GESTRA Steam Systems

UNA 25-PK
UNA 25-PS

EN
English

Installation Instructions 818979-01

Pump Trap
UNA 25-PK

Condensate Lifter
UNA 25-PS

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Important Notes

Usage for the intended purpose

UNA 25-PK, UNA 25-PS
Use steam traps only for discharging condensate from steam lines. Use the equipment only for the discharge and return of condensate from steam lines within the specified pressure and temperature ratings and check the corrosion resistance and chemical suitability for the application in question.

Safety note

Installation, commissioning, retrofitting and maintenance work must only be performed by qualified staff who – through adequate training – have achieved a recognised level of competence.

Danger

The equipment is under pressure and hot during operation. Risk of severe burns and injuries to the whole body.

Installation and maintenance work should only be carried out when the system is depressurized (0 bar) and cold (20 °C).

The equipment must be isolated and vented from both upstream and downstream pressure before installation or maintenance work is performed.

Sharp edges on internals present a danger of cuts to hands.
Always wear industrial gloves when servicing the equipment.

Attention – great risk of scalding or burning!

Note that even if the connections for the motive steam supply and the vent valve are shut-off, steam, hot or corrosive fluids will escape when the control unit is actuated or removed.

Attention

The name plate specifies the technical features of the equipment.
Do not commission or operate any item of equipment that does not bear its specific name plate. The pressure and temperature ratings on the name plate of the equipment must meet the requirementes of the installation.

PED (Pressure Equipment Directive)

The equipment fulfills the requirements of the Pressure Equipment Directive PED 97/23/EC.
For use with fluids of group 2.
With CE marking (apart from equipment that is excluded from the scope of the PED as specified in section 3.3).

ATEX (Atmosphère Explosible)

The equipment does not have ist own potential source of ignition and is therefore not subject to the ATEX Directive 94/9/EC.
Applicable in Ex zones (surrounding atmosphere) 0, 1, 2, 20, 21, 22 (1999/92/EC). The equipment is not Ex marked.

Explanatory Notes

Scope of supply

UNA 25-PK
1 Pump trap UNA 25-PK
1 Hand vent valve with gasket, supplied but not fitted (optional extra)
1 Float-lifting lever (optional extra)
1 Installation manual

UNA 25-PS
1 Condensate lifter UNA 25-PS
1 Hand vent valve with gasket, supplied but not fitted (optional extra)
1 Float-lifting lever (optional extra)
1 Installation manual

Description

UNA 25-PK
Ball-float operated steam trap with pumping function. The unit works primarily as steam trap. This motive-steam powered pump trap lifts and discharges condensate, even if steam pressure is low or backpressures is high.

The control mechanism consists of a control unit with ball float and rolling ball valve, an orifice, a changeover linkage and a valve block for controlling the motive steam inlet and the vent outlet. The equipment features integrated inlet and outlet check valves, a connection for motive steam and a connection for the vent valve.

UNA 25-PS
Float-operated condensate lifter,designed for effective return of condensate.
Steam is used as motive power for the operating cycle that displaces condensate out of the trap body.

The control mechanism consists of a control unit with ball float, a changeover linkage and a valve block for controlling the motive steam inlet and the vent outlet. The equipment features integrated inlet and outlet check valves, a connection for motive steam and a connection for the vent valve.

Explanatory Notes – continued –

Function

UNA 25-PK
The condensate flows through the integrated check valve into the trap body. The float operates the rolling ball valve as a function of the condensate level inside the trap body, thereby opening or closing the orifice. If the differential pressure is sufficiently high, the condensate will be discharged through the orifice and the check valve. The equipment works as a normal steam trap.

