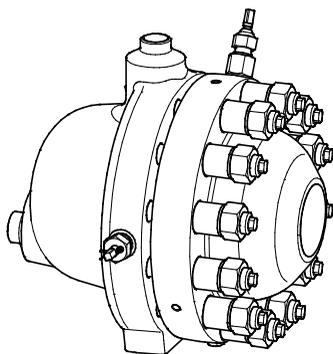
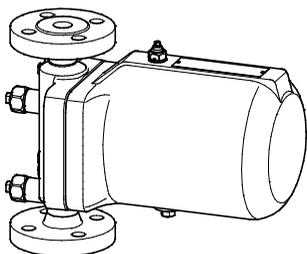


Ball-float steam trap

**UNA 38**

**UNA 39**



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## Foreword

This installation & operating manual will help you use the following types of equipment safely and efficiently for their intended purpose.

- ▶ UNA 38
- ▶ UNA 39

These steam traps will be called equipment in this document.

This installation & operating manual is intended for anyone commissioning, using, operating, servicing, cleaning or disposing of this equipment and, in particular, for professional after-sales service technicians, qualified personnel and authorised and trained staff.

All of these persons must read and understand the content of this installation & operating manual.

Following the instructions given in this installation & operating manual helps avoiding danger and increases the reliability and service life of the equipment. Please note that in addition to the instructions given in this installation & operating manual you must also observe all locally applicable rules and regulations concerning the prevention of accidents as well as approved safety guidelines for good professional practice.

## Availability

Keep this installation & operating manual together with the plant documentation for future reference. Make sure that this installation & operating manual is available to the operator.

The installation & operating manual is part of the equipment. Please hand over this installation & operating manual when selling the equipment or passing it on.

## Formatting features in the document

Certain text elements of this installation & operating manual feature a specific typographic design. You can easily distinguish the following text elements:

Standard text

*Cross-reference*

- ▶ Listing
  - ▶ Sub-items in listings
- Steps for action.



Here you will find additional useful information and tips serving to assist you in using the equipment to its fullest potential.

## Safety

### Use for the intended purpose

The following types of ball-float steam trap are used to remove condensate from steam and other gases or gas mixtures in steam-heated consumers in high-pressure applications.

- ▶ UNA 38
- ▶ UNA 39

The equipment must only be used within the allowable pressure and temperature limits and only if the chemical and corrosive influences on the equipment are taken into account.

Correct use includes compliance with the instructions given in this installation & operating manual, in particular obedience to all safety instructions.

Any other use of the equipment is considered to be improper.

Note that the equipment is also used incorrectly if the materials of the equipment are not suitable for the fluid.

## Basic safety notes

### Risk of severe injuries

- ▶ The equipment is under pressure during operation and may be hot. Before carrying out any work on the equipment make sure that the following requirements are met:
  - ▶ The pipes must be depressurized (0 bar).
  - ▶ The fluid must be completely removed from the pipes and the equipment.
  - ▶ During work on the equipment the installation must be switched off and protected against unauthorised or unintended activation.
  - ▶ The pipes and the equipment must have cooled down to room temperature (approx. 20 °C).
- ▶ If the equipment is used in contaminated areas there is a risk of severe injuries or death caused by harmful substances in or on the equipment. Before working on the equipment make sure that it is completely decontaminated. Always wear the protective clothing prescribed for contaminated areas when working on the equipment.
- ▶ The equipment must only be used with fluids that do not attack the material and the gaskets and sealings of the equipment. Otherwise leaks may occur and hot or toxic fluid could escape.
- ▶ The equipment and its component parts must only be mounted or removed by qualified personnel. A qualified person must be acquainted with and experienced in the following:
  - ▶ Making pipe connections.
  - ▶ Selecting suitable lifting gear and understanding the rules for its safe use.
  - ▶ Working with dangerous (contaminated, hot or pressurized) fluids.
- ▶ If the admissible temperature and pressure limits are exceeded the equipment may be destroyed and hot or pressurized fluid may escape. Make sure that the equipment is only operated within the admissible service range and limits.

For more information on limits and pressure &

temperature ratings see name plate and the section "*Technical Data*".

### Risk of minor injuries

- ▶ Sharp edges on internals present the danger of cuts to hands. Always wear industrial gloves when servicing the equipment.
- ▶ If the support of the equipment during installation is insufficient the equipment might fall down, thereby causing bruises or injuries. Make sure the equipment is safely held in place during installation and cannot fall down. Wear protective safety footwear.
- ▶ The shape of the equipment means that it can roll on the flange's outside diameter. This can squash parts of the body. Therefore, only store and transport the equipment lying on its side.

### Information on property damage or malfunctions

- ▶ Malfunctions will occur if the equipment is installed in a wrong position or with the flow arrow pointing in the opposite direction of the fluid flow. This may result in damage to the equipment or the installation. Make sure that the flow arrow on the equipment body matches the indicated direction of the fluid flow in the pipe.
- ▶ If the material is unsuitable for the fluid, increased wear may occur and fluid may escape. Make sure that the material is suitable for the fluid used in your installation.

## Qualification of personnel

A qualified person must be acquainted with and experienced in the following:

- ▶ the pertinent on-site rules and regulations for preventing fire and explosions as well as industrial safety regulations
- ▶ working on pressure equipment
- ▶ making pipe connections
- ▶ working with dangerous (hot or pressurized) fluids
- ▶ lifting and transporting loads
- ▶ observing all notes and instructions in this installation & operating manual and the applicable documents

## Protective gear

The operator must ensure that anyone working on the equipment must wear the required protective clothing and safety gear stipulated for the site of installation. The protective clothing must be suitable for the used media and must protect the wearer against safety and health hazards associated with a particular job to be carried out at the site of installation. Protective clothing & equipment must provide protection from potential hazards, in particular from injuries to:

- ▶ Head
- ▶ Eyes
- ▶ Body
- ▶ Hand
- ▶ Feet
- ▶ Hearing

Note that this list is not exhaustive. The operator must establish personal protective equipment guidelines and specify any additional protective gear that is required if the worker is exposed to a specific risk at the site of installation.

## Typographic features of warning notes

---



### **DANGER**

Notes with the heading **DANGER** warn against imminent dangerous situations that can lead to death or serious injuries.

---



### **WARNING**

Notes with the heading **WARNING** warn against possibly dangerous situations that could lead to death or serious injuries.

---



### **CAUTION**

Notes with the heading **CAUTION** warn against dangerous situations that could lead to minor or moderate injuries.

---

## Formatting features for warnings of property damage

---

### ***Attention!***

This information warns of a situation leading to property damage.

---

## Description

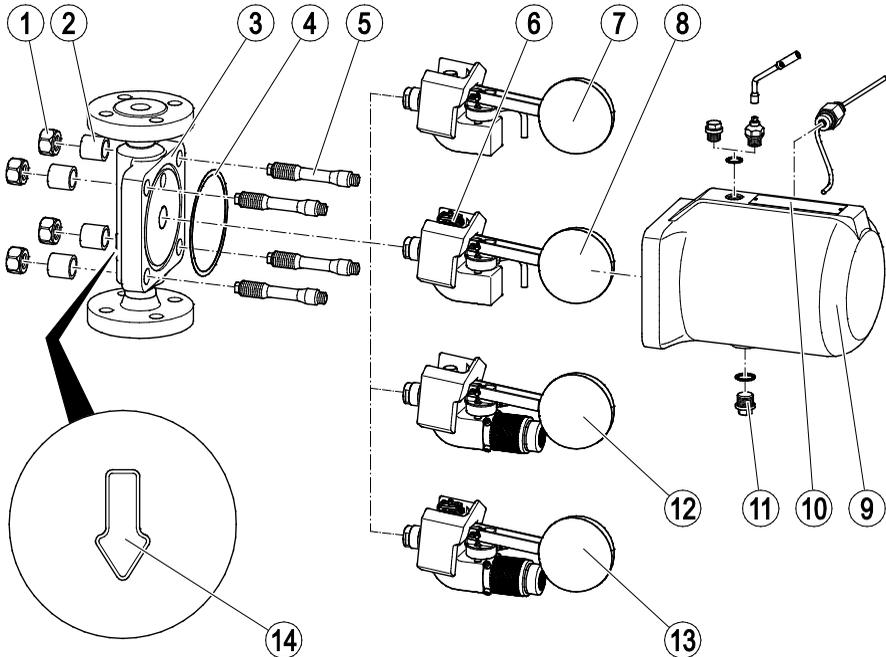
## Scope of supply

Our equipment is delivered packed and ready for assembly.

