

NRG 26-21

## Level Monitoring

### NRG 26-21

#### Description

The level electrode NRG 26-21 is 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 electrode can be used as water level controller with MIN/MAX alarm.

The level electrode can be 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.

#### Function

The level electrode and the preamplifier NRV 2-29 work according to the capacitance measurement principle and translate the level changes into a level-dependent current signal, with the length of the electrode rod determining the measuring range.

The level electrode 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 electrode 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.

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

#### Directives and standards

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

The level electrode NRG 26-21 in conjunction with the following level switches / controllers is type approved according to VdTÜV Bulletin "Wasserstand (= Water Level) 100": 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.

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

The level electrode 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 014/34/EU the equipment must **not** be used in potentially explosive areas.

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

The equipment meets the requirements of: 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

NRG 26-621: Screwed G ¾ A, ISO 228

##### Materials

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

Electrode rod insulation: PTFE

##### Length of installation / measuring range

| NRG 26-21                        |                 |
|----------------------------------|-----------------|
| Length of installation at 238° C | Measuring range |
| 373                              | 300             |
| 477                              | 400             |
| 583                              | 500             |
| 688                              | 600             |
| 794                              | 700             |
| 899                              | 800             |
| 1004                             | 900             |
| 1110                             | 1000            |
| 1214                             | 1100            |
| 1319                             | 1200            |
| 1423                             | 1300            |
| 1528                             | 1400            |
| 1636                             | 1500            |
| 2156                             | 2000            |

##### Weight

NRG 26-621: approx. 1.8 kg (NRG 26-21 L=1000mm)

##### Pre-amplifier NRV 2-29

##### Supply voltage

12 V DC

##### Sensitivity of response

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

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

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

##### Output

$\geq 0 - \leq 7 \text{ V DC}$ , level proportional

##### Adjustor

1 Code switch with 6 poles for setting the measuring range

##### Housing

PPO (Noryl®)

##### Electrical connection

1 Screw-type terminal strip with 3 poles, cable gland with integrated cable clamp M 16

##### Protection

IP 65 to DIN EN 60529

##### Max. admissible ambient temperature

Max. 70 °C

##### Approvals:

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

Type approval: TÜV · WR · XX-317, XX-320, XX-425, XX-426, XX-427 (see name plate)

# Level Monitoring NRG 26-21

## Important Notes

### Installation

■ The level electrode NRG 26-21 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 mm). If the level limiting electrode is installed inside the vessel, it must be at least 40 mm away from the upper vent hole.

■ If installed outdoors the level electrode must be equipped with a GESTRA weather protection cover.

■ The angle of inclination of the electrode must not exceed 45°, with the length of the electrode rod being limited to 688 mm.

■ Do not cut the electrode rod.

### Electrical connection

■ To connect the level electrode 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.

■ A maximum of 3 switches / controllers NRS /NRR 2-5.. can be connected to one level electrode.

■ Connect the screen only once to the central earthing point (CEP) in the control cabinet.

■ Make sure that the connecting cable is segregated and runs separately from power cables.

## Key

- ❶ Max. length of installation at 238 °C
- ❷ Measuring range
- ❸ Electrode thread G ¾ A, ISO 228
- ❹ Thermal insulation, provided on site, d = 20 mm (outside of thermal insulation of steam boiler)
- ❺ Wiring terminals NRG 26-21
- ❻ Wiring terminal strip of level switch/controller NRS 2-5.. / NRR 2-5..

## Dimensions

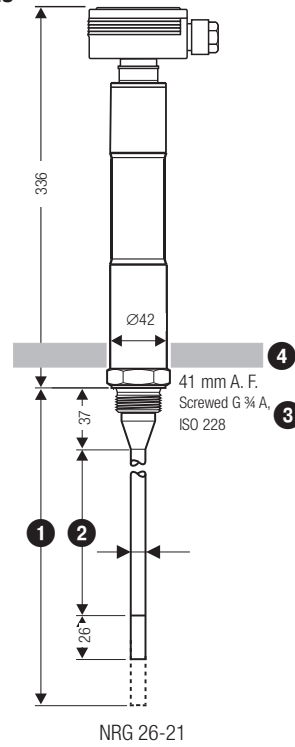


Fig. 1

| NRG 26-21                          |                   |
|------------------------------------|-------------------|
| Length of installation at 238° C ❶ | Measuring range ❷ |
| 373                                | 300               |
| 477                                | 400               |
| 583                                | 500               |
| 688                                | 600               |
| 794                                | 700               |
| 899                                | 800               |
| 1004                               | 900               |
| 1110                               | 1000              |
| 1214                               | 1100              |
| 1319                               | 1200              |
| 1423                               | 1300              |
| 1528                               | 1400              |
| 1636                               | 1500              |
| 2156                               | 2000              |

