

Fig. 1
NRG 16-38S

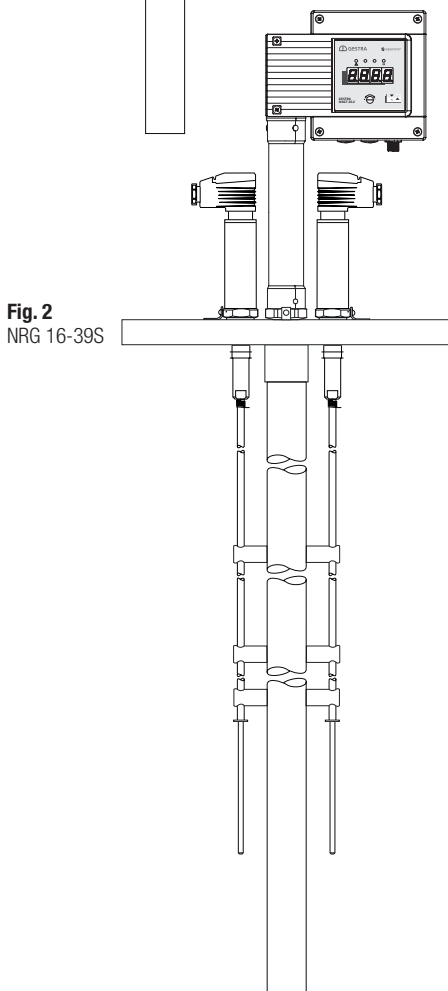


Fig. 2
NRG 16-39S

Water Level Limiter with Level Electrode NRG 16-38S, NRG 16-39S

System description

The level electrodes NRG 16-38S and NRG 16-39S are used in conjunction with the level switch NRS 1-50 for water level limiting and level monitoring in steam boilers and hot-water installations on board seagoing vessels, mobile offshore platforms or river boats.

Water level limiters switch off the heating when the water drops below the set minimum level (low water).

Function

The level electrode **NRG 16-38S** is an equipment combination consisting of

- 1 level electrode NRG 16-11 (water level limiter)
- 1 level transmitter NRGT 26-2 (continuous level monitoring).

The level electrode **NRG 16-39S** is also an equipment combination consisting of

- 2 level electrodes NRG 16-11 (water level limiter)
- 1 level transmitter NRGT 26-2 (continuous level monitoring).

Water level limiter NRG 16-11 / NRS 1-50

The water level limiter is a device combination consisting of one or two level electrode(s) NRG 16-11 and **one** level switch NRS 1-50.

When the water level falls below the low level, the level electrode is exposed and a low level alarm is triggered in the level switch NRS 1-50. This switchpoint "Low water level (LW)" is determined by the length of the electrode tip.

After the de-energizing delay has elapsed, the two output contacts of the level switch NRS 1-50 open the safety circuit for the heating. The equipment has a factory-set default de-energizing delay of 15 seconds to compensate for the movements of the ship.

The level electrode NRG 16-11 uses the principle of conductive measurement and monitors itself. The self-monitoring function ensures that an alarm will also be triggered if the electrode insulation is contaminated or has developed a leak, or if there is a malfunction in the electrical connection.

The level electrode is installed inside steam boilers or hot-water installations. A protective tube provided on site ensures reliable function.

Continuous level monitoring system NRGT 26-2

The level transmitter NRGT 26-2 is a compact-type system consisting of a capacitance level electrode with integrated level transmitter. The device works according to the capacitance fill level measurement principle and provides a level proportional measuring current of 4 – 20 mA. The level transmitter continuously monitors the liquid level in steam boilers or hot-water installations.

Technical data

Design

■ NRG 16-38S

- 1 level electrode NRG 16-11
- 1 level transmitter NRGT 26-2
- Both level electrodes are installed in one common DN 100 flange.

■ NRG 16-39S

- 2 level electrodes NRG 16-11
- 1 level transmitter NRGT 26-2
- All devices are installed in one common DN 150 flange.