## Scope of supply and equipment specification

### Equipment specification

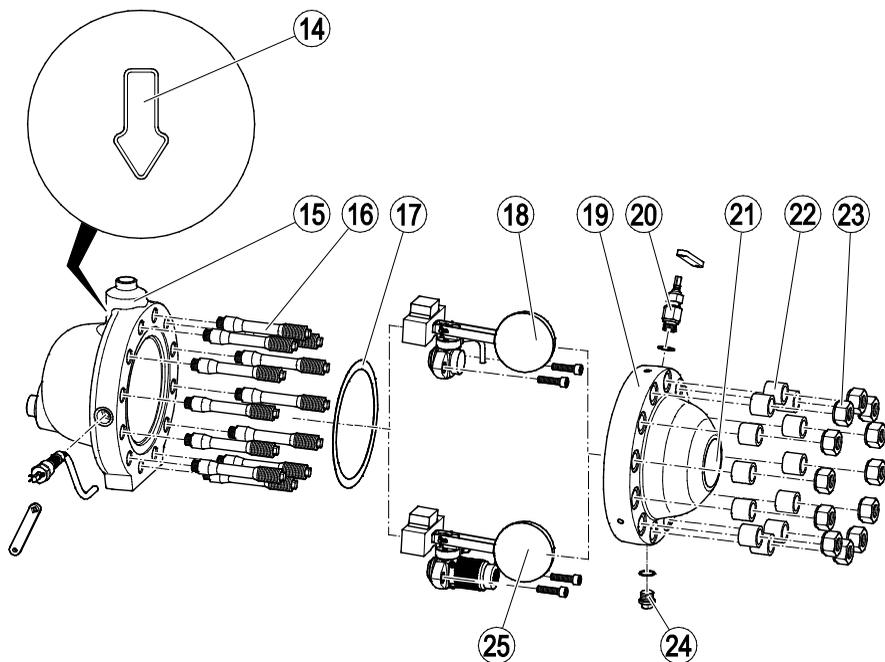
#### UNA 38



No.	Designation
1	Hex nuts
2	Sleeves
3	Body
4	Body gasket
5	Set screws
6	Bimetallic vent
7	SIMPLEX control unit
8	DUPLEX control unit

No.	Designation
9	Cover
10	Rating plate
11	Drain with screw plug
12	SIMPLEX AO 80 MAX control unit
13	DUPLEX AO 80 MAX control unit
14	Direction of flow arrow

# UNA39



No.	Designation
14	Direction of flow arrow
15	Body
16	Set screws
17	Body gasket
18	SIMPLEX control unit
19	Cover

No.	Designation
20	Manual vent valve
21	Rating plate
22	Sleeves
23	Hex nuts
24	Drain with screw plug
25	SIMPLEX AO 140 MAX control unit

### Possible orifices

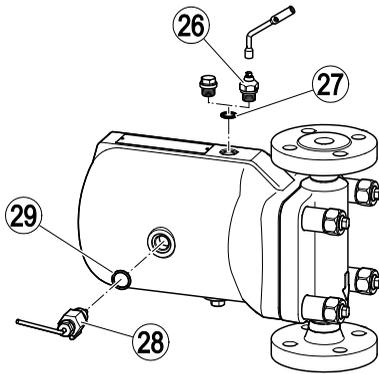
The following orifices (AO) are available, depending on the differential pressure  $\Delta PMX$ :

AO type	$\Delta PMX$ [bar]	UNA 38	UNA 39
AO 50	50	×	–
AO 64	64	×	–
AO 80	80	×	×
AO 80 MAX	80	×	–
AO 110	110	–	×
AO 140	140	–	×
AO 140 MAX	140	–	×

### Optional extras

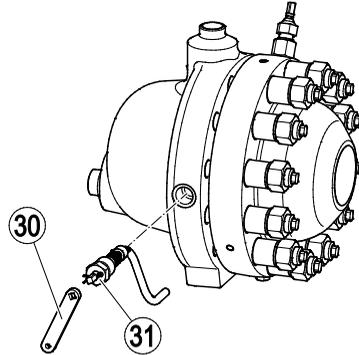
The following items are available as optional extra:

### Optional equipment for UNA 38



No.	Designation
26	Manual vent valve with socket wrench
27	Sealing ring for manual vent valve
28	Manual lifting lever with socket wrench
29	Sealing ring for manual lifting lever

### Optional equipment for UNA 39



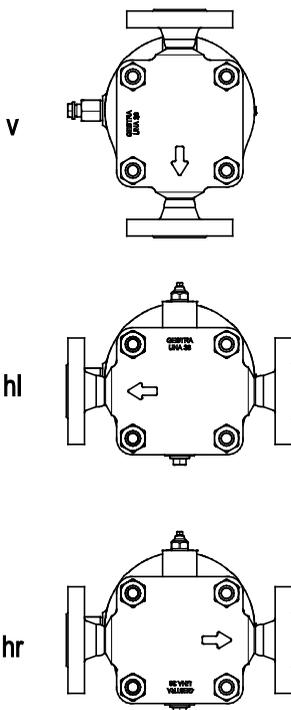
No.	Designation
30	Lever for manual lifting lever
31	Manual lifting lever

**i** In equipment with control unit SIMPLEX the hand-vent valve is included as standard.

## Direction of flow

Thanks to the different versions of the UNA 38, you can adapt the equipment's direction of flow to suit your system. The following installation positions are possible:

- ▶ Position "v" for installation in vertical pipes with direction of flow from top to bottom
- ▶ Position "hl" for direction of flow to the left
- ▶ Position "hr" for direction of flow to the right (optional)



The UNA 39 can only be installed in horizontal pipes with flow from the top.

## End connections

The equipment is available with the following end connections:

- ▶ Flanges
- ▶ Socket-weld ends
- ▶ Butt-weld ends
- ▶ Butt-weld ends via transition pieces

## Name plate

The following items are indicated on the name plate:

- ▶ Manufacturer
- ▶ Type designation
- ▶ Design
- ▶ Nominal size
- ▶ Pressure rating
- ▶ Design temperature
- ▶ Design pressure
- ▶ Max. admissible differential pressure
- ▶ CE marking
- ▶ Date of manufacturing

The following items are indicated on the equipment body:

- ▶ Material
- ▶ Batch code
- ▶ Direction of flow

The following items are indicated on the end connections:

- ▶ Flange size
- ▶ Flange face type (RJ number)



The limiting conditions and pressure & temperature ratings specified in this installation manual are applicable for standard equipment. Note that these values may differ for modified or customized equipment.

All equipment specific values are indicated on the nameplate.

## **Application of European Directives**

### **Pressure Equipment Directive**

The equipment conforms to this directive (see "Manufacturer's Declaration" section) and can be used for the following media:

- ▶ Fluids of group 1
- ▶ Fluids of group 2

### **ATEX Directive**

The equipment does not have its own potential ignition source and is not subject to this directive (see "Manufacturer's Declaration" section).

When installed, static electricity may arise between the equipment and the connected system.

When used in potentially explosive atmospheres, the plant manufacturer or plant operator is responsible for discharging or preventing possible static charge.

If it is possible for medium to escape, e.g. through actuating mechanisms or leaks in threaded joints, the plant manufacturer or plant operator must take this into consideration when dividing the area into zones.

## Task and function

### Purpose

Type UNA 38 and UNA 39 units are used to remove condensate from steam and other condensable gases in steam-heated consumers in high-pressure applications.

UNA 38 units with DUPLEX control unit are especially suitable for saturated and hot steam. Units with DUPLEX control unit are additionally used for venting the system.

Units with SIMPLEX control unit are especially suitable for cold condensate and superheated steam.

A special MAX control unit is available for high condensate flowrates.

### Function

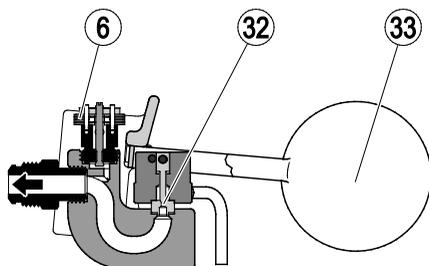
The float (33) opens the orifice (32) based on the fill level. This regulates the drainage rate. With the orifice opened to maximum, the drainage rate depends on the diameter of the orifice (AO).

The DUPLEX control unit consists of the float and an additional, temperature-dependent bimetallic vent (6).

You can lift the float manually using the optional manual lifting lever.

The optional manual vent valve allows you to vent the pipe manually.

