

GESTRA Steam Systems

Product Range C

Desuperheater

Desuperheater KDS 13, KDL 13

KDS 13

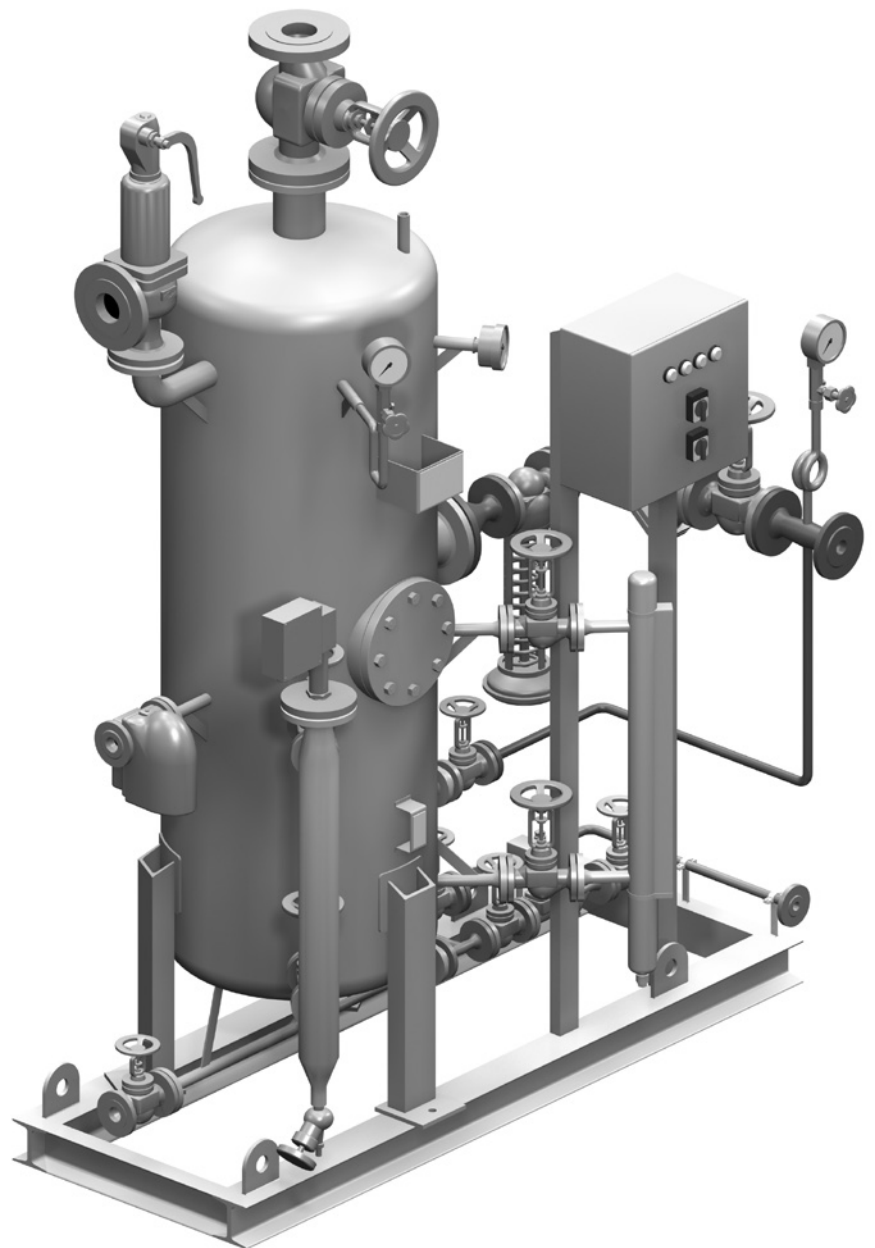
KDL 13

Description

The desuperheater KD...13 consists of a vessel with built-in nozzle arrangement for injecting and cooling superheated steam in a water bath. The KD...13 is suitable for all applications where an effective conversion of superheated steam into saturated steam is required. The desuperheater is available for different operating loads as horizontal design KDL 13 or vertical design KDS 13. The KD...13 is custom designed for each application and meets essential thermodynamic requirements to achieve optimal performance.

Function

Superheated steam at a max. temperature of 400 °C is introduced into a controlled system and injected through a nozzle into a water bath where it is cooled down to the temperature of the saturated steam. In passing through the water the superheat energy of the steam is given up to the cooling water, with some of the cooling water being evaporized and entrained as saturated steam. The steam content after the cooling process is 98 %. The desuperheater features an integral water separator that prevents the cooling water from being carried along into the steam line during peak loads. The level electrode NRG ... or NRGT ... detects the cooling water level and an electronic control unit ensures that the evaporized cooling water is replaced by make-up water. The cooling water at the required upstream pressure is fed into the lower part of the desuperheater via a control valve or a solenoid valve. If the temperature of the steam is very high the cooling water must be heated up. The water-bath desuperheater is the only steam cooling system that supplies saturated steam over a control range of 0 – 100 %.



