GESTRA Steam Systems

UNA 38
UNA 39

EN
English

Installation Instructions 818603-01

Steam Traps
UNA 38, UNA 39

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Important Notes

Usage for the intended purpose

UNA 38, UNA 39:
Use the steam traps only for the discharge of condensed steam and liquids. Use the equipment for the discharge of condensed steam and other condensable gases in pipes only within the specified pressure and temperature ratings, and check the corrosion resistance and chemical suitability for the application in question.

Safety note

The equipment must only be installed and commissioned by qualified staff.
Maintenance and service work must only be performed by adequately trained persons who have a recognized level of competence.

Danger

The steam trap is under pressure during operation.
When loosening flanged connections, sealing plugs or the control unit, it is possible that hot water, steam, corrosive liquids or toxic gases may escape.
This presents the danger of severe burns and scalds to the whole body or severe cases of poisoning by toxic gases.
Installation and maintenance work should only be carried out when the system is depressurized.
Isolate the trap from both upstream and downstream pressure.
The steam trap becomes hot during operation.
This presents the risk of severe burns to the whole body.
Before performing maintenance work on the valve or flanged connections or undoing the gland packing screws or sealing plugs, ensure that all the connected pipes are pressureless (0 bar) and have cooled down to room temperature (20 °C).

Attention

The name plate indicates the technical specification of the equipment.
Do not commission or operate a steam trap without a name plate.

PED (Pressure Equipment Directive)

The equipment fulfils the requirements of the Pressure Equipment Directive PED 97/23/EC.
UNA 38 and UNA 39 are intended for applications with fluids of group 1 and 2.
With CE marking (apart from equipment according to section 3.3).

ATEX (Atmosphère Explosible)

The equipment does not have its own potential source of ignition and is therefore not subject to the ATEX Directive 94/9/EC. The equipment can be used in potentially explosive areas 0, 1, 2, 20, 21, 22 (1999/92/EC).
The equipment is not Ex marked.

Explanatory Notes

Scope of supply

UNA 38 with DUPLEX control unit

1 Float trap UNA 38
1 Installation manual

UNA 39 with DUPLEX control unit

1 Foat trap UNA 39
1 Installation manual

Retrofit set for UNA 38, UNA 39

1 Control unit as per specification
1 Installation manual

Spare parts

1 Set according to spare parts list on page 18.

UNA 38 with SIMPLEX control unit

1 Float trap UNA 38
1 Hand vent valve with gasket, installed
1 Float lifting lever with gasket, installed (optional)
1 Installation manual

UNA 39 with SIMPLEX control unit

1 Float trap UNA 39
1 Hand vent valve with gasket, installed
1 Float lifting lever with gasket, installed (optional)
1 Installation manual

Description

UNA 3... are high-pressure steam traps with ball float and needle closing mechanism. The steam traps work independently of back pressure, thus ensuring universal application.

The steam trap UNA 3… features a body with bolted cover and a control unit. Various control units are available.

Level-dependent SIMPLEX control is particularly suitable for cold condensate and superheated steam. Temperature-dependent DUPLEX control offers automatic deaeration by means of a bimetallic air vent for saturated and superheated steam systems.

The orifice type O 80 MAX (UNA 38) is a control unit for large flowrates and high pressures, and can be supplied as a SIMPLEX or DUPLEX version.

The orifice type O 140 MAX (UNA 39) is a SIMPLEX control unit for large flowrates and high pressures.

Function

UNA 38, UNA 39:

The ball valve of the control unit is operated by the float as a function of the condensate level in the trap. The cross-sectional area (CSA) of the orifice (O) dictates the maximum flowrate when the valve is completely open. The maximum admissible differential pressure of the control unit is a function of the CSA of the orifice, the density of the fluid to be discharged, and the pressure/temperature ratings of the body. Different closing units (orifices) are available.

Float traps equipped with DUPLEX control units enable automatic temperature-dependent deaeration of saturated steam systems during start-up and in continuous operation.

Explanatory Notes – continued –

Function – continued –

UNA 38 control unit O 80 MAX and UNA 39 control unit O 140 MAX:

The float ball controls a pilot valve depending on the level of condensate in the trap body. If more condensate flows through the pilot valve out of the control chamber than follows through a balance opening, the pressure in the control chamber drops and the bellows of the control chamber is compressed. The main valve then opens and the condensate is discharged.

