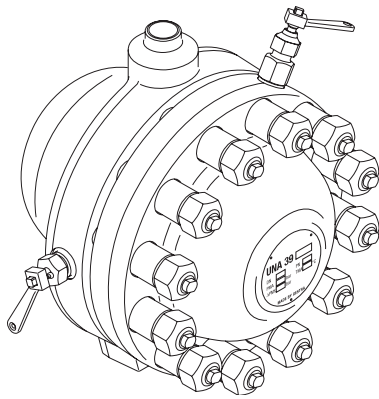
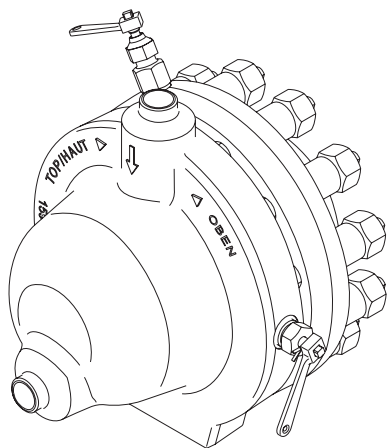


UNA 38h



UNA 39



UNA 39 Rear view

Ball Float Steam Trap

UNA 38, PN 100/CL 600, DN 15-50

UNA 39, PN 160/CL 900/CL 1500, DN 15-50

Description

UNA 3.. are steam traps with ball float and needle valve for high-pressure applications. The steam traps can be used for all operating conditions, as they are unaffected by back pressure.

The steam trap UNA 3.. consists of a body with bolted cover and a control unit. Various control units are available for the steam trap.

The control unit SIMPLEX is a level-dependent float controller and especially suitable for cold condensate and superheated steam.

The control unit DUPLEX (UNA 38) is a float controller with automatic and temperature dependent deaeration facility by means of a bimetallic air vent. The control unit DUPLEX is suitable for saturated steam and superheated steam.

The control unit with orifice (O) 80 MAX (UNA 38) is designed for large flowrates and high pressures and available as SIMPLEX or DUPLEX version.

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

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.

UNA 38 with control unit Orifice 80 MAX and UNA 39 with control unit Orifice 140 MAX:

The float controls a pilot valve as a function of the condensate level in the steam trap. 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. The vent hole ensures that the pressure between the control chamber and the interior of the steam trap is evened out such that the main valve closes.

The size of the cross-sectional area of the pilot valve and the main valve ensures only one orifice (O) is needed for the entire range of differential pressure up to 80 bar (or 140 bar).

Optional extras

Manual float-lifting lever

Hand-vent valve for version with DUPLEX control

Material for higher capacities, flanges / butt-weld ends via transition pieces: 1.7335 (UNA 38) high temperature

Flow from right to left for UNA 38
(viewed from cover end)

End connections

UNA 38

Flange EN 1092-1 B2 PN 100

Flange ASME B 16.5 CL 600 RF

Socket-weld ends to DIN EN 12760

Socket-weld ends to ASME B 16.11 CL 3000

Butt-weld ends via transition pieces EN 12627, weld joint geometry to ISO 9692-1

Code number 1.3 (30° chamfer)

Butt-weld ends via transition pieces ASME B 16.25 ASME B 36.10

UNA 39

Flange EN 1092-1 B2 PN 160

Flange ASME B 16.5 CL 900 RF

Butt-weld ends EN 12627, weld joint geometry to ISO 9692-1

Code number 1.3 (30° chamfer)

Socket-weld ends to DIN EN 12760

Socket-weld ends to ASME B 16.11 CL 6000

Design

| | | UNA 38 ¹⁾ | UNA 39 |
|--|-----------------------|--|--|
| Body connection | horizontal | ● | |
| | vertical | ● | |
| | angle-type | | ● |
| Orifice (O) max. differential pressure in [bar] | | Orifice 50 Orifice 64 Orifice 80 Orifice 80 MAX | Orifice 80 Orifice 110 Orifice 140 Orifice 140MAX |
| Control unit | SIMPLEX ²⁾ | ● | ● |
| | DUPLEX | ● | |

¹⁾ It is always possible to convert "h" to "v" design or vice versa to suit the pipework layout by repositioning the body and control unit