If, however, the differential pressure is not sufficiently high, the condensate level inside the trap body will continue to rise. When the float reaches its upper tripping point, it will switch the valve block. In this valve block the vent valve will be closed and the motive steam valve opened. The pressure now supplied by the motive steam forces the condensate out of the trap body. When the lower tripping point is reached, the position of the float will cause the valve block to open the vent valve and close the motive steam valve. Condensate flows again through the check valve into the trap body, and a new discharge cycle begins for the pump trap. During the pumping process condensate collects in the supply line of the pump trap.

UNA 25-PS
The condensate flows through the integrated check valve into the trap body. When the float reaches its upper tripping point, it will switch the valve block. In this valve block the vent valve will be closed and the motive steam valve opened. The pressure now supplied by the motive steam forces the condensate out of the trap body. When the lower tripping point is reached, the position of the float will cause the valve block to open the vent valve and close the motive steam valve. Condensate flows again through the check valve into the trap body, and a new discharge cycle begins for the condensate lifter. During the pumping process condensate collects in the supply line of the condensate lifter.

Design

UNA 25-PK, UNA 25-PS:
For installation in horizontal pipes

Technical Data

Corrosion resistance

If the equipment is used for the intended purpose, its safety is not impaired by corrosion.

Sizing

The dimensional allowances and anti-corrosive additives reflect the latest state of the technical art.

Name plate / marking

The temperature/pressure ratings are indicated on the trap body or on the name plate.
For more information see GESTRA technical documents such as data sheets and the Technical Information.

The name plate or the trap body indicate the type and design:

- Name/logo of the manufacturer
- Type designation
- Pressure class PN or Class
- Material number
- Max. temperature
- Max. pressure
- Direction of flow
- Stamp on trap body / name plate, e. g. $\frac{4}{09}$ specifies the quarter and the year of production (example: 4. th quarter 2009)

