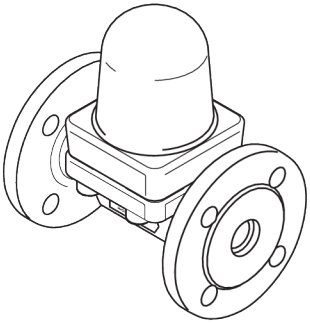
GESTRA®

Steam Trap



MK 35/2S
MK 35/2S3

EN
English

Original Installation Instructions

810740-05

Contents

Foreword

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

- MK 35/2S
- MK 35/2S3

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 thermostatic/thermodynamic steam traps are installed in steam lines:

- MK 35/2S
- MK 35/2S3

This equipment is designed for discharging condensed water or air-venting pipes.

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.

Do not expose the control membrane of the membrane regulator capsule to superheat conditions above 5 °C.

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 can be hot or very cold, depending on the fluid used. Only perform work on the equipment if the following conditions are satisfied:
  - The pipes must not be under pressure.
  - All fluid must be thoroughly removed from pipes and the equipment.
  - Before carrying out any work, the higher-level system must be switched off and secured so it cannot be switched back on by unauthorised persons.
  - Pipes and the equipment must have cooled to a lukewarm temperature, or around 20 °C.
- For equipment used in contaminated areas, there is a risk of serious or fatal injury from harmful substances on the equipment. Only perform work on the equipment after it has been thoroughly decontaminated. Wear the protective clothing specified for the contaminated zone during all work.
- The equipment may only be used with fluids that are not aggressive in contact with material and seals. Otherwise, leaks may occur and hot, cold or toxic fluid may escape.
- The equipment and its components may only be installed or removed by specialist personnel. Specialist personnel must have knowledge and experience in the following areas:
  - Producing pipe connections.
  - Selecting suitable lifting gear for the product and using it safely.
  - Working with hazardous (contaminated, hot, cold or pressurised) fluids.
- If the admissible pressure and temperature ratings are exceeded, the equipment may be destroyed and hot, cold or pressurised fluid may escape. Make sure that the equipment is always used within the admissible pressure and temperature ratings.
  You can find information about the pressure and temperature ratings on the name plate and in the "*Technical data*" section.
- The equipment is under pressure during operation and can become hot or cold, depending on the fluid used. Only bring the equipment into service if contact with surfaces is prevented by insulation or other protection. Always wear protective clothing when working on the equipment and on pipes carrying fluid. You will find information on suitable protective clothing in the safety data sheet for the fluid used.

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 equipment is inadequately supported during installation, there is a risk of getting crushed if it falls. Use the eyebolt to secure lifting gear, if available. Secure the equipment during installation so it cannot fall. Use the eyebolt to do this, if available. Wear sturdy safety boots.

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

Specialist personnel must have knowledge and experience in the following areas:

- Locally applicable explosion & fire protection and occupational health & safety provisions
- Work on pressure equipment
- Producing pipe connections
- Working with hazardous (hot, cold or pressurised) fluids
- Lifting and transporting loads
- All information in this Installation & Operating Manual and other applicable documentation

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 and equipment specification

