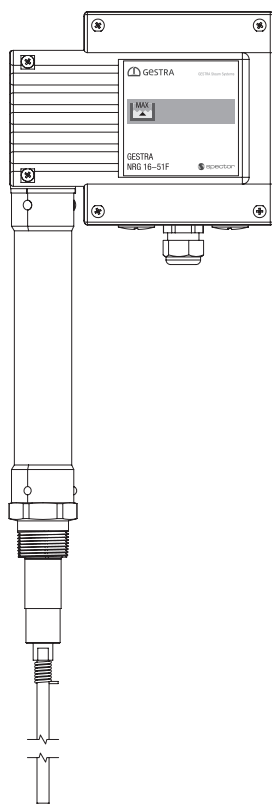


NRG 1...-51 with four-pole connector



NRG1...-51F with aluminum terminal box

High-Level Alarm

Level Electrode

NRG 16-51, NRG 17-51, NRG 19-51

Description

NRG 1...-51 level electrodes are used in conjunction with the NRS 1-51 level switch as a high-level alarm for steam boilers and hot water installations.

A high-level alarm prevents the defined high water (HW) level from being exceeded and switches off the feedwater supply, for example, to achieve this.

Function

When the water exceeds the high water level, the level electrode is immersed and an alarm is triggered in the NRS 1-51 level switch. This "High water (HW) exceeded" switchpoint is determined by the length of the electrode extension.

The level electrode uses the conductivity of the water to measure the water level, and is self-monitoring, i.e. an alarm is also triggered if the electrode insulator is leaking or contaminated and/or there is a fault in the electrical connection.

The level electrode is installed inside steam boilers, tanks or feed lines of hot water installations. A protective tube provided on site ensures reliable function.

One NRG 1...-51 level electrode can be installed in a single protective tube or level pot together with a GESTRA level electrode for water level limitation.

If the level electrode is installed in a level pot, make sure the connection pipes are sufficiently large.

The manufacturer recommends connection pipes of ≥ 1.57 in (40 mm) for steam and ≥ 3.94 in (100 mm) for water. If smaller connection pipes and fittings are used, these shall not be smaller than 1-inch NPS. The level pot must have a suitable flushing device at its lowest point. This device flushes the connection pipes to the boiler and enables the function of the water level limiter to be tested. No shut-off valves of any type shall be placed in the piping between the boiler and the low water cutoff.

Directives and standards

The equipment has been tested and approved for use in the scope governed by the following directives and standards:

Standards:

- UL 60730-1 and CAN/CSA E60730-1
General Requirements for Automatic Electrical Controls
- UL 60730-2-15 and CAN/CSA E60730-2-15
Requirements for Automatic Electrical Water Level Sensing Controls

Technical data

Service pressure

NRG 16-51, 464 psi at 460 °F (32 bar at 238 °C)
NRG 17-51, 667 psi at 500 °F (46 bar at 260 °C)
NRG 19-51, 1450 psi at 592 °F (100 bar at 311 °C)

Mechanical connection

Thread 1" - 11.5 NPT

Materials

Screw-in body 1.4404/F316L
Measuring electrode 1.4571 X6 CrNiMoTi 17-12-2
Electrode extension 1.4401 X5 CrNiMo 17-12-2
Electrode insulation PEEK
NRG 1...-51: Four-pole connector, polyamide (PA)
NRG 1...-51F: Terminal box 3.2161 G AISi8Cu3

Lengths supplied

19.68 in (500 mm), 39.37 in (1000 mm),
59.05 in (1500 mm)

Electrical connection

NRG 1...-51: Four-pole connector, cable gland M19 (PG 11)
NRG 1...-51F: Aluminum terminal box, cable gland M20

Protection

IP 65 according to DIN EN 60529
NRG 1...-51: NEMA type 1 according to NEMA 250
NRG 1...-51F: NEMA type 4 according to NEMA 250

