FLOWSERVE GESTRA

GESTRA Steam Systems

UNA 14
UNA 16
UNA 16A (Stainless Steel)
UNA 14P

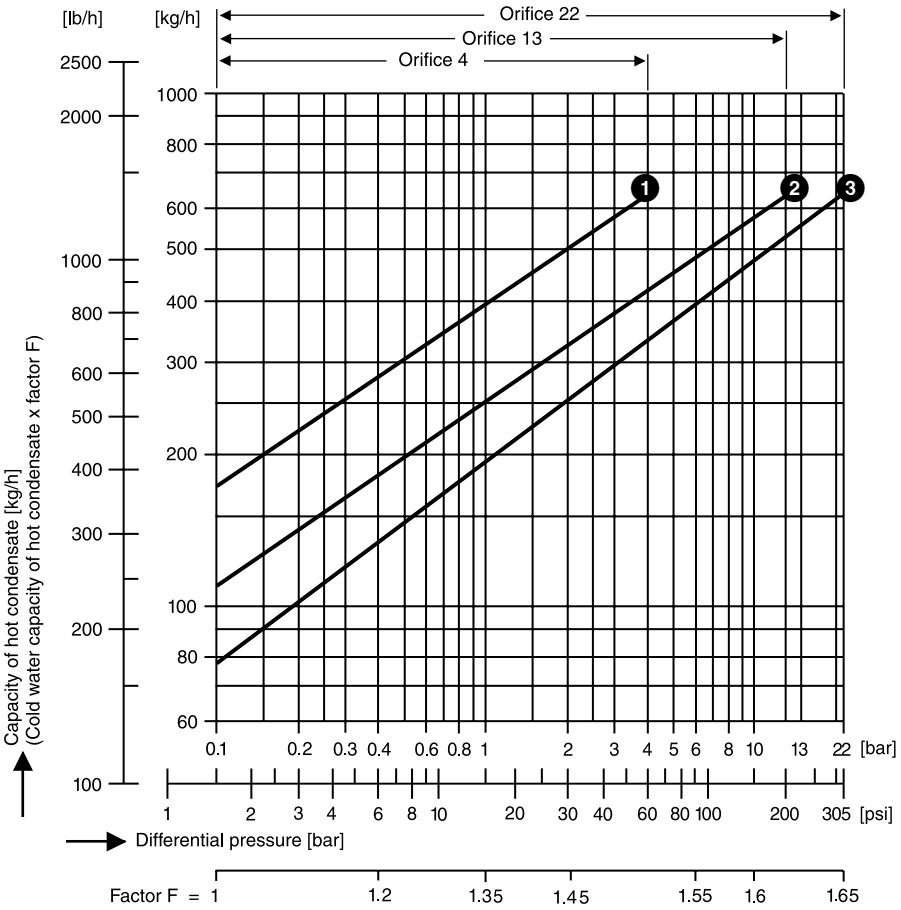
GB

Installation Instructions 810877–01

Steam Traps UNA 14, UNA 16, UNA 16A
Air Trap for Compressed Air and Gases UNA 14P