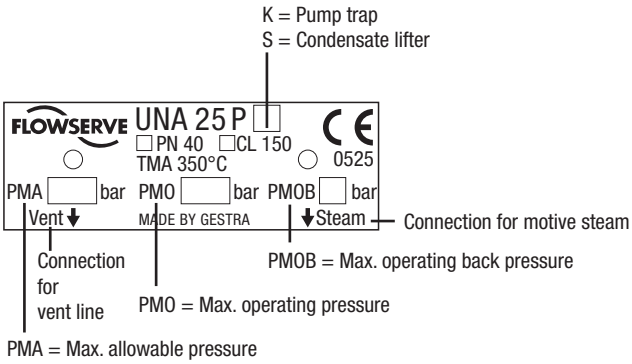

Fig. 1

Component Parts

Component parts UNA 25-PK

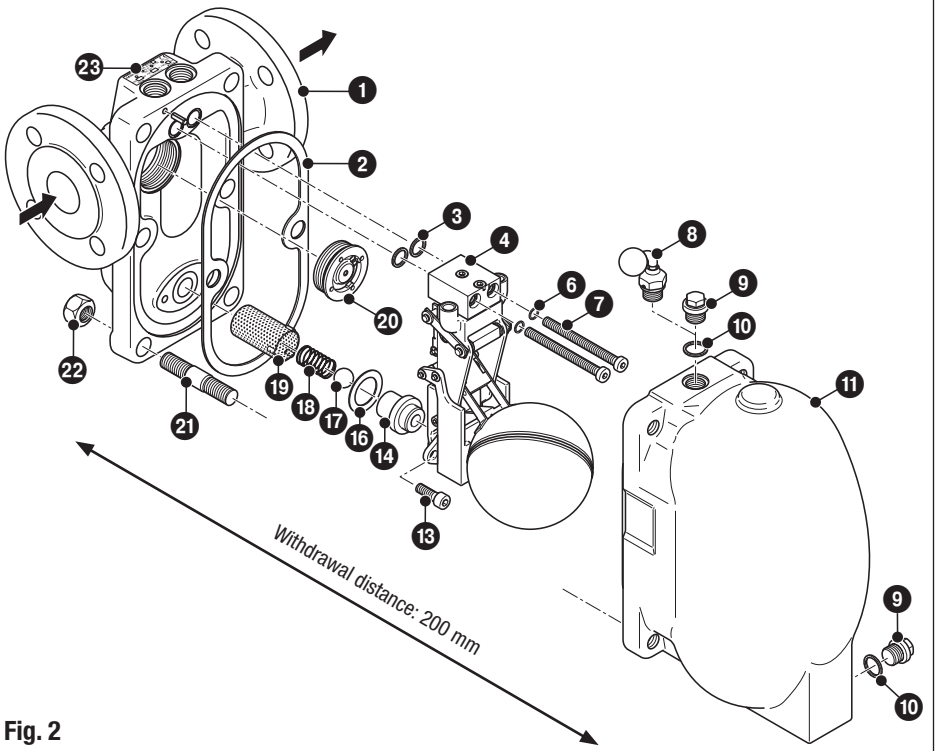

Fig. 2

Component parts UNA 25-PS

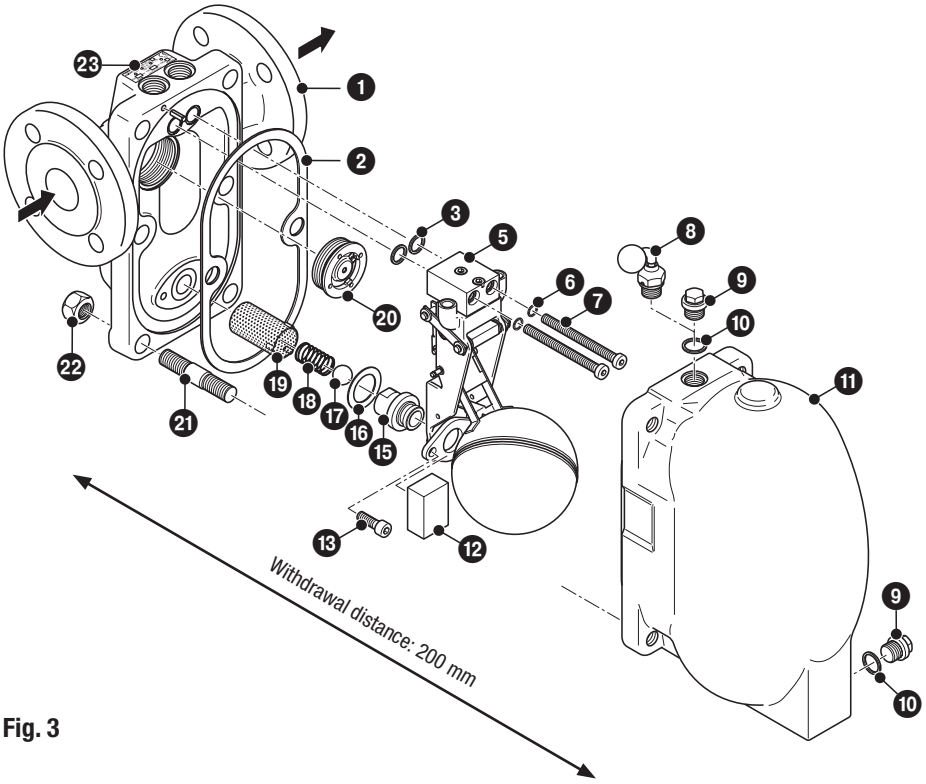

Fig. 3

Component Parts – continued –

Key

1. Body
2. Body gasket (graphite/CrNi)
3. Gasket
4. Control unit UNA 25-PK
5. Control unit UNA 25-PS
6. Gasket
7. Socket-head cap screw
8. Hand vent valve
9. Sealing plug
10. Gasket
11. Cover
12. Deflection block
13. Socket-head cap screw
14. Seat (orifice)
15. Seat (condensate lifter)
16. Seat gasket
17. Ball (outlet check valve)
18. Spring (outlet check valve)
19. Wear protection
20. Inlet check valve
21. Stud bolt
22. Hexagon nut
23. Name plate

Installation

Danger

The equipment is under pressure and hot during operation. Risk of severe burns and injuries to the whole body.