Admissible ambient temperature

Max. 158 °F (70 °C)

Weight

Approx. 2.65 lb (1.2 kg) (without extension)
(NRG 16-51, NRG 17-51, NRG 19-51)
Approx. 4.63 lb (2.1 kg) (without extension)
(NRG 16-51F, NRG 17-51F, NRG 19-51F)

Dimensions

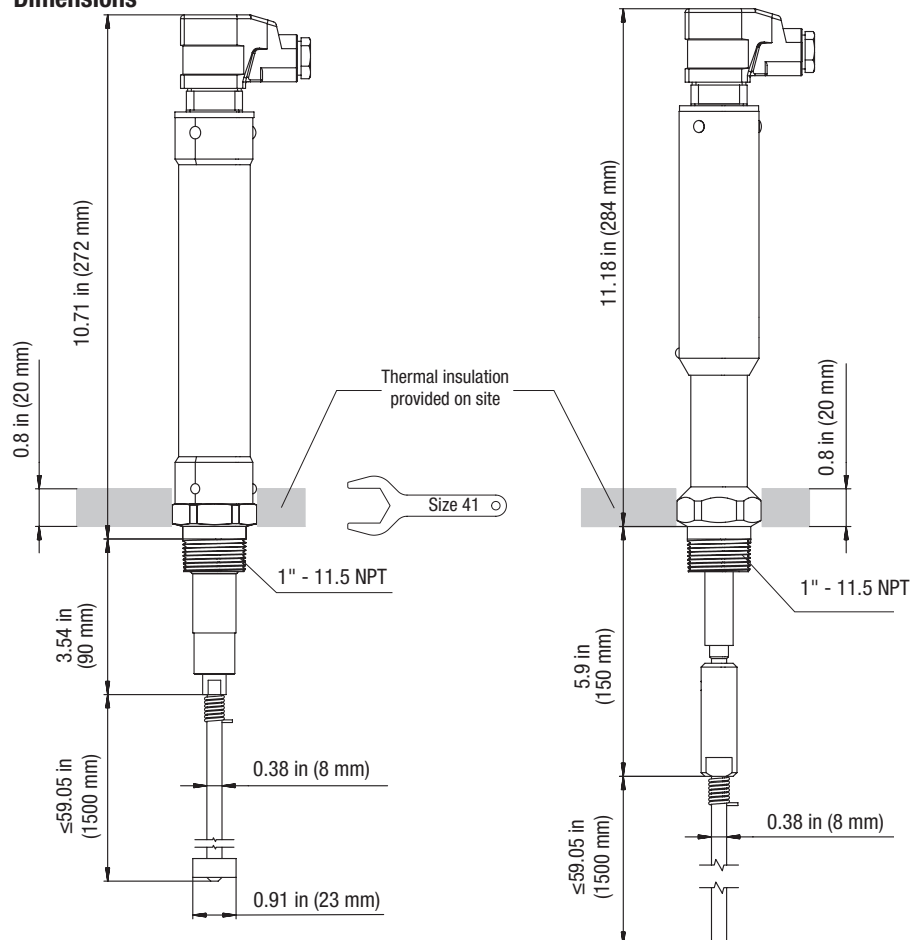


Fig. 1 NRG 16-51, NRG 17-51 with four-pole connector and enlarged measuring surface