The diagram below shows a UNA 38 with DUPLEX control unit. The DUPLEX control unit is only supplied for the UNA 38.



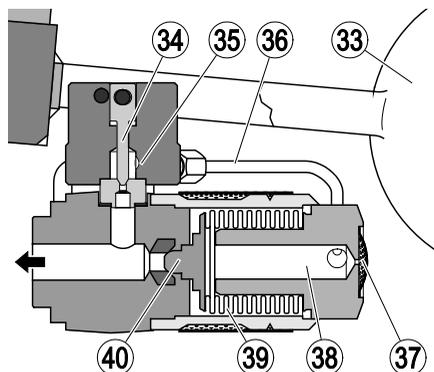
A special MAX control unit is available for high condensate flowrates.

If the float (33) is raised while the fill level is rising, first of all the nozzle needle (34) is pulled out of the pilot valve. This causes a small amount of medium to flow through the pilot valve. The medium squeezes the bellows (39) of the control unit, which in turn fully opens the orifice (40).

A pressure relief line (36) connects the control chamber (38) to the pressure relief orifice (35) on the pilot valve. When the fill level falls, the float causes the orifice to close. The pressure relief hole (37) equalises the pressure between the control chamber and the interior. The bellows expand and close the orifice.



The diagram below shows a UNA 39 unit with SIMPLEX AO 140 MAX control unit. The special components of the UNA 38 units with SIMPLEX AO 80 MAX control unit are identical in terms of design and function.



## Storing and transporting the equipment



### Caution

Risk of injury: Parts of the body can be squashed by unstable equipment during transport or storage!

- Always store and transport the equipment lying on its side.

The shape of the equipment means that it can roll on the flange's outside diameter.

### Attention!

Equipment can be damaged if stored or transported improperly.

- Close all openings with the sealing plugs or covers supplied with the equipment or use similar sealing covers.
- Protect the equipment against moisture and corrosive atmospheres.
- Please contact the manufacturer if the specified transport and/or storage requirements cannot be met.

## Storing the equipment

- Please observe the following items when storing the equipment:
  - ▶ Do not store the equipment for more than 12 months.
  - ▶ Use the supplied sealing plugs or other suitable seal caps in order to seal off all openings of the equipment.
  - ▶ Protect the sealing surfaces and contact areas against mechanical damage.
  - ▶ Protect the equipment and all components against hard shocks and impacts.
  - ▶ Store the equipment only in closed rooms that meet the following environmental conditions:

- ▶ Air humidity below 50 %, not condensing
- ▶ Indoor air: clean, salt-free and non-corrosive
- ▶ Temperature 5–40 °C.

- Make sure that all these requirements are always met when storing the equipment.
- Please contact the manufacturer if you cannot comply with the recommended storage conditions.

## Transporting the equipment



### CAUTION

Do not drop the equipment. If it falls down it may cause bruises and injuries.

- To transport and mount the equipment safely use suitable lifting gear.
- Connect the noose strap of the lifting gear to the body.
- Provide sufficient support for the equipment during transport and installation.
- Wear protective safety footwear.

Lightweight equipment may be transported and mounted without using any lifting gear.

To lift equipment the weight of which exceeds approx. 25 kg, you need the help of a second person or suitable lifting gear.

Your physical strength and on-site regulations and conditions determine what weight can be lifted and if support is required.

- Meet the requirements for storage also when transporting the equipment.
- Prior to transport seal off connections with sealing plugs.



If you do not have the sealing plugs supplied with the equipment use appropriate seal caps to seal off the connections.

- For short distances (only a few metres) you can transport the equipment unpacked.
- When transporting the equipment over larger distances use the original packaging.
- If you do not have the original packaging use a box that protects the equipment adequately against corrosion and physical damage.



For a short period of time the equipment may be transported even if the temperature is below 0 °C, provided that the equipment is completely empty and dry.

## Mounting and connecting the equipment

### Preparing installation

- Take the equipment out of the transport packaging.
- Check the equipment for transport damage.
- Contact the manufacturer if you detect any kind of shipping damage.

When supplied by the factory, the connections may be sealed off with sealing plugs.

- Remove sealing plugs before mounting the equipment.
- Keep the sealing plugs and the packing for further use.



## DANGER

Personnel working on pipes are exposed to safety risks and may suffer severe injuries, poisoning or even loss of life.

- Make sure that no hot or hazardous fluid is in the equipment or the pipes.
- Make sure that the pipes upstream and downstream of the equipment are depressurised.
- Make sure that the installation is switched off and protected against unauthorised or unintended activation.
- Make sure that the equipment and the pipes have cooled down to room temperatures.
- Wear protective clothing that is suitable for the fluid and, if necessary, wear protective gear.

For more information on suitable protective clothing and safety gear refer to the safety data sheet of the fluid in question.

- Drain pipes until they are empty.
- Switch the installation off and protect it against unauthorised or unintended re-activation.

The manual vent valve of the UNA 39 is not fitted on delivery.

- To install the manual vent valve, proceed as described on page 29.

## Orientation of the equipment

The different versions of the UNA 38 equipment allow you to adapt the direction of flow to suit your system. The following installation positions are possible:

- Positions "hl" and "hr" for installation in horizontal pipes
- Position "v" for installation in vertical pipes with direction of flow from top to bottom

---

## **Attention!**

Malfunctions may occur if the control unit is installed incorrectly.

- When installing the equipment make sure that the name plate on the cover is on top and the float arm is free to move up and down.

---

To avoid malfunctions make sure the following requirements are met when mounting the equipment:

- ▶ The flow arrow on the equipment body must match the fluid flow direction.
- ▶ The name plate on the cover must point upwards.
- Contact the manufacturer if you want to mount the equipment in a different position of installation.
- Detach the cover from the body as described on page 20.
- Remove the control unit as described on page 21.
- Turn the control unit by 90° or 180° into the desired position of installation.
- Make sure that the float arm is free to move up and down.
- Fix the control unit to the body as described on page 22.
- Attach the cover to the body as described on page 24.

---

## **Connecting the equipment**



### **DANGER**

Incorrectly connected equipment can cause fatal accidents or severe injuries.

- Make sure that only qualified skilled personnel connect the equipment to pipes.
- Make sure that the flow arrow on the equipment body matches the direction of flow in the pipe.

---

Specialist personnel must be highly qualified and fully experienced in making pipe connections for the respective type of end connection.



### **CAUTION**

Do not drop the equipment. If it falls down it may cause bruises and injuries.

- To transport and mount the equipment safely use suitable lifting gear.
- Connect the noose strap of the lifting gear to the body.
- Provide sufficient support for the equipment during transport and installation.
- Wear protective safety footwear.

---

Lightweight equipment may be transported and mounted without using any lifting gear.

To lift equipment the weight of which exceeds approx. 25 kg, you need the help of a second person or suitable lifting gear.

Your physical strength and on-site regulations and conditions determine what weight can be lifted and if support is required.

---

## **Attention!**

Equipment will be damaged if the end connections are undersized.

- Make sure that the connections are strong and rigid enough to support the weight of the equipment and to withstand the forces that occur during operation.

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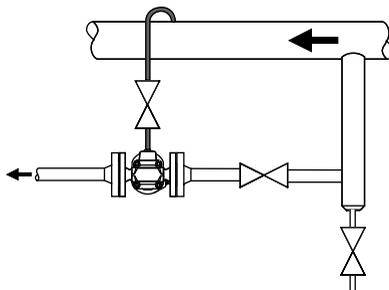
Consider space required for servicing the equipment and/or exchanging components and observe the necessary withdrawal distance to remove the cover. For more information on the required withdrawal distances see section "*Dimensions and weights*" on page 36.



Some applications require that the equipment is fitted with an air-balance pipe:  
Equipment with control unit SIMPLEX MAX, float traps for compressed air line drainage and equipment installed in plants where condensate is lifted upstream of the equipment.

- In this case connect the air balance pipe to the bore on top of the cover.
- Make sure that the pipe system of the plant is clean.
- Make sure that the equipment is free from foreign matter.
- Mount the equipment in the desired installation position.
- Make sure that pipes satisfy the following conditions:
  - ◆ Pipes must be routed such as to avoid water pockets.
  - ◆ Pipes must always be on a downward incline.
  - ◆ Balancing pipes must have a minimum cross section of DN 8 (1/4 ").
  - ◆ For units with SIMPLEX control unit, a balancing pipe must be connected to the hole for the manual vent valve.

