# Supplementary instructions

# External housing

VEGAWAVE

Document ID: 32357

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# 1 About this document

## 1.1 Function

This supplementary instructions manual is valid in conjunction with the operating instructions of the instrument. It gives you all necessary information for a quick setup and safe operation of the instrument with accessory. Therefore read both instructions manuals before you start setup.

## 1.2 Target group

This operating instructions manual is directed to trained personnel. The contents of this manual must be made available to the qualified personnel and implemented.

## 1.3 Symbols used

**Document ID**
This symbol on the front page of this instruction refers to the Document ID. By entering the Document ID on www.vega.com you will reach the document download.

**Information, note, tip:** This symbol indicates helpful additional information and tips for successful work.

**Note:** This symbol indicates notes to prevent failures, malfunctions, damage to devices or plants.

**Caution:** Non-observance of the information marked with this symbol may result in personal injury.

**Warning:** Non-observance of the information marked with this symbol may result in serious or fatal personal injury.

**Danger:** Non-observance of the information marked with this symbol results in serious or fatal personal injury.

**Ex applications**
This symbol indicates special instructions for Ex applications.

• **List**
The dot set in front indicates a list with no implied sequence.

→ **Action**
This arrow indicates a single action.

1 **Sequence of actions**
Numbers set in front indicate successive steps in a procedure.

**Battery disposal**
This symbol indicates special information about the disposal of batteries and accumulators.

# 2 For your safety

## 2.1 Authorised personnel

All operations described in this operating instructions manual must be carried out only by trained qualified personnel authorised by the plant operator.

During work on and with the device, the required personal protective equipment must always be worn.

## 2.2 Appropriate use

An external housing is part of a sensor.

## 2.3 Safety instructions for Ex areas

Take note of the Ex specific safety instructions for Ex applications. These instructions are attached as documents to each instrument with Ex approval and are part of the operating instructions.

## 2.4 Environmental instructions

Protection of the environment is one of our most important duties. That is why we have introduced an environment management system with the goal of continuously improving company environmental protection. The environment management system is certified according to DIN EN ISO 14001.

Please help us fulfil this obligation by observing the environmental instructions in this manual:

- Chapter " *Storage and transport*"
- Chapter " *Disposal*"

# 3 Product description

## 3.1 Configuration

**Scope of delivery**

The scope of delivery encompasses:

- Level sensor with external housing
- Documentation
  - A device operating instructions manual
  - To this supplementary operating instructions
  - Ex specific safety instructions (with Ex versions), if necessary further certificates

**Components - external housing with direct cable outlet**

The instrument version "External housing" consists of the instrument housing.

The instrument housing consists of the base element, the screwed cover for the electronics or connection compartment and the housing base.

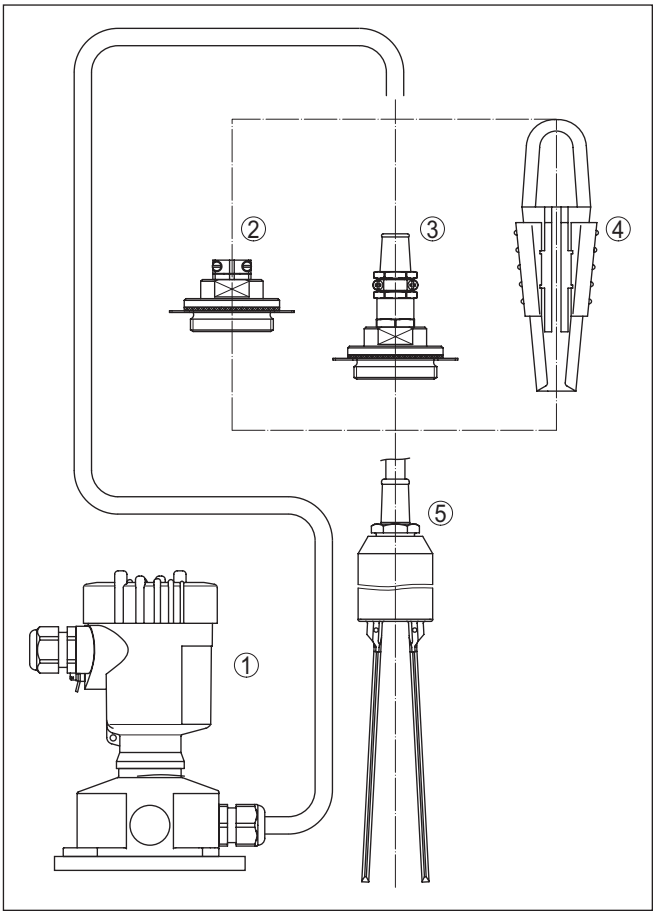


*Fig. 1: Components of the external housing*

*1 Instrument housing*
*2 Closing screw with cable gland (IP20)*
*3 Closing screw with cable gland (IP65)*
*4 Straining clamp*
*5 Tuning fork*

**Components - instrument housing and external housing**

The instrument version "External housing" consists of a sensor housing and the instrument housing.