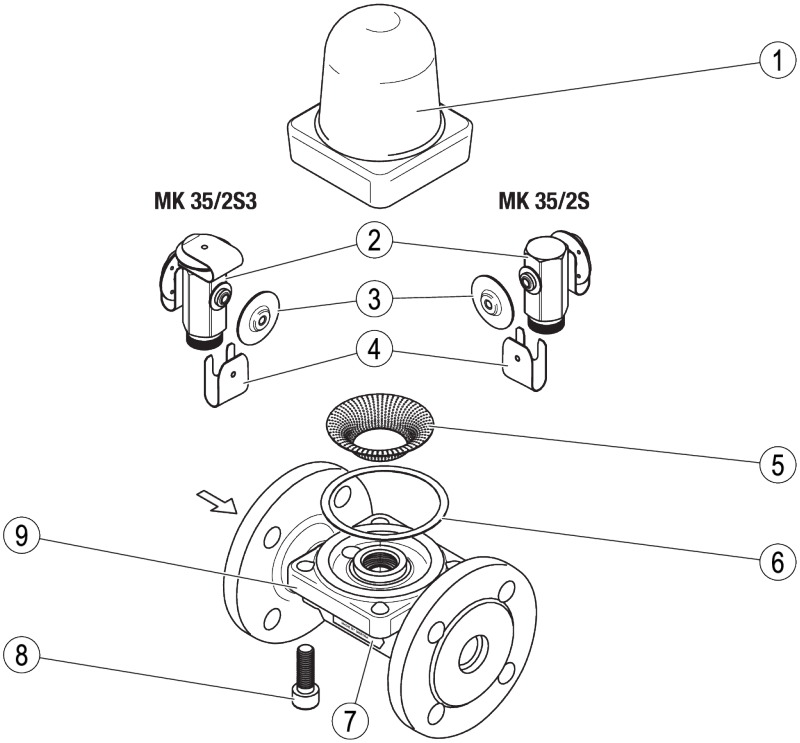
Scope of supply

Our equipment is delivered packed and ready for assembly.

Equipment specification

The types MK 35/2S and MK 35/2S3 differ only in their number of membrane regulator capsules.

- Equipment of type MK 35/2S has a control unit with two membrane regulator capsules. These two capsules are laterally attached to the nozzle insert.
- Equipment of type MK 35/2S3 has a control unit with three membrane regulator capsules. Two capsules are laterally attached to the nozzle insert. The third membrane regulator capsule is fixed on top of the nozzle insert.



No.	Designation
1	Cover
2	Nozzle insert
3	Membrane regulator capsule
4	Retaining clip for membrane regulator capsule
5	Strainer

No.	Designation
6	Gasket
7	Name plate as a direction of flow arrow
8	Screw
9	Body

Two different types of equipment with the corresponding nozzle insert are available.

MK 35/2S

- Single-seated membrane regulator capsule for nozzle insert, suitable for the following condensate flowrates:
  - hot: approx. 0–1.800 kg/h
  - cold 20 °C: approx. 0–5.900 kg/h

MK 35/2S3

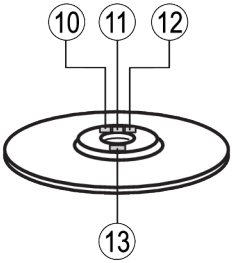
- Single-seated membrane regulator capsule for nozzle insert, suitable for the following condensate flowrates:
  - hot: approx. 0-3.200 kg/h
  - cold 20 °C: approx. 0-8.000 kg/h

Please refer to the capacity charts in the pertinent data sheet for more information on condensate flowrates.

Markings on the membrane regulator capsule

Note that only membrane regulator capsules type 5H2 can be used in the equipment.

The capsule bears the following indications:



No.	Description
10	Code number for type
11	Code letter for opening temperature
12	Code number for capacity
13	Manufacturing code

End connections

The equipment is available with the following end connections:

- Socket-weld ends
- Flanges
- Screwed sockets

Name plate

The following items are indicated on the name plate:

- Manufacturer
- Type designation
- Design
- Code letter for opening temperature of membrane regulator capsule
- Nominal size
- Pressure rating
- Design temperature
- Design pressure
- Max. service temperature
- Max. admissible differential pressure

The following items are indicated on the equipment body:

- Material
- Identification marking of material testing
- Batch code
- Mark (if required), e. g. CE, UKCA, EAC
- Direction of flow
- Date of manufacturing

On the bottom of the body of equipment with screwed sockets you will also find the following indication:

- Thread type

Application of European Directives

Fluids

The equipment is designed for the following fluids (in accordance with the EU Pressure Equipment Directive or Pressure Equipment (Safety) Regulations in the UK):

- Fluids of group 2

Due consideration must be given to chemical and corrosive influences.