## Electrical connection

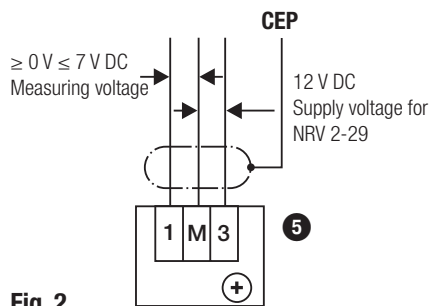


Fig. 2

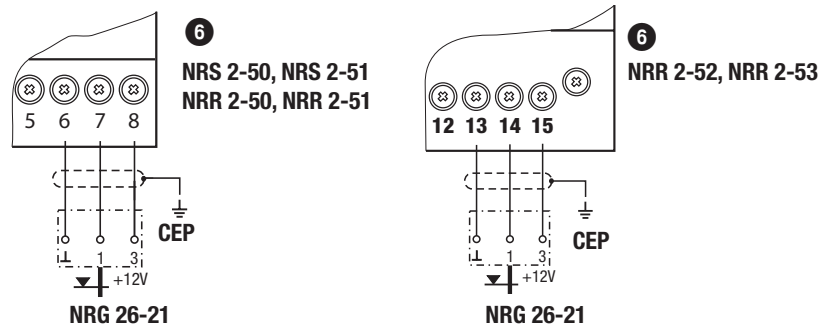


Fig. 3

# Level Monitoring NRG 26-21

## Order & Enquiry Specification

GESTRA Level electrode NRG 26-21  
 PN 40, screwed G 3/4  
 Length of installation .....mm  
 Fluid .....

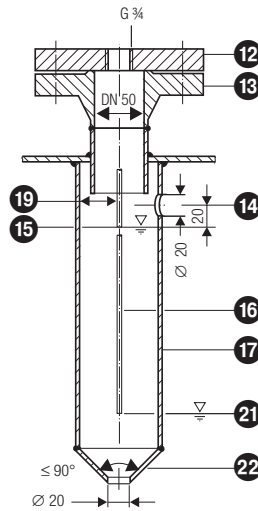
## Associated switch / controller, associated power supply unit

- 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

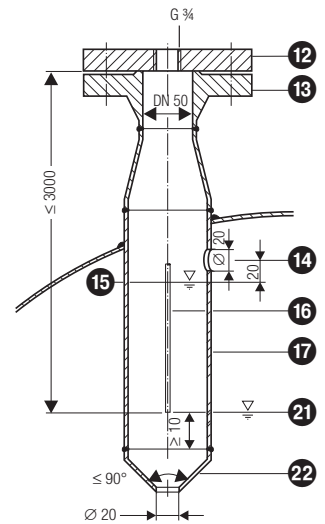
## Key

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

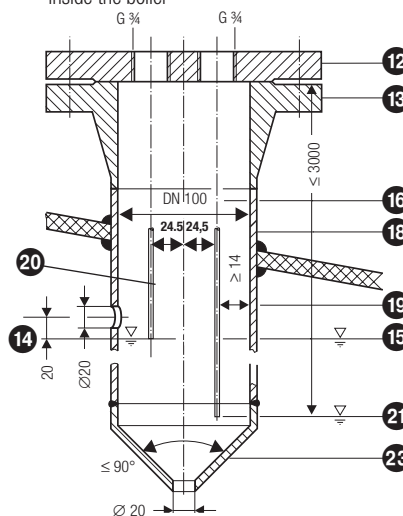
## Examples of installation



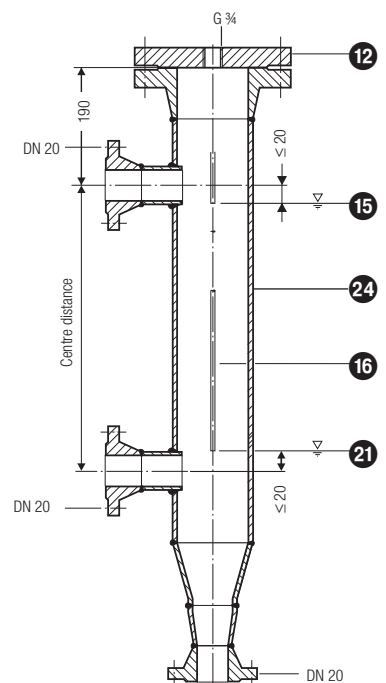
**Fig. 4** Protection tube (provided on site) for installation inside the boiler



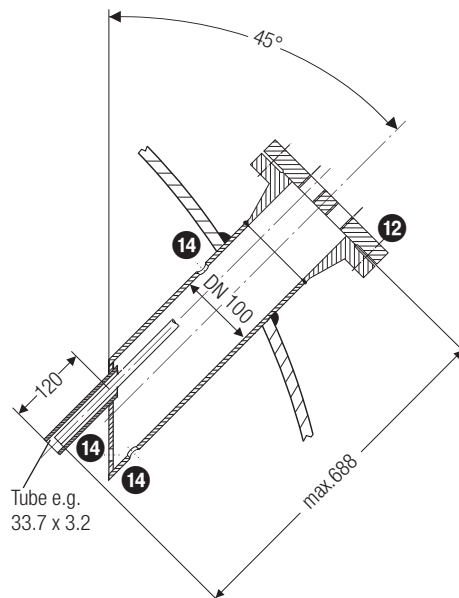
**Fig. 5** Protection tube (provided on site) for installation inside the boiler



**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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