Fig. 2 NRG 19-51 with four-pole connector

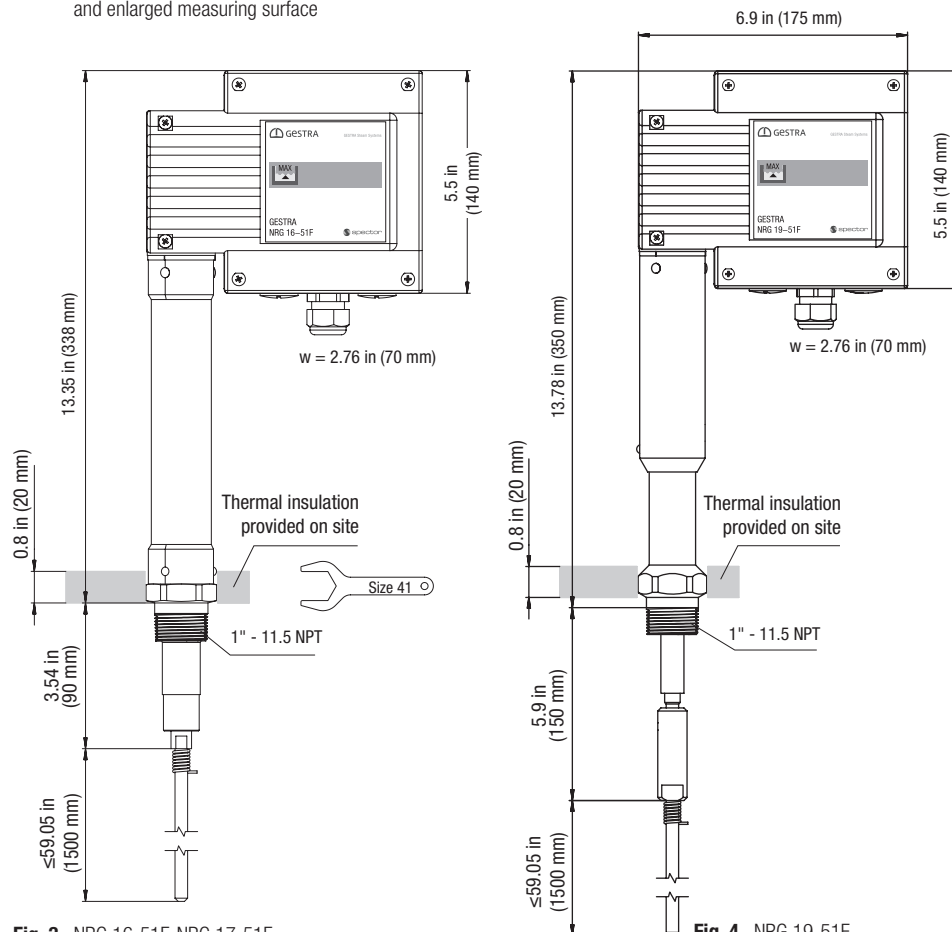


Fig. 3 NRG 16-51F, NRG 17-51F with aluminum terminal box

Fig. 4 NRG 19-51F with aluminum terminal box

Important notes

Installation

- n One NRG 1...-51 level electrode can be installed in a single protective tube or level pot [inside diameter 3.94 in (100 mm)] together with a GESTRA level electrode, a level switch or transmitter for water level control or limitation. If the NRG 1...-50 is installed inside the vessel, it must be at least 1.57 in (40 mm) away from the upper pressure relief hole.
- n The electrode must not be at an incline of more than 45°, and the length of the electrode rod is limited to 39.37 in (1000 mm).
- n For outdoor installations, please use the NRG 1...-51F level electrode. Type F level electrodes have an aluminum terminal box.

Electrical connection

Please use the following to connect the level electrode:

- n A shielded, multi-core TC-ER control cable with a minimum wire size of AWG 18, e.g., OELFLEX CONTROL TM CY 5G1, max. length 328 ft (100 m).

Improper use

There is a danger of death due to explosion if the equipment is used in potentially explosive atmospheres.
Do not use the equipment in potentially explosive atmospheres.

