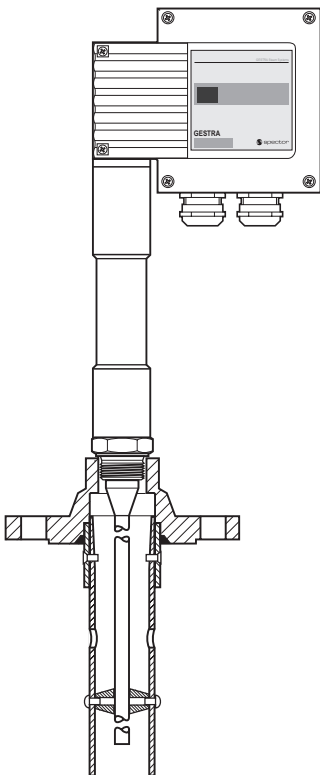


NRGT 26-1



NRGT 26-1S



## Level Monitoring

### NRGT 26-1

### NRGT 26-1S For Marine Applications

#### Description

The level transmitter NRGT 26-1 / NRGT 26-1 S is a compact-type system consisting of a level measuring electrode and a level transmitter integrated in the terminal box.

The level transmitters NRGT 26-1 and NRGT 26-1S are used for continuous level monitoring in steam boilers and (pressurized) hot-water installations or in condensate and feedwater tanks.

In conjunction with the level switch NRS 2-.. and the level controller NRR 2-.. the transmitter can be used as water level controller with MIN/MAX alarm.

The level transmitter can be used in combination with the following level switches and controllers: NRS 2-50, NRS 2-51, NRR 2-50, NRR 2-51, NRR 2-52 and NRR 2-53.

#### Function

The level transmitter works according to the capacitance measurement principle and translates the level changes into a level-dependent current signal of 4-20 mA, with the length of the electrode rod determining the measuring range.

The level transmitter is installed inside steam boilers, vessels or in an external level pot. If the equipment is installed inside the boiler or vessel, a protection tube provided on side ensures correct functioning.

The level transmitter can be installed together with one GESTRA level electrode for water level limiting or for high-level alarm in a single protection tube or an external level pot.

The level transmitter can be used in electrically conductive and non-conductive fluids.

#### Directives and standards

##### VdTÜV Bulletin "Water Monitoring 100"

The level transmitter NRGT 26-1 is type approved acc. to VdTÜV Bulletin "Wasserstand 100" if used in combination with the following level switches / controllers: NRS 2-50, NRS 2-51, NRR 2-50, NRR 2-51, NRR 2-52 and NRR 2-53.

The VdTÜV Bulletin "Wasserstand (= Water Level) 100" specifies the requirements made on water level control and limiting equipment for boilers.

##### Approvals for Marine Applications

The level transmitter NRGT 26-1S is approved for marine applications.

##### LV (Low Voltage) Directive and EMC (Electromagnetic Compatibility)

The level transmitter NRGT 26-1 meets the requirements of the Low Voltage Directive 2014/35/EU and the EMC Directive 2014/30/EU.

##### ATEX (Atmosphère Explosible)

According to the European Directive 2014/34/EU the equipment must **not** be used in potentially explosive areas.

##### UL/cUL (CSA) Approval

The equipment meets the requirements of Directives: UL 508 and CSA C22.2 No. 14-13, Standards for Industrial Control Equipment. File E243189.