Installation and maintenance work should only be carried out when the system is depressurized (0 bar) and cold (20 °C).

The equipment must be isolated and vented from both upstream and downstream pressure before installation or maintenance work is performed.

Sharp edges on internals present a danger of cuts to hands.
Always wear industrial gloves when servicing the equipment.

Attention – great risk of scalding or burning!

Note that even if the connections for the motive steam supply and the vent valve are shut-off, steam, hot or corrosive fluids will escape when the control unit is actuated or removed.

UNA 25-PK, UNA 25-PS

The equipment **must** be installed in horizontal pipes!

Installation instructions

1. The flow arrow on the trap body must match the steam flow direction.
2. Consider space required for opening or servicing the valve. When the trap is installed a minimum withdrawal space for servicing is required for removing trap parts (see **Design, Component Parts UNA 25-PS, UNA 25-PK**).
3. Remove plastic plugs. They are only used as transit protection.
4. Clean end connections.

5.1 Install steam trap with releasable end connections (e.g. flanges).

5.2 For equipment with socket-weld ends or butt-weld ends: Apply arc welding processes 111 and 141 according to ISO 4063 (or equivalent standard).

Hand vent valve (optional extra)

1. Remove sealing plug ❾.
2. Insert gasket ❿ and mount hand-vent valve ❽.
   For tightening torques see table **Torques required for tightening**.
3. Close hand vent valve.

Installation – continued –

Key

㉔ Pressure gauge

㉕ Thermostatic steam trap, e. g. MK for deaeration.
(Alternatively mounted to vent hole ❾ (⅜") of UNA 25-xx)

㉖ Check valve (optional), prevents air from entering the equipment if there is a vacuum.

㉗ Motive steam, drained, DN 15 (½").

㉘ UNA 25-PK, UNA 25-PS

㉙ Heat exchanger

㉚ Vent line, DN 15 (½")

㉛ Pressure-reducing valve

Float-lifting lever (optional extra)

1. Remove sealing plug ❾.
2. Insert gasket ❿ and mount float-lifting lever. Attach lever extension and hold it in a vertical position. For tightening torques see table **Torques required for tightening**.

Connections for motive steam and vent line

1. Remove plastic plugs.
2. Install motive steam and vent lines without water pockets and connect them with a ½" screwed union to the trap. Min. cross section DN 15 (½").

Tools

- Combination spanner (US: wrench) A. F. 22, DIN 3113, form B
- Torque spanner (US: torque wrench) 20 – 120 Nm, DIN ISO 6789

