

Steam Trap

**MK 25/2**

**MK 25/2S**

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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.

- ▶ MK 25/2
- ▶ MK 25/2S

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 25/2
- ▶ MK 25/2S

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 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.

### 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.

### 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 required protective gear depends on the types of fluid used and the regulations on site. For more information on suitable safety clothing and safety gear refer to the safety data sheet of the fluid in question.

Protective gear comprises the following items:

- ▶ protective helmet
- ▶ work boots
- ▶ industrial leather gloves

## 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

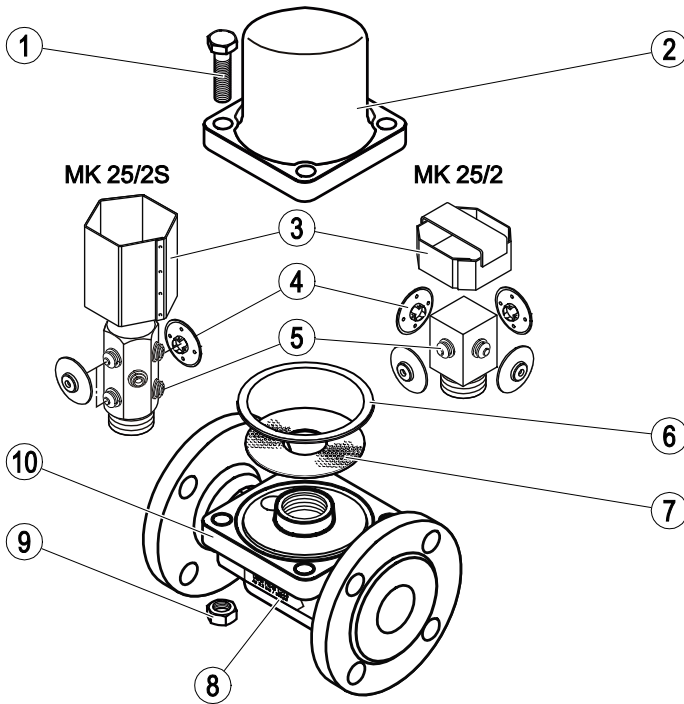
#### Scope of supply

Our equipment is delivered packed and ready for assembly.

#### Equipment specification

The types MK 25/2 and MK 25/2S differ only in their membrane regulator capsules:

- ▶ Equipment of type MK 25/2 has a control unit with four membrane regulator capsule which are laterally attached to the cube shaped nozzle insert.
- ▶ Equipment of type MK 25/2S has a control unit with nine membrane regulator capsule which are laterally attached to the hexagon shaped nozzle insert. Three of the capsules are arranged singly and six in vertical pairs.



No.	Designation
1	Hexagon-head bolt (4)
2	Cover
3	Capsule support
4	Membrane regulator capsule (MK 25/2: 4; MK 25/2S: 9)
5	Nozzle insert

No.	Designation
6	Cover gasket
7	Strainer
8	Name plate (in form of flow direction arrow)
9	Hexagon nut (4)
10	Body

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

### MK 25/2

- ▶ Four membrane regulator capsules with flat seat, suitable for condensate flowrates of up to 2,800 kg/h (at  $\Delta p$  5 bar)

### MK 25/2S

- ▶ Nine membrane regulator capsules with flat seat, suitable for condensate flowrates of up to 5,000 kg/h (at  $\Delta p$  5 bar)

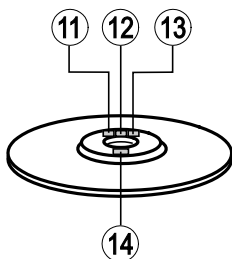


Please refer to the capacity charts in the pertinent data sheet for more information on condensate flowrates.