Contents

Capacity Charts UNA 14, UNA 16, UNA 16A



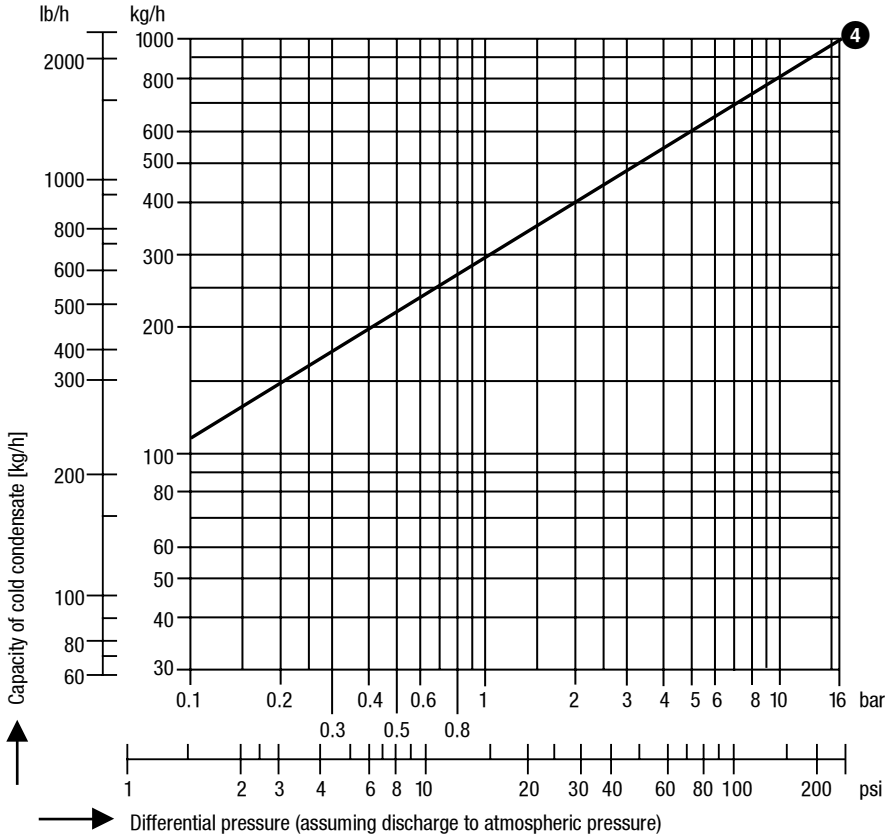
1 Orifice 4, DN 15 – 25, ½" – 1"