The flowing condensate moves the float ball upwards and the pilot valve closes. By means of the vent hole, the pressure between the control chamber and the interior of the steam trap is evened out, so that the main valve closes.

The cross-sectional areas of the pilot and main valves are chosen so that only one orifice (O) is needed for the entire range of differential pressures up to 80 bar (or 140 bar).

Technical Data

UNA 38, UNA 39

Orifices (O)			
Type	**ΔPMX [bar] [1] [2]**	**UNA 38**	**UNA 39**
O 50	50	X	
O 64	64	X	
O 80	80	X	X
O 80 MAX	80	X	
O 110	110		X
O 140	140		X
O 140 MAX	140		X

[1] Observe the pressure/temperature ratings!
[2] **Inlet** pressure minus **outlet** pressure.

Pressure/temperature ratings

For the pressure and temperature ratings, see the designation on the body or the data given on the name plate.

Corrosion resistance

When used for its intended purpose, the safe functioning of the steam trap will not be impaired by corrosion.

Sizing

The trap body must not be subjected to sharp increases in pressure. The sizing and dimensional allowances for corrosion reflect the latest state of technology.

Name plate / marking

For the pressure and temperature ratings, see the designation on the trap body or the data given on the name plate. Further details are given in various GESTRA publications, such as datasheets and technical information.

In accordance with EN 19, the following type and design data are indicated on the name plate or body:

- Manufacturer
- Type designation
- Pressure class PN or Class
- Material number
- Maximum temperature
- Maximum pressure
- Direction of flow
- Stamp on the body / name plate, e.g. $\frac{3}{05}$ specifies the manufacturing quarter and year (in this case the 3rd quarter of 2005).
- Type designation — UNA 38 h: design for horizontal lines; UNA 38 v: design for vertical lines; UNA 39: angle type
- SIMPLEX or DUPLEX: — type of control unit (see **Description**)
- ΔPMX (Δp max): — max. admissible differential pressure [bar], corresponding to the ordered "0..." (orifice).