- If you are unable to satisfy one or more of these requirements, please contact the manufacturer.
- Connect the end connections of the equipment properly to the pipes.
- If necessary, connect the air balance pipe to the equipment as shown in the following drawing.



- Make sure that the equipment is safely mounted and that all connections are made correctly.

## Operation



### WARNING

Hot liquids and steam can cause scalding.

- Wear protective clothing that is suitable for the fluid and, if necessary, wear protective gear.

Protective clothing and protective gear must protect the whole body against contact with escaping hot steam.

For more information on suitable protective clothing and safety gear refer to the safety data sheet of the fluid in question.

You can carry out the following work during operation:

- ▶ Open and close the optional manual vent valve
- ▶ Open and close the optional manual lifting lever

The UNA 38 comes with its own tool, a socket wrench with material number 526110.

The UNA 39 is supplied with a lever for operating the manual vent valve or manual lifting lever.

The optional hand vent valve allows manual air venting.

- To air vent the equipment turn the hand-vent valve (viewed from top) anticlockwise.
- To close the hand-vent valve after air-venting turn it clockwise.
- Fasten the hand-vent valve hand tight.

The optional float-lifting lever allows the float to be manually lifted irrespective of the liquid level. It can be used to purge any dirt away from the seat area and out of the equipment by opening the orifice and draining the liquid.

The correct direction of rotation differs in the UNA 38 and the UNA 39.

For the UNA 38, proceed as follows:

- ▶ Turn the socket wrench clockwise to open.
- ▶ Turn the socket wrench anti-clockwise to close.

For the UNA 39, proceed as follows:

- ▶ Turn the socket wrench anti-clockwise to open.
- ▶ Turn the socket wrench clockwise to close.

You can check the correct functioning of the equipment during operation using the GESTRA ultrasonic measuring unit VAPOPHONE® or TRAPTEST® (VKP 40 and VKP 40plus).

- For more details refer to the installation & operating manual of the ultrasonic measuring unit.

---

## After operation

---



### DANGER

If fluid escapes personnel may suffer severe injuries, poisoning or even loss of life.

- After working on the equipment make sure that all connections and valves are tight.
  - Make sure that the gaskets of the body are leakproof.
- 



### DANGER

Personnel working on pipes are exposed to safety risks and may suffer severe injuries, poisoning or even loss of life.

- Make sure that no hot or hazardous fluid is in the equipment or the pipes.
  - Make sure that the pipes upstream and downstream of the equipment are depressurised.
  - Make sure that the installation is switched off and protected against unauthorised or unintended activation.
  - Make sure that the equipment and the pipes have cooled down to room temperatures.
  - Wear protective clothing that is suitable for the fluid and, if necessary, wear protective gear.
- 

For more information on suitable protective clothing and safety gear refer to the safety data sheet of the fluid in question.



### DANGER

If the equipment is used in contaminated areas there is a risk of severe injuries or death caused by harmful substances in or on the equipment.

- Only qualified personnel are allowed to perform work on contaminated equipment.
  - Always wear the protective clothing prescribed for contaminated areas when working on the equipment.
  - Make sure that the equipment is completely decontaminated before carrying out any service work.
  - Follow the pertinent instructions for handling the hazardous substances in question.
- 

### ***Attention!***

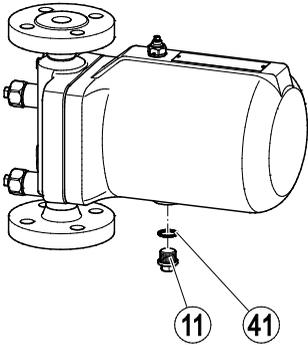
Frost damage may occur when the installation is shut down.

- Drain the equipment if ambient temperatures below 0 °C (frost) are to be expected.
-

- Make sure that medium exiting the system is caught.
- Open the screw plug (11) at the bottom of the body.
- Wait until the equipment has drained fully.
- Clean the sealing surfaces of the screw plug and cover.
- Insert a new gasket (41) in the hole in the cover.

The necessary torque for tightening the screw plug varies depending on type.

- To close the screw plug of the UNA 39, tighten it to a torque of 170 Nm.
- To close the screw plug of the UNA 38, tighten it to a torque of 70 Nm.



## Maintaining the equipment

You require the following tools for working on the equipment:

- Type B combination spanner to DIN 3113, in sizes
      - 10
      - 11
      - 16 (UNA 39 only)
      - 17
      - 18 (UNA 39 only)
      - 27
      - 30
      - 32
      - 36
      - 46)
  - Torque wrench to DIN ISO 6789
    - 10–60 Nm
    - 60–120 Nm
    - 120–300 Nm
  - Allen key to DIN ISO 2936 in sizes
    - 4
    - 6
    - 8

## Removing external dirt deposits

- To remove dirt deposits rinse the equipment with fresh water and wipe it with a clean, lint-free cloth.
- To remove any persistent residues use a cleaning agent that is suitable for the material and carefully wipe the equipment with a clean, lint-free cloth.

The torques required for tightening threaded connections vary depending on the type of equipment and connection.

Designation	Torque [Nm]	
	UNA 38	UNA 39
Set screws	20	20
Hex nuts on set screws	270	340
Allen screws on control unit	–	40
Regulating nut	120	–
Bimetallic vent	90	–
Manual vent valve	70	170
Manual lifting lever	110	–
Screw plug	110	–
Drainage screw plug	70	170



Malfunctions may occur if the equipment is used with different types of condensate: The following condensates in particular cause problems:

- very oily condensates
- condensates that resinify or become gummy
- condensates that recrystallize
- condensates that contain solid matter.

In these cases check the equipment at regular intervals for contamination and, if necessary, remove dirt deposits.

To reduce contamination we recommend installing a sedimentation vessel or a dirt pocket arrangement upstream of the equipment.

Normally you do not have to clean the internal parts of the equipment.

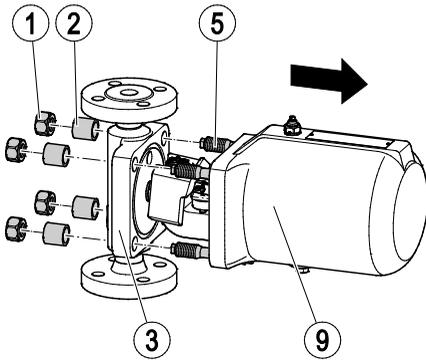
To clean the equipment completely take off the cover and remove the control unit.

## Removing cover

**i** The jobs described in this section differ depending on the type of equipment.

To remove the cover of the UNA 38, proceed as follows:

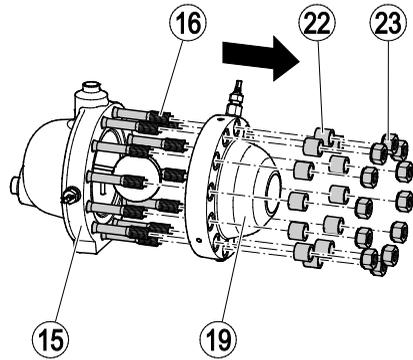
- Remove the four hex nuts (1).
- Remove the four sleeves (2) from the four set screws (5).
- Remove the cover (9) from the body (3).



- Take the body gasket out of the body.
- Dispose of the gasket in accordance with regulations at the location of use.

To remove the cover of the UNA 39, proceed as follows:

- Remove the twelve hex nuts (23).
- Remove the twelve sleeves (22) from the set screws (16).
- Remove the cover (19) from the body (15).



- Take the body gasket out of the body.
- Dispose of the gasket in accordance with regulations at the location of use.

## Removing control unit

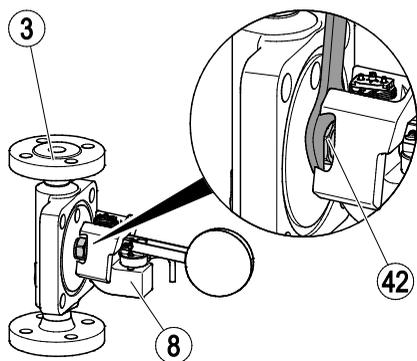
- Detach the cover from the body as described on page 20.



The jobs described in this section differ depending on the type of equipment.

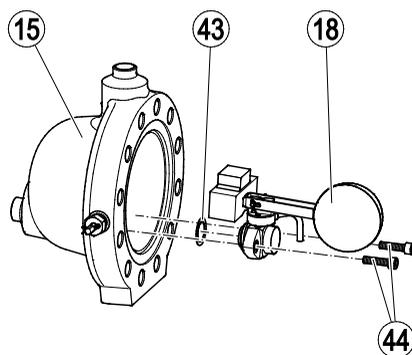
To remove the control unit of the UNA 38, proceed as follows:

- Slacken the union nut (42).
- Remove the control unit (8) from the body (3).