2 Orifice 13, DN 15 – 25, ½" – 1"

3 Orifice 22, DN 15 – 25, ½" – 1" (only UNA 16)

Fig. 1

Capacity Chart UNA 14P



4 **Max. capacity of cold condensate from liquids or gases.**

Fig. 2

Design

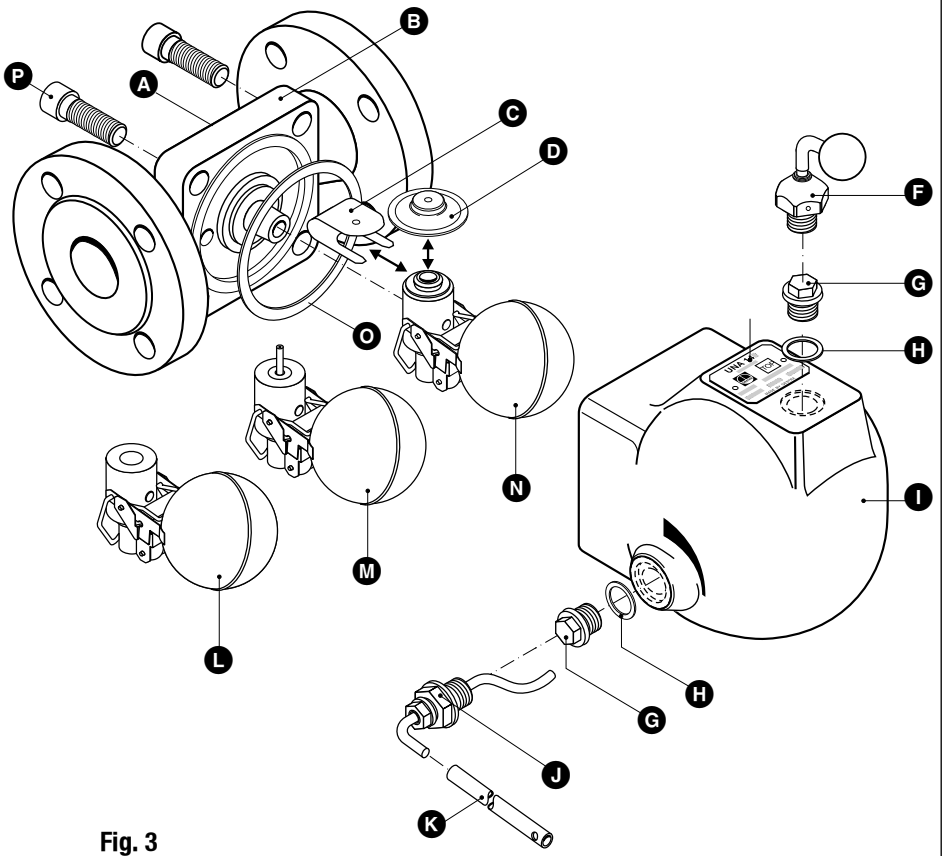


Fig. 3

Maintenance

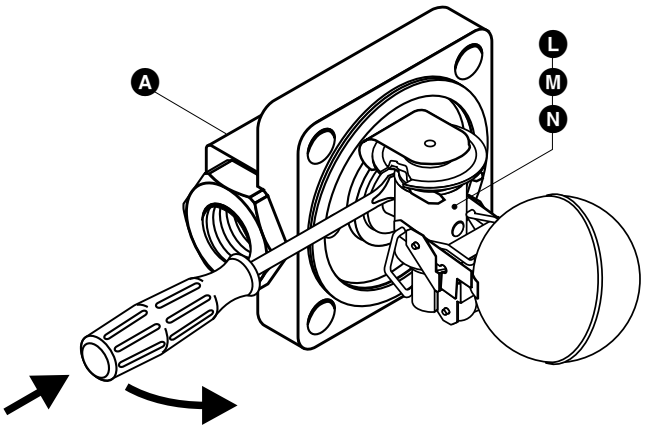


Fig. 4

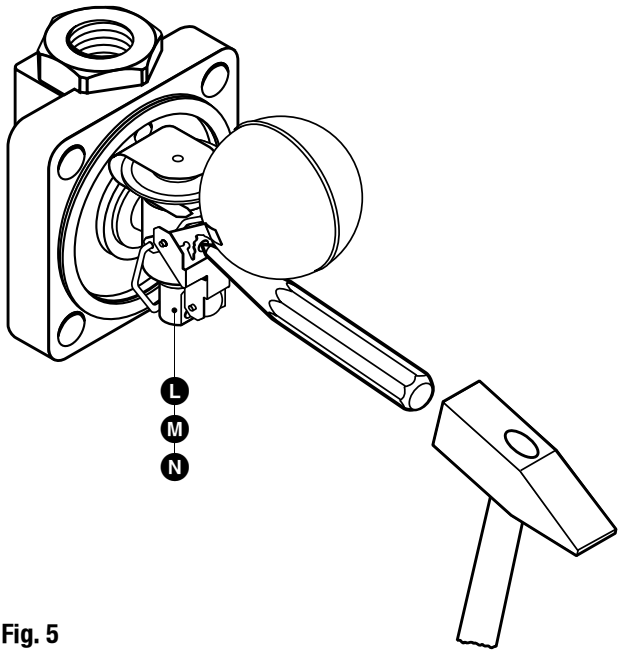


Fig. 5

Key

- **A** Flow direction arrow
- **B** Body
- **C** Retainer
- **D** Thermostatic capsule (5N2)
- **E** Name plate
- **F** Hand vent valve (optional extra)
- **G** Plug*) (optional extra)
- **H** Gasket*) C 17 x 23 (optional extra)
- **I** Cover (standard design without holes)
- **J** Manual float–lifting lever*) (optional extra)
- **K** Lever extension for float–lifting device*) (optional extra)
- **L** Control unit SIMPLEX or SIMPLEX P*) for UNA 14P with Perbunan® valve ball
- **M** Control unit SIMPLEX R
- **N** Control unit DUPLEX
- **O** Cover gasket 77 x 67 x 1 (graphite/CrNi)
- **P** Socket–head cap screw

*) Standard version of air trap type UNA 14P

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Important Notes

Usage for the intended purpose

Use steam traps UNA 14, UNA 16, UNA 16 A and air trap UNA 14 P only for the discharge of condensate and liquids.

UNA 14, UNA 16, UNA 16A:
Use the equipment only for the discharge 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.

UNA 14P:
Use the equipment only for the discharge of condensate from compressed air lines or other gas lines 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 by qualified staff.
Qualified staff are those persons who – through adequate training in engineering, the use and application of equipment in accordance with regulations concerning steam systems, and first aid & accident prevention – have achieved a recognised level of competence appropriate to the installation and commissioning of this device.