The cable is part of the scope of delivery. This applies also to the versions with plug.

The metal sensor housing cannot be opened. The electrical connection must be carried out on the instrument housing.

The instrument housing consists of the base element, the screwed cover for the electronics or connection compartment and the housing base.

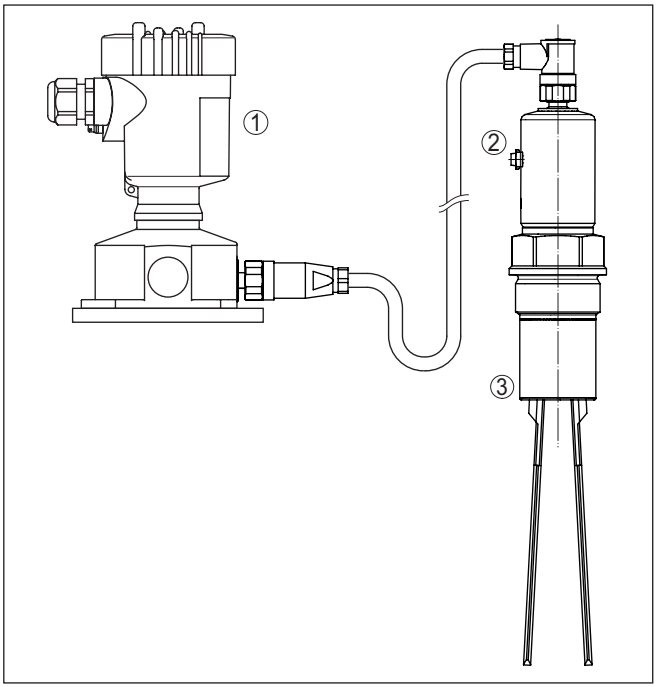


*Fig. 2: Instrument housing and external housing*

*1 Instrument housing*
*2 Sensor housing*
*3 Tuning fork*

The instrument housing consists of the base element, the screwed cover for the electronics or connection compartment and the housing base.

The housing base is produced in two different materials. The version depends on the selected material of the instrument housing.

- Instrument housing of plastic - housing base: plastic
- Instrument housing of stainless steel - housing base: stainless steel

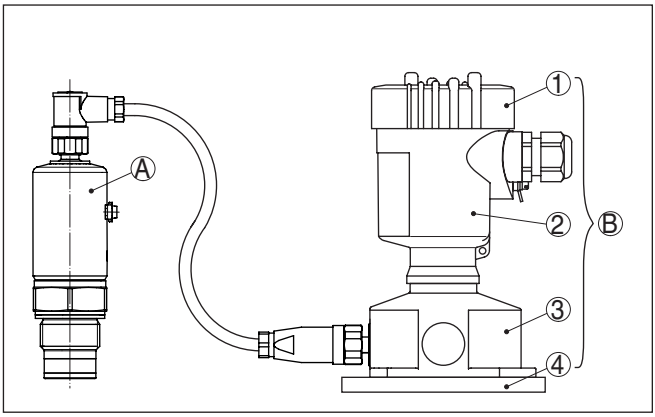


*Fig. 3: Components of the external housing*

*A Sensor housing*
*B Instrument housing*
*1 Screw-on cover*
*2 Base element*
*3 Housing base*
*4 Wall mounting plate*

**Cable coupling**

In case the cable cannot be disconnected directly at the sensor housing or at the device housing for system-specific reasons, there is a two-part cable with a cable coupling.

To make it easier to guide the cable through cable ducts or cable routing chains, for example, the plug of the short cable is supplied loose.

The short cable is always 1.5 m (4.92 ft) long, the long cable can be selected in several fixed lengths.