Connections for motive steam and vent line

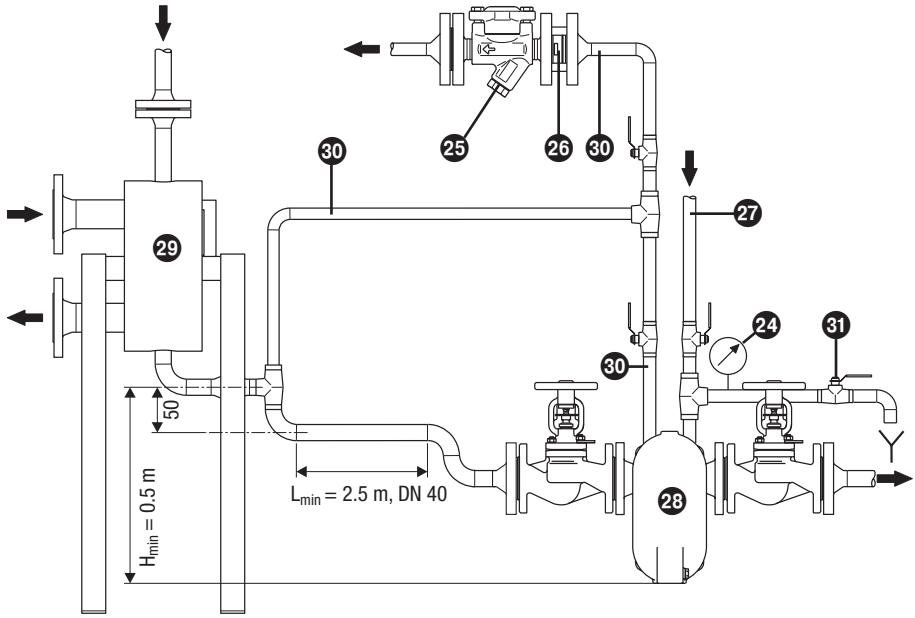

Fig. 4

Connection of UNA 25-PK to a heat exchanger

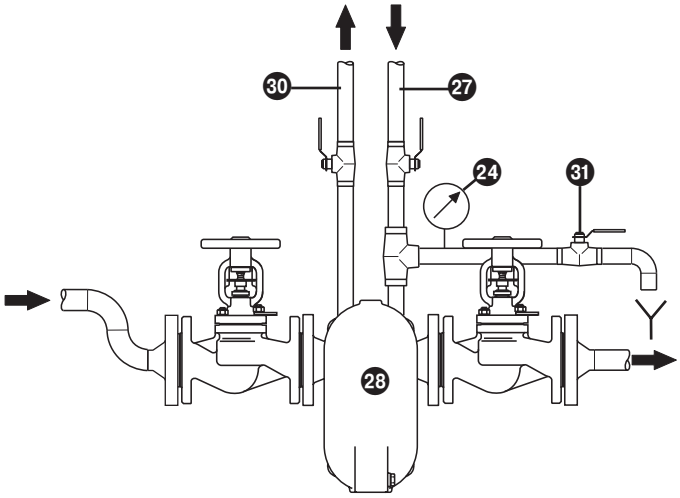

Fig. 5

Connection of UNA 25-PS (deaeration to atmosphere)

Commissioning Procedure

UNA 25-PK, UNA 25-PS

Make sure that all flanged connections, the hand vent valve and the float-lifting lever of the the UNA... are firmly attached and leakproof.

If used in new installations which have not been rinsed check and – if necessary – clean the equipment after the commissioning procedure.

Operation

Danger

The equipment is under pressure and hot during operation. Risk of severe burns and injuries to the whole body.

Installation and maintenance work should only be carried out when the system is depressurized (0 bar) and cold (20 °C).

The equipment must be isolated and vented from both upstream and downstream pressure before installation or maintenance work is performed.

Sharp edges on internals present a danger of cuts to hands.
Always wear industrial gloves when servicing the equipment.

Attention – great risk of scalding or burning!

Note that even if the connections for the motive steam supply and the vent valve are shut-off, steam, hot or corrosive fluids will escape when the control unit is actuated or removed.

Hand vent valve

1. Open hand vent valve ❽ if necessary.
2. Close hand vent valve tightly after deaeration.

Float-lifting lever

1. Attach the lever extension to the float-lifting lever.
2. Operate float-lifting lever in the direction of the arrow indicated on the cover ⓫.
3. Operate float-lifting lever in the opposite direction of the arrow to close the trap and detach the lever extension.

Maintenance

Periodic testing and maintenance of the trap is recommended to ensure proper functioning. Continuous monitoring is recommended for critical applications.

Danger

The equipment is under pressure and hot during operation. Risk of severe burns and injuries to the whole body.

Installation and maintenance work should only be carried out when the system is depressurized (0 bar) and cold (20 °C).

The equipment must be isolated and vented from both upstream and downstream pressure before installation or maintenance work is performed.

Sharp edges on internals present a danger of cuts to hands.
Always wear industrial gloves when servicing the equipment.