Use in potentially explosive atmospheres

The equipment does not have its own potential source of ignition (as per ATEX Directive). Please pay attention to the following information:

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

This equipment is designed for discharging condensed water or air-venting steam lines.

Condensate discharge is controlled by the two or three membrane regulator capsules and the associated nozzle insert.

Function of membrane regulator capsule

The membrane regulator capsule contains a liquid filling the evaporation temperature of which is a few degrees below the saturation temperature of water (condensate). From cold to just below steam temperature the fluid filling in the capsule stays liquid and condensate is discharged.
As condensate temperature approaches steam temperature, the capsule filling begins to evaporate and the increased pressure forces the flexible control membrane inside the capsule onto the single seat, thereby closing the nozzle insert. The control characteristic of the membrane regulator capsule closely follows the saturated steam curve.

Storing and transporting the equipment

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

➢ 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

Risk of extremely severe injury or death due to burns, freezing or intoxication during work on pipes.

➢ Make sure that there is no hot or cold fluid in the equipment or pipes.

➢ Make sure that the equipment pipes are not under pressure.

➢ Make sure that the system is switched off and secured so it cannot be turned on by unauthorised persons.

➢ Make sure that the equipment and pipes are lukewarm.

➢ Wear protective clothing that is suitable for the fluid, and use suitable personal protective equipment if necessary.

Information on suitable protective clothing and PPE can be found in the safety data sheet of the fluid used.

➢ Drain pipes until they are empty.

➢ Switch the installation off and protect it against unauthorised or unintended re-activation.

Connecting the equipment

DANGER

Incorrectly connected equipment can result in accidents with extremely severe injuries or death.

➢ Make sure that only specialist personnel connect the equipment to the pipe.

➢ Make sure that the direction of flow in the pipe matches the flow direction arrow on the equipment.

➢ Make sure that the connected pipe does not subject the body to any stress (forces or torques) during installation and operation.

Specialist personnel must have knowledge and experience of the type of pipe connection used.

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.

To allow easy access for routine servicing and exchanging components observe the indicated withdrawal distances and allow for clearances to adjacent installation parts.

For more information see page 20.

- Make sure that the pipe system of the plant is clean.

The equipment can be installed in any position. If possible, mount the equipment in the pipeline with the cover on top.

- Make sure that the equipment is free from foreign matter.

Attention!

Welding might damage the membrane regulator capsule.

- Remove the membrane regulator capsule before welding.

For more information see chapter *"Removing control unit*" on page 12.

- Install the equipment in the desired, permitted installation position.
- Make sure that the equipment is safely mounted and that all connections are made correctly.

Attention!

Malfunctions may occur if the equipment or condensate line is insulated.

- Make sure that the heat generated by the equipment or the condensate line is dissipated.

- After establishing the end connection mount the membrane regulator capsules.

For more information see chapter *"Mounting the control unit*" on page 13.

Operation

Do not work on the equipment while it is operating.

You can check the equipment for correct operation using the GESTRA ultrasonic measuring unit VAPOPHONE®.

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

After operation

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.

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.

Maintaining the equipment

You require the following tools for working on the equipment:

- Combination spanner size 24
- Hex screwdriver bit size 8
- Torque wrench 20–100 Nm

Before assembling the equipment apply heat resistant lubricant to seating surfaces and threads. Suitable lubricants are for instance:

- OKS 217

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

➢ Undo the four socket-head cap screws of the body.

➢ Lift the cover off the body.

➢ Remove the gasket.

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

Removing control unit

➢ Take the cover off the body as described in section "*Removing cover*" from page 12 onwards.

➢ To remove the control unit unscrew the nozzle insert off the body.

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.

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.

➢ Take out the strainer.

➢ To remove dirt deposits rinse the equipment with fresh water and wipe it with a clean, lint-free cloth.