#### Technical data

##### Service pressure

PN 40, 32 bar at 238°C

##### Mechanical connection

NRGT 26-61: Screwed G ¾ A, ISO 228

NRGT 26-1S: Flange DN 50, PN 40, DIN EN 1092-01

##### Materials

Screw-in body: 1.4571, X6CrNiMoTi17-12-2

Electrode rod insulation: PTFE

Terminal box: 3.2161 G AISI8Cu3

NRGT 26-1S: Flange 1.0460 P250GH

NRGT 26-1S: Spacer disc: PTFE

#### Length of installation / measuring range

| NRGT 26-1                        |                 | NRGT 26-1S                       |                 |
|----------------------------------|-----------------|----------------------------------|-----------------|
| Length of installation at 238° C | Measuring range | Length of installation at 238° C | Measuring range |
| 373                              | 300             | 316                              | 275             |
| 477                              | 400             | 420                              | 375             |
| 583                              | 500             | 526                              | 475             |
| 688                              | 600             | 631                              | 575             |
| 794                              | 700             | 737                              | 675             |
| 899                              | 800             | 842                              | 775             |
| 1004                             | 900             | 947                              | 875             |
| 1110                             | 1000            | 1053                             | 975             |
| 1214                             | 1100            | 1157                             | 1075            |
| 1319                             | 1200            | 1262                             | 1175            |
| 1423                             | 1300            | 1366                             | 1275            |
| 1528                             | 1400            | 1471                             | 1375            |
| 1636                             | 1500            | 1579                             | 1475            |
| 2156                             | 2000            | 2099                             | 1975            |

#### Weight

NRGT 26-61: approx. 1.8 kg

NRGT 26-61S: approx. 8.0 kg

#### Electronic circuit board

##### Supply voltage

24 V AC/DC

AC +/- 20%

DC +10 / -45%

115 V +/- 10%, 50/60 Hz (option)

230 V +/- 10 %, 50/60 Hz (option)

##### Power consumption

3 VA at 24 V DC

5 VA at 24, 115, 230 V AC

##### Fuse

External slow-blow 0.5 A

Internal thermal fuse  $T_{max} = 102^{\circ}C$

##### Sensitivity of response

Range 1: Water  $\geq 20 \mu S/cm$

Range 2: Water  $\geq 0.5 \mu S/cm$

Range 3: Fuel oil EL, dielectric constant  $\epsilon_r 2,3$

##### Output

Actual value output 4 – 20 mA, level proportional. Electrically insulated, max. load 500  $\Omega$

# Level Monitoring

## NRGT 26-1

## NRGT 26-1S

### For Marine Applications

#### Technical data - continued -

##### Indicators and adjusters-

- 2 red LEDs for signalling "Level 0 %" or "Level 100" within the measuring range,
- 1 green LED for signalling "Level between 0 % and 100 %" of measuring range.
- 1 code switch for selecting the measuring range.
- 2 adjustable resistors for small-percentage adjustment of the measuring range.
- 2 terminal lugs for voltage measurement.

##### Electrical connection

- 2 cable glands with integral cable clamp M20 x 1.5
- Screw-type terminal strip with 2 and 3 terminals, detachable, conductor size 1.5 mm<sup>2</sup>

##### Protection

IP 65 to DIN EN 60529

##### Max. admissible ambient temperature

Max. 70 °C

##### Storage and transport temperature

-40 to +80 °C

##### Approvals:

TÜV type approvals acc. to VdTÜV Bulletin "Wasserstand 100": Requirements made on water level limiting & control equipment.

Type approval no. TÜV · WR · 12-391, 12-425, 12-426, 12-427  
 Marine applications: DNV A-13857, KR HMB 06190-MS002, NK TA11016M, BV 10617/CO, CCS HBT 0742 1062-1, RINA ELE 324114CS, GL 992499-96 HH, LR 98/20074 (E2)

## Important Notes

### Installation

- The level transmitter NRGT 26-1 can be installed together with one GESTRA level electrode for water level limiting or for high-level alarm in a single protection tube or external level pot (inside diameter 100 m). If the level limiting electrode is installed inside the vessel, it must be at least 40 mm away from the upper vent hole.
- The angle of inclination of the transmitter must not exceed 45°, with the length of installation being limited to 688 mm.
- Do not cut the electrode rod.

### Electrical connection

- **NRGT 26-..., 24 V AC/DC:** An external slow-blow fuse 0.5 A must be provided for the level transmitter. To connect the equipment use screened multi-core control cable with a min. conductor size 0.5 mm<sup>2</sup>, e. g. LiYCY 4 x 0.5 mm<sup>2</sup>, max. length 100 m.