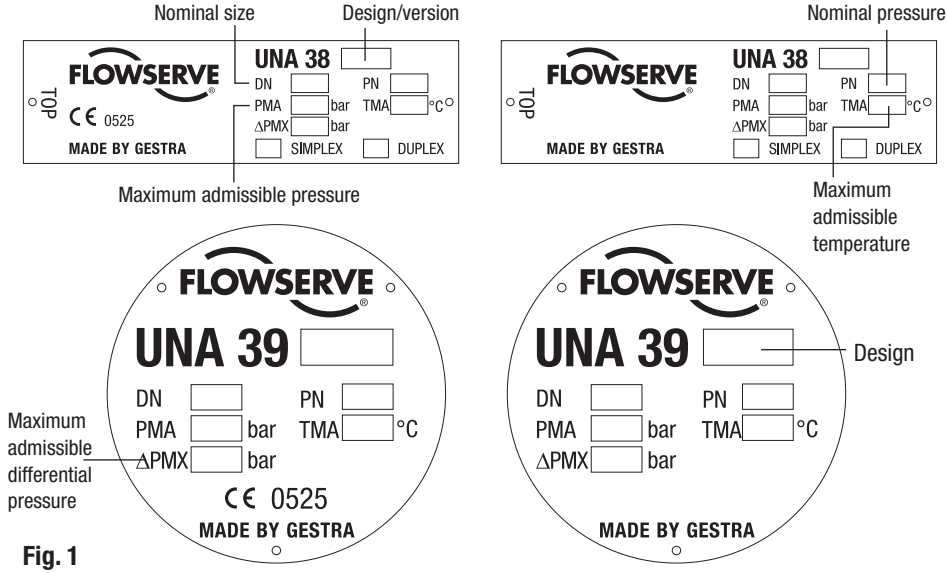

Fig. 1

UNA 38

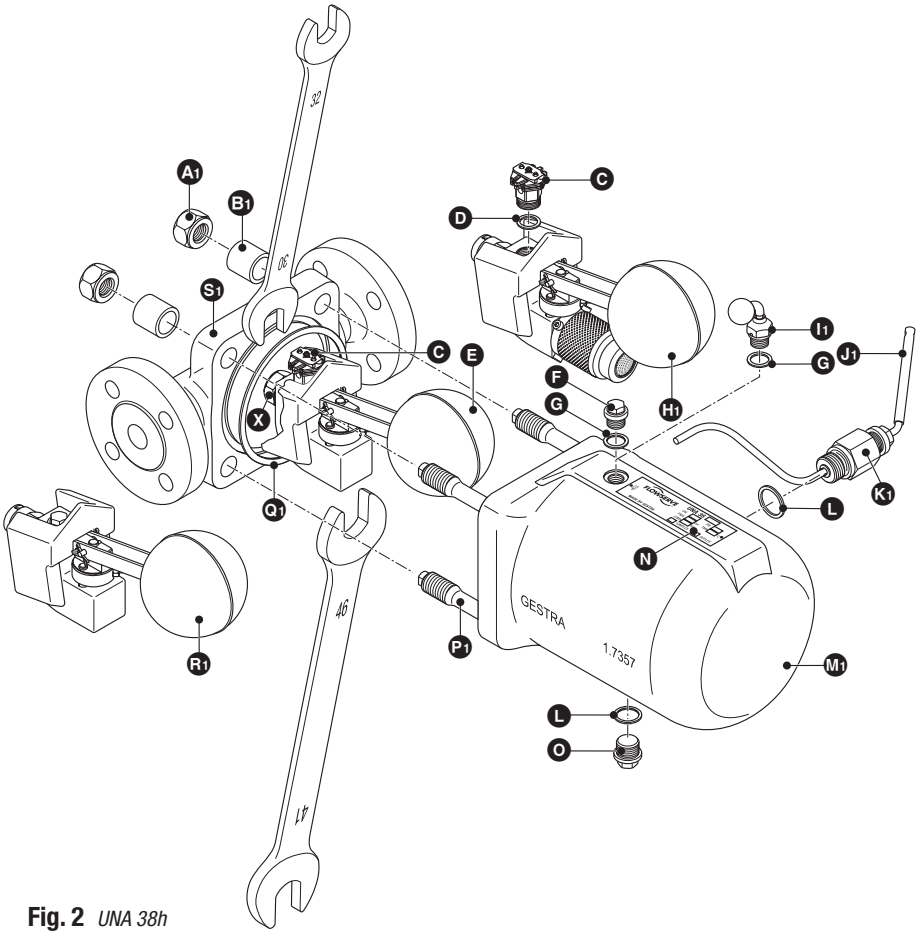

Fig. 2 *UNA 38h*

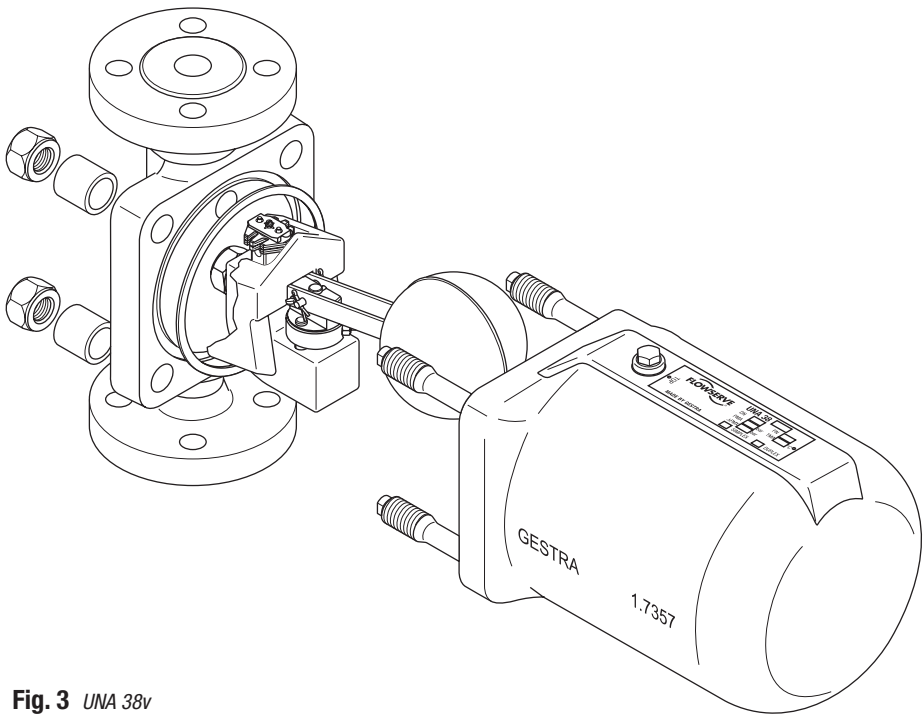

Fig. 3 *UNA 38v*

UNA 39

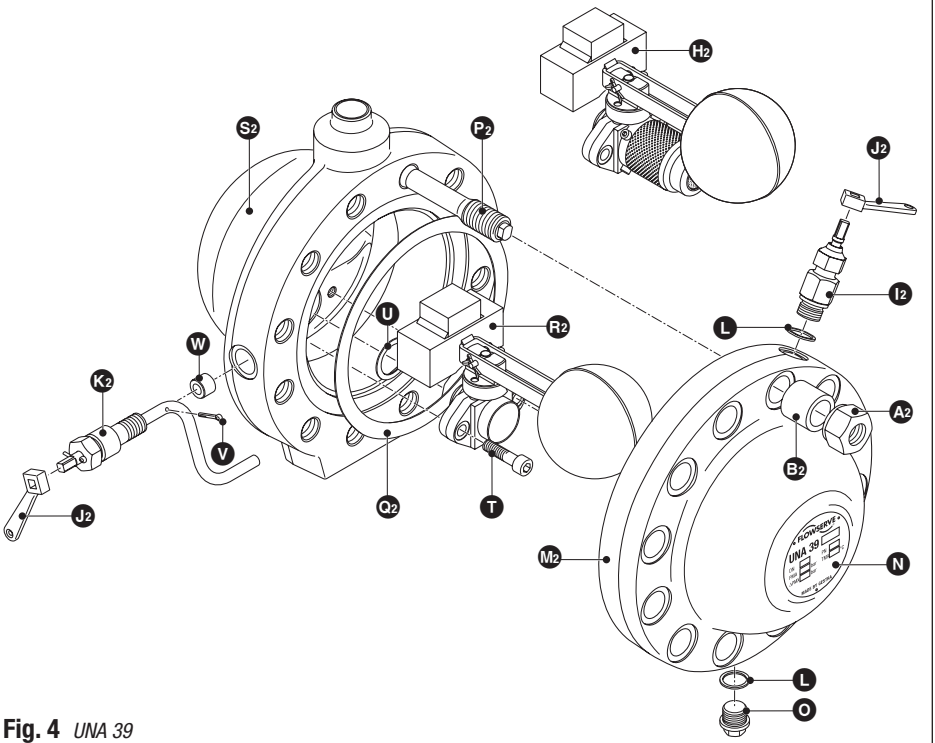

Fig. 4 *UNA 39*

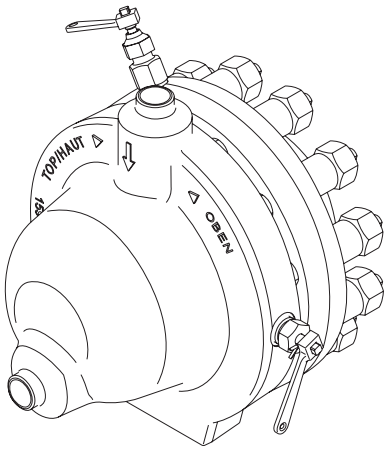

Fig. 5 *UNA 39*

Design – continued –

Key to components

- A1 UNA 38 hexagon nut M20
- A2 UNA 39 hexagon nut M24
- B1 UNA 38 sleeve
- B2 UNA 39 sleeve
- C UNA 38 bimetallic air vent
- D Gasket, shape A 16 x 20
- E UNA 38 control unit DUPLEX, Orifice 50, O 64 or O 80
- F Plug
- G Gasket, shape D 17 x 21
- H1 UNA 38 control unit DUPLEX, Orifice 80 MAX
- H2 UNA 39 control unit, Orifice 140 MAX
- I1 UNA 38 hand vent valve
- I2 UNA 39 hand vent valve
- J1 UNA 38 handle for float lifting lever
- J2 UNA 39 handle for float lifting lever
- K1 UNA 38 float lifting lever
- K2 UNA 39 float lifting lever
- L Gasket, shape D 21 x 26
- M1 UNA 38 cover
- M2 UNA 39 cover
- N Name plate
- O Plug
- P1 UNA 38 expansion bolt
- P2 UNA 39 expansion bolt
- Q1 UNA 38 body gasket 129 x 141 x 1
- Q2 UNA 39 body gasket 182 x 112 x 1
- R1 UNA 38 control unit SIMPLEX, Orifice 50, O 64 or O 80
- R2 UNA 39 control unit SIMPLEX, Orifice 80, O 110 or O 140
- S1 UNA 38 body
- S2 UNA 39 body
- T Hexagon-socket screw
- U Gasket 30 x 40 x 1
- V UNA 39 split pin for float lifting lever
- W UNA 39 distance sleeve for float lifting lever
- X UNA 38 union nut

Installation

UNA 38

