

Conductive Limit Detection Rod probe 11375, 11375 Z, 11375 ZF

Partially insulated rod probe for conductive liquids



Probe 11375



Probe 11375
with
temperature spacer

Applications

Probe **11375**:

Conductive limit detection in process or storage tanks containing conductive liquids of all types.

Probe **11375 Z**:

Conductive limit detection in explosion hazardous area, Zone 0

Probe **11375 Z**:

Conductive limit detection and overspill protection with cable monitoring including explosion hazardous area, Zone 0

Features and Benefits

- Corrosion-resistant materials for rod and insulation
 - = including use with aggressive materials
- Ideal for high pressure, vacuum, and high and low temperatures
 - = versatile
- Probe can be shortened
 - = fewer spare probes required
- With temperature spacer
 - = higher product temperature, lower housing temperature

Construction

The probe consists of

- stainless steel rod with PTFE partial insulation
- ½ BSP (G ½ A) threaded connection in stainless steel to ISO 228/1
- temperature spacer – as required
- copper gasket to DIN 7603
- stainless steel housing
- Pg 16 cable gland
- 11375 ZF with local electronics

Mounting

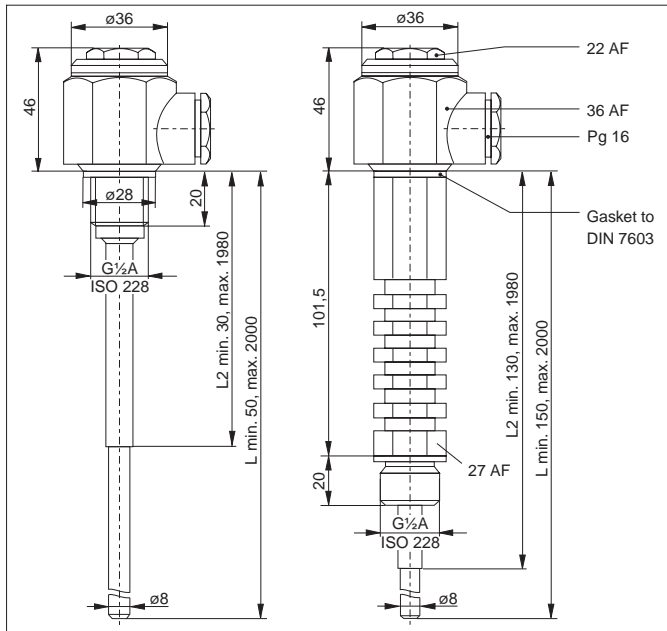
Dimensions of probe 11375

left:
with threaded connection

right:
with temperature spacer

Length of partial insulation:
min. 20 mm shorter than
probe length.

When ordering
please state probe length
in mm



- The probe is designed mainly for top mounting in tanks. Probes longer than 1 m and used in agitated liquids must be laterally supported by insulated brackets.
- Short probes can also be mounted from the side with the tip of the probe pointing slightly downwards so that liquid can run off and not cause build-up.
- Ensure sufficient room for mounting outside the tank so that the probe can be adjusted without using undue force.
- The probe can be shortened to any length.
Please note:
 - Do not damage the insulation at any other place
 - After shortening remove at least 20 mm of insulation from the tip of the probe

Electrical Connection

Probe 11375	Nivotester: limit switch FTW 420, 520 Z, 470 Z, 570 Z
11375 Z	FTW 520 Z, 470 Z, 570 Z
11375 ZF	FTW 520 Z, 470 Z, 570 Z

The Pg 16 cable gland is designed for cable diameters from 7 mm to 12 mm.

The terminals in the housing are designed for wires up to 2.5 mm² in ferrules.

- central terminal for the probe rod,
- side terminal for the ground connection.

The 11375 ZF probe is supplied with a permanently attached 2 m cable:

- brown wire for the probe rod
- blue wire for the ground connection.

Technical Data

General Information

Manufacturer	Endress+Hauser
Instrument	Partially insulated rod probe
Designation	11375, 11375 Z, 11375 ZF
Technical documentation Version	TI 298F/00/en 10.98
Technical data	to DIN 19259

Application

Conductive limit detection	Maximum or minimum detection in vessels containing conductive liquids
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Function and system design

Measurement principle	The material creates a conductive connection between the probe and vessel wall on touching the tip of the probe
Measurement system	Probe 11375 in liquid vessels (tanks), Nivotester FTW limit switch in the control room
Construction	Partially insulated rod probe with compact connection housing
Signal transmission	AC voltage; small current (AC) with probe covered

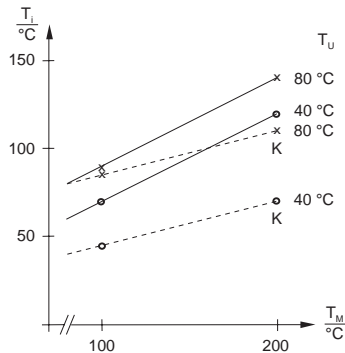
Input

Variable	Level (limit value, binary)
Measuring range	Detection range: defined by probe length with vertical mounting (50...2000 mm from above); defined by mounting point with horizontal mounting