²⁾ incl. hand-vent valve

Materials of construction

| Designation | UNA 38 | | UNA 39 | |
|---|------------------|---------------------|-----------------|-----------------|
| | EN | ASTM* | EN | ASTM* |
| Body | 1.5415 | A182-F1 | 1.7335 | A182-F12 |
| Flanged, socket-weld, butt-weld ends Flange / butt-weld ends via transition pieces made from | 1.5415 1.7335 | A182-F1 A182-F12 | 1.7335 | A182-F12 |
| Cover | 1.7357 | A217-WC6 | 1.7335 | A182-F12 |
| Body gasket | Graphite/CrNi | Graphite/CrNi | Graphite/CrNi | Graphite/CrNi |
| Stud bolts and sleeves | 1.7709 | | 1.7709 | |
| Hexagon nuts | 1.7709 | | 1.7709 | |
| Internals | Stainless steel | Stainless Steel | Stainless steel | Stainless Steel |

* ASTM nearest equivalent grade is stated for guidance only. Physical and chemical properties comply with EN grade.

Pressure and temperature ratings

| UNA 38 | | | | | | |
|--|---|------|------|------|-----|------|
| End connection | Flange PN 100, socket-weld , butt-weld | | | | | |
| Pressure ¹⁾ p [barg] | 100 | 85.7 | 69 | 35.2 | 28 | 22.3 |
| Temperature ¹⁾ T [°C] | -10 / 20 | 300 | 450 | 510 | 520 | 530 |
| Max. allowable differential pressure ΔPMX [psi] | 50 (orifice 50), 64 (orifice 64), 80 (orifice 80) 725 (orifice 50), 928 (orifice 64), 1160 (orifice 80) | | | | | |
| Pressure ¹⁾ p [psig] | 1450 | 1243 | 1001 | 510 | 406 | 323 |
| Temperature ¹⁾ T [°F] | 14 / 392 | 572 | 842 | 950 | 968 | 986 |

¹⁾ Resistance limits for body/cover to EN 1092-1

| UNA 38 | | | | | | |
|--|---|------|------|------|------|------|
| End connection | Flange Class 600 | | | | | |
| Pressure ¹⁾ p [barg] | 100 | 100 | 69.9 | 61.7 | 59.7 | 42.5 |
| Temperature ¹⁾ T [°C] | -10 / 20 | 100 | 300 | 400 | 450 | 500 |
| Max. allowable differential pressure ΔPMX [psi] | 50 (orifice 50), 64 (orifice 64), 80 (orifice 80) 725 (orifice 50), 928 (orifice 64), 1160 (orifice 80) | | | | | |
| Pressure ¹⁾ p [psig] | 1450 | 1450 | 1014 | 895 | 866 | 616 |
| Temperature ¹⁾ T [°F] | 14 / 68 | 212 | 572 | 752 | 842 | 932 |

¹⁾ Resistance limits for body/cover to EN 1759-1

| UNA 38 High-temperature | | | | | | |
|--|---|------|------|------|------|------|
| End connection | Flange PN 100 | | | | | |
| Pressure ¹⁾ p [barg] | 100 | 100 | 100 | 83.7 | 51.2 | 32.4 |
| Temperature ¹⁾ T [°C] | -10 / 20 | 100 | 300 | 450 | 500 | 530 |
| Max. allowable differential pressure ΔPMX [psi] | 50 (orifice 50), 64 (orifice 64), 80 (orifice 80) 725 (orifice 50), 928 (orifice 64), 1160 (orifice 80) | | | | | |
| Pressure ¹⁾ p [psig] | 1450 | 1450 | 1450 | 1214 | 742 | 470 |
| Temperature ¹⁾ T [°F] | 14 / 68 | 212 | 572 | 842 | 932 | 986 |

¹⁾ Resistance limits for body/cover to EN 1092-1 (≤ 400°C) and to EN 12516-2 (> 450 °C)

| UNA 38 High-temperature | | | | | | |
|--|---|------|------|------|------|------|
| End connection | Socket-weld end, butt-weld ends via transition pieces | | | | | |
| Pressure ¹⁾ p [barg] | 100 | 100 | 100 | 83.7 | 51.2 | 32.4 |
| Temperature ¹⁾ T [°C] | -10 / 20 | 100 | 350 | 450 | 500 | 530 |
| Max. allowable differential pressure ΔPMX [psi] | 50 (orifice 50), 64 (orifice 64), 80 (orifice 80) 725 (orifice 50), 928 (orifice 64), 1160 (orifice 80) | | | | | |
| Pressure ¹⁾ p [psig] | 1552 | 1552 | 1552 | 1214 | 742 | 470 |
| Temperature ¹⁾ T [°F] | 14 / 68 | 212 | 662 | 842 | 932 | 986 |