To remove the control unit of the UNA 39, proceed as follows:

- Remove the two Allen screws (44).
- Remove the control unit (18) from the body (15).
- Remove the regulator gasket (43).



The set screws in the body are not shown in the diagram for reasons of clarity.

- Dispose of the gasket in accordance with regulations at the location of use.

## Cleaning the equipment

Check the equipment at regular intervals for contamination. The intervals depend on the amount of dirt in the system. The operator must determine the maintenance intervals.

- Remove any parts that are dirty and cannot be cleaned properly.

To clean the inside of the equipment proceed as follows:

- Detach the cover from the body as described on page 20.
- Remove the control unit as described on page 21.
- To remove dirt deposits rinse the equipment with fresh water and wipe it with a clean, lint-free cloth.
- To remove any persistent residues use a cleaning agent that is suitable for the material and carefully wipe the equipment with a clean, lint-free cloth.
- Fix the control unit to the body as described on page 22.
- Attach the cover to the body as described on page 24.

### Fitting control unit in place

- Check all removed parts for signs of damage.
- Replace all worn or damaged parts.
- Clean all dirty parts.
- Apply high-resistant lubricant to all threads, bearing faces of screws, nuts and bolts.

The lubricant must have the same properties as OKS® 217.

### **Attention!**

Equipment may leak if the gasket is damaged.

- Replace all gaskets that you loosen during your work.
  - Use only new gaskets of the same type.
- 
- Replace all gaskets with new ones of the same type.



The jobs described in this section differ depending on the type of equipment.

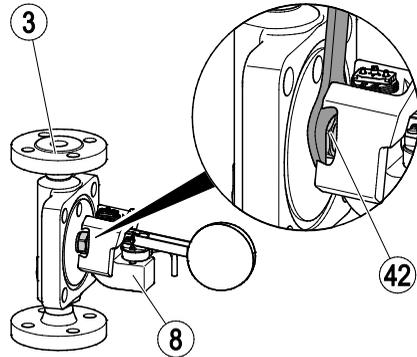
To install the control unit of the UNA 38, proceed as follows:

### **Attention!**

Malfunctions may occur if the control unit is installed incorrectly.

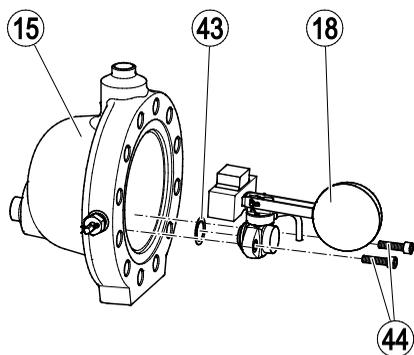
- When installing the equipment make sure that the name plate points upwards and the float arm is free to move up and down.
  - Make sure that the flow arrow on the equipment body matches the direction of flow in the pipe.
- 
- Position the control unit (8) on the body (3).
  - Make sure that the control unit is correctly aligned.

- Tighten the union nut (42) to a torque of 120 Nm.



To install the control unit of the UNA 39, proceed as follows:

- Fit a new regulator gasket (43) to the control unit.
- Position the control unit (18) on the body (15).
- Screw in the two Allen screws (44).
- Tighten the Allen screws to a torque of 40 Nm.



**i** The set screws in the body are not shown in the diagram for reasons of clarity.

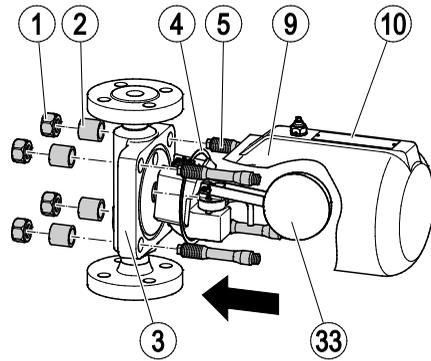
- Attach the cover to the body as described on page 24.

## Mounting cover

### **Attention!**

Equipment may leak if the gasket is damaged.

- It is therefore essential that you always insert a new gasket before re-attaching the cover.
- Make sure that the cover is not tilted or skewed when refitted.



The jobs described in this section differ depending on the type of equipment.

To install the cover of the UNA 38, proceed as follows:

- Make sure that the control unit is correctly fitted.

The float (33) must be able to move upwards.

- Lubricate the threads and contact surfaces of the set screws with temperature-resistant lubricant.

The lubricant must have the same properties as OKS® 217.

- Insert a new body gasket (4) in the body (3).
- Place the cover (9) on the body.

The rating plate (10) must face upwards. The four set screws (5) must be inserted in the holes in the cover.

- Place the four sleeves (2) on the set screws.
- Screw the four hex nuts (1) on the set screws.
- Tighten the hex nuts to a torque of 270 Nm.

To install the cover of the UNA 39, proceed as follows:

- Make sure that the control unit is correctly fitted.

The float must be able to move upwards.

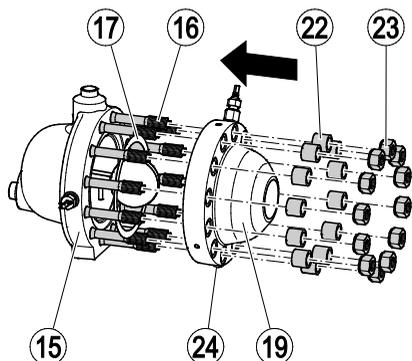
- Lubricate the threads and contact surfaces of the set screws with temperature-resistant lubricant.

The lubricant must have the same properties as OKS® 217.

- Insert a new body gasket (17) in the body (15).
- Make sure that the twelve set screws (16) are securely screwed in the holes in the body.
- Position the cover (19) on the twelve set screws (16).

The set screws must fit through the holes in the cover. The drainage screw plug (24) must face downwards.

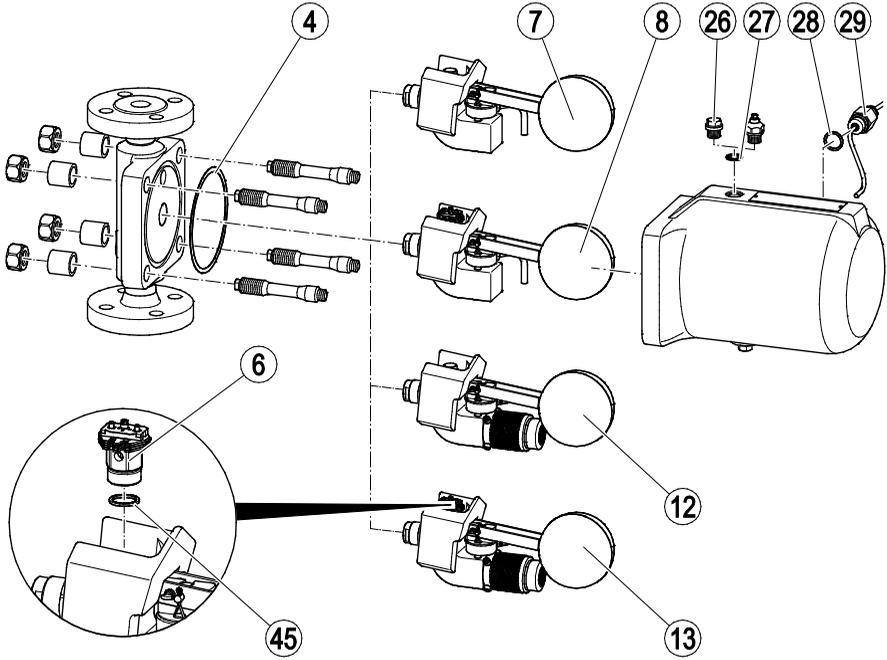
- Place the twelve sleeves (22) on the set screws.
- Screw the twelve hex nuts (23) onto the set screws.
- Tighten the hex nuts to a torque of 340 Nm.