Danger

The trap is under pressure during operation.
When loosening flanged connections, plugs or the control unit hot water, steam, corrosive fluids or toxic gases may escape.

This presents the risk of severe scalds and acid burns to the whole body.
Toxic gases may cause severe cases of poisoning.

Before carrying out installation and maintenance work make sure the system is depressurized.
Isolate the trap from both upstream and downstream pressure.
The trap becomes hot during operation.
This presents the risk of severe burns to hands and arms.
Before carrying out installation and maintenance work make sure that the trap is cold.

Sharp edges on internals present a danger of cuts to hands. Always wear industrial gloves when replacing the control unit.

Classification pursuant to article 9 of the Pressure Equipment Directive (PED)

	UNA 14, UNA 16, UNA 14P				UNA 16A (Stainless steel)			
Fluid group	gas		liquid		gas		liquid	
	1	2	1	2	1	2	1	2
Use	no	yes	no	yes	yes	yes	yes	yes

Category	Exception pursuant to article 3.3	Exception pursuant to article 3.3
Nominal size DN	15 – 25	15 – 25
CE marking	no	no
Type	all	all

Explanatory Notes

Scope of supply

UNA 14
1 Steam trap UNA 14
1 Installation manual

UNA 16
1 Steam trap UNA 16
1 Installation manual

UNA 16A (stainless steel)
1 Steam trap UNA 16A (stainless steel)
1 Installation manual

UNA 14P
1 Air trap UNA 14P
1 Lever extension for manual float–lifting device
1 Installation manual

Explanatory Notes – continued –

Description

UNA 14, UNA 16, UNA 16A, UNA 14P are steam/air traps with ball float and rolling ball valve. The steam traps can be used for all operating conditions, as they are unaffected by back pressure. They consist of a body with bolted cover and a control unit. The control unit is freely accessible after removing the cover. It can be completely replaced without having to remove the valve body from the line. A conversion of “h” design to “v” design or vice versa is possible without any problem by repositioning body and control unit. The direction of flow is indicated by an arrow, the position of installation by the word “Top” on the name plate.

- suitable for large condensate flowrates
- “h”–design for horizontal lines
- “v”–design for vertical lines

(To convert “h” to “v” design or vice versa turn cover and control unit respectively)

UNA 14, UNA 16, UNA 16A
Three different control units are available: Control unit “SIMPLEX”: level–dependent float control particularly suitable for cold condensate. Control unit “SIMPLEX R”: level–dependent float control with internal vent pipe for continuous air–venting. Control unit “DUPLEX”: float control with temperature–dependent automatic air–venting of saturated steam systems.

UNA 14P
The air trap is suitable for draining compressed air and gas systems. Two different control units are available: Control unit “SIMPLEX” with steel valve ball or control unit “SIMPLEX P” with Perbunan® valve ball. The air traps feature as standard a manual purging device (float–lifting lever) and a $^{3}/_{8}$" BSP connection (with plug) for subsequent fitting of an air–balance pipe.

Function

As the condensate flows into the steam trap it operates the float, which in turn opens the rolling ball valve of the control unit, and in doing so uncovers the discharge passage. The cross–sectional area of the orifice dictates the max. flowrate when the discharge passage is completely open. The max. allowable differential pressure of the control unit used depends on the cross–sectional area of the orifice and the density of the fluid to be discharged.
Three different orifices are available (retrofitting possible).
Float–operated steam traps equipped with control units DUPLEX enable automatic temperature–dependent deaeration of saturated steam systems at start–up and during continuous operation.
The air trap UNA 14P features an orifice as standard which is rated for a max. differential pressure of up to 16 bar and a liquid density of ρ = 1000 kg/m^3. Note that lower densities reduce the max. service range accordingly.
The flowrates are indicated in the capacity charts. Air traps for other pressure ratings are available on request.