Depending on its body design, the float trap UNA 38 can be installed in horizontal or vertical pipes with **downward** flow.

UNA 39

The float trap UNA 39 can be installed in vertical pipes with **downward** flow.

Design with flanges

1. Ensure correct position of installation. The name plate Ⓝ must always be on top (UNA 38).
2. Observe direction of flow. The arrow indicating the flow direction is on the trap body.
3. Consider space required for opening trap. When the trap is installed, a minimum space of at least **150 mm (UNA 39)** or **310 mm (UNA 38)** is required for removing the cover Ⓜ.
4. Remove plastic plugs. They are **only** used as transit protection.
5. Clean the seating surfaces of both flanges.
6. Install the steam trap.

Design with socket-weld ends

1. Ensure correct position of installation. The name plate Ⓝ must always be on top (UNA 38).
2. Observe direction of flow. The arrow indicating the flow direction is on the trap body.
3. Consider space required for opening trap. When the trap is installed, a minimum space of at least **150 mm (UNA 39)** or **310 mm (UNA 38)** is required for removing the cover Ⓜ.
4. Remove plastic plugs. They are **only** used as transit protection.
5. Clean the socket-weld ends.
6. Arc-weld the trap **only** manually (welding process 111 and 141 in accordance with ISO 4063).

Design with butt-weld ends

1. Ensure correct position of installation. The name plate Ⓝ must always be on top (UNA 38).
2. Observe direction of flow. The arrow indicating the flow direction is on the trap body.