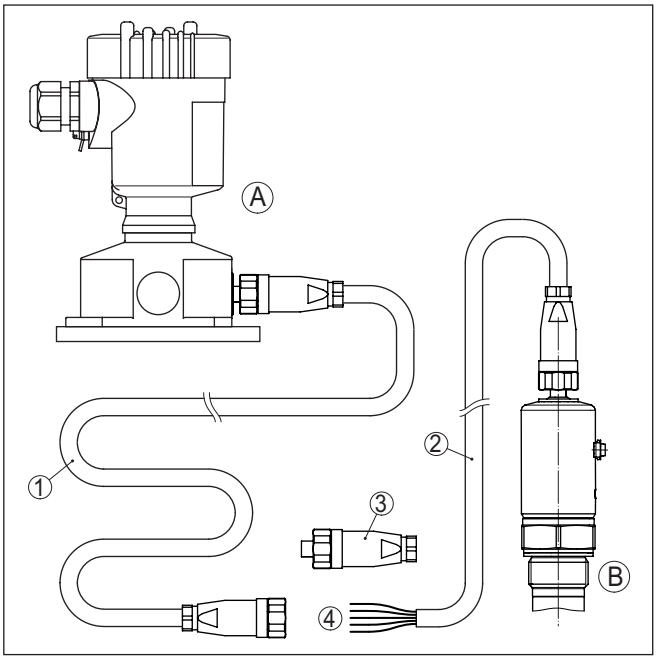


*Fig. 4: Two-part connection cable with cable coupling*

*A Instrument housing*
*B Sensor housing*
*1 Cable to the device housing (long)*
*2 Cable to the device housing (short)*
*3 Cable plug, short (enclosed)*

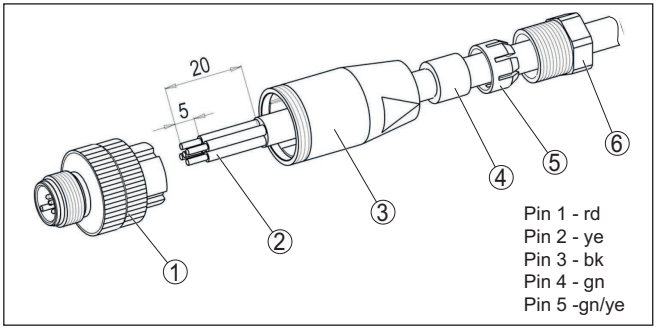


*Fig. 5: Plug mounting*

*1 Plug insert*
*2 Cable*
*3 Coupling sleeve*
*4 Seal*
*5 Clamping basket*
*6 Pressure screw*

## 3.2 Principle of operation

**Area of application**

The external housing is suitable for the following sensors:

- VEGAWAVE series 60

## 3.3 Storage and transport

**Packaging**

Your instrument was protected by packaging during transport. Its capacity to handle normal loads during transport is assured by a test based on ISO 4180.

The outer packaging of standard instruments consists of environment-friendly, recyclable cardboard. PE foam or PE foil is also used for packing the instrument. Dispose of the packaging material via specialised recycling companies.

**Storage and transport temperature**

- Storage and transport temperature see chapter " *Supplement - Technical data - Ambient conditions*"
- Relative humidity 20 … 85 %

# 4 Mounting

## 4.1 General instructions

In the following cases, we recommend using an instrument version with external housing:

- if the standard housing is too big
- if strong vibrations can damage the electronics

In Ex applications, only housings with appropriate Ex approval may be used.

## 4.2 Mounting preparations

**Tools**

The following tools are required for mounting the external housing.

Plastic housing:

- Hexagon socket wrench, size 4
- Fork wrench, wrench size 19

Stainless steel housing:

- Fork wrench, wrench size 8
- Fork wrench, wrench size 19

**Mounting material**

We recommend using additional materials when mounting the wall mounting plate.

- 4 screws, depending on the mounting surface

## 4.3 Installation procedure

**Wall mounting - External housing**

1. Mark the holes according to the following drilling template
2. Depending on the mounting surface, fasten the wall mounting plate with 4 screws

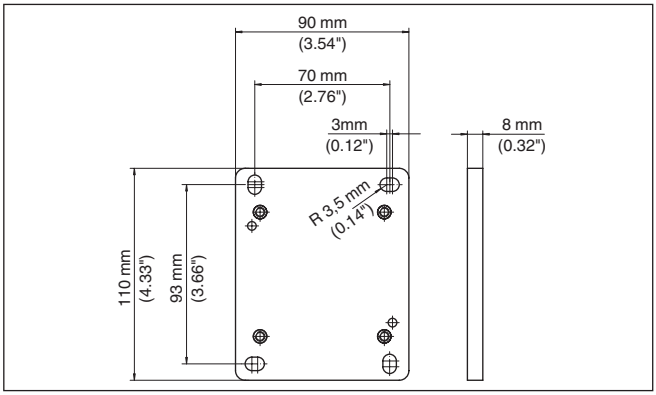


*Fig. 6: Hole pattern - wall mounting plate (external housing)*

**Tip:**
Mount the wall mounting plate in such a way that the cable gland of the base points downward. Rain and condensation water can thus drain off.

