

GESTRA Steam Systems

Product Range B1

Self-Monitoring Combination Level Electrode NRG 16-36

NRG 16-36

Description

Designed for use in combination with the level switch/controller NRS 1-9 as self-monitoring (SMART) water level controller/limiter with periodic self-checking routine in accordance with TRD 604, sheet 1 and 2. The equipment combination detects the max. and min. admissible liquid level and controls the level in steam and pressurized hot water plants.

TRD 604 requires two SMART water level limiters, TRD 602 requires only one SMART water level limiter.

This electrode in conjunction with the switching controller NRS 1-9 complies with the requirements of safety circuits to DIN 57116/VDE 0116.

Function

The switching controller operation is based on the conductive measuring principle using the electrical conductivity of the water for level signalling.

For example, when the low-level electrode tip is not in water, the bridge circuit in the switching controller NRS 1-9 becomes slightly imbalanced on the negative side, causing the output contacts to switch over to give low water-level alarm signal. When connected to the burner protection circuit, this signal is used to cut off the heat supply to the boiler.

During normal operating conditions when the low level electrode tip is immersed in water, the imbalance of the bridge circuit is on the positive side.

If the insulating seals placed between the electrodes and the body are no longer pressure-tight due to deterioration caused by mechanical or chemical breakdown, liquid will penetrate into the cavities between the body, tube and stud. This will result in a negative imbalance of the bridge circuit, and the low-level alarm signal is activated. However, in this case the alarm is caused by a malfunction of the electrode and confirmation can be obtained by checking if there is water in the gauge glass.

The effect of polarization is eliminated, as the electrode is fed with a low-voltage a.c. by the switching controller.

The self-monitoring combination electrode NRG 16-36 used in conjunction with the switching controller NRS 1-9 provides fail safe protection against a first fault (according to TRD 604), i. e. the system will still continue to provide the safety function even after the occurrence of a first fault.

Technical Data

Type approval no.

TÜV-WB-04-370

Service pressure

32 barg to 238 °C

Connections

Pressure rating PN 40, 1½" BSP, EN ISO 228-1

Pressure rating PN 40¹⁾, DN 50, 3.1 inspection certificate to DIN 2527

Pressure rating PN 40¹⁾, DN 100, 3.1B inspection certificate to DIN 2527, square flange¹⁾ □ 128, 3.1B inspection certificate

¹⁾ Tap holes in flange acc. to DIN 3852 part 2, form X

Function

Low level limiter / level controller / high level limiter

C value with measuring surface extension

0.13 cm⁻¹

Technical Data – continued –

Lengths supplied

400 mm

1000 mm

1500 mm

Materials

Body: 1.4571

Flange: 1.0460

Electrode rods: 1.4571

Ambient temperature at terminal box

70 °C

Wiring PG 9

2

Weight

approx. 4.5 kg

Important Notes

Cable required for wiring: Two four-core overall screened cables, e. g. I-Y (St)Y 2 x 2 x 0.8 or LIYCY 4 x 0.8 mm².

Max. cable length 100 m with water conductivity from 10 µS/cm.

Max. cable length 30 m with water conductivity from 0.5 µS/cm.

Max. cable length 15 m with water conductivity from 0.5 µS/cm when used in conjunction with the inverter URN 1 (24 V d.c.).

Provided that the electrodes are installed inside the boiler, they can be used for shell boilers / water tube boilers type HK produced by Thyssen-Henschel.

If used with other types or makes of boilers the proper TÜV expert must first verify the suitability of the limiter for the boiler in question.

If the electrode is installed into a plastic-coated or plastic vessel a reference electrode (earth) has to be provided.

The electrode shall be installed vertically. To reduce costs and maintenance we recommend installation directly inside the steam boiler. In this case a protection tube (DN ≥ 100 mm) is required.

If the electrode is installed in an external chamber, purging of the chamber is required at regular intervals. For this purpose the GESTRA logic unit for monitoring type SRL 6 is available.

Order and Enquiry Specifications

GESTRA level electrode for water level controller and self-monitoring (SMART) water-level limiter in accordance with TRD 604 and TRD 602.

Level electrode type NRG 16-36

PN 40, connection

Inspection

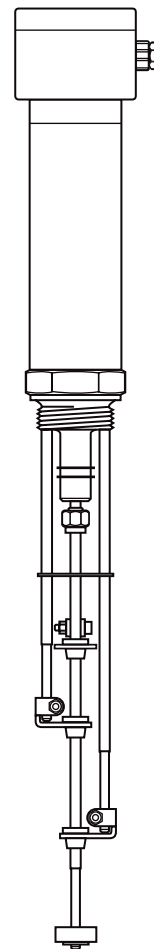
Cell constant C

Lengthmm

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 certification cannot be established. For tests and inspection charges, please consult us.



NRG 16-36