# Servicing the equipment and installing spare parts

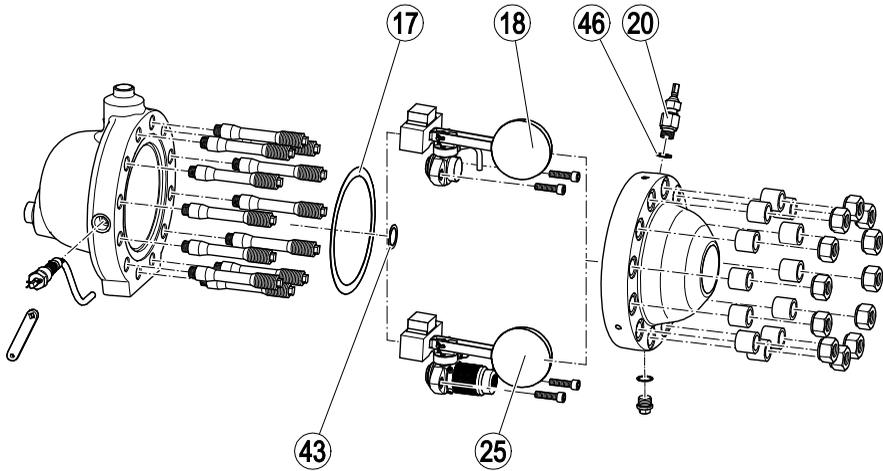
You may exchange the following component parts in case of wear or damage:

## Spare parts for UNA 38



No.	Designation	AO	Order number
4	Body gasket	All	524532
4, 8	DUPLEX control unit, complete, with body gasket	50	560550
		64	560551
		80	560552
4, 13	DUPLEX AO 80 MAX control unit, complete, with body gasket	80 MAX	560553
4, 7	SIMPLEX control unit, complete, with body gasket	50	560554
		64	560555
		80	560556
4, 12	SIMPLEX AO 80 MAX control unit, complete, with body gasket	80 MAX	560557
26, 27	Manual vent valve, complete, with sealing ring	All	560559
28, 29	Manual lifting lever, complete, with sealing ring	All	560560
6, 45	Bimetallic vent, complete, with sealing ring	All	560558

## Spare parts for UNA 39



No.	Designation	AO	Order number
17	Body gasket	All	523031
17, 18	Control unit, complete, with body gasket	80	560172
		110	560171
		140	560170
17, 25	Control unit, complete, with body gasket	140 MAX	560179
20, 46	Manual vent valve, complete, with sealing ring	All	560178
17, 43, —	Seal set <sup>1</sup>	All	560539

1 Contains:

- ▶ Body gasket (17)
- ▶ Regulator gasket (43)
- ▶ Seat gasket (—)

## Exchanging the control unit

- Detach the cover from the body as described on page 20.
- Remove the control unit as described on page 21.

### **Attention!**

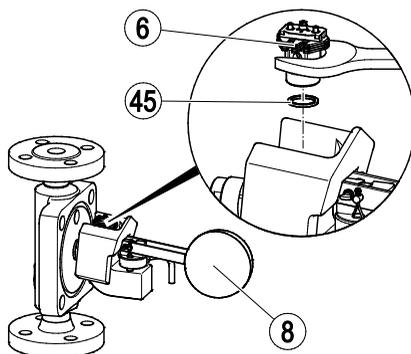
Equipment may leak if the gasket is damaged.

- Replace all gaskets that you loosen during your work.
- Use only new gaskets of the same type.

- Fix the control unit to the body as described on page 22.
- Attach the cover to the body as described on page 24.

## Replacing the bimetallic vent

- Detach the cover from the body as described on page 20.
- Unfasten the bimetallic vent by applying a spanner to the hex nut of the bimetallic vent.
- Remove the bimetallic vent (6).
- Remove the sealing ring (45).
- Insert a new sealing ring of the same type in the hole in the control unit (8).
- Screw the new bimetallic vent into the hole in the control unit.
- Tighten the bimetallic vent to a torque of 90 Nm.



### **Attention!**

Equipment may leak if the gasket is damaged.

- Replace all gaskets that you loosen during your work.
  - Use only new gaskets of the same type.
- For the disposal of the gaskets observe the pertinent on-site regulations concerning waste disposal.
  - Attach the cover to the body as described on page 24.

## Exchanging the hand-vent valve

Proceed as follows to replace a damaged manual vent valve:

- If necessary, remove the socket wrench (UNA 38) or the lever (UNA 39) from the manual vent valve.
- Remove the manual vent valve from the threaded hole in the body.
- For the disposal of the gaskets observe the pertinent on-site regulations concerning waste disposal.

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### **Attention!**

Equipment may leak if the gasket is damaged.

- Replace all gaskets that you loosen during your work.
- Use only new gaskets of the same type.

- 
- Insert the sealing ring supplied with the manual vent valve in the threaded hole in the body.
  - Screw the new manual vent valve into the threaded hole.

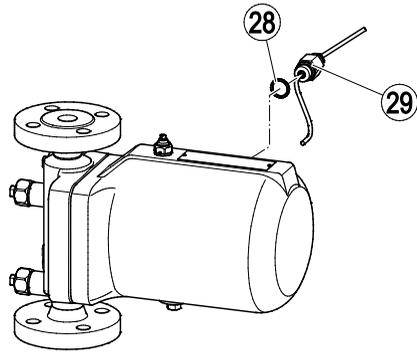
The torque required for tightening differs depending on the type of equipment.

- For the UNA 38, tighten the manual vent valve to a torque of 70 Nm.
- For the UNA 39, tighten the manual vent valve to a torque of 170 Nm.

### **Exchanging the float-lifting lever**

You can replace a damaged manual lifting lever in the UNA 38. For the UNA 39, this is not possible. To replace, proceed as follows:

- If necessary, remove the socket wrench.
- Slacken the hex bolt on the manual lifting lever (29).
- Remove the manual lifting lever from the body.
- Remove the sealing ring (28).



- For the disposal of the gaskets observe the pertinent on-site regulations concerning waste disposal.

---

### **Attention!**

Equipment may leak if the gasket is damaged.

- Replace all gaskets that you loosen during your work.
- Use only new gaskets of the same type.

---

### **Attention!**

The packing rings may get damaged.

- Make sure you do not damage the packing rings during installation and removal.
- When installing and removing the packing rings never use force. Make sure that the packing rings are correctly positioned and not skewed.

- 
- Insert the sealing ring supplied with the manual lifting lever in the threaded hole in the body.
  - Screw the new manual lifting lever into the threaded hole.
  - Tighten the hex bolt of the manual lifting lever to a torque of 110 Nm.

## Troubleshooting

<b>Problem</b>	<b>Cause</b>	<b>Remedy</b>
The equipment is blowing off live steam.	The control unit is damaged or worn.	Replace the control unit.
The equipment is blowing off live steam.	Dirt deposits, precipitated solids or foreign particles have accumulated in the equipment.	If fitted, operate the float-lifting lever. Clean the pipes. Clean all internals. If necessary, replace internals or the whole equipment.
The equipment is cold or only warm to the touch.	The sealing plugs are still attached to the connections.	Remove the equipment. Remove the sealing plugs. Mount the equipment.
The discharge capacity is too low. The equipment is cold or only warm to the touch.	The shut-off valves for fluid flow are closed.	Fully open the shut-off valves.
The discharge capacity is too low. The equipment is cold or only warm to the touch. Insufficient thermal output of the user.	The inlet, outlet or the equipment is dirty.	If fitted, operate the float-lifting lever. Clean the pipes. Clean all internals. If necessary, replace internals or the whole equipment.
The discharge capacity is too low. Insufficient thermal output of the user.	The equipment is undersized.	Use equipment with a larger discharge capacity.
The discharge capacity is too low. Insufficient thermal output of the user.	The differential pressure is too small.	Increase the steam pressure. Lower the pressure in the condensate line. Use equipment with a larger discharge capacity. If necessary, use a pump steam trap or a condensate return unit.
The discharge capacity is too low. Insufficient thermal output of the user.	Insufficient deaeration.	Connect an additional air vent.

<b>Problem</b>	<b>Cause</b>	<b>Remedy</b>
The discharge capacity is too low. Insufficient thermal output of the user.	The pipes do not have a continuous fall in flow direction.	Make sure that the lines run with a continuous fall in flow direction.
Fluid escapes (equipment is leaking).	The body has been damaged by corrosion or erosion.	Replace the equipment with a new one. Use equipment made of material that is suitable for the application.
Fluid escapes (equipment is leaking).	The equipment or the body is damaged.	Replace the equipment with a new one.
Fluid escapes (equipment is leaking).	A gasket is damaged.	Replace the gasket with a new one. Clean gasket seating surfaces.
Fluid escapes (equipment is leaking).	The stuffing box packing has not been tightened enough.	Tighten the stuffing-box packing hand tight. Make sure that the stuffing box packing does not impair the movement of the internals.