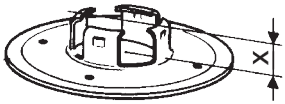
➢ To remove any persistent residues use a cleaning agent that is suitable for the material and carefully wipe the equipment with a clean, lint-free cloth.

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

Cleaning and checking the membrane regulator capsule

➢ Take the membrane regulator capsule off the nozzle insert as described in section "*Exchanging the membrane regulator capsule*" from page 15 onwards.

➢ Use a depth gauge to check the dimension x of the membrane regulator capsule as shown in the following drawing.



The membrane regulator capsule is intact if dimension x exceeds 4.0 mm.

➢ Discard and replace defective membrane regulator capsule with a new one.

Checking the component parts for damage

➢ Check the removed parts for visible signs of wear or damage.

➢ Discard and replace any damaged part.

Mounting the control unit

➢ Clean all component parts before re-assembly.

➢ Apply heat-resistant lubricant to the following components:

- all threads
- the seating surface of the nozzle insert
- the seating surface of the cover

➢ Put the strainer into the body.

➢ To mount the control unit unscrew the nozzle insert into the body.

➢ Tighten the nozzle insert to a torque of 90 Nm.

➢ Attach the cover to the body as described in section "*Mounting cover*" from page 13 onwards.

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.

➢ Clean the gasket surfaces of the cover and body.

➢ Apply heat-resistant lubricant to the threads of the socket-head cap screws and the gasket surface of the cover.

➢ Insert a new gasket in the body.

➢ Put the cover onto the body.

➢ Use the four screws to fix the cover to the body.

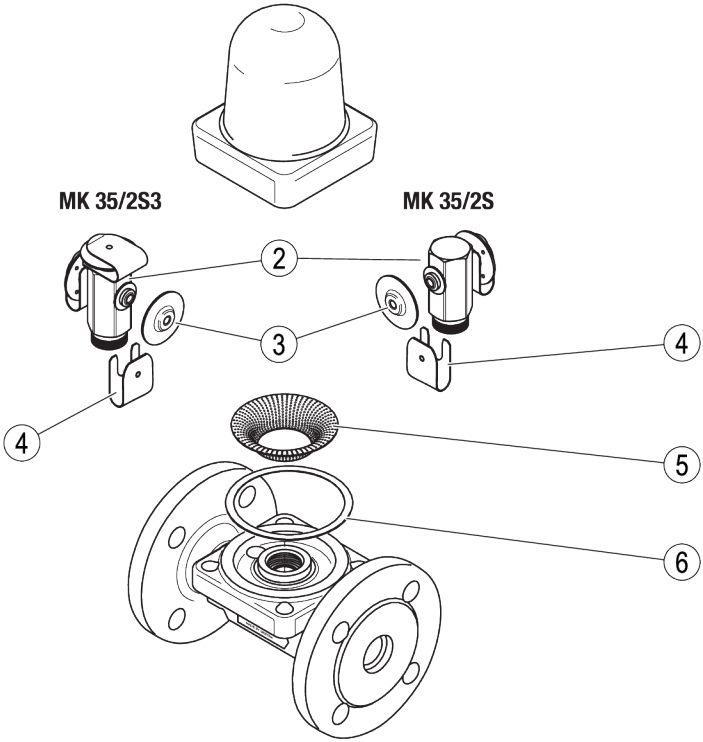
➢ Tighten the screws with a torque of 35 Nm.

Servicing the equipment and installing spare parts

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

- Control unit, complete
- Membrane regulator capsule
- Strainer
- Gasket

Spare Parts



No.	Designation	Stock code	
		MK 35/2S	MK 35/2S3
2, 3, 4, 6	Control unit, complete	451276	451471
3	Membrane regulator capsule 5H2[1]	376174	
5	Strainer with gasket	451470	
6	Gasket[2]	560493	

1 Minimum order quantity 10 items. Please purchase smaller quantities from your specialist retailer.

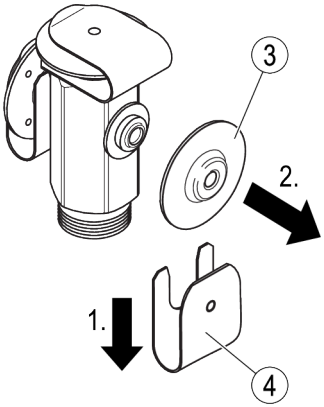
2 Minimum order quantity 20 items. Please purchase smaller quantities from your specialist retailer.

