GESTRA Steam Systems

Product Range B

Level Probes
NRG 21-11
NRG 21-51

NRG 21-11
NRG 21-51

Description

The operation of the level electrodes NRG 21-11 and NRG 21-51 is based on the capacitance measurement principle. The NRG 21-11 and NRG 21-51 are designed for signalling levels in electrically conductive and non-conductive liquids:

- Liquid level maintained within the control band defined by two preset limits

The preamplifier NRV 2-29 is integrated in the terminal box of the level electrode.

The level electrode NRG 21-11 has a rigid electrode rod with plastic coating.

The level electrode NRG 21-51 has a flexible wire rope with plastic coating. This electrode is also available without the plastic coating (optional).

Function

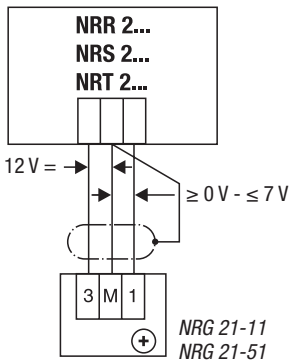
The principle of capacitance measurement is applied to determine the level. The electrode rod and the vessel wall form a capacitor. If the level of the dielectric located between these two capacitor plates changes, the current which flows through the plates changes proportionally to the level. A dielectric is by definition an insulating substance, which excludes many liquids such as water. In order to receive a useful measuring result the measuring rod, which is submerged to varying depths in the liquid, must be completely insulated. After the calibration of the zero point/measuring range (0 % – 100 %) of the control unit, the level can be read off from a remote display unit. The level measuring range can be changed during operation.

Design

NRG 21-11
Screwed ¾", EN ISO 228-1.

NRG 21-51
Screwed 1½", EN ISO 228-1.

Wiring Diagram



NRG 21-11
NRG 21-51

Technical Data

NRG 21-11

Max. service pressure
6 bar g at 164 °C

Connection
Screwed ¾", DIN ISO 228-1

Materials

Terminal box	PPO (Noryl®)
Stem	1 .4571 CrNiMoTi17-12-2
Measuring electrode	1 .4571 CrNiMoTi17-12-2
Electrode insulation	PTFE

Supply voltage
12 V

Overal length / measuring range
⑭ Max. length of installation at 164 °C
⑮ Measuring range

Sensitivity
Range 1: water ≥ 0.5 µS/cm
Range 2: water ≥ 20 µS/cm
Range 3: fuel oil EL ε_r 2.3

Cable entry
Cable gland with integral clamp M 16

Protection
IP 65 to DIN EN 60529

Max. admissible ambient temperature
Max. 70 °C

Weight
Approx. 1.8 kg

NRG 21-51

Max. service pressure
6 bar g at 164 °C

Connection
Screwed 1½", DIN ISO 228-1

Materials

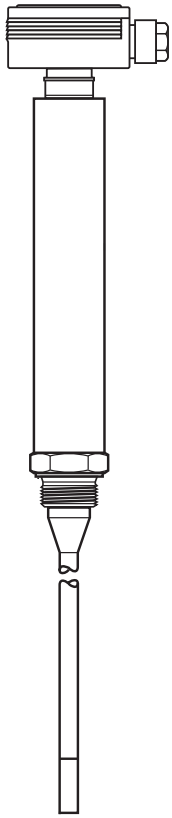
Terminal box	PPO (Noryl®)
Stem	1 .4571 X6 CrNiMoTi17-12-2
Wire rope electrode	1 .4401 X5 CrNiMo17-12-2
Earth wire (optional)	1.4401 X5 CrNiMo17-12-2
Electrode insulation	PTFE

O-ring system FKM, e.g. mineral oil, lye, dyebaths up to 160 °C, water up to 100 °C.
O-ring system EPDM, e.g. water up to 140 °C.

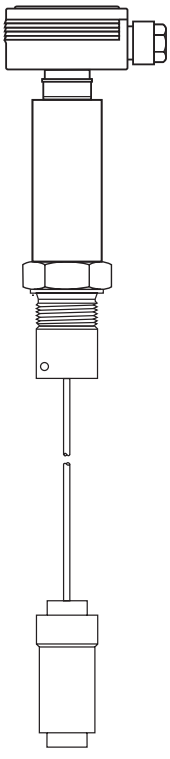
Supply voltage
12 V

Measuring range
Measuring range max. 20 m, larger measuring ranges available on request

Weight
Approx. 2.1 kg



NRG 21-11



NRG 21-51

Level Probes

NRG 21-11
NRG 21-51

Important Notes

For the wiring to the electrodes use multi-core flexible conduit, minimum conductor size 1.5 mm^2.

Order and Enquiry Specifications

Level electrodes NRG 21-11, PN 6,
NRG 21-51, PN 6

Mains voltage .....
Connection .....
Inspection .....
Length supplied ..... mm
Earth tube (only NRG 21-11) YES / NO
Earth rope (only NRG 21-51) YES / NO
Fluid .....

The following test certificates can be issued on request, at extra cost:
In accordance with EN 10204-2.1, -2.2, 3.1 and 3.2.
All inspection requirements have to be stated with the order. After supply of the equipment certificates can no longer be established. Charges and extent of the above mentioned certificates as well as the different tests confirmed therein are listed in our leaflet "Test and Inspection Charges for Standard Equipment". For other tests and inspections than those listed above, please consult us.

Associated Equipment

- Level controller NRR 2...
- Level controller NRS 2...
- Level controller NRT 2...