¹⁾ Resistance limits for body/cover to EN 12516-2

| UNA 38 High-temperature | | | | | | |
|--|---|------|------|------|------|------|
| End connection | Flange Class 600 | | | | | |
| Pressure ¹⁾ p [barg] | 100 | 100 | 78.2 | 67.6 | 51.2 | 32.4 |
| Temperature ¹⁾ T [°C] | -10 / 20 | 100 | 350 | 450 | 500 | 530 |
| Max. allowable differential pressure ΔPMX [psi] | 50 (orifice 50), 64 (orifice 64), 80 (orifice 80) 725 (orifice 50), 928 (orifice 64), 1160 (orifice 80) | | | | | |
| Pressure ¹⁾ p [psig] | 1494 | 1494 | 1134 | 980 | 742 | 470 |
| Temperature ¹⁾ T [°F] | 14 / 68 | 212 | 662 | 842 | 932 | 986 |

¹⁾ Resistance limits for body/cover to EN 1759-1 (≤ 450°C) and to EN 12516-2 (> 500 °C)

Pressure and temperature ratings

| UNA 39 | | | | | | |
|---|--|-------|-------|------|------|------|
| End connection | Flange PN 160, Flange CL 1500 | | | | | |
| Pressure ¹⁾ p [barg] | 160 | 134.8 | 104.3 | 71.6 | 46.4 | 37.3 |
| Temperature ¹⁾ T [°C] | -10 / 300 | 450 | 500 | 520 | 540 | 550 |
| Max. allowable differential pressure [barg] | 80 (orifice 80), 110 (orifice 110), 140 (orifice 140) | | | | | |
| ΔPMX [psi] | 1160 (orifice 80), 1595 (orifice 110), 2030 (orifice 140) | | | | | |
| Pressure ¹⁾ p [psig] | 2320 | 1955 | 1512 | 1038 | 673 | 541 |
| Temperature ¹⁾ T [°F] | 14 / 572 | 842 | 932 | 968 | 1004 | 1022 |

¹⁾ Resistance limits for body/cover to EN 1092-1

| UNA 39 | | | | | | |
|---|--|-------|-------|------|------|------|
| End connection | Socket-weld end, butt-weld end | | | | | |
| Pressure ¹⁾ p [barg] | 160 | 134.8 | 104.3 | 71.6 | 46.4 | 37.3 |
| Temperature ¹⁾ T [°C] | -10 / 300 | 450 | 500 | 520 | 540 | 550 |
| Max. allowable differential pressure [barg] | 80 (orifice 80), 110 (orifice 110), 140 (orifice 140) | | | | | |
| ΔPMX [psi] | 1160 (orifice 80), 1595 (orifice 110), 2030 (orifice 140) | | | | | |
| Pressure ¹⁾ p [psig] | 2320 | 1955 | 1512 | 1038 | 673 | 541 |
| Temperature ¹⁾ T [°F] | 14 / 572 | 842 | 932 | 968 | 1004 | 1022 |

¹⁾ Resistance limits for body/cover to EN 12516-2

| UNA 39 | | | | | | |
|---|--|------|------|------|------|------|
| End connection | Flange Class 900 | | | | | |
| Pressure ¹⁾ p [barg] | 155 | 117 | 84.6 | 64.5 | 41.8 | 33.6 |
| Temperature ¹⁾ T [°C] | -10 / 100 | 350 | 500 | 520 | 540 | 550 |
| Max. allowable differential pressure [barg] | 80 (orifice 80), 110 (orifice 110), 140 (orifice 140) | | | | | |
| ΔPMX [psi] | 1160 (orifice 80), 1595 (orifice 110), 2030 (orifice 140) | | | | | |
| Pressure ¹⁾ p [psig] | 2248 | 1697 | 1227 | 935 | 606 | 487 |
| Temperature ¹⁾ T [°F] | 14 / 212 | 662 | 932 | 968 | 1004 | 1022 |