Technical Data

Orifices (O)	Max. admissible differential pressure [1)] [2)] ΔPMX [bar]	UNA 14	UNA 16	UNA 16A	UNA 14P
Orifice 4	4	X	X	X	
Orifice 13	13 [3)]	X	X	X	X
Orifice 22	22		X	X	

[1)] Observe pressure/temperature specifications!
[2)] **Inlet** pressure minus **outlet** pressure.
[3)] Max. admissible differential pressure 16 bar with a liquid density of ρ = 1000 kg/m^3

Pressure / Temperature Rating (DIN 1092–1) UNA 14 S.G. (ductile) iron (3 E0), PN 25					
Max. allowable pressure PMA	[bar]	25	19.4	17.8	15
Max. allowable temperature TMA	[°C]	20	200	250	350
Maximum differential pressure ΔPMX (**inlet** pressure minus **outlet** pressure)	[bar]	13 or 4*)			

Pressure / Temperature Rating (DIN 1092–1) UNA 16 carbon steel (3 E0), PN 40					
Max. allowable pressure PMA	[bar]	40	30.2	25.8	23.1
Max. allowable temperature TMA	[°C]	20	200	300	400
Maximum differential pressure ΔPMX (**inlet** pressure minus **outlet** pressure)	[bar]	22, 13 or 4*)			

Pressure / Temperature Rating UNA 16 carbon steel, CLASS 150					
Max. allowable pressure PMA	[bar]	17.3	13.8	10.2	6.5
Max. allowable temperature TMA	[°C]	20	200	300	400
Maximum differential pressure ΔPMX (**inlet** pressure minus **outlet** pressure)	[bar]	13 or 4*)			

Pressure / Temperature Rating (DIN 1092–1) UNA 16A stainless steel (13 E0), PN 40					
Max. allowable pressure PMA	[bar]	40	35.6	29.3	25.8
Max. allowable temperature TMA	[°C]	20	100	200	300
Max. low temperature (until PN)	[°C]	–196			
Maximum differential pressure ΔPMX (**inlet** pressure minus **outlet** pressure)	[bar]	22, 13 or 4*)			

Pressure/temperature ratings according to type of connection!
*) Depending on orifice (O)

Technical Data – continued –

Pressure / Temperature Rating UNA 16A (stainless steel), CLASS 150					
Max. allowable pressure PMA	[bar]	19.3	17.0	14.0	10.2
Max. allowable temperature TMA	[°C]	20	100	200	300
Maximum differential pressure ΔPMX (**inlet** pressure minus **outlet** pressure)	[bar]	22, 13 or 4*)			

Pressure/temperature ratings according to type of connection!

*) Depending on orifice (0)

Pressure / Temperature Rating (DIN 1092–1) UNA 14P S.G. (ductile) iron (3 E0), PN 25		
Max. allowable pressure PMA	[bar]	25
Max. allowable temperature TMA with steel valve ball with Perbunan® valve ball	 [°C] [°C]	 120 40
Max. differential pressure ΔPMX with steel valve ball with Perbunan® valve ball (**inlet** pressure minus **outlet** pressure)	 [bar] [bar]	 16 16

Materials	DIN EN	DIN	ASTM
Body UNA 14,14 P, 16	P250GH (1.0460)	C 22.8 (1.0460)	A 105
Cover UNA 14	EN–GJS–400–18–LT (EN–JS–1049)	GGG 40.3 (0.7043)	A 536 60–40–18[1])
Cover UNA 16	GP240GH (1.0619)	GS–C 25 (1.0619)	A 216 WCB
Body UNA 16A, stainless steel	X2CrNiMo17–12–2 (1.4404)	X 2 CrNiMo 17 13 2 (1.4404)	A 182 F 316 L
Cover UNA 16A, stainless steel	G–X5CrNi19–10 (1.4308)	G–X 6 CrNi 18 9 (1.4308)	A 351 CF 8[1])
Fixing screws UNA 14, 14 P, 16	42CrMo4 (1.7225)		A 193 B7
Fixing screws UNA 16A, stainless steel	X6NiCrTiMoVB25–15–2 (1.4980)	X 5 NiCrTi 26 15 (1.4980)	
Ball float	X6CrNiMoTi17–12–2 (1.4571)	X 6 CrNiMoTi 17 12 2 (1.4571)	A 182 F 316[1])
Seat	X8CrNiS18–9 (1.4305)	X 10 CrNiS 18 9 (1.4305)	AISI 303[1])
Valve ball	X5CrNi18–10 (1.4301)	X 5 CrNi 18 10 (1.4301)	A 182 F 304[1])
Cover gasket	Graphite–CrNi		
Thermostatic capsule 5N2	Hastelloy/stainless steel		
Other internals	Stainless steel		

[1]) Physical and chemical properties comply with DIN grade. ASTM nearest equivalent grade is stated for guidance only.