Exchanging the control unit

- Take the cover off the body as described in section "*Removing cover*" from page 12 onwards.
- Remove the control unit as described in section "*Removing control unit*" from page 12 onwards.
- Attach the control unit to the body as described in section "*Mounting the control unit*" from page 13 onwards.
- Attach the cover to the body as described in section "*Mounting cover*" from page 13 onwards.

Exchanging the membrane regulator capsule

- Take the cover off the body as described in section "*Removing cover*" from page 12 onwards.
- Remove the control unit as described in section "*Removing control unit*" from page 12 onwards.
- Pull the retaining clip (4) off the control unit as shown (1.).
- Take the membrane regulator capsule (3) off the control unit as shown (2.).

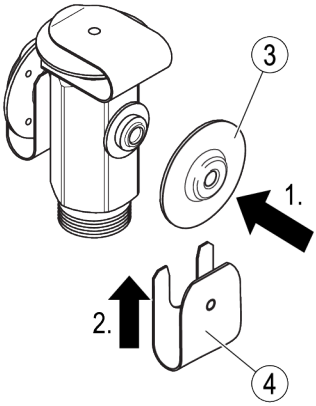


Install the new membrane regulator capsule as follows:

- Press the membrane regulator capsule (3) onto the seat on the nozzle insert until it snaps into place (1.).

Slide the tongues of the retaining clip (4) into the groove underneath the membrane regulator capsule.

- Slide the retaining clip (4) as shown onto the control unit until it snaps into place (2.).



Replacing strainer

- Take the cover off the body as described in section "*Removing cover*" from page 12 onwards.
- Remove the control unit as described in section "*Removing control unit*" from page 12 onwards.
- Lift the strainer off the body.
- Clean gasket seating surfaces.
- Put the new strainer into the body.
- Attach the control unit to the body as described in section "*Mounting the control unit*" from page 13 onwards.
- Attach the cover to the body as described in section "*Mounting cover*" from page 13 onwards.

Troubleshooting

Problem	Cause	Remedy
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.	Steam pressure and condensate flowrate fluctuate considerably. The pressure upstream of the equipment is too low for the used equipment type.	Use equipment with a larger discharge capacity. If necessary, use a pump steam trap or a condensate return unit.
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 has been damaged by waterhammer.	Replace the equipment with a new one. Take appropriate measures to protect the equipment against waterhammer. Use e. g. non-return valves or a pump steam trap.
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.
The flow rate is too low. Loads have insufficient heat capacity. The response time is too slow.	The equipment is too close to the drainage point.	Install the equipment on an incline about 1–2 m away from the drainage point. Do not insulate the equipment or the pipe to the equipment.
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.

Problem	Cause	Remedy
Fluid escapes (equipment is leaking).	The equipment has been damaged by frost.	Replace the equipment with a new one. When shutting down the installation make sure that all lines and the equipment are completely drained.
The equipment is blowing off live steam.	The external bypass is open.	Completely close the external bypass.
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 flow rate is too low. Loads have insufficient heat capacity.	The condensate temperature is higher than the operating temperature of the equipment. The control unit opens with a delay, or not at all.	Do not insulate the equipment or the pipe to the equipment.
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 connections are not tight.	Provide the connections with leakproof seals.
The flow rate is too low.	The strainer is clogged.	Clean the strainer.
The flowrate is too low. The equipment is cold or only lukewarm. Insufficient heat output of consumers.	Contamination in the inflow, outflow or equipment.	Clean the pipe. Clean all inner parts. Replace inner parts or equipment if damaged.
The equipment is losing steam.	The equipment contains dirt, deposits or foreign bodies.	Clean the pipe. Clean all internal parts. Replace damaged internal parts.
The equipment is blowing off live steam.	The control unit is damaged or worn.	Replace the control unit.