Compact system KDS 13 with accessories

Design

Desuperheater KDS 13

Made from steel type P265GH, tank as vertical design with built-in nozzle arrangement, mechanical water separator, inspection hole, vessel rests on section supports, without accessories. The vessel of a compact-type desuperheating installation is mounted on a steel frame.

Accessories (valves, sensors and controllers) are available at extra cost.

Stainless steel design available at extra cost.

Desuperheater KDL13

Made from steel type P265GH, tank as horizontal design with built-in nozzle arrangement, mechanical water separator, inspection hole, vessel rests on boiler saddles, without accessories. The vessel of a compact-type desuperheating installation is mounted on a steel frame.

Accessories (valves, sensors and controllers) are available at extra cost.

Stainless steel design available at extra cost.

For other designs or special versions please consult us.

Technical Data

Service pressure

32 barg

Service temperature

400 °C

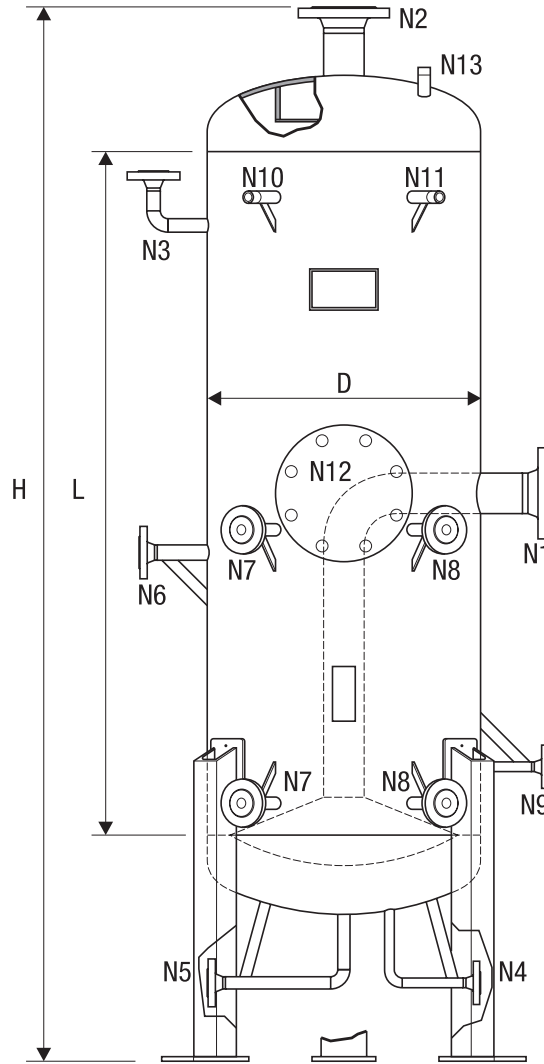
Capacity

0.06 t/h to 40 t/h

40 m³/h available on request

Technical Data

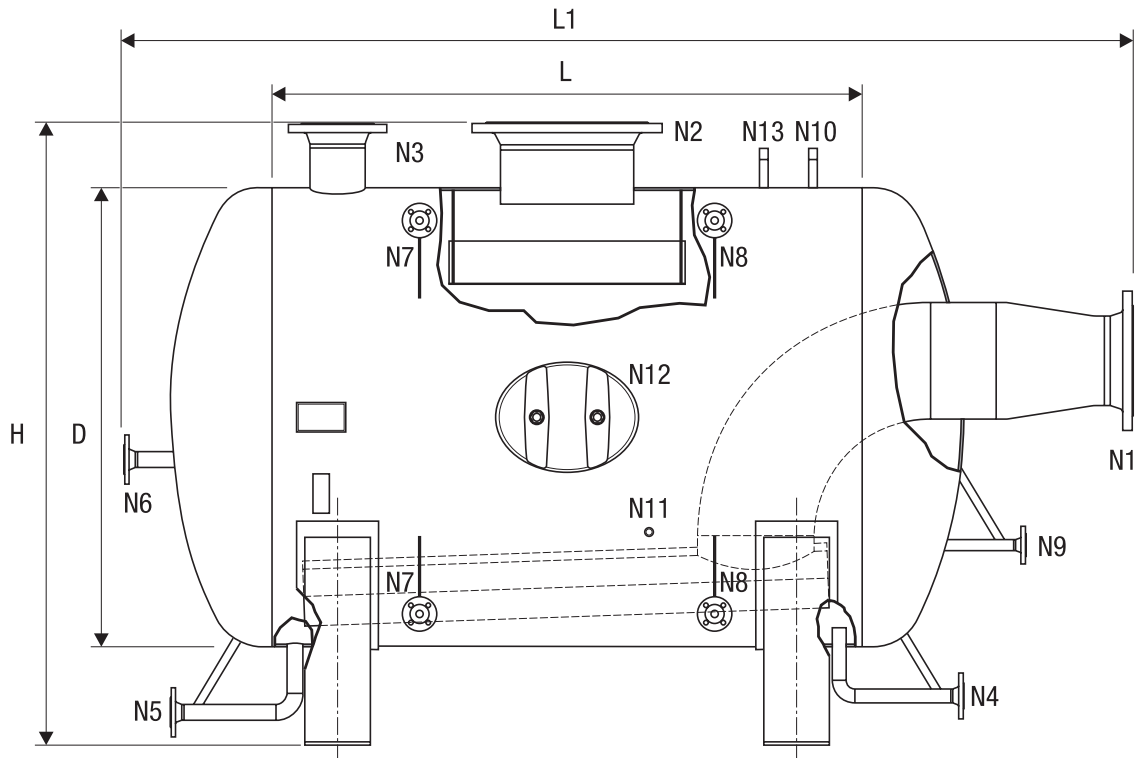
Desuperheater KDS 13



| KDS 13 | | | | | | | | |
|----------------------------|-------|------------|------------|-----------|-----------|-----------|------------|------------|
| Volume | [l] | 50 | 100 | 195 | 450 | 850 | 1350 | 2570 |
| Capacity | [t/h] | 0.06 - 0.9 | 0.15 - 1.9 | 0.2 - 2.8 | 0.5 - 5.0 | 0.9 - 9.0 | 1.4 - 13.0 | 2.0 - 20.0 |
| D | [mm] | 119 | 324 | 400 | 600 | 800 | 1000 | 1200 |
| H | [mm] | 1980 | 1770 | 2950 | 2130 | 2290 | 2370 | 2940 |
| L | [mm] | 1500 | 1250 | 1500 | 1500 | 1500 | 1500 | 2000 |
| Superheated steam inlet N1 | DN | | | | | | | |
| Saturated steam outlet N2 | DN | | | | | | | |
| Safety valve N3 | DN | | | | | | | |