- If faults occur that are not listed above or cannot be corrected, please contact our Technical Service or authorized agency in your country.

## Putting the equipment out of operation

### Removing harmful substances



#### **DANGER**

If the equipment is used in contaminated areas there is a risk of severe injuries or death caused by harmful substances in or on the equipment.

- Only qualified personnel are allowed to perform work on contaminated equipment.
- Always wear the protective clothing prescribed for contaminated areas when working on the equipment.
- Make sure that the equipment is completely decontaminated before carrying out any service work.
- Follow the pertinent instructions for handling the hazardous substances in question.

Qualified personnel must have extensive experience with and a working knowledge of:

- ◆ pertinent rules and regulations concerning handling hazardous substances
- ◆ special regulations for handling the hazardous substances encountered on site
- ◆ using the required personal protective equipment (PPE) and clothing



#### **Caution**

Environmental damage may be caused by poisonous fluid residues.

- Before disposing of the equipment make sure that it is clean and free of fluid residues.
- For the disposal of all materials observe the pertinent legal regulations concerning waste disposal.

- Remove all residues from the equipment.
- For the disposal of all residues observe the pertinent legal regulations concerning waste disposal.

### Removing the equipment



#### **DANGER**

Personnel working on pipes are exposed to safety risks and may suffer severe injuries, poisoning or even loss of life.

- Make sure that no hot or hazardous fluid is in the equipment or the pipes.
- Make sure that the pipes upstream and downstream of the equipment are depressurised.
- Make sure that the installation is switched off and protected against unauthorised or unintended activation.
- Make sure that the equipment and the pipes have cooled down to room temperatures.
- Wear protective clothing that is suitable for the fluid and, if necessary, wear protective gear.

For more information on suitable protective clothing and safety gear refer to the safety data sheet of the fluid in question.



## CAUTION

Risk of injuries if the equipment falls down.

- When removing the equipment make sure the it is safely held in place and cannot fall down.

---

Suitable measures are for instance:

- ▶ Equipment that is not too heavy may be supported by a second person.
- ▶ For heavy equipment use suitable lifting equipment of sufficient strength.
- Detach the end connections of the equipment from the pipes.
- Put the equipment onto a suitable base.
- Store the equipment as described on page 12.

## Re-using equipment after storage

Observe the following instructions if you want to remove the equipment and use it again somewhere else:

- ▶ Make sure that the equipment is free of any fluid residues.
- ▶ Make sure that all connections are in good condition and leak-free.
- ▶ If necessary re-work welded connections in order to ensure that they are in good working condition.
- Use the equipment only for its intended purpose and the service conditions for which it was specified.

## Disposing of the equipment



### Caution

Environmental damage may be caused by poisonous fluid residues.

- Before disposing of the equipment make sure that it is clean and free of fluid residues.
- For the disposal of all materials observe the pertinent legal regulations concerning waste disposal.

The equipment is made from the following materials:

### Materials for UNA 38

Component	EN	ASTM <sup>1</sup>
Body	1.5415	A182-F1
Flange, butt-weld end, socket weld end	1.5415	A182-F1
Pipe weld end, flange (optional)	1.7335	A182-F12
Cover	1.7357	A217-WC6
Body gasket	Graphite/CrNi	
Set screws, sleeves and hex nuts	1.7709	–
Other components	Stainless steel	

- 1 ASTM material is comparable to EN material. Note the differences in chemical and physical properties.

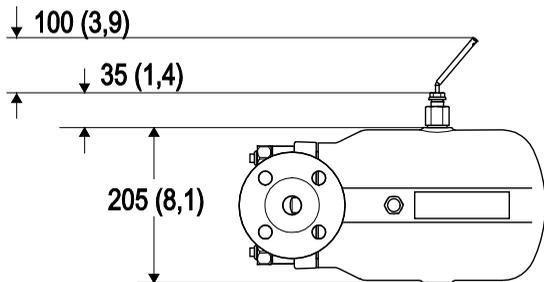
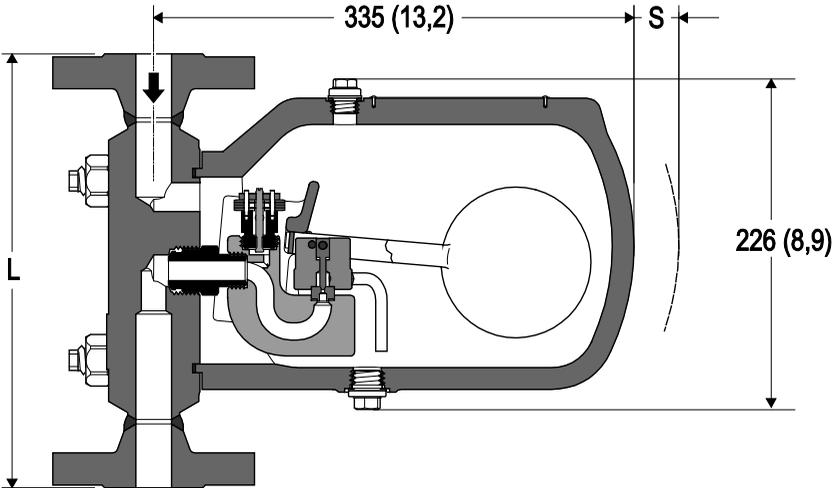
### Materials for UNA 39

Component	EN	ASTM
Body	1.7335	A182-F12
Flange, butt-weld end, socket weld end, pipe weld end	1.7335	A182-F12
Cover	1.7335	A182-F12
Body gasket	Graphite/CrNi	
Set screws, sleeves and hex nuts	1.7709	–
Other components	Stainless steel	

## Technical data

### Dimensions and weights

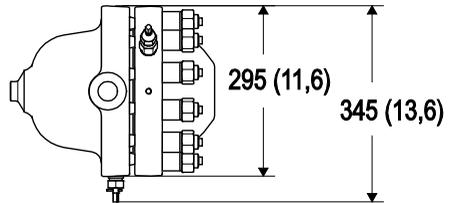
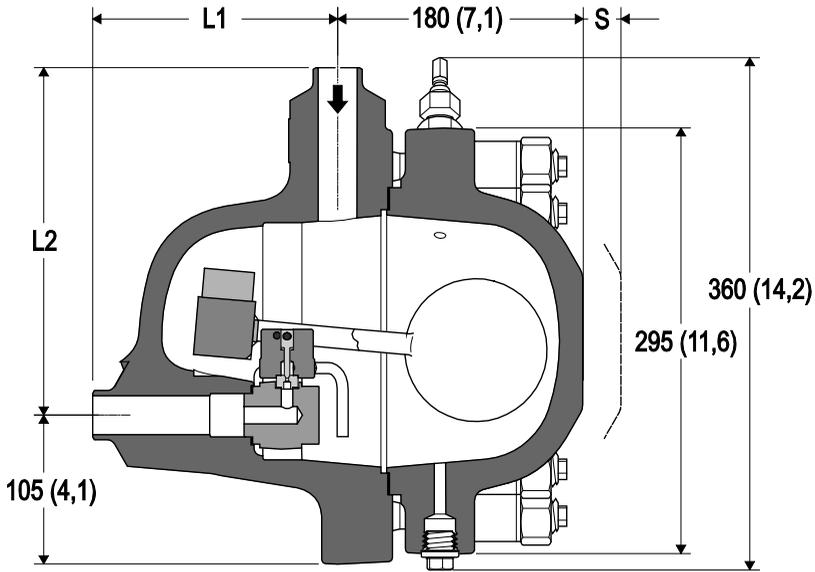
#### Dimensions and weights for UNA 38



Remember to add an additional 30 mm (1.2 in) and 100 mm (3.9 in) as service dimensions when a manual vent valve is fitted.