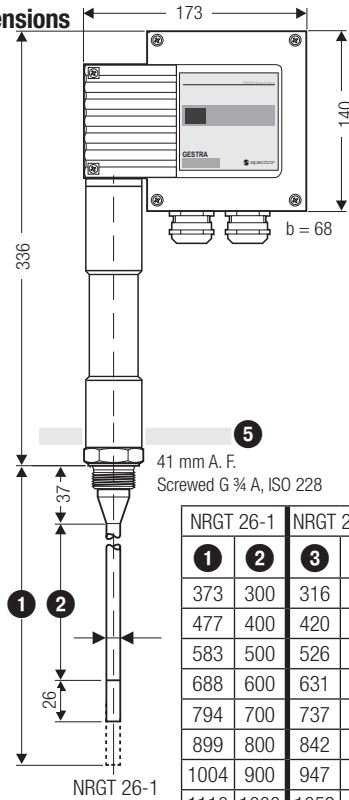
For the power supply of the level transmitter use a safety power supply unit (PSU), e.g. Siemens SITOP PSU100C 24V/0.6A, which must provide a level of isolation against voltages that at least meets the requirements for double or reinforced insulation as per DIN EN 50178 or DIN EN 61010-1 or DIN EN 60730-1 or DIN EN 60950 (electrically protective separation).

- **NRGT 26-..., 115/230 V AC:** An external slow-blow fuse 0.5 A must be provided for the level transmitter. To connect the voltage supply use a multi-core control cable with a min. conductor size 0.5 mm<sup>2</sup>. To connect the actual value output use screened multi-core control cable with a min. conductor size 0.5 mm<sup>2</sup>, e. g. LiYCY 2 x 0.5 mm<sup>2</sup>, max. length: 100 m.

Install a disconnecter for all poles. Make sure it is easily accessible and in the close proximity of the equipment (EN 61010-1).

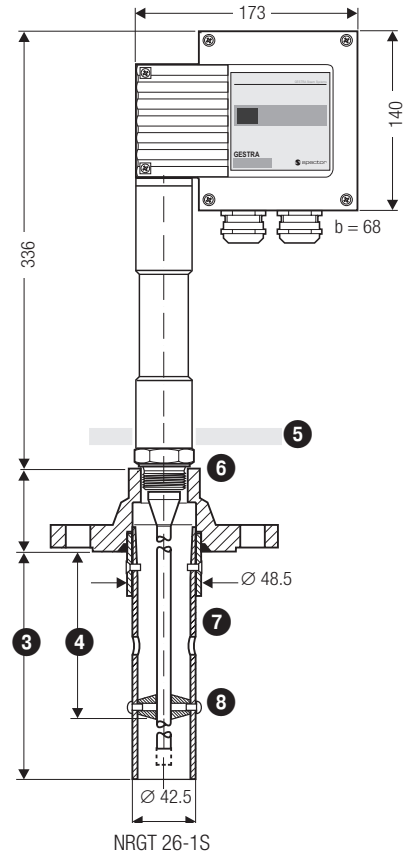
Mark this disconnecting switch as isolating device for the level transmitter.