➢ 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

Risk of extremely severe injury or death due to burns, freezing or intoxication during work on pipes.

- ➢ Make sure that there is no hot or cold fluid in the equipment or pipes.
- ➢ Make sure that the equipment pipes are not under pressure.
- ➢ Make sure that the system is switched off and secured so it cannot be turned on by unauthorised persons.
- ➢ Make sure that the equipment and pipes are lukewarm.
- ➢ Wear protective clothing that is suitable for the fluid, and use suitable personal protective equipment if necessary.

Information on suitable protective clothing and PPE can be found in the safety data sheet of the fluid used.

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 9.

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.

Returning the equipment

You can return the valve to your contractual partner.

➢ Make sure that all harmful substances are removed from the valve.

➢ Insert the stoppers in the connections.

➢ Observe the instructions in section "Transporting the equipment" from page 10.

➢ Pack the valve in its original packaging or in a suitable transport packaging.

The transport packaging must protect the valve from damage in the same way as the original packaging.

➢ Add the completed and signed decontamination declaration to the valve. The decontamination declaration must be attached to the packaging so that it is accessible from outside.

➢ Register the return delivery with your contractual partner before returning the valve.

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:

Component	EN	ASTM/ASME
Body and cover	1.0460	SA105
Screws	1.7225	SA193 B7
Gasket	Graphite/CrNi	
Membrane regulator capsules	Hastelloy®/ stainless steel	
Other internal parts	Stainless steel	

Technical data

Dimensions and weights

All equipment

		Flange	Screwed socket Socket-weld end
Height	mm	124	
Length	mm	160	95
Width	mm	84	
Cover width	mm	82	
Cover service dimensions	mm	60	
Weight	kg	6.3	3.9

Pressure & temperature ratings

The superheating of the steam at the membrane regulator capsule must not exceed 5 °C.

Flange PN40

p Pressure[1]	barg	40.0	33.3	27.6	25.7	23.8	17.1
T Temperature[1]	°C	–10 — 20	200	300	350	400	420
Δ PMX Max. admissible differential pressure	barg	32					

[1] Ratings for strength of body/cover to EN 1092-1

Flange CL150

p Pressure[1]	barg	19.6	17.7	13.8	10.2	8.4	5.5
T Temperature[1]	°C	–29 — 38	100	200	300	350	425
Δ PMX Max. admissible differential pressure	barg	19.6					
p Pressure[1]	psig	285	260	200	140	110	80
T Temperature[1]	°F	–20 — 100	200	400	600	700	800
Δ PMX Max. admissible differential pressure	psig	284					

[1] Ratings for strength of body/cover to ASME B16.5

Flange CL300

p Pressure[1]	barg	51.1	46.6	43.8	39.8	37.6	28.8
T Temperature[1]	°C	–29 — 38	100	200	300	350	425
Δ PMX Max. admissible differential pressure	barg	32					
p Pressure[1]	psig	740	680	635	570	530	410
T Temperature[1]	°F	–20 — 100	200	400	600	700	800
Δ PMX Max. admissible differential pressure	psig	465					

[1] Ratings for strength of body/cover to ASME B16.5

Declaration of Conformity – Standards and Directives

You can find details on the conformity of the equipment and the applicable standards and directives in the Declaration of Conformity and the relevant certificates.

You can download the latest Declaration of Conformity at www.gestra.com. You can request the relevant certificates by writing to the following address:

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Modifications to the equipment not approved by us will invalidate the Declaration of Conformity and the certificates.

You can find our authorized agents around the world at: **www.gestra.com**

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