How to order/specify

GESTRA Level Electrode NRG 1...-51
Class, Connection....., Inspection.....
Length suppliedmm

High-Level Alarm

Level Electrode

NRG 16-51, NRG 17-51, NRG 19-51

Key

- 17 Flange NPS 2 (DN 50) NPS 4 (DN 100)
(for 2 electrodes)
- 18 Perform preliminary inspection of the flange during
the boiler inspection
- 19 Pressure relief hole
- 20 Electrode rod $d = 0.32$ in (8 mm)
- 21 Protective foam tube/level pot
- 22 Low water LW
- 23 Reducer
- 24 High water HW
- 25 Electrode spacing ≥ 0.55 in (14 mm)
(air gaps and creepage paths)
- CD Center distance of standpipes

Installation examples

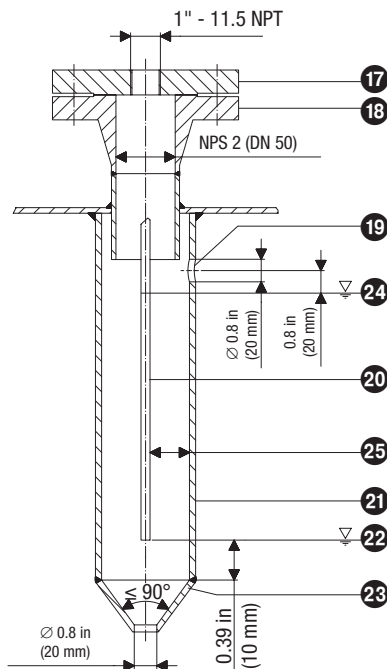


Fig. 5

Protective tube (provided on site) if electrode is used as an internal water level limiter

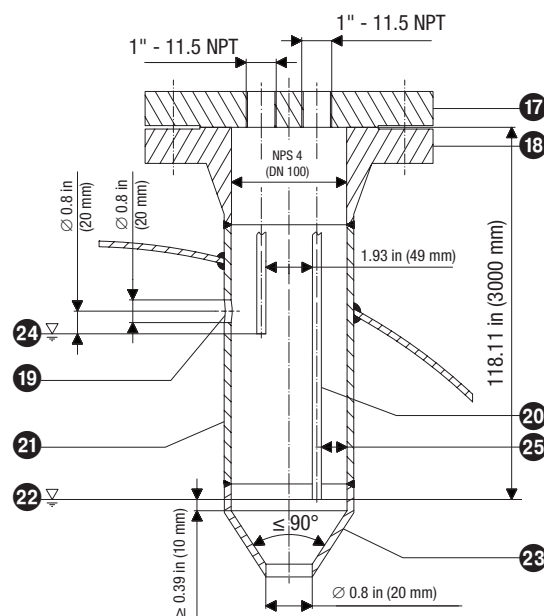


Fig. 6

Protective tube (provided on site) if electrode is used as an internal water level limiter in combination with level control or low water alarm

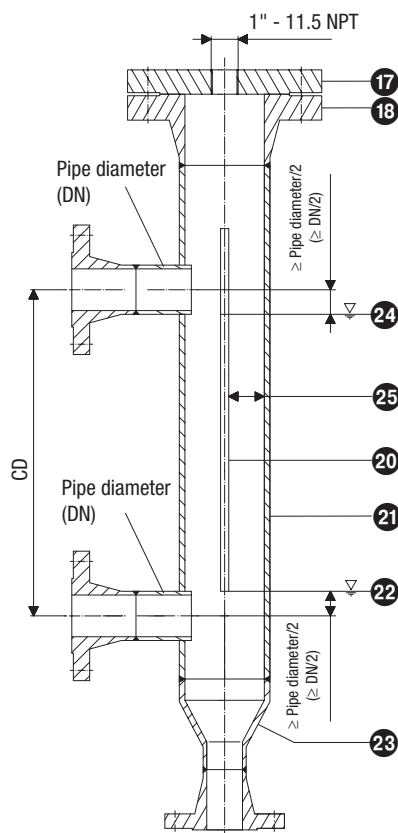


Fig. 7

Level pot $\geq$ NPS 3 (DN 80) if electrode is used as an external water level limiter

Please note our general terms of business.

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