### 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
11	Code number for type
12	Code letter for opening temperature
13	Code number for capacity
14	Manufacturing code

### Optional extras

The following add-on equipment is available:

- ▶ Ultrasonic test device VAPOPHONE®
- ▶ Ultrasonic detector TRAPTEST® VKP 40

### End connections

The equipment is available with the following end connections:

- ▶ Flanges
- ▶ Socket-weld ends
- ▶ 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
- ▶ Max. admissible differential pressure
- ▶ Direction of flow

The following items are indicated on the equipment body:

- ▶ Material
- ▶ Identification marking of material testing
- ▶ Batch code
- ▶ Manufacturing date (quarter/year)

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

- ▶ Thread type

## 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 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

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

Condensate discharge is controlled by the four or nine 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

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.

### 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.

### 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 22.

- 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.

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### **Attention!**

Welding might damage the membrane regulator capsule.

- Remove the membrane regulator capsule before welding.

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For more information see page 12.

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

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### **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 page 15.

## **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® or TRAPTTEST® VKP 40. For more details refer to the installation & operating manual of the ultrasonic measuring unit.

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## **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.

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### **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.

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## **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

For work on the equipment you will need the following tools:

- Combination spanner A.F. 18, DIN 3113, Form B
- Combination spanner A.F. 38, DIN 3113, Form B
- Torque spanner (US: wrench) 20-140 Nm, DIN ISO 6789

Before assembling the equipment apply heat resistant lubricant to seating surfaces and threads. A suitable lubricant is, for example, 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

- Unscrew the four hexagon-head bolts on the body.
- Lift the cover off the body.
- Remove the gasket.
- For the disposal of the gasket observe the pertinent on-site regulations concerning waste disposal.

## Removing control unit

- Take the cover off the body as described from page 12 onwards.
- Take the capsule support off the nozzle insert.
- To remove the control unit screw 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 from page 15 onwards.
- Detach the membrane regulator capsules from the nozzle insert.
- Use a depth gauge to check the dimension x of the membrane regulator capsule as shown in the following drawing.



The thermostatic 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 screw the nozzle insert into the body.
- Tighten the nozzle insert to a torque of 140 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.

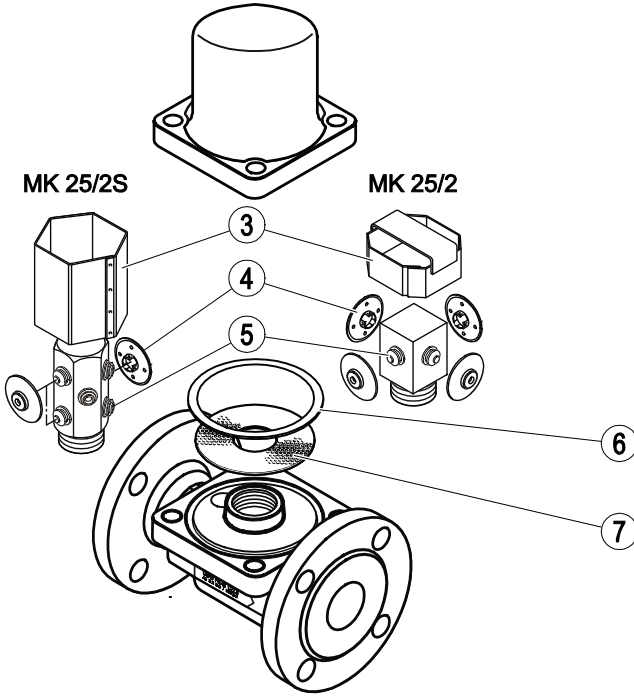
- Clean the gasket surfaces of the cover and body.
- Apply heat-resistant lubricant (OKS 217) to the threads of the hexagon-head bolts and the gasket surface of the cover.
- Insert a new gasket in the body.
- Use the four hexagon-head bolts and the hexagon nuts to fix the cover to the body.
- Tighten the hexagon-head bolts with a torque of 45 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 25/2	MK 25/2S
3, 4, 5, 6	Control unit, complete with gasket	098770	098774
4	Membrane regulating capsule 5H2 <sup>1</sup>	376174	
6, 7	Strainer with gasket	375698	
6	Seal <sup>2</sup>	375699	