Attention – great risk of scalding or burning!

Note that even if the connections for the motive steam supply and the vent valve are shut-off, steam, hot or corrosive fluids will escape when the control unit is actuated or removed.

Cleaning/ replacing control unit

1. Before servicing the equipment observe the danger note!
2. Open the pressure-reducing valve in the motive steam line and make sure that this line is depressurised.
3. Unscrew hexagon nuts ㉒ and remove cover ⑪ from body ❶.
4. Unscrew socket-head cap screws ❼ and ⑬, detach control unit ❹ / ❺, orifice ⑭ /seat ⑮ and remove non-return ball ⑰ and spring ⑱.
5. Exchange control unit, orifice/seat, ball and spring in case of visible signs of wear or damage.
6. Clean body and internals. Clean all gasket surfaces.
7. Apply heat-resistant lubricant to all threads and seating surfaces of screws, nuts and bolts (OKS® 217 or equivalent).
8. Mount spring ⑱ and ball ⑰, orifice ⑭ /seat ⑮, new gaskets ❸ and ❻ and new seat gasket ⑯, put control unit in place and tighten socket-head cap screws ❼ and ⑬ evenly in diagonally opposite pairs. For tightening torques see table **Torques required for tightening.**
9. Insert new body gasket ❷.
10. Put cover onto body. Tighten hexagon nuts ㉒ evenly in diagonally opposite pairs. For tightening torques see table **Torques required for tightening.**

Maintenance – continued –

Replacing inlet check valve

1. Before servicing the equipment observe the danger note!
2. Open the pressure-reducing valve in the motive steam line and make sure that this line is depressurised.
3. Unscrew hexagon nuts ㉒ and remove cover ❶ from body ⓫.
4. Unscrew socket-head cap screws ❼ and ⓭, detach control unit ❹ / ❺, orifice ⓮ /seat ⓯ and remove non-return ball ⓱ and spring ⓲.
5. Use pin-type face spanner (US: wrench) to unscrew the check valve ⓴.
6. Clean body and internals. Clean all gasket surfaces.
7. Apply heat-resistant lubricant to all threads and seating surfaces of screws, nuts and bolts (OKS® 217 or equivalent).
8. Use pin-type face spanner (US: wrench) to screw in and tighten the new check valve ⓴. Tightening torques see table **Torques required for tightening**.
9. Mount spring ⓲ and ball ⓱, orifice ⓮ / seat ⓯, new gaskets ❸ and ❻ and new seat gasket ⓰, put control unit in place and tighten socket-head cap screws ❼ and ⓭ evenly in diagonally opposite pairs. For tightening torques see table **Torques required for tightening.**
10. Insert new body gasket ❷.
11. Put cover onto body. Tighten hexagon nuts ㉒ evenly in diagonally opposite pairs. For tightening torques see table **Torques required for tightening.**

Replacing outlet check valve

1. Before servicing the equipment observe the danger note!
2. Open the pressure-reducing valve in the motive steam line and make sure that this line is depressurised.
3. Unscrew hexagon nuts ㉒ and remove cover ⓫ from body ❶ .
4. Unscrew socket-head cap screws ❼ and ⓭, detach control unit ❹ / ❺, orifice ⓮ /seat ⓯ and remove non-return ball ⓱ and spring ⓲.
5. Exchange control unit, orifice/seat, ball in case of visible signs of wear or damage.
6. Clean body and internals. Clean all gasket surfaces.
7. Apply heat-resistant lubricant to all threads and seating surfaces of screws, nuts and bolts (OKS® 217 or equivalent).
8. Mount new spring ⓲ and ball ⓱, orifice ⓮ /seat ⓯, new gaskets ❸ and ❻ and new seat gasket ⓰, put control unit in place and tighten socket-head cap screws ❼ and ⓭ evenly in diagonally opposite pairs. For tightening torques see table **Torques required for tightening.**
9. Insert new body gasket ❷.
10. Put cover onto body. Tighten hexagon nuts ㉒ evenly in diagonally opposite pairs. For tightening torques see table **Torques required for tightening.**