The base of stainless steel can be displaced in 90° increments on the wall mounting plate, the base of plastic by 180°.

Turn the cable gland of the electronics housing downward. The housing can be turned by 330° without the use of any tools.

**Warning:**
With the plastic housing, the four screws of the base may only be screwed in hand tight. Exceeding the max. torque specified in chapter " *Technical data*" can damage the wall mounting plate.

## 4.4 Mounting - external housing (instrument housing)

→ Mount the sensor to the bottom, depending on the process fitting

**Note:**
When mounting the sensor, note the instructions in the operating instructions manual of the sensor.

# 5 Connect the sensor to the external housing

## 5.1 Preparing the connection

Follow the instructions in the operating instructions manual of the sensor.

## 5.2 Connection procedure

**Note:**
The metal sensor housing cannot be opened. The electrical connection must be carried out on the instrument housing.

1. Insert the cable end through the cable entry on the external housing (instrument housing)

**Tip:**
Only run the cable loosely. The connection cable can only be separated on the external housing (instrument housing). If the sensor should be dismounted, the connection cable must be free to take out the sensor.

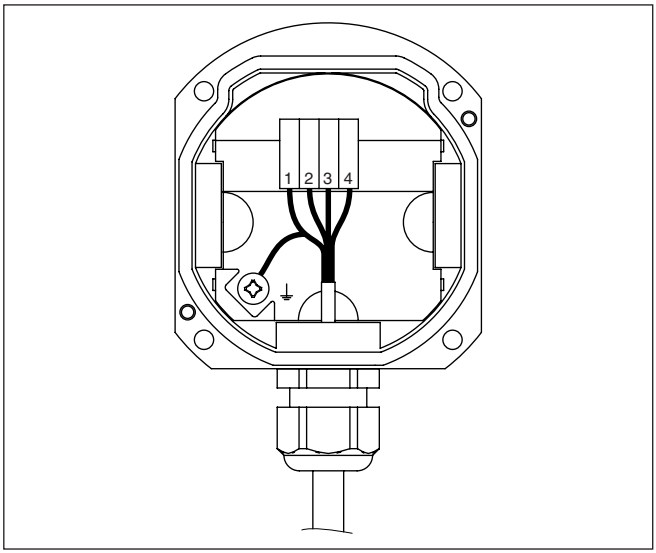


*Fig. 7: Connection of the sensor in the socket housing*

*1 Red*
*2 Yellow*
*3 Black*
*4 Green*
*5 Green/yellow (ground terminal)*

2. Connect the cables to the terminals in the socket housing.

The cables are numbered and cannot be interchanged. The ground cable (green/yellow) must be connected to the ground screw.

3. Tighten the compression nut of the cable entry gland. The seal ring must completely encircle the cable

The electrical connection of the electronics module is described in the operating instructions manual of the sensor.

# 6 Setup

## 6.1 Setup

Setup is carried out according to the operating instructions manual of the respective sensor.

# 7 Maintenance

## 7.1 How to proceed if a repair is necessary

You can find an instrument return form as well as detailed information about the procedure in the download area of our homepage: www.vega.com

By doing this you help us carry out the repair quickly and without having to call back for needed information.

If a repair is necessary, please proceed as follows:

- Print and fill out one form per instrument
- Clean the instrument and pack it damage-proof
- Attach the completed form and, if need be, also a safety data sheet outside on the packaging
- Please contact the agency serving you to get the address for the return shipment. You can find the agency on our home page www.vega.com.

# 8 Dismount

## 8.1 Dismounting steps

Take note of chapters " *Mounting*" and " *Connect sensor to the external housing*" and carry out the listed steps in reverse order.

## 8.2 Disposal

The instrument consists of materials which can be recycled by specialised recycling companies. We use recyclable materials and have designed the electronics to be easily separable.

Correct disposal avoids negative effects on humans and the environment and ensures recycling of useful raw materials.

Materials: see chapter " *Technical data*"

If you have no way to dispose of the old instrument properly, please contact us concerning return and disposal.