1 Minimum purchasing quantity 10 pcs. Contact your local dealer for smaller quantities.

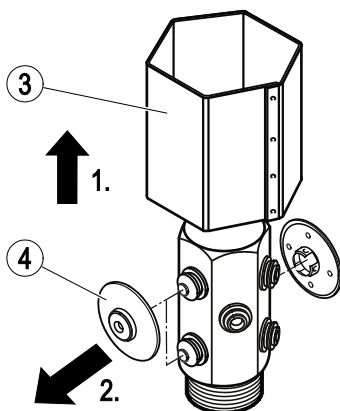
2 Minimum purchasing quantity 20 pcs. Contact your local dealer for smaller quantities.

### Exchanging the control unit

- Take the cover off the body as described from page 12 onwards.
- Bauen Sie die Regelgarnitur aus, wie ab Seite 12 beschrieben.
- 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

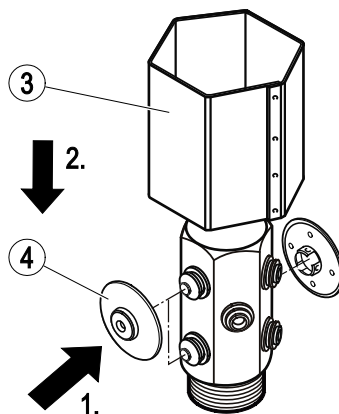
- Take the cover off the body as described from page 12 onwards.
- Bauen Sie die Regelgarnitur aus, wie ab Seite 12 beschrieben.
- Take the capsule support (3) off the nozzle insert (1.).
- Take the membrane regulator capsule (4) off the nozzle insert as shown (2.).
- Remove the remaining regulator capsules in the same way.



Install the new membrane regulator capsule as follows:

- Press the membrane regulator capsule (4) onto the seat on the nozzle insert until it snaps into place (1.).

- Attach the remaining regulator capsules in the same way.
- Push the capsule support (3) as shown onto the nozzle insert (2.).



- 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.

## **Replacing strainer**

- Take the cover off the body as described from page 12 onwards.
- Bauen Sie die Regelgarnitur aus, wie ab Seite 12 beschrieben.
- 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

<b>Problem</b>	<b>Cause</b>	<b>Remedy</b>
The steam trap is cold or only hand-hot.	The shut-off valves for condensate inlet or outlet are closed.	Open the shut-off valves.
	The condensate inlet or outlet is dirt clogged.	Clean the pipes. Clean the equipment.
The steam trap is blowing off live steam.	The membrane regulator capsule and the nozzle insert are dirty. There are dirt deposits in the equipment.	Clean the membrane regulator capsule and the nozzle insert. Clean the strainer and the equipment. Replace the membrane regulator capsule and the nozzle insert.
	The membrane regulator capsule and the nozzle insert are worn out. The seat is leaking.	Replace the membrane regulator capsule and the nozzle insert.
	The bypass is open.	Close the bypass.
Insufficient condensate discharge. Insufficient thermal output of the user.	The shut-off valves for condensate inlet or outlet are closed.	Open the shut-off valves.
	The condensate inlet or outlet is dirt clogged.	Clean the pipes. Clean the equipment. Replace the membrane regulator capsule and the nozzle insert.
	Steam pressure and condensate flowrate fluctuate considerably. The pressure upstream of the steam trap is too low for the used trap type.	Use a different steam trap type. Contact the manufacturer to find out which trap type is the most suitable for your application.
	The steam trap is undersized.	Use a steam trap with a larger condensate discharge capacity.
	The differential pressure is too small.	Increase the steam pressure. Lower the pressure in the condensate line. Check the size of the condensate line. Install a steam trap with a larger condensate discharge capacity, a pump steam trap or a condensate return unit.