	<b>Type of connection</b>	<b>DN 15 (½")</b>	<b>DN 20 (¾")</b>	<b>DN 25 (1")</b>	<b>DN 40 (1½")</b>	<b>DN 50 (2")</b>
Installed length L [mm (in)]	Flange PN100	300 (11.8)	300 (11.8)	300 (11.8)	420 (16.5)	416 (16.4)
	ASME class 600 flanges	300 (11.8)	300 (11.8)	300 (11.8)	421 (16.6)	427 (16.8)
	Socket weld end	300 (11.8)	300 (11.8)	300 (11.8)	420 (16.5)	420 (16.5)
	Butt-weld end	300 (11.8)	300 (11.8)	300 (11.8)	300 (11.8)	300 (11.8)
	Pipe weld end	300 (11.8)	300 (11.8)	300 (11.8)	420 (16.5)	420 (16.5)
Service dimension S [mm (in)]	All	310 (12.2)	310 (12.2)	310 (12.2)	310 (12.2)	310 (12.2)
Weight [kg (lb)]	Flange	38 (83.8)	38 (83.8)	38 (83.8)	40 (88.2)	42 (92.6)
	Socket weld end, butt-weld end, pipe weld end	35 (77.2)	35 (77.2)	35 (77.2)	35 (77.2)	35 (77.2)

**Dimensions and weights for UNA 39**



	<b>Type of connection</b>	<b>DN 15 (½")</b>	<b>DN 25 (1")</b>	<b>DN 40 (1½")</b>	<b>DN 50 (2")</b>
L1 [mm (in)]	Flange PN160	215 (8.5)	230 (9.1)	235 (9.3)	245 (9.6)
	ASME class 900/1500 flanges	240 (9.4)	250 (9.8)	260 (10.2)	280 (11.0)
	Butt-weld end	170 (6.7)	170 (6.7)	170 (6.7)	170 (6.7)
	Socket weld end	170 (6.7)	170 (6.7)	235 (9.3)	245 (9.6)
L2 [mm (in)]	Flange PN160	285 (11.2)	300 (11.8)	305 (12.0)	315 (12.4)
	ASME class 900/1500 flanges	310 (12.2)	320 (12.6)	330 (13.0)	350 (13.8)
	Butt-weld end	240 (9.4)	240 (9.4)	240 (9.4)	240 (9.4)
	Socket weld end	240 (9.4)	240 (9.4)	305 (12.0)	315 (12.4)
Service dimension S [mm (in)]	All	150 (5.9)	150 (5.9)	150 (5.9)	150 (5.9)
Weight [kg (lb)]	Flange	67 (147.7)	70 (154.3)	70 (154.3)	78 (191.8)
	Socket weld end, butt-weld end	65 (143.3)	65 (143.3)	65 (143.3)	65 (143.3)

## Pressure & temperature ratings

The values indicated in the following tables apply to standard equipment.

Note that the type of end connection used may restrict the use of the equipment to below the pressure/temperature limits quoted.

All equipment specific values are indicated on the nameplate.

<b>Pressure and temperature ratings of UNA 38, with PN 100 flange, socket weld end, weld end</b>							
Pressure <sup>1</sup> p	[bar]	100	85.7	69	35.2	28	22.3
Temperature <sup>1</sup> T	[°C]	-10/200	300	450	510	520	530
Maximum admissible differential pressure $\Delta$ PMX <sup>2</sup>	[bar]	50, 64, 80					
	[psi]	725, 928, 1160					
Pressure <sup>1</sup> p	[psig]	1450	1243	1001	510	406	323
Temperature <sup>1</sup> T	[°F]	14/392	572	842	950	968	986

- 1 Limit values for body/cover to EN 1092-1
- 2 See table at end of section.

<b>Pressure and temperature ratings for UNA 38, with ASME class 600 flange</b>							
Pressure <sup>1</sup> p	[bar]	100	100	69.9	61.7	59.7	42.5
Temperature <sup>1</sup> T	[°C]	-10/20	100	300	400	450	500
Maximum admissible differential pressure $\Delta$ PMX <sup>2</sup>	[bar]	50, 64, 80					
	[psi]	725, 928, 1160					
Pressure <sup>1</sup> p	[psig]	1450	1450	1014	895	866	616
Temperature <sup>1</sup> T	[°F]	14/68	212	572	752	842	932

- 1 Limit values for body/cover to EN 1759-1
- 2 See table at end of section.

<b>Pressure and temperature ratings for UNA 38 high temperature, with PN 100 flange</b>							
Pressure <sup>1</sup> p	[barg]	100	100	100	83.7	51.2	32.4
Temperature <sup>1</sup> T	[°C]	-10/20	100	300	450	500	530
Maximum admissible differential pressure $\Delta PMX^2$	[bar]	50, 64, 80					
	[psi]	725, 928, 1160					
Pressure <sup>1</sup> p	[psig]	1450	1450	1450	1214	742	470
Temperature <sup>1</sup> T	[°F]	14/68	212	572	842	932	986

- 1 Limit values for body/cover to EN 1092-1 and strength limit
- 2 See table at end of section.

<b>Pressure and temperature ratings for UNA 38 high temperature, with ASME class 600 flange</b>							
Pressure <sup>1</sup> p	[barg]	100	100	78.2	67.6	51.2	32.4
Temperature <sup>1</sup> T	[°C]	-10/20	100	350	450	500	530
Maximum admissible differential pressure $\Delta PMX^2$	[bar]	50, 64, 80					
	[psi]	725, 928, 1160					
Pressure <sup>1</sup> p	[psig]	1450	1450	1134	980	742	470
Temperature <sup>1</sup> T	[°F]	14/68	212	662	842	932	986

- 1 Limit values for body/cover to EN 1759-1 and strength limit
- 2 See table at end of section.

<b>Pressure and temperature ratings for UNA 38 high temperature, with socket weld end, weld end</b>							
Pressure <sup>1</sup> p	[barg]	100	100	100	83.7	51.2	32.4
Temperature <sup>1</sup> T	[°C]	-10/20	100	350	450	500	530
.							
Maximum admissible differential pressure $\Delta$ PMX <sup>2</sup>	[bar]	50, 64, 80					
	[psi]	725, 928, 1160					
.							
Pressure <sup>1</sup> p	[psig]	1450	1450	1450	1214	742	470
Temperature <sup>1</sup> T	[°F]	14/68	212	662	842	932	986

- 1 Limit values for body/cover in accordance with strength limit
- 2 See table at end of section.

<b>Pressure and temperature ratings for UNA 39, with PN 160, ASME class 1500 flange</b>							
Pressure <sup>1</sup> p	[barg]	160	134.8	104.3	71.6	46.4	37.3
Temperature <sup>1</sup> T	[°C]	-10/300	450	500	520	540	550
.							
Maximum admissible differential pressure $\Delta$ PMX <sup>2</sup>	[bar]	80, 110, 140					
	[psi]	1160, 1595, 2030					
.							
Pressure <sup>1</sup> p	[psig]	2320	1955	1512	1038	673	541
Temperature <sup>1</sup> T	[°F]	14/572	842	932	968	1004	1022

- 1 Limit values for body/cover to EN 1092-1
- 2 See table at end of section.

<b>Pressure and temperature ratings for UNA 39, with ASME class 900 flange</b>							
Pressure <sup>1</sup> p	[barg]	155	117	84.6	64.5	41.8	33.6
Temperature <sup>1</sup> T	[°C]	-10/100	350	500	520	540	550
Maximum admissible differential pressure $\Delta PMX^2$	[bar]	80, 110, 140					
	[psi]	1160, 1595, 2030					
Pressure <sup>1</sup> p	[psig]	2248	1697	1227	935	606	487
Temperature <sup>1</sup> T	[°F]	14/212	662	932	968	1004	1022

- 1 Limit values for body/cover to EN 1759-1
- 2 See table at end of section.

<b>Pressure and temperature ratings for UNA 39, with weld end, socket weld end</b>							
Pressure <sup>1</sup> p	[barg]	160	134.8	104.3	71.6	46.4	37.3
Temperature <sup>1</sup> T	[°C]	-10/300	450	500	520	540	550
Maximum admissible differential pressure $\Delta PMX^2$	[bar]	80, 110, 140					
	[psi]	1160, 1595, 2030					
Pressure <sup>1</sup> p	[psig]	2320	1955	1512	1038	673	541
Temperature <sup>1</sup> T	[°F]	14/572	842	932	968	1004	1022

- 1 Limit values for body/cover to EN 1092-1
- 2 See table at end of section.

**Orifice and differential pressure**

<b>Orifice (A0)</b>	<b>Hole diameter [mm]</b>		<b>Differential pressure <math>\Delta PMX</math> [bar]</b>
	<b>UNA 38</b>	<b>UNA 39</b>	
50	2.8	–	50
64	2.3	–	64
80	2	1.9	80
80 MAX	6.5	–	80
110	–	1.6	110
140	–	1.4	140
140 MAX	–	6.5	140

## **Manufacturer's declaration**

For more information on the Conformity Assessment according to European rules refer to our Declaration of Conformity or our Declaration by Manufacturer.

To download the current Declaration of Conformity or Declaration by Manufacturer go to [www.gestra.com/documents](http://www.gestra.com/documents) or contact:

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This declaration is no longer valid if modifications are made to the equipment without consultation with us.







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