¹⁾ Resistance limits for body/cover to EN 12516-2

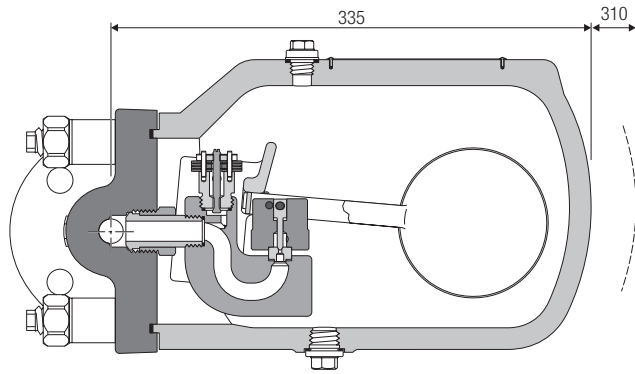
Orifice and differential pressure

| Orifice (Ø) | Hole diameter [mm] | | Differential pressure ΔPMX [bar] |
|-------------|--------------------|--------|----------------------------------|
| | UNA 38 | UNA 39 | |
| 50 | 2.8 | – | 50 |
| 64 | 2.3 | – | 64 |
| 80 | 2 | 1.9 | 80 |
| 80 MAX | 6.5 | – | 80 |
| 110 | – | 1.6 | 110 |
| 140 | – | 1.4 | 140 |
| 140 MAX | – | 6.5 | 140 |

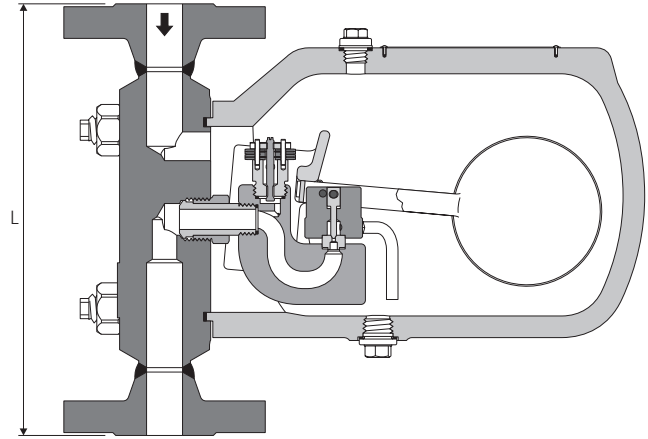
Dimensions and weights

| UNA 38 | | [mm] | 15 | 20 | 25 | 40 | 50 |
|----------------------------|---|--------|-----|-----|-----|-----|-----|
| | | [inch] | ½ | ¾ | 1 | 1½ | 2 |
| Overall length [mm] | Flange EN / DIN (PN 100) | L | 300 | 300 | 300 | 420 | 416 |
| | Flange to ASME (Class 600) | L | 300 | 300 | 300 | 421 | 427 |
| | Socket-weld end | L | 300 | 300 | 300 | 420 | 420 |
| | Butt-weld end | L | 300 | 300 | 300 | 300 | 300 |
| | Butt-weld ends via transition pieces of 1.7335 | L | 300 | 300 | 300 | 420 | 420 |
| Weight | with flange | [kg] | 38 | 38 | 38 | 40 | 42 |
| | with socket-weld, butt-weld, butt-weld ends via transition pieces | [kg] | 35 | 35 | 35 | 35 | 35 |