<b>Problem</b>	<b>Cause</b>	<b>Remedy</b>
	The distance between the drain point and the steam trap is too small.	Install the uninsulated steam trap approx. 1 - 2 m away from the drain point.  Do not insulate the condensate line and lay it with a gradient so that the condensate is free to fall towards the steam trap.
	The condensate line does not have a slight fall from the drain point towards the steam trap.  The condensate is lifted upstream of the steam trap.	Lay the condensate line with a gradient so that the condensate is free to fall towards the steam trap.  Change the orientation of the condensate line.
	The condensate temperature is higher than the service temperature of the steam trap. The regulator does not open or only with a time delay.	If the steam trap or the condensate line is insulated remove the insulation.  Use a different steam trap type.
	Insufficient deaeration.	Provide additional deaeration.  Use a different steam trap type.  Contact the manufacturer to find out which trap type is the most suitable for your application.
	Fluid escapes (equipment is leaking).	Seal off the end connections (e. g. flanged or screwed ends).
	A gasket on the body is defective.	Replace the gasket with a new one.
	The body has been damaged by corrosion or erosion.	Check the resistance of the body material for the fluid used.  Use a steam trap made from a material that is suitable for the fluid used.
	The equipment has been damaged by frost.	Replace the equipment with a new one.  When shutting down the installation make sure that the condensate lines and the steam trap are completely drained.
	The equipment has been damaged by waterhammer.	Replace the equipment with a new one.  Take appropriate measures to protect the equipment against waterhammer, e. g. by installing suitable non-return valves.

- 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

#### ***Attention!***

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

Danger of bruising 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.

## Disposing of the equipment

### **Attention!**

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 number	ASTM
Body	1.0460 (P250GH)	A105
Cover MK 25/2	1.0460 (P250GH)	A105
Cover MK 25/2S	1.0619 (GP240GH)	A216 WCB
Bolts	1.7225 (42CrMo4)	A193 B7
Gasket	Graphite	
Membrane regulator capsule	Hastelloy® Stainless steel	
Other internals	Stainless steel	

## Technical data

### Dimensions and weights

	Flanged		Screwed sockets, socket-weld ends		Butt-weld ends	
	40 (1½ inch)	50 (2 inch)	40 (1½ inch)	50 (2 inch)	40 (1½ inch)	50 (2 inch)
<b>DN</b>						
<b>Length [mm]</b>	230		130	210	250	240
<b>Height <sup>1</sup> MK 25/2 [mm]</b>	124					
<b>Height <sup>1</sup> MK 25/2S [mm]</b>	146					
<b>Width [mm]</b>	115					
<b>Width of cover [mm]</b>	115					
<b>Weight MK 25/2 [kg]</b>	11.0	12.5	6.3	7.7	6.8	7.5
<b>Weight MK 25/2S [kg]</b>	11.5	13.0	6.8	8.5	7.3	8.0

<sup>1</sup> Distance between centre of pipe and top side of cover

Withdrawal distance [mm]	MK 25/2		MK 25/2S	
		70		100

### Pressure & temperature ratings

Max. differential pressure  $\Delta$  PMX: 32 bar

#### Pressure & temperature rating PN40

Pressure p <sup>1</sup> [bar]	40.0	33.3	27.6	23.8	13.1
Temperature T <sup>1</sup> [°C]	-10/20	200	300	400	450

<sup>1</sup> Limit values for strength of body/cover to EN 1092-1

#### Pressure & temperature rating CLASS 150

Pressure p <sup>1</sup> [bar]	19.6	13.8	10.2	6.5	5.5
Temperature T <sup>1</sup> [°C]	-29/38	200	300	400	425

<sup>1</sup> Limit values for strength of body/cover to ASME B 16.5

#### Pressure & temperature rating CLASS 300

Pressure p <sup>1</sup> [bar]	51.1	43.8	39.8	34.7	28.8
Temperature T <sup>1</sup> [°C]	-29/38	200	300	400	425

<sup>1</sup> Limit values for strength of body/cover to ASME B 16.5

## **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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