Service pressure

PN 40, 32 bar (abs) at 238°C

Mechanical connection

NRG 16-38S: flanged DN 100, PN 40, EN 1092-1
NRG 16-39S: flanged DN 150, PN 40, EN 1092-1

Materials

Flange: 1.0460 / A 105
Screw-in body / measuring electrode: 1.4571, X6CrNiMoTi17-12-2
Electrode tip NRG 16-11: 1.4401, X5CrNiMo17-12-2
Electrode insulation NRG 16-11: Gylon®
Spacer disc NRG 16-11: PEEK
Protective tube NRGT 26-2: 1.0460 / A 105
Electrode insulation NRGT 26-2: PTFE
Centring piece NRGT 26-2: PTFE
Measuring electrode NRGT 26-2: 1.4404, X2CrNiMo 17-12-2

Lengths available (active measuring range)
see table, Fig. 4

Electrical connection

NRG 16-11: Four-pole connector, cable gland M16
NRGT 26-2: M12 plug, A-coded

Protection

IP 65 acc. to EN 60529

Admissible ambient temperature

Max. 70°C

Level transmitter NRGT 26-2

Supply voltage

24 V DC ± 20 %

Power consumption

Max. 7 W

Current input

Max. 0.3 A

Internal fuse

T 2 A

Safety cutout at excessive temperature

Cutout occurs when an excessive temperature = 75°C is measured in the electrode tip

Output

4 – 20 mA level proportional. Electrically insulated, max. output load 500 Ω

Water Level Limiter with Level Electrode

NRG 16-38S, NRG 16-39S

Technical Data continued

Indicators and controls

- 1 x green 4-digit, 7-segment display for showing status information
- 1 x red LED for indicating an error state
- 1 x green LED for indicating an OK state
- 1 x rotary knob IP65 with button for menu navigation and test function

IP rating

IP 65 to EN 60529

Admissible ambient temperature

Maximum 70°C

Weight

NRG 16-38S: approx. 17 kg, NRG 16-39S: approx. 25.5 kg

Important notes

- **NRG 16-11** (water level limiter)
To connect the level electrode(s), use screened multi-core control cable with a min. conductor size of 0.5 mm². Max. length 100 m with an electrical conductivity of the boiler water > 10 µS/cm at 25°C.

- **NRGT 26-2** (level transmitter)

Electrical connection

Use a shielded, multi-core control cable with a minimum conductor size of 0.5 mm².

Pre-wired control cables (with plug and coupling) are available as accessories in various lengths. The NRGT 26-2 level transmitter is supplied with 24 V DC voltage.

A safety power supply unit that delivers a Safety Extra Low Voltage (SELV) and is isolated from connected loads must be used to supply the equipment with 24 V DC.

Connecting the actual value output (4 - 20 mA)

Please note the maximum output load of 500 Ω. Maximum cable length = 100 m.

How to order

GESTRA level electrode **NRG 16-38S**, length Eor
GESTRA level electrode **NRG 16-39S**, length E

Additional modules

- GESTRA level switch NRS 1-50 in conjunction with the level electrodes NRG 16-11.