| Cooling water inlet N4 | DN | | | | | | | |
| Drain N5 | DN | | | | | | | |
| Overflow N6 | DN | | | | | | | |
| Measuring pot N7 | DN | | | | | | | |
| Water level N8 | DN | | | | | | | |
| Warm-up system N9 | DN | | | | | | | |
| Pressure gauge N10 | G | | | | | | | |
| Thermometer N11 | G | | | | | | | |
| Inspection hole N12 | DN | | | | | | | |
| Pressure sensor N13 | G | | | | | | | |
| Weight | [kg] | 350 | 510 | 750 | 810 | 980 | 1700 | 2250 |

Sizing of standpipe in accordance with specified operating data.

Technical Data
Desuperheater KDL 13



| KDL 13 | | | | | | | | |
|-----------------------------|-------|-----------|------------|------------|------------|------------|------------|------------|
| Volume | [l] | 850 | 1350 | 2570 | 3630 | 4850 | 8800 | 11350 |
| Capacity | [t/h] | 0.9 - 9.0 | 1.4 - 13.0 | 2.0 - 20.0 | 2.5 - 21.0 | 2.7 - 22.0 | 4.8 - 28.0 | 5.5 - 40.0 |
| D | [mm] | 800 | 1000 | 1200 | 1400 | 1600 | 1800 | 1800 |
| H | [mm] | 1200 | 1400 | 1600 | 1850 | 2050 | 2250 | 2250 |
| L | [mm] | 1500 | 1500 | 2000 | 2000 | 2000 | 3000 | 4000 |
| L1 | [mm] | 2190 | 2270 | 2840 | 2900 | 3000 | 4000 | 5000 |
| Superheated steam inlet N1 | DN | | | | | | | |
| Saturated steam outlet*) N2 | DN | | | | | | | |
| Safety valve N3 | DN | | | | | | | |
| Cooling water inlet N4 | DN | | | | | | | |
| Drain N5 | DN | | | | | | | |
| Overflow N6 | DN | | | | | | | |
| Measuring pot N7 | DN | | | | | | | |
| Water level N8 | DN | | | | | | | |
| Warm-up system N9 | DN | | | | | | | |
| Pressure gauge N10 | G | | | | | | | |
| Thermometer N11 | G | | | | | | | |
| Inspection hole N12 | DN | | | | | | | |
| Pressure sensor N13 | G | | | | | | | |
| Weight | [kg] | 350 | 510 | 750 | 810 | 980 | 1700 | 2250 |

*) Saturated steam outlet on steam dome available on request.
 Sizing of standpipe in accordance with specified operating data.