Output

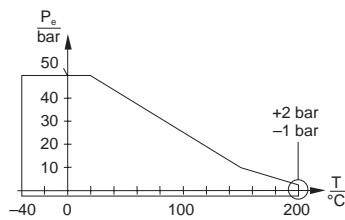
Electronic insert	Local electronics for cable monitoring, with 11375 ZF only
Output signal	Probe: AC, specified by Nivotester; Nivotester FTW: see appropriate Technical Information
Transmitters	To probe 11375: Nivotester FTW 420, 520 Z, 470 Z, 570 Z To probe 11375 Z: Nivotester FTW 520 Z, 470 Z, 570 Z To probe 11375 ZF: Nivotester FTW 520 Z, 470 Z, 570 Z

Application conditions



T_M = product temperature
 T_U = ambient temperature
 T_i = internal temperature of connection housing
 K = with temperature spacer

$$x \text{ } ^\circ\text{C} = (1.8x + 32) \text{ } ^\circ\text{F}$$



1 bar = 14.5 psi

Mechanical Construction

Installation conditions

Mounting	Any position, preferably top-mounted; mounting from the side for shorter probes with the tip of the probe pointing slightly downwards; a temperature spacer should be used for very high product temperatures. See graph on left for the relationship between product temperature and internal temperature of the housing at different ambient temperatures.
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Ambient conditions

Ambient temperature (dependent on temperature of product, limited by permissible internal temperature of the terminal housing)	Permissible internal temperatures of the terminal housing: 11375: $-40 \text{ } ^\circ\text{C} \dots +200 \text{ } ^\circ\text{C}$, dependent on connecting cable and seal in the cable gland; 11375 Z: $-40 \text{ } ^\circ\text{C} \dots +200 \text{ } ^\circ\text{C}$, dependent on connecting cable and seal in the cable gland; 11375 ZF: $-20 \text{ } ^\circ\text{C} \dots +65 \text{ } ^\circ\text{C}$
Temperature limits	as above
Storage temperature	11375, 11375 Z: $-40 \text{ } ^\circ\text{C} \dots +80 \text{ } ^\circ\text{C}$; 11375 ZF: $-20 \text{ } ^\circ\text{C} \dots +65 \text{ } ^\circ\text{C}$
Ingress protection	IP 55 to EN 60529
Electromagnetic compatibility	Interference emission and interference immunity: see Nivotester FTW limit switch

Product conditions

Product temperature range	11375: $-40 \text{ } ^\circ\text{C} \dots +200 \text{ } ^\circ\text{C}$ ($-40 \text{ } ^\circ\text{F} \dots +390 \text{ } ^\circ\text{F}$) 11375 Z: $-40 \text{ } ^\circ\text{C} \dots +135 \text{ } ^\circ\text{C}$ ($-40 \text{ } ^\circ\text{F} \dots +275 \text{ } ^\circ\text{F}$) 11375 ZF: $-20 \text{ } ^\circ\text{C} \dots +65 \text{ } ^\circ\text{C}$ ($0 \text{ } ^\circ\text{F} \dots +150 \text{ } ^\circ\text{F}$)
Product temperature limits	as above
Product pressure range	11375: Process pressure p_e : $-1 \text{ bar} \dots +50 \text{ bar}$ (725 psi), see graph For 11375 Z, 11375 ZF note explosion hazardous regulations and information given in certificates
Conductivity of product	Min. 0.02 mS/cm, see limit switches

Housing

Terminal housing	36 AF hexagonal nut in stainless steel 1.4581 (~ AISI 316 Ti) with 1 cable entry
Electrical connection	11375, 11375 Z: 2 terminals for wire diameters up to 2.5 mm^2 (AWG 14) in housing 11375 ZF: 2 m permanently attached cable
Dimensions	See Fig. page 2

Process connections

Threaded connection	$\frac{1}{2}$ BSP (G $\frac{1}{2}$ A) to ISO 228/1 with gasket ring to DIN 7603
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Materials of wetted parts

Process connections	Stainless steel 1.4581 (\approx AISI 316 Ti)
Probe rod	Stainless steel 1.4571 (AISI 316 Ti)
Partial insulation	PTFE
Gasket	Copper
Temperature spacer, for 11375 only	Stainless steel 1.4571 (AISI 316 Ti)

Certificates and Approvals

Explosion protection	11375 Z: EEx ia IIC T4...T6 Certificate of conformity PTB No. Ex-88.B.2059 X
Overspill protection	11375 ZF: EEx ia IIC T6 Certificate of conformity PTB No. Ex-88.B.2059 X Design approval 01/PTB No. Ex-88.B.2059 X-F General inspection certificate Z-65.13-101 (DIBt)
CE Mark	By attaching the CE Mark, Endress+Hauser confirms that the instrument fulfils all the requirements of the relevant EC directives.