Key

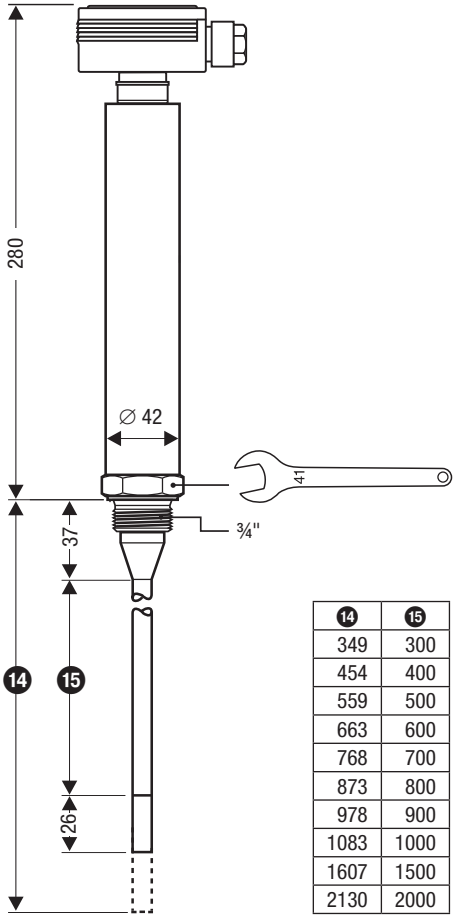
⑭ Max. length of installation at 164 °C
⑮ Measuring range
⑯ Flange PN 40, DN 50, DIN 2527
Flange PN 40, DN 100, DIN 2527
⑰ For the approval of the boiler standpipe with connecting flange the relevant regulations must be considered.
⑱ Vent hole
⑲ High water (HW)
⑳ Electrode rod d = 15 mm
㉑ Protection tube DN 80
㉒ Protection tube DN 100
㉓ Electrode distance ≥ 14 mm (LW)
㉔ Electrode distance ≥ 40 mm (LW)
㉕ Low water (LW)
㉖ Reducer DIN 2616 part 2, K-88.9 x 3.2-42.4 x 2.6 W
㉗ Reducer DIN 2616 part 2, K-114.3 x 3.6-48.3 x 2.9 W

ATEX (Atmosphère Explosible)

According to the European Directive 94/9/EC the equipment must **not** be used in explosion-risk areas.

Supply in accordance with our general terms of business.

Dimensions



⑭	⑮
349	300
454	400
559	500
663	600
768	700
873	800
978	900
1083	1000
1607	1500
2130	2000

Fig. 1 *NRG 26-21*

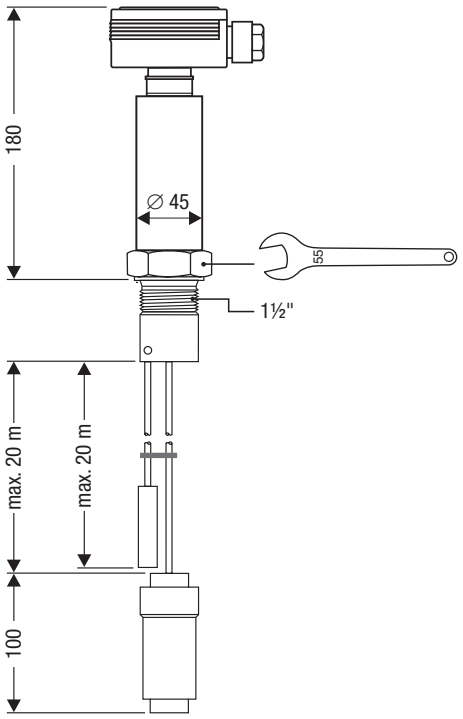


Fig. 2 *NRG 21-51 with earth rope (special design)*

Examples of Installation

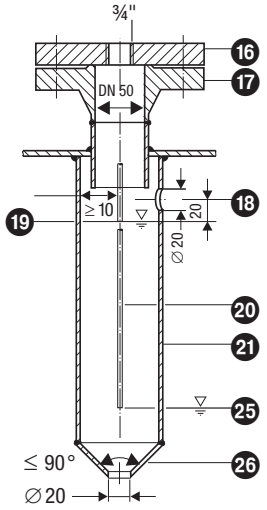


Fig. 3

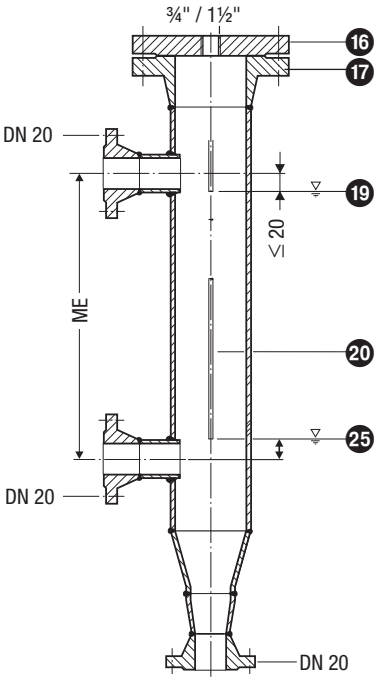


Fig. 4 *External measuring pot*

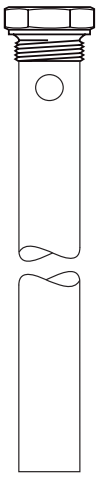


Fig. 5 *Earth tube ¾" to 1½"*

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