Desuperheater Desuperheater KDS 13, KDL 13

Please Note:

The cooling water must at least be of condensate quality. The cooling water temperature at the inlet $\geq 100^\circ\text{C}$. Desuperheater made from stainless steel: The chloride content of the make-up water or the returned condensate must not exceed 50 mg/l (conductivity 250 $\mu\text{S/cm}$).

Order & Enquiry Specification

GESTRA Desuperheater KDS 13, KDL 13
System: Water bath type desuperheater

Superheated steam flowrate
 Steam pressure upstream of desuperheater / reducing valve
 Steam pressure downstream of desuperheater
 Cooling water temperature
 Cooling water pressure
 Steam pressure control: mechanical / electric / pneumatic
 Cooling water supply via solenoid valve / control valve / pump
 Feedwater tank made from steel / stainless steel
 Complete system with accessories yes / no
 Complete system on frame yes / no
 Partial system
 Special design requested yes / no
 Please enter data and cross out portion not applicable.

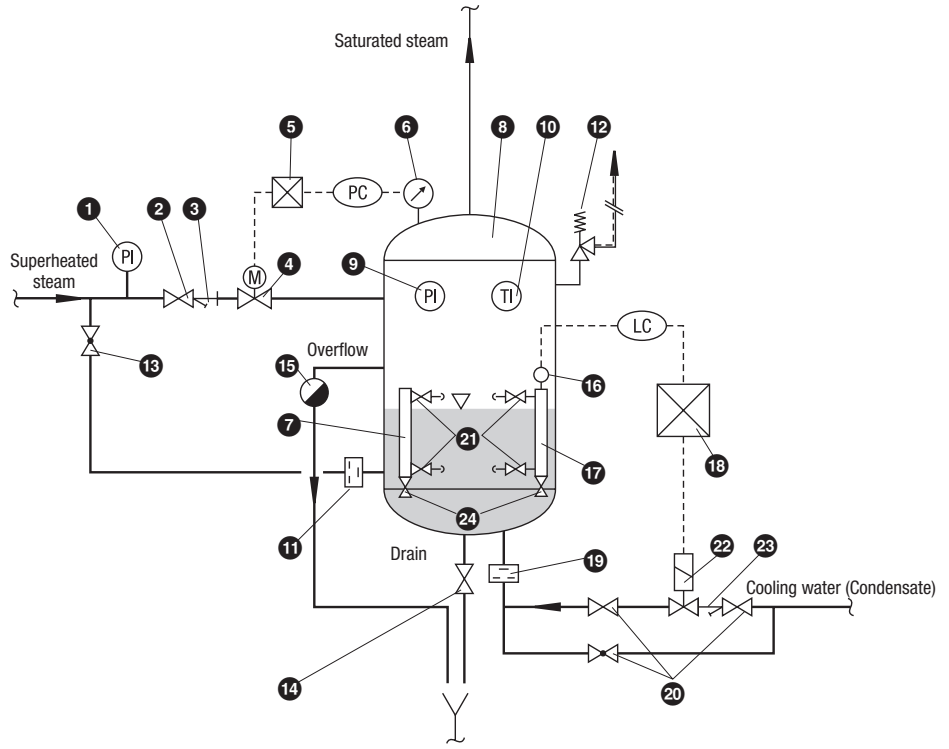
For more information see our folder "GESTRA Specification Texts".

Pressure Equipment Directive (PED)

These products comply with the requirements of the Pressure Equipment Directive PED 97/23/EC and the AD 2000 Bulletin, taking the conformity assessment into account. Applicable with fluids of group 1 and 2. With CE marking, except for equipment according to section 3.3. For more information refer to our PED Declaration of Conformity.

Supply in accordance with our general terms of business.

Schematic layout



Key

- | | |
|---|------------------------------------|
| 1 Pressure gauge unit | 13 Shut-off valve GAV... |
| 2 Shut-off valve GAV.. | 14 Shut-off valve GAV.. |
| 3 Strainer GSF.. | 15 Ball float trap UNA... |
| 4 Control valve | 16 Level electrode NRG..., NRGT... |
| 5 Universal controller | 17 Measuring pot |
| 6 Pressure gauge transducer | 18 Preamplifier / controller |
| 7 Water level indicator | 19 Non-return valve RK... |
| 8 Desuperheater | 20 Shut-off valve GAV.. |
| 9 Pressure gauge unit | 21 Shut-off valve GAV.. |
| 10 Bimetallic dial thermometer | 22 Solenoid valve |
| 11 Non-return valve RK... | 23 Strainer GSF ... |
| 12 Full-lift spring-loaded safety valve GSV.. | 24 Drain valve |

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