## Dimensions

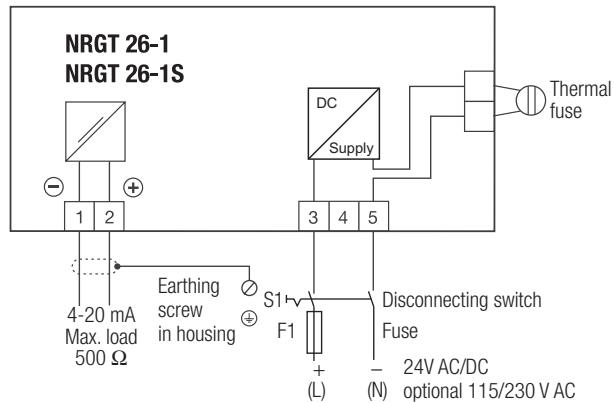


41 mm A. F.  
Screwed G ¾ A, ISO 228

| NRGT 26-1 |      | NRGT 26-1S |      |
|-----------|------|------------|------|
| 1         | 2    | 3          | 4    |
| 373       | 300  | 316        | 275  |
| 477       | 400  | 420        | 375  |
| 583       | 500  | 526        | 475  |
| 688       | 600  | 631        | 575  |
| 794       | 700  | 737        | 675  |
| 899       | 800  | 842        | 775  |
| 1004      | 900  | 947        | 875  |
| 1110      | 1000 | 1053       | 975  |
| 1214      | 1100 | 1157       | 1075 |
| 1319      | 1200 | 1262       | 1175 |
| 1423      | 1300 | 1366       | 1275 |
| 1528      | 1400 | 1471       | 1375 |
| 1636      | 1500 | 1579       | 1475 |
| 2156      | 2000 | 2099       | 1975 |



## Electrical connection



## Important Notes

### Electrical connection

- Any item of equipment that you want to connect to the terminals for the actual-value output 4 - 20 mA must be certified to have at least double or reinforced isolation according to DIN EN 50178 or DIN EN 61010-1 or DIN EN 60730-1 or DIN EN 60950 (safe electrical isolation) between the current loop and live parts of the equipment that are not supplied with safety extra-low voltage (SELV).
- Make sure that the connecting cable is segregated and runs separately from power cables. Please observe the max. load of 500 ohm.

### Key

- 1 + 3 Max. length of installation at 238 °C
- 2 + 4 Measuring range
- 5 Thermal insulation, provided on site, d = 20 mm (outside of thermal insulation of steam boiler)
- 6 Flange DN 50, PN 40, DIN EN 1092-01
- 7 Protection tube
- 8 Spacer disc

Level Monitoring  
**NRGT 26-1**  
**NRGT 26-1S**  
**For Marine Applications**

**Order & Enquiry Specification**

GESTRA Level transmitter NRG 26-1  
 PN 40, screwed G 3/4  
 Actual value output 4 - 20 mA  
 Length of installation.....mm  
 Supply voltage .....  
 Fluid .....

GESTRA Level transmitter NRG 26-1S  
 PN 40, DN 50  
 Actual value output 4 - 20 mA  
 Length of installation.....mm  
 Supply voltage .....  
 Fluid .....

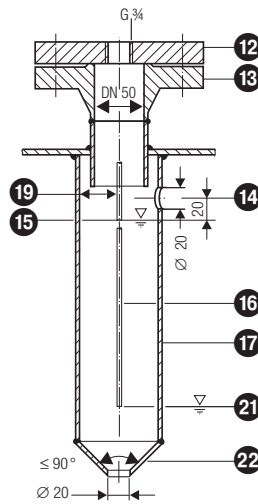
**Associated switch / controller, associated power supply unit**

- Level switch NRS 2-50, NRS 2-51
- Level controller NRR 2-50, NRR 2-51
- Level controller NRR 2-52, NRR 2-53
- Power supply unit SITOP PSU100C 24V/0,6A