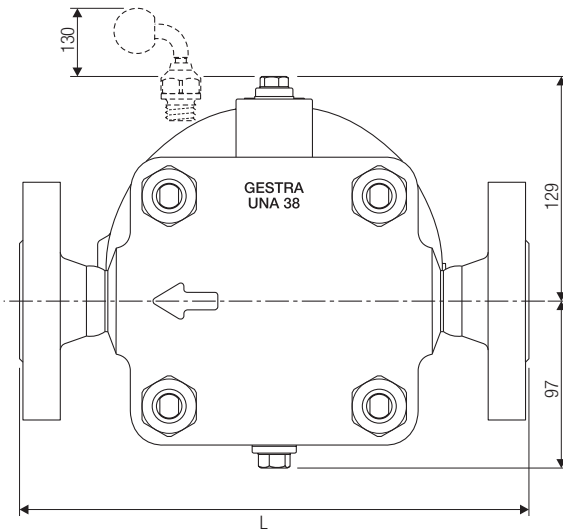
Dimensions UNA 38



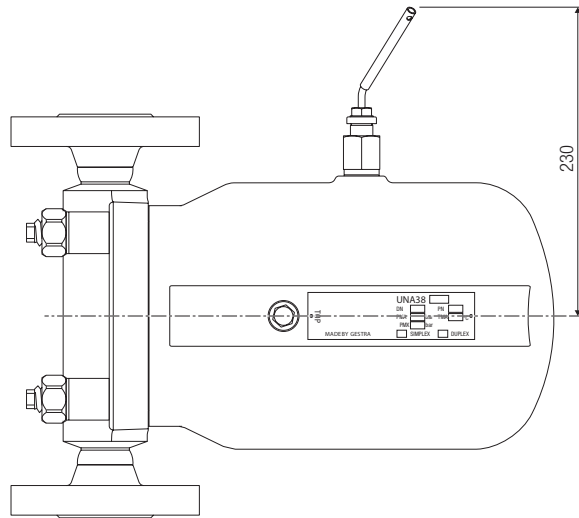
UNA 38h



UNA 38v

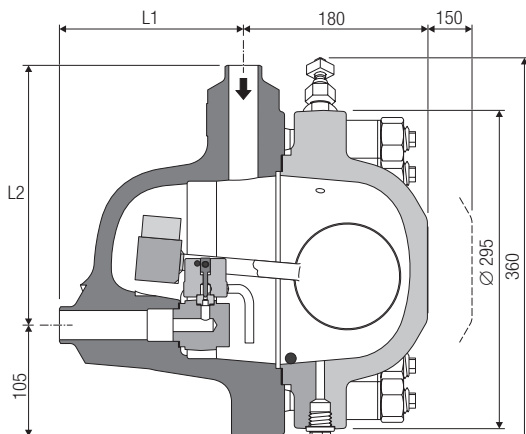


UNA 38h, flow from left to right (viewed from cover end)



UNA 38h

Dimensions UNA 39



Dimensions and weights

| UNA 39 | | [mm] | 15 | 25 | 40 | 50 |
|--------------------|---|--------|-----|-----|-----------------------|-----------------------|
| | | [inch] | ½ | 1 | 1½ | 2 |
| Length [mm] | Flange to EN / DIN (PN 160) | L1 | 215 | 230 | | 245 |
| | | L2 | 285 | 300 | | 315 |
| | Flange to ASME (Class 900/1500) | L1 | 240 | 250 | | 280 |
| | | L2 | 310 | 320 | | 350 |
| | Socket-weld end | L1 | 170 | 170 | | 170/245 ¹⁾ |
| Butt-weld end | L2 | 240 | 240 | | 240/315 ¹⁾ | |
| Weight | with flange | [kg] | 67 | 70 | | 78 |
| | with socket-weld, butt-weld, butt-weld ends via transition pieces | [kg] | 65 | 65 | | 65 |

¹⁾ Socket-weld/butt-weld

Capacity Charts

The chart shows the maximum capacities for hot condensate for the respective orifice.

The capacities are dependent on the differential pressure (working pressure).

The differential pressure is the difference between inlet and outlet pressure and depends among other things on the run of the condensate line.

If the condensate downstream of the trap is lifted, the differential pressure is reduced by 1 bar for 7 m lift.

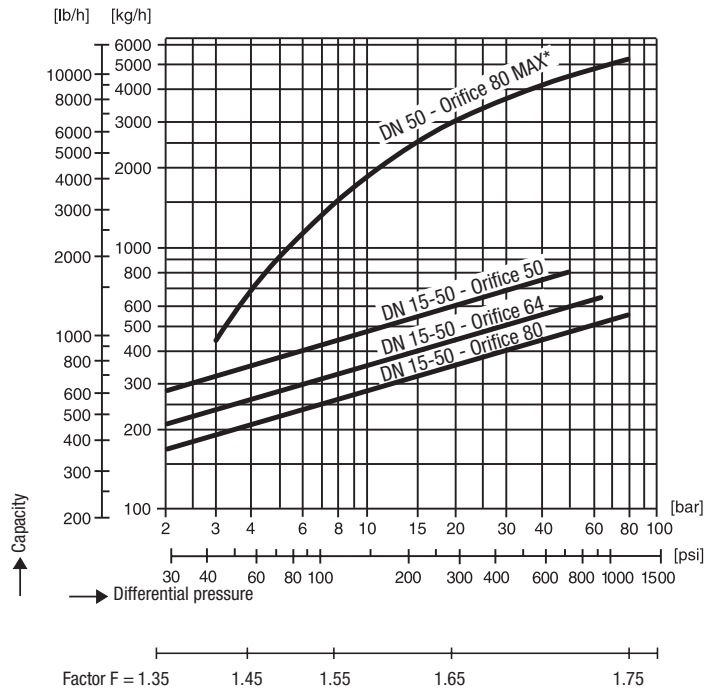
The maximum admissible differential pressure is dependent on the cross-sectional area of the orifice and the density of the liquid to be discharged.