[2]) Perbunan valve ball available as optional extra. (UNA 14P)

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Corrosion resistance

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

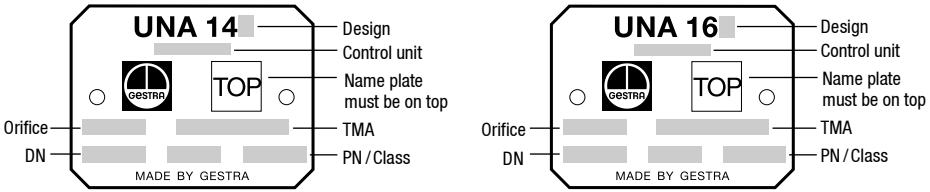
Sizing

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

Name plate / Marking

Ratings and design as specified in EN 19 and EN ISO 26652 on name plate which is firmly attached to the trap body/cover.

- Type designation — UNA 1 ...h: horizontal design; UNA 1 ...v: vertical design
- SIMPLEX or DUPLEX: type of control unit (see “Description”)
  additional “P”: with Perbunan® valve ball (max. 40 °C)
  additional “R”: provided with internal venting pipe
- O...(orifice): installed orifice
- Stamp on name plate, e. g. $\frac{4}{03}$ indicates term and year of production
  (Example: 4th quarter 2003)



Installation

UNA 14, UNA 16, UNA 16A, UNA 14P

Float–operated steam traps can – depending on the design of the trap body – be installed in horizontal or vertical lines with downward flow. Conversion to obtain a different flow direction is possible:

Flanged design

1. Observe position of installation. The name plate Ⓔ must always be on top.
2. Observe the direction of flow. The arrow indicating the flow direction Ⓐ is on the trap body. Change direction of flow of UNA 14, UNA 16, UNA 16A or UNA 14P if necessary.
3. Consider space required for opening trap. When the trap is installed a minimum space of at least **120 mm** is required for removing the cover Ⓘ!
4. Remove plastic plugs. They are only used as transit protection.
5. Clean seating surfaces of both flange faces.
6. Install trap.

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Installation – continued –

Screwed–socket design

1. Observe position of installation. The name plate Ⓔ must always be on top.
2. Observe the direction of flow. The arrow indicating the flow direction Ⓐ is on the trap body. Change direction of flow of UNA 14, UNA 16, UNA 16A or UNA 14P if necessary.
3. Consider space required for opening trap. When the trap is installed a minimum space of at least **120 mm** is required for removing the cover Ⓘ!
4. Remove plastic plugs. They are only used as transit protection.
5. Clean female threads.
6. Install trap.

Socket–weld design

1. Observe position of installation. The name plate Ⓔ must always be on top.
2. Observe the direction of flow. The arrow indicating the flow direction Ⓐ is on the trap body. Change direction of flow of UNA 16, UNA 16A if necessary.
3. Consider space required for opening trap. When the trap is installed a minimum space of at least **120 mm** is required for removing the cover Ⓘ!
4. Remove plastic plugs. They are only used as transit protection.
5. Clean socket–weld ends.
6. Arc–weld trap only manually (welding processes 111 and 141 in accordance with DIN EN 24063).

Butt–weld design

1. Observe position of installation. The name plate Ⓔ must always be on top.
2. Observe the direction of flow. The arrow indicating the flow direction Ⓐ is on the trap body. Change direction of flow of UNA 16 if necessary.
3. Consider space required for opening trap. When the trap is installed a minimum space of at least **120 mm** is required for removing the cover Ⓘ!
4. Remove plastic plugs. They are only used as transit protection.
5. Clean butt–weld ends.
6. Arc–weld trap only manually (welding processes 111 and 141 in accordance with DIN EN 24063) or use gas welding process (welding process 3 in accordance with DIN EN 24063).