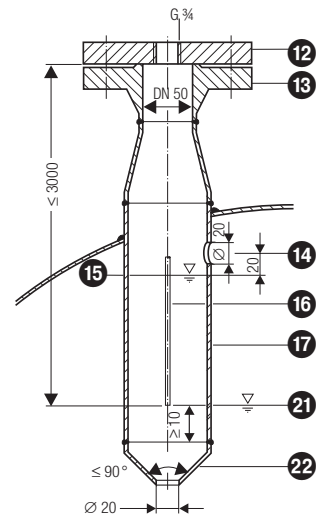
**Key**

- 12 Flange PN 40, DN 50, DIN EN 1092-01 (for one electrode)
- 13 Flange PN 40, DN 100, DIN EN 1092-01 (for electrode combination)
- 14 For the approval of the boiler standpipe with connecting flange the relevant regulations must be considered.
- 15 Vent hole
- 16 Provide vent hole as close to the boiler wall as possible!
- 17 High water HW
- 18 Electrode rod
- 19 Protection tube DN 80 (in France according to AFAQ  $\geq$  DN 100)
- 20 Protection tube DN 100
- 21 Distance between electrode rod and protection tube  $\geq$  14 mm
- 22 Distance between electrode tip (NRG 1...-50 or NRG 1...-51)  $\geq$  14 mm (creepage distances and clearances)
- 23 Low water LW
- 24 Reducer DIN 2616-2, K-88.9 x 3.2-42.4 x 2.6 W
- 25 Reducer DIN 2616-2, K-114.3 x 3.6-48.3 x 2.9 W
- 26 Level pot  $\geq$  DN 80

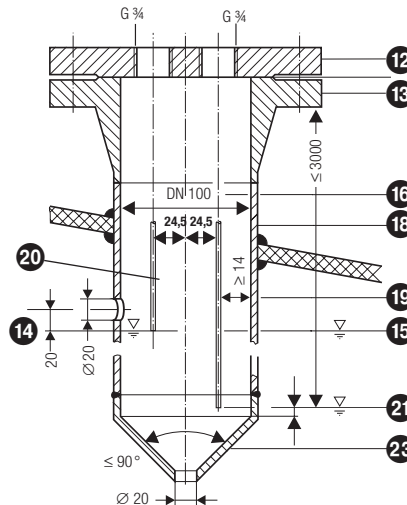
**Examples of installation**



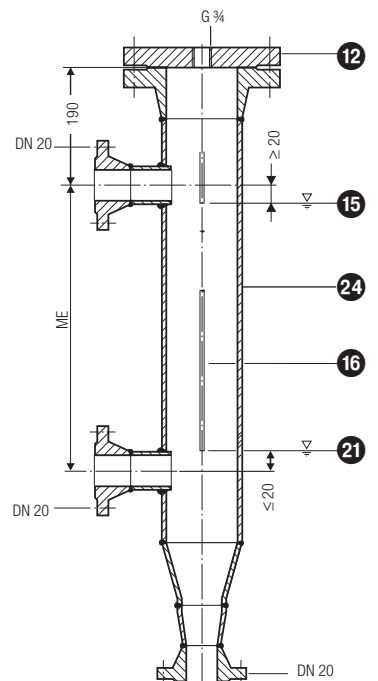
**Fig. 4** Protection tube (provided on site) for installation inside the boiler



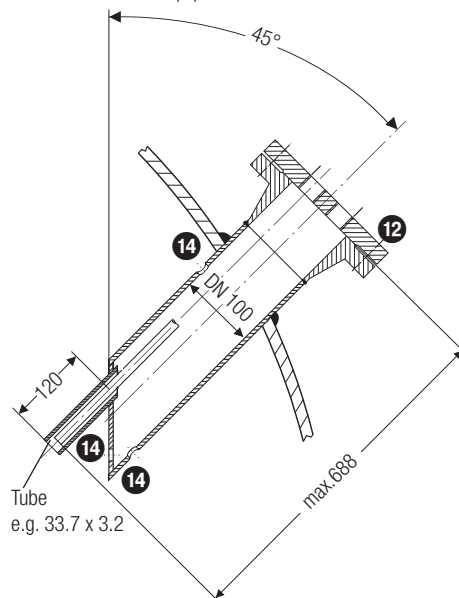
**Fig. 5** Protection tube (provided on site) for installation inside the boiler



**Fig. 6** Protection tube (provided on site) for installation inside the boiler and in combination with other GESTRA equipment



**Fig. 7** External level pot



**Fig. 8** Inclined installation, e.g. in steam boilers

Supply in accordance with our general terms of business.

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**GESTRA**