Key to wiring diagram, Fig. 5

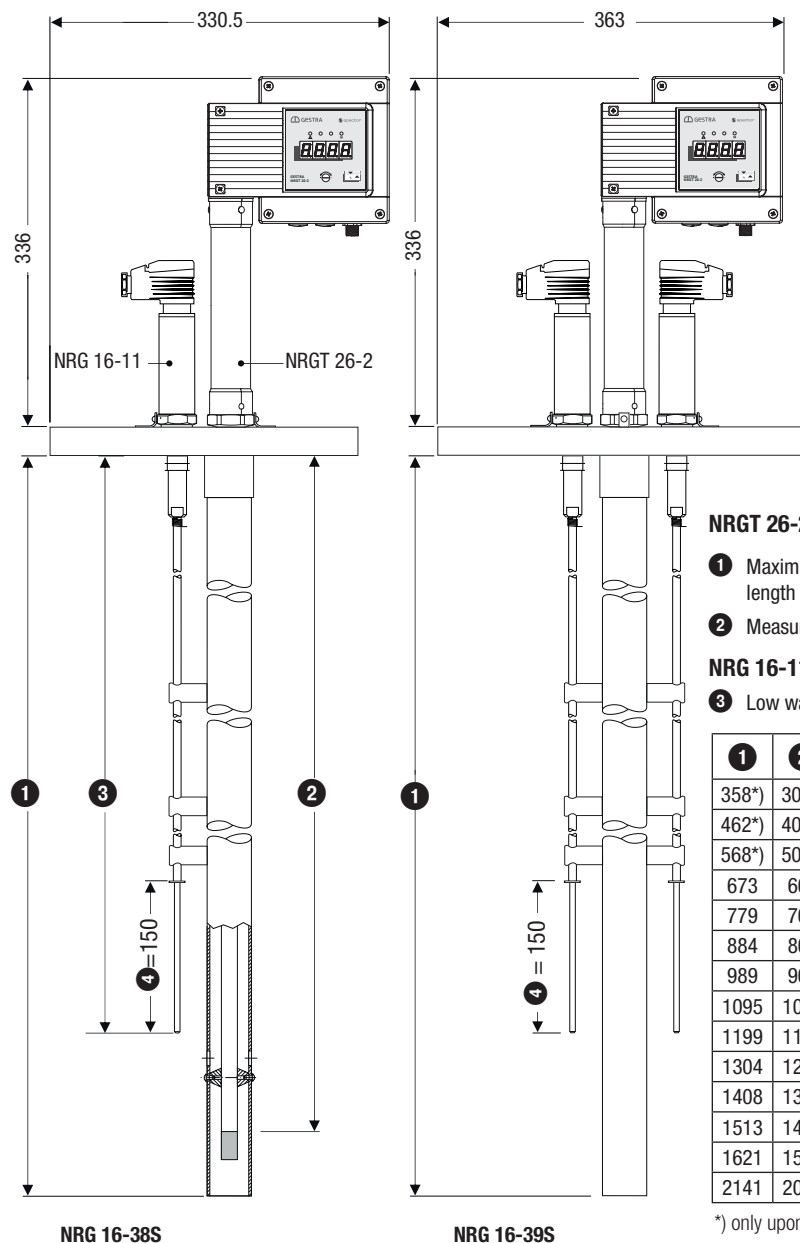
- ⑥ Water level limiter NRG 16-11
- ⑦ Standby input

Directives and standards

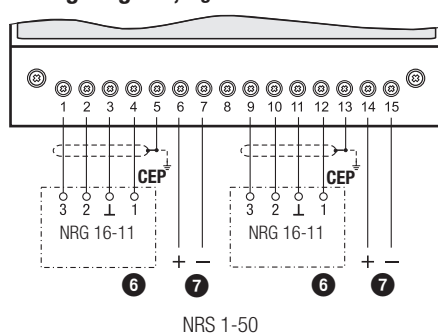
You can find details on the conformity of the equipment and the applicable standards and directives in our Declaration of Conformity and the relevant certificates or approvals.

Please note our general terms of business.

Dimensions, Fig. 3

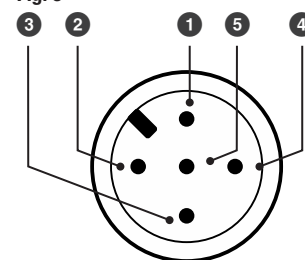


Wiring diagram, Fig. 5



CEP Central earthing point in control cabinet

Fig. 6



M12 plug, A-coded

- ① S Shield
- ② + 24 V Power supply
- ③ 0 V Power supply
- ④ + Current output (4 - 20 mA)
- ⑤ - Current output (4 - 20 mA)

GESTRA AG

Münchener Straße 77, 28215 Bremen, Germany
Tel. +49 421 3503 0, Fax +49 421 3503 393
e-mail info@de.gestra.com, Web www.gestra.com