Attention

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

Heat treatment of welds

A subsequent heat treatment of the welds is not required.

Change direction of flow

1. Remove cover ❶ from body ❷, **fig. 3**
2. Lever control unit ❿ ⓫ ⓬ off its support using a screwdriver, **fig. 4**
3. Turn body so that the arrow ❹ points in the desired flow direction.
4. Position control unit on support and fix it by sharp blows, **fig. 5**
5. Clean seating surfaces of body and cover.
6. Apply heat–resistant lubricant to seating surface or cover and threads of fixing screws (use for instance WINIX® 2150).
7. Insert a new gasket ❺ and put cover onto trap body. Tighten body screws ❻ in diagonally opposite pairs to a torque of **35 Nm**. Retighten screws after the commissioning procedure.

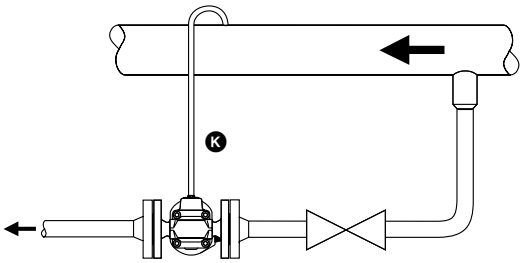
Tools

- Hexagon–type offset screwdriver (Allen key), size 8 to DIN 911L
- Screwdriver (5.5/125), DIN 5265
- Punch (120/10), DIN 7250
- Hammer (500/10), DIN 1041

Air balance pipe

For GESTRA air traps UNA 14P we recommend the installation of an air balance pipe ❽ in order to equilize the pressure. The air balance pipe ensures a continuous condensate flow from the fluid line to the trap and effectively prevents the formation of water pockets.

Unfavourable piping geometries and certain positions of installation may also require the installation of an air balance pipe for steam traps. The air balance pipe effectively prevents the formation of water pockets.



Installation – continued –

Hand vent valve UNA 14, UNA 16, UNA 16A, UNA 14P (optional extra)

1. Remove plug ⓖ or, if installed, hand vent valve ⓙ.
2. Insert gasket ⓗ and mount hand vent valve ⓕ. Use a torque of **75 Nm**.
3. Close hand vent valve.

Note

Standard covers are not provided with holes. Retroffiting is therefore not possible.

Tools

- Spanner A. F. 17, DIN 3113, Form B
- Torque spanner 20–120 Nm, DIN ISO 6789

Manual float–lifting lever UNA 14, UNA 16, UNA 16A (optional extra), UNA 14P

1. Remove plug ⓖ.
2. Insert gasket ⓗ and mount floating lifting lever ⓙ. In doing so insert the lever extension and keep it upright. Use a torque of **75 Nm**.

Note

Standard covers are not provided with holes. Retrofitting is therefore not possible.

Standard equipment for UNA 14P

Tools

- Spanner A. F. 17, DIN 3113, Form B
- Torque spanner 20–120 Nm, DIN ISO 6789

Commissioning

Make sure that the hand vent valve and the float–lifting lever are firmly attached to the UNA 14, UNA 16, UNA 16A and UNA 14P and tight.

Maintenance

GESTRA steam traps UNA 14, UNA 16, UNA 16A do not require any special maintenance. However, if used in new installations which have not been rinsed it may be necessary to check and clean the trap.

The GESTRA air trap UNA 14P does not require any special maintenance. If, however, the trap is used with very oily condensate we recommend to clean the trap at regular intervals or to install an oil separator upstream of the trap.

Clean trap

1. Remove cover ❶ from body ❷, **fig. 3**
2. Lever control unit ❹ ❺ ❻ off its support using a screwdriver, **fig. 4**
3. Remove old cover gasket ❼.
4. Clean body and internals.
5. Clean seating surfaces of body and cover. Insert new gasket ❼.
6. Position control unit on support and fix it by sharp blows, **fig. 5**
7. Apply heat–resistant lubricant to seating surfaces of cover and threads of fixing screws (use for instance WINIX® 2150).
8. Insert a new gasket and put cover onto trap body. Tighten body screws ❽ in diagonally opposite pairs to a torque of **35 Nm**. Retighten screws after the commissioning procedure.