3. Consider space required for opening trap. When the trap is installed, a minimum space of at least **150 mm (UNA 39)** or **310 mm (UNA 38)** is required for removing the cover Ⓜ.
4. Remove plastic plugs. They are **only** used as transit protection.
5. Clean the butt-weld ends.
6. Arc-weld the trap manually (welding process 111 and 141 in accordance with ISO 4063) or use gas-welding (welding process 3 in accordance with ISO 4063).

Attention

- Only qualified welders certified e.g. according to EN 287-1 may weld the steam trap into pressurized lines.

Installation – continued –

Heat treatment of welds

After welding the steam trap, it may be necessary to apply heat treatment to the welds (stress-relief annealing as per DIN EN 100529).

The heat treatment is limited to the area immediately around the weld.

It is not necessary to remove the internals of the steam trap to perform the heat treatment.

Hand vent valve (UNA 38)

1. Remove plug Ⓕ.
2. Insert the gasket Ⓖ and fit the hand vent valve Ⓘ in place.
   For the torque, see the table “Torques”.
3. Close the hand vent valve.

Float lifting lever (optional extra)

For the UNA 38 and UNA 39, the float lifting lever is installed in the factory.

Tools

- Combination spanner A.F. 22 mm to DIN 3113, form B
- Torque spanner 20 – 120 Nm to DIN ISO 6789

Commissioning

Danger

Burn hazard! The steam trap becomes hot during operation. Touching the hand vent valve or the float lifting lever presents the risk of severe burns to hands and arms.