**WEEE directive 2002/96/EG**
This instrument is not subject to the WEEE directive 2002/96/EG and the respective national laws. Pass the instrument directly on to a specialised recycling company and do not use the municipal collecting points. These may be used only for privately used products according to the WEEE directive.

# 9 Supplement

## 9.1 Technical data

### Technical data

Following you find all data deviating from the standard instrument. All other technical data are specified in the operating instruction of the respective sensor.

### General data

Material 316L corresponds to 1.4404 or 1.4435

Materials, non-wetted parts

| | |
|---|---|
| – Sensor housing | 316L |
| – Plastic instrument housing (external housing) | Plastic PBT (Polyester) |
| – Stainless steel instrument housing - electropolished (external housing) | 316L |
| – Housing base | Plastic PBT (Polyester), 316L |
| – Wall mounting plate | Plastic PBT (Polyester) |
| – Cable to the instrument housing | PUR |
| – Seal between housing socket and wall mounting plate | TPE (fixed connected) |
| – Seal between housing and housing cover (instrument version) | Silicone |
| – Ground terminal | 316L |
| – Connection cable (suspension cable version) | PTFE/FEP |

Weight

| | |
|---|---|
| – External instrument housing | approx. 660 g (23 oz) |
| – Sensor housing | 1100 g (38 oz) |

Length (connection cable to the external housing)

| | |
|---|---|
| – Single-part connection cable | 2 m, 5 m, 10 m (6.562 ft, 16.41 ft, 32.81 ft) |
| – Two-part connection cable (short part) | 1.5 m (4.92 ft) |
| – Two-part connection cable (long part) | 8 m, 12 m, 15 m (26.25 ft, 39.37 ft, 49.21 ft) |

### Process conditions

| | |
|---|---|
| Process temperature | Depending on the sensor |
| Ambient temperature on the sensor housing | -20 … +80 °C (-4 … +176 °F) |
| Ambient, storage and transport temperature on the instrument housing | -40 … +80 °C (-40 … +176 °F) |

| Electromechanical data | |
|---|---|
| Cable entry/plug [1] | |
| – Instrument housing | – 1 x cable gland M20 x 1.5 (cable: ø 6 … 12 mm), 2 x blind plug M20 x 1.5<br>or:<br>– 1 x closing cap ½ NPT, 2 x blind plug ½ NPT<br>or:<br>– 1 x plug (depending on the version), 2 x blind plugs M20 x 1.5 |
| – Housing base | – 1 x cable entry M20 x 1.5 (cable: ø 6 … 12 mm) |
| Spring-loaded terminals | for wire cross-section up to 2.5 $mm^2$ (AWG 14) |

| Electrical protective measures | |
|---|---|
| Protection rating | |
| – Sensor housing | IP66/IP67 (NEMA Type 4X) |
| – Instrument housing - Instrument socket | IP66/IP67 (NEMA Type 4X) |

[1] Depending on the version M12 x 1, according to ISO 4400, Harting, 7/8" FF.