Maintenance – continued –

Tools

- Combination spanner (US: wrench) A. F. 17, 19, 22, 24, DIN 3113, form B
- Torque spanner (US: torque wrench) 10 – 60 Nm, 60–120 Nm, 120 – 300 Nm, DIN ISO 6789
- Key for hexagon socket screws A. F. 5, 6, 10, DIN ISO 2936
- Screwdriver (5.5/125), DIN 5265
- Adjustable offset pin-type face spanner (US: wrench), pin ∅ 4 mm

Tightening torques

Designation		Tightening torque [Nm]	
Item		UNA 25-PK	UNA 25-PS
Socket-head cap screw (orifice)	13	10 [1])	10 [1])
Socket-head cap screw	7	25	25
Hexagon nut	22	115	115
Hand vent valve	8	75	75
Sealing plug	9	75	75
Inlet check valve	20	55	55
Seat	15		75

Troubleshooting

Fault	Cause	Remedy
Banking-up of condensate. Capacity too small or not sufficient.	No motive steam supply or motive steam line connected incorrectly or shut-off.	Connect motive steam supply correctly, open valves.
	Motive steam too low or too high.	Increase motive steam pressure within admissible limits.
	Motive steam valve not tight / high leak rate.	Exchange control unit.
	Inlet check valve not tight / high leak rate.	Maintain / exchange inlet check valve.
	Motive steam or vent valve / seat damaged or worn	Exchange control unit.
	Isolating valve downstream of the equipment is closed.	Open isolating valve.
	Condensate flowrate exceeds the max. capacity of the equipment.	Use equipment with larger capacity.
		Use a second device in addition.
Motive steam supply is not switched off.	Motive steam or vent valve / seat damaged or worn	Exchange control unit.
Condensate or air flows back into the equipment.	Outlet check valve not tight / high leak rate.	Maintain / exchange outlet check valve.
Condensate does not flow into the equipment.	Inlet check valve defective or blocked.	Maintain / exchange inlet check valve.
	Isolating valve upstream of the equipment is closed.	Open isolating valve.
	Isolating valve in the deaeration line is closed.	Open isolating valve.
	Pressure in the deaeration line is too high.	Change connection of deaeration line (see connection of motive steam and deaeration line).
Equipment untight, fluid escapes.	Body gasket not tight.	Tighten body screws with specified torque, see table "Tightening torques".
	Body gasket damaged or worn.	Exchange body gasket.
Banking-up of condensate, or equipment works as pump although the differential pressure is sufficiently high (only UNA 25-PK).	Capacity of the equipment for steam trapping not sufficient.	Use equipment with larger capacity.
		Use a second device.
	Control unit defective or worn.	Exchange control unit.

Decommissioning

Danger

The equipment is under pressure and hot during operation. Risk of severe burns and injuries to the whole body.

Installation and maintenance work should only be carried out when the system is depressurized (0 bar) and cold (20 °C).

The equipment must be isolated and vented from both upstream and downstream pressure before installation or maintenance work is performed.

Sharp edges on internals present a danger of cuts to hands.
Always wear industrial gloves when servicing the equipment.

Attention – great risk of scalding or burning!

Note that even if the connections for the motive steam supply and the vent valve are shut-off, steam, hot or corrosive fluids will escape when the control unit is actuated or removed.

Disposal

For the disposal of the equipment observe the pertinent legal regulations concerning waste disposal.

Annex

Note on the Declaration of Conformity / Declaration by the Manufacturer

For details on the conformity assessment according to the European Directives see our Declaration of Conformity or our Declaration of Manufacturer.

The current Declaration of Conformity / Declaration of Manufacturer are available in the Internet under www.gestra./de/documents or can be requested from us.

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