Always wear insulated, heat-resistant safety gloves when handling the valve.

UNA 38, UNA 39

Make sure that all flanged connections, the hand vent valve and the float lifting lever are firmly fixed to the UNA 38 or UNA 39, ensuring a tight, leakproof joint.

If the steam trap is to be used in a new installation which has not been flushed yet, it is advisable to check – and if required – clean the trap.

Operation

Danger

Burn hazard! The steam trap becomes hot during operation. Touching the hand vent valve or the float lifting lever presents the risk of severe burns to hands and arms.
Always wear insulated, heat-resistant safety gloves when handling the valve.

Hand vent valve

1. Open the hand vent valve if necessary.
2. Close the hand vent valve after completing the venting process.

Float lifting lever

1. Attach the handle ❶ to the float lifting lever ❽. (See **Fig. 2** and **Fig. 4**)
2. Turn the float lifting lever ❽ in the direction of the arrow on the cover ⓜ.
3. Turn the float lifting lever in the opposite direction to the arrow (to close the valve), and then remove the handle.

Maintenance

GESTRA steam traps of the type UNA do not require any special maintenance.
However, if the steam trap is to be used in a new installation which has not been flushed yet, it is advisable to check and – if required – clean the trap.

Checking the steam trap

The UNA steam traps can be checked for steam loss during operation by using the GESTRA ultrasonic measuring unit VAPOPHONE® or TRAP*test*®.
In case of steam loss, clean the valve and/or replace the control unit or orifice.

Cleaning/exchanging the control unit

1. Take heed of the “Danger” note on page 4.
2. Undo the hexagon nuts Ⓐ, remove the sleeves Ⓑ from the expansion bolts Ⓟ, and take off the cover Ⓜ.
3. Undo the union nut Ⓧ and take it out of the body together with the control unit Ⓔ, Ⓗ1 or Ⓡ1 (UNA 38); alternatively, undo and remove the hexagon socket-head screws Ⓣ, and take out the control unit Ⓗ2 or Ⓡ2 (UNA 39).
4. Replace the control unit in case of visible signs of wear or damage.
5. Clean the body, internals and all gasket surfaces.
6. Apply heat-resistant lubricant to all threads and the seating surfaces of the control unit and cover (use e.g. WINIX® 2150).
7. Attach the control unit Ⓔ, Ⓗ1 or Ⓡ1 (UNA 38) with the union nut and align it within the body so that the float ball can move vertically. Tighten the union nut. Insert a new gasket Ⓤ for control unit Ⓗ2 or Ⓡ2 (UNA 39), put on the control unit and tighten the hexagon socket-head screws Ⓣ evenly crosswise. For the torques, see the table “Torques” on page 16.
8. Insert a new body gasket Ⓠ.
9. Put the cover onto the body and push the sleeves Ⓑ onto the expansion bolts Ⓟ. Tighten the hexagon nuts Ⓐ evenly crosswise in several stages to the values specified in the “Torques” table.

Changing the bimetallic air vent (UNA 38)

1. Take heed of the “Danger” note on page 4.
2. Undo the hexagon nuts Ⓐ1, remove the sleeves Ⓑ1 from the expansion bolts Ⓟ1, and take off the cover Ⓜ1.
3. Unscrew and remove the bimetallic air vent Ⓒ; take out the gasket Ⓓ.
4. Install a new bimetallic air vent Ⓒ together with a new gasket. For the torque, see the table “Torques” on page 16.
5. Insert a new body gasket Ⓠ1.
6. Put the cover onto the body and push the sleeves Ⓑ1 onto the expansion bolts Ⓟ1. Tighten the hexagon nuts Ⓐ1 evenly crosswise in several stages to the values specified in the “Torques” table.