## 9.2 Dimensions

**External housing - direct cable outlet**

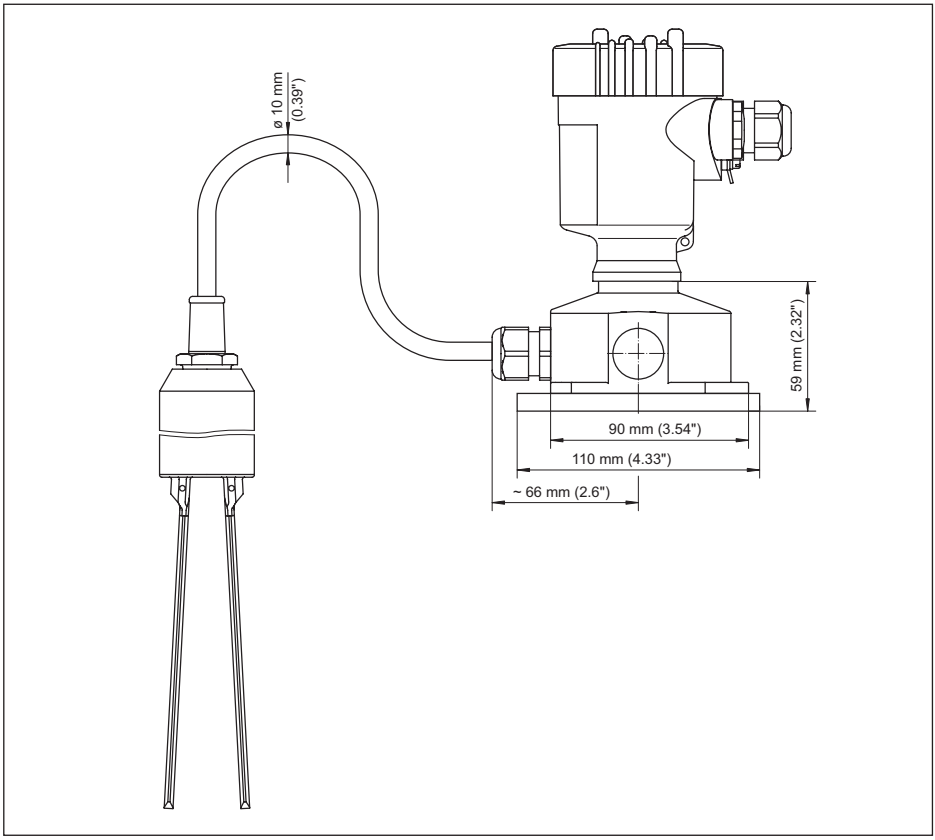


*Fig. 8: External housing with direct cable outlet to the vibrating element*

## Sensor housing and external housing (instrument housing)

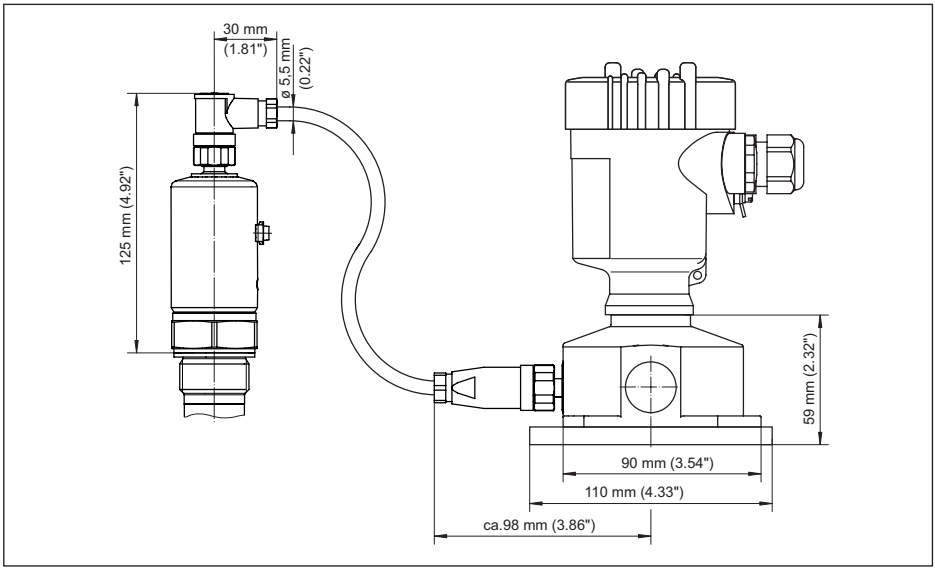


*Fig. 9: Sensor housing and external housing (instrument housing)*

## Housing versions - instrument housing

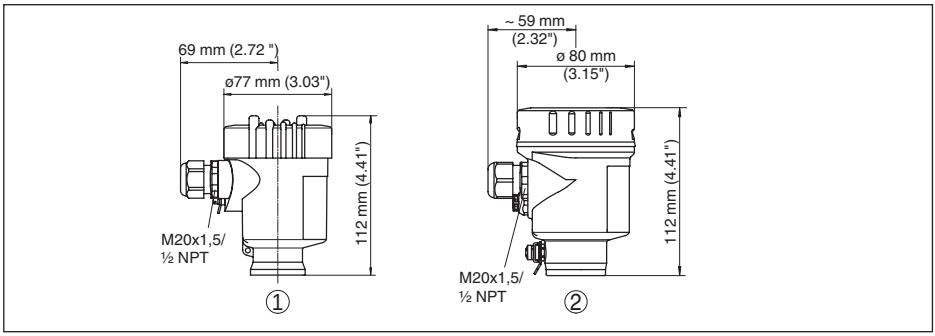


*Fig. 10: Housing versions - instrument housing*

*1 Instrument housing - plastic*
*2 Instrument housing - stainless steel, electropolished*

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All statements concerning scope of delivery, application, practical use and operating conditions of the sensors and processing systems correspond to the information available at the time of printing.
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