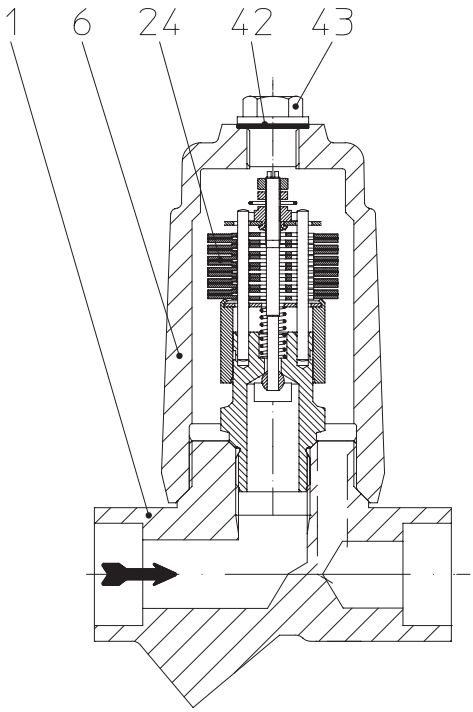


Fig. 2: Liquid return temperature limiter - series 650 PN25/40
DN15-25 (with socket weld ends)

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: refer to item 11.0 Warranty / Guarantee
Typ	Type	
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 downwards). Note installation position with reference to flow, see mark on valve.

- 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.

5.2 Installation instructions for welding

(refer to Fig. 2 page 4)

Please note that only qualified persons using appropriate equipment and working in accordance with technical rules are allowed to install fittings by welding.
The responsibility for this lies with the system owner.

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 these should be adequately cooled to preclude any adverse effect on the complete controller assembly (Pos. 24). The heat-affected zone should in principle be restricted to the immediate weld seam area!
Note pre- and post-welding heat treatment in accordance with Material Fact Sheet DIN EN 10222.

If there are plans to etch the facility before putting it into operation, the complete controller units (Pos. 24) should be removed, replaced by etch inserts, and refitted after etching (see 7.1). In such an event please contact the manufacturer.

5.3 Controller adjustment

(refer to Fig. 3 page 6)

- The controller (Pos. 24) has a stroke limiter at approx. 130°C.
- Possible closing temperature range: 60°C to 130°C.
- The controller (Pos. 24) is factory set as ordered by the customer.

The setting can subsequently be readjusted as follows without disassembling the screw cap (Pos. 6):

ATTENTION !

- refer to item 10.0 and 11.0 prior to dismantling and repair work!

- Open the plug (Pos. 43) when unpressurised.
- Using a screwdriver, adjust the closing temperature direct from outside (half a clockwise turn of the spindle (Pos. 24.3) gives a temperature increase of approx. 10 K).
- Screw plug (Pos. 43) in and tighten (see 7.3).

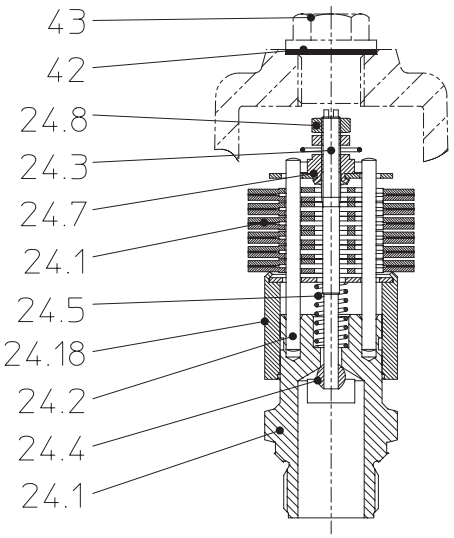


Fig. 3: Controller, cpl.

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" multifunction tester.

Refer to data sheet „ARImetec®-S".

5.5 Installation position

The preferred installation position for the steam trap is horizontal, but inclined positions of the screw cap (Pos. 6) are possible.

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 PN 16-40 or “Rivolta” lubricant and parting agent silver for PN 63 onwards).

7.1 Cleaning / replacing controller assembly

(refer to Fig. 1 page 4 - Fig. 3 page 6)

- Depressurise unit.
- Release and disassemble screw cap (Pos. 6).
- Unscrew bimetallic controller (Pos. 24).
- Clean body (Pos 1), screw cap (Pos. 6) and all seal faces.
- Clean bimetallic controller (Pos. 24) and check sealing parts at seat (Pos. 24.1). If the operator thinks there are unwarranted leakages we recommend checking the controller setting or replacing the complete bimetallic controller (Pos. 24).
- Screw in and tighten bimetallic controller (Pos. 24) (see 7.3).
- Assemble screw cap (Pos. 6) (see 7.3).

Version with plug-in thermometer:

- Unscrew thermometer adapter (Pos. 47) with thermometer (Pos. 48) and clean parts/seal faces.
- Fit thermometer adapter (Pos. 47), making sure seal faces are clean.
- Tighten thermometer adapter (Pos. 47) (see 7.3).

- Assemble in reverse order (see 7.3).

7.2 Option thermometer adapter with thermometer

It is possible to monitor the process temperature in situ with the thermometer (Pos. 48).

Note section 7.3 when installing and operating.

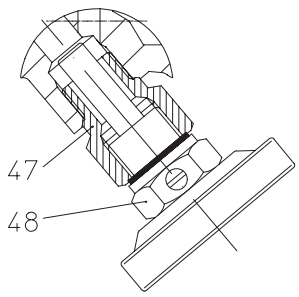


Fig. 4

7.3 Tightening torques

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

Pos.	Liquid return temperature limiter PN25/40	Torque (Nm)
6	Screw cap	100
24	Controller	80
43	Plug	70
47	Thermometer adapter	50
48	Thermometer	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
	Flange covers not removed	Remove flange covers
Little flow	Piping system clogged	Check piping system
	Changed upstream pressure or back pressure operating conditions	Correct selection according to flow diagram
No closure, or internal leakage	Controller clogged	Clean controller; refer to item 7.1
	Controller worn out	Change controller; refer to item 7.1
	Controller shifted / misadjustedt	Check adjustment; refer to item 5.3
	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
External leakage	Screw cap (Pos. 6) not properly tightened	Tighten; refer to item 7.3
	Plug (Pos. 43) not properly tightened	Tighten; refer to item 7.3

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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12.0 EC declaration of conformity

AWH ARMATUREN-
WERK HALLE GMBH
a member of the ARI group

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 should not carry a CE mark.

Liquid return temperature limiter

Series	Nom. pressure	Material	DN
650	PN 25/40	1.0460	15-25

Applied standards:

DIN 3840
AD 2000-leaflet
ASME VIII/1

Halle/Saale, 25.03.2004

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(Dr. Urbanek, Managing director)