Maintenance – Continued –

Torques

Item	Designation	Torque [Nm]	
		UNA 38	UNA 39
Ⓐ	Hexagon nut	270	340
Ⓣ	Hexagon-socket screw (UNA 39)		40
Ⓧ	Union nut (UNA 38)	120	
Ⓟ	Expansion bolts	20	20
Ⓒ	Bimetallic air vent	90	
Ⓘ	Hand vent valve	70	170
Ⓚ	Float lifting lever	110	
Ⓞ	Plug	70	170
Ⓕ	Plug	110	

Tools

- Combination spanner A.F. 17, 19, 22, 24, 30, 46 mm to DIN 3113, form B
- Allen key A.F. 5, 8 mm to ISO 2936
- Torque spanner 10–60 Nm, 60–120 Nm, 120–300 Nm to DIN ISO 6789

Retrofitting

GESTRA steam traps can be retrofitted with different control units.

Cleaning /exchanging the control unit

1. Take heed of the “Danger” note on page 4.
2. Undo the hexagon nuts Ⓐ, remove the sleeves Ⓑ from the expansion bolts Ⓟ, and take off the cover Ⓜ.
3. Undo the union nut Ⓧ and take it out of the body together with the control unit Ⓔ, Ⓗ1 or Ⓡ1 (UNA 38); alternatively, undo and remove the hexagon socket-head screws Ⓣ, and take out the control unit Ⓗ2 or Ⓡ2 (UNA 39).
4. Replace the control unit in case of visible signs of wear or damage.
5. Clean the body, internals and all gasket surfaces.
6. Apply heat-resistant lubricant to all threads and the seating surfaces of the control unit and cover (use e.g. WINIX® 2150).
7. Attach the control unit Ⓔ, Ⓗ1 or Ⓡ1 (UNA 38) with the union nut and align it within the body so that the float ball can move vertically. Tighten the union nut. Insert a new gasket Ⓤ for control unit Ⓗ2 or Ⓡ2 (UNA 39), put on the control unit and tighten the hexagon socket-head screws Ⓣ evenly crosswise. For the torques, see the table “Torques” on page 16.
8. Insert a new body gasket Ⓠ.
9. Put the cover onto the body and push the sleeves Ⓑ onto the expansion bolts Ⓟ. Tighten the hexagon nuts Ⓐ evenly crosswise in several stages to the values specified in the “Torques” table.

Torques

Item	Designation	Torque [Nm]	
		UNA 38	UNA 39
Ⓐ	Hexagon nut	270	340
Ⓣ	Hexagon-socket screw (UNA 39)		40
Ⓧ	Union nut (UNA 38)	120	
Ⓟ	Expansion bolts	20	20
Ⓒ	Bimetallic air vent	90	
Ⓘ	Hand vent valve	70	170
Ⓚ	Float lifting lever	110	
Ⓞ	Plug	70	170
Ⓕ	Plug	110	

Tools

- Combination spanner A.F. 17, 19, 22, 24, 30, 46 mm to DIN 3113, form B
- Allen key A.F. 5, 8 mm to ISO 2936
- Torque spanner 10–60 Nm, 60–120 Nm, 120–300 Nm to DIN ISO 6789

Spare Parts

Spare parts list UNA 38

Item	Designation		Order no.
			DN 15-50
Q1	Body gasket (graphite/CrNi)		524532
E H1	Control unit DUPLEX with body gasket	0 50	560550
		0 64	560551
		0 80	560552
		0 80 MAX	560553
R1	Control unit SIMPLEX with body gasket	0 50	560554
		0 64	560555
		0 80	560556
		0 80 MAX	560557
I1	Hand vent valve with gasket		560559
K1	Float lifting lever with gasket		560560
C	Bimetallic air vent EBK 39 (only for Duplex control units) with gasket		560558

0 = Orifice

Spare parts list UNA 39

Item	Designation		Order no.
			DN 15-50
Q2	Body gasket (graphite/CrNi)		523031
H2 R2	Control unit, complete with body gasket	0 80	560172
		0 110	560171
		0 140	560170
		0 140 MAX	560179
K2	Hand vent valve with gasket		560178

0 = Orifice

Annex

CE Declaration of Conformity

We hereby declare that the items of pressure equipment **UNA 38** and **UNA 39** conform to the following European Directive:

- EC Pressure Equipment Directive (PED) 97/23/EC dated 29 May 1997, apart from the equipment according to section 3.3.
- Applied conformity assessment procedure according to Annex III, module H, verified by Notified Body 0525.

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

Bremen, 11 October 2005
GESTRA AG

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