The charts show the maximum capacities for hot condensate.

The max. capacity of cold water that the steam trap with control unit SIMPLEX or DUPLEX can discharge is: Capacity multiplied by factor F.

Capacity Charts

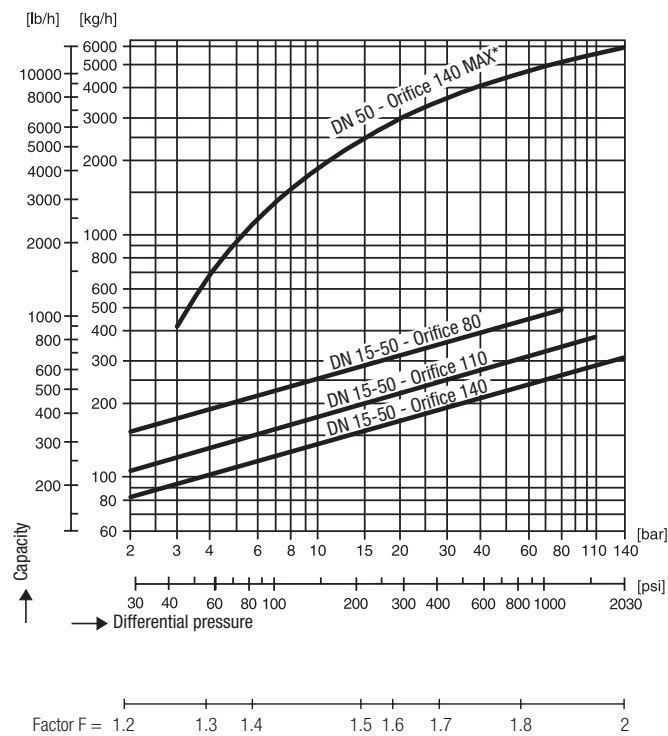
UNA 38



Additional cold-water start-up capacity due to thermostatic capsule DUPLEX design (only UNA 38)

| Δp | [barg] | 1 | 2 | 4 | 8 | 12 | 20 | 80 |
|------------|------------|-----|-----|-----|-----|-----|-----|------|
| Flowrate | approx. kg | 180 | 260 | 380 | 560 | 720 | 950 | 2100 |

UNA 39



* Note that equipment with smaller end connections does not achieve the indicated flowrates.

Ball Float Steam Trap

UNA 38, PN 100/CL 600, DN 15-50

**UNA 39, PN 160/CL 900/CL 1500,
DN 15-50**

Inspection & Certification

Documentation regarding material tests and in-house examination with test report EN10204 available. All inspection requirements have to be stated with the enquiry or order. After supply of the equipment certification cannot be established. Charges and extent of the above mentioned test certificates as well as the different tests confirmed therein are listed in our Price List "Test and Inspection Charges for Standard Equipment". For other tests and inspections than those listed above, please consult us.

Application of European Directives

Pressure Equipment Directive (PED)

The equipment conforms to this directive and can be used for the following media:

UNA 38, UNA 39

■ Fluids of group 1

■ Fluids of group 2

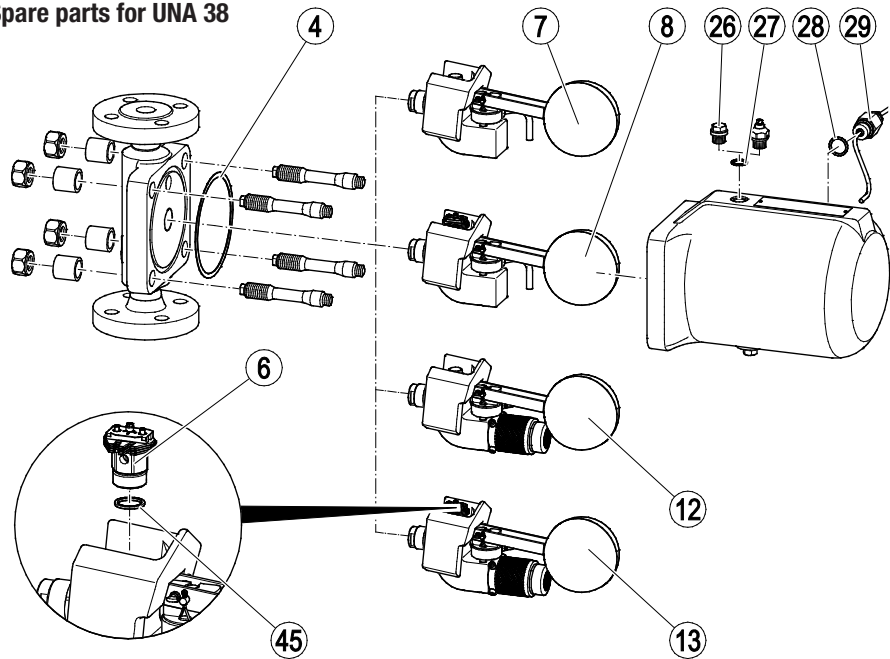
ATEX Directive

The equipment does not have its own potential ignition source and is not subject to this directive.

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.

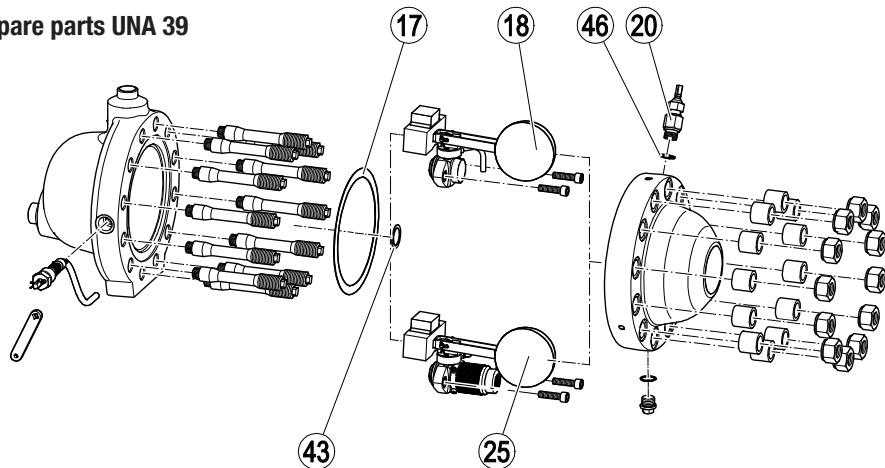
If it is possible for medium to escape, e.g. through actuating mechanisms or leaks in threaded joints, the plant manufacturer or plant operator must take this into consideration when dividing the area into zones.

Spare parts for UNA 38



| Item no. | Designation | Orifice | Stock code # |
|----------|--|---------|--------------|
| 4 | Body gasket | all | 524532 |
| 4, 8 | Control unit DUPLEX, complete with body gasket | 50 | 560550 |
| | | 64 | 560551 |
| | | 80 | 560552 |
| 4, 13 | Control unit DUPLEX Orifice 80 MAX, complete with body gasket | 80 MAX | 560553 |
| 4, 7 | Control unit SIMPLEX, complete with body gasket | 50 | 560554 |
| | | 64 | 560555 |
| | | 80 | 560556 |
| 4, 12 | Control unit SIMPLEX Orifice 80 MAX, complete with body gasket | 80 MAX | 560557 |
| 26, 27 | Hand vent valve, complete with gasket | all | 560559 |
| 28, 29 | Float-lifting lever, complete with gasket | all | 560560 |
| 6, 45 | Bimetallic air vent, compl. with gasket | all | 560558 |

Spare parts UNA 39



| Item no. | Designation | Orifice | Stock code # |
|-----------|---|---------|--------------|
| 17 | Body gasket | all | 523031 |
| 17, 18 | Control unit, complete with body gasket | 80 | 560172 |
| | | 110 | 560171 |
| | | 140 | 560170 |
| 17, 25 | Control unit, complete with body gasket | 140 MAX | 560179 |
| 20, 46 | Hand vent valve, complete with gasket | all | 560179 |
| 17, 43, - | Gasket kit ¹⁾ | all | 560539 |

Supply in accordance with our general terms of business.

¹⁾ Contains: Body gasket (17), gasket for control unit (§§), seat gasket (-)

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