Clean/replace control unit

1. Remove cover ❶ from body ❷, **fig. 3**
2. Lever control unit ❹ ❺ ❻ off its support using a screwdriver, **fig.4**
3. Remove old cover gasket ❼.
4. Clean seating surfaces of body and cover. Insert new gasket ❼.
5. Position new or cleaned control unit ❹ ❺ ❻ on support and fix it by sharp blows, **fig. 5**
6. Apply heat–resistant lubricant to seating surfaces of cover and threads of fixing screws (use for instance WINIX® 2150).
7. Insert a new gasket and put cover onto trap body. Tighten body screws in diagonally opposite pairs to a torque of **35 Nm**. Retighten screws after the commissioning procedure.

Maintenance – continued –

Clean / replace thermostatic capsule (only DUPLEX design)

1. Remove cover ❶ from body ❷, **fig. 3**
2. Lever control unit ⓃⓃ off its support using a screwdriver, **fig. 4**
3. Remove old cover gasket ⓄⓄ.
4. Clean seating surfaces of body and cover. Insert new gasket ⓄⓄ.
5. Remove retainer ⓒ from control unit ⓃⓃ and take out thermostatic capsule ⓓ.
6. Insert new or cleaned thermostatic capsule and push retainer ⓒ over the thermostatic capsule. **fig. 3**
7. Clean seating surfaces of body and cover. Insert new gasket ⓄⓄ.
8. Position control unit ⓃⓃ on support and fix it by sharp blows, **fig. 5**
9. Apply heat–resistant lubricant to seating surfaces of cover and threads of fixing screws (use for instance WINIX® 2150).
10. Insert a new gasket and put cover onto trap body. Tighten body screws in diagonally opposite pairs to a torque of **35 Nm**. Retighten screws after the commissioning procedure.

Tools

- Hexagon–type offset screwdriver (size 8), DIN 911L
- Screwdriver (5.5/125), DIN 5265
- Punch (120/10), DIN 7250
- Hammer (500 g), DIN 1041

Torques

Item	Steam trap	Torque [Nm]
ⓕ ⓖ ⓙ	UNA 14, UNA 16, UNA 16A, UNA 14P	75
ⓟ	UNA 14, UNA 16, UNA 14P	35
ⓟ	UNA 16A	35

All torques indicated in the table are based at a room temperature of 20 °C.

Spare Parts

Spare parts list

Item	Designation		Stock code UNA 14	Stock code UNA 16 **UNA 16A S.S.**	Stock code UNA 14P
H	Gasket[2]) A 17 x 23		560486	560486 **560514**	560486
O	Body gasket[1]) (graphite/CrNi) 67 x 77 x 1		560493	560493	560493
D O	Thermostatic capsule 5N2, body gasket		560494	560494	
N O	Control unit Duplex, complete	Orifice 4	560410	560410	
		Orifice 13	560409	560409	
		Orifice 22		560408	
M O	Control unit Simplex R, complete	Orifice 4	560413	560413	
		Orifice 13	560412	560412	
		Orifice 22		560411	
L O	Control unit Simplex, complete	Orifice 4	560416	560416	
		Orifice 13	560415	560415	560415
		Orifice 13 P[3])			560418
		Orifice 22		560414	
F H	Hand–vent valve		560058	560058 **560125**	560058
J H	Float–lifting lever		560434	560434 **on request**	560434

[1]) Purchasing quantity 20 pcs. For smaller quantities please contact your local dealer.

[2]) Purchasing quantity 10 pcs. For smaller quantities please contact your local dealer.

[3]) Control unit Simplex P with Perbunan® valve ball up to 40 °C for UNA 14P.

Note

The cover I does not feature holes as standard, the subsequent fitting of F and J is therefore not possible. **Fig. 3**
The cover I of the UNA 14P features holes as standard, the subsequent fitting of F and J is therefore possible. **Fig. 3**

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