

# Supplementary instructions

## Alignment device

For radar sensors

- VEGAPULS 10, 20, 30 series

- VEGAPULS Air series 40

as well as other VEGA sensors



Document ID: 1013013



# VEGA

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**Safety instructions for Ex areas**



Please note the Ex-specific safety information for installation and operation in Ex areas. These safety instructions are part of the operating instructions and come with the Ex-approved instruments.

Editing status: 2023-03-16

# 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 instruction 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](http://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.



#### Sequence of actions

Numbers set in front indicate successive steps in a procedure.



### Disposal

This symbol indicates special instructions for disposal.

## 2 For your safety

### 2.1 Authorised personnel

All operations described in this instruction 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

The alignment device serves for mounting and aligning the VEGAPULS series 10, 20, 30, VEGAPULS Air 40 radar sensors as well as further VEGA sensors on the respective measuring point.

### 2.3 Warning about incorrect use

Inappropriate or incorrect use of the instrument can give rise to application-specific hazards, e.g. vessel overflow or damage to system components through incorrect mounting or adjustment.

### 2.4 General safety instructions

The safety information in the operating instructions manual of the respective device must be noted.

### 2.5 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:

- Alignment device
- Information sheet "*Documents*" with QR-code with a link to the instrument documentation for direct scanning

Further scope of delivery for alignment device with universal flange

- Sensor seal (only with G-thread)

Further scope of delivery for alignment device for tank wall mounting

- Foam material ring between alignment device and tank wall for sealing and compensating unlevelness

##### Types

- Alignment device with universal flange with sliding sensor mount. Suitable for sensors with a 1" thread on top and connecting cable at top centre. The universal flange has elongated holes and fits on tank flanges of the DN, ASME and JIS standards.
- Alignment device for tank wall mounting. Suitable for sensors with 1½" thread on the bottom.

### 3.2 Types

#### With universal flange

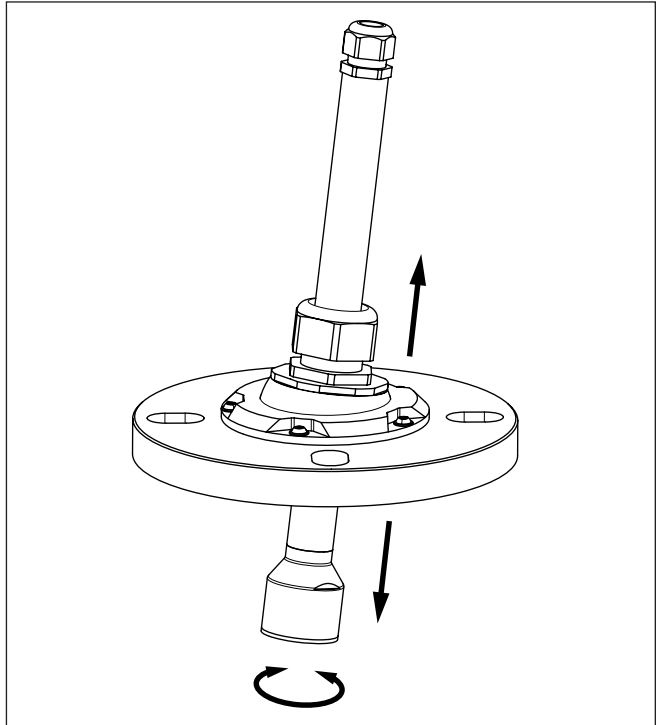


Fig. 1: Alignment device with universal flange

Sensors	Flange size	Sensor holder	Art. no.
VEGAPULS C 11, C 21, C 23	DN 80	G1, R1	MBH.JE
		1 NPT	MBH.JM
	DN 100	G1, R1	MBH.PE
		1 NPT	MBH.PM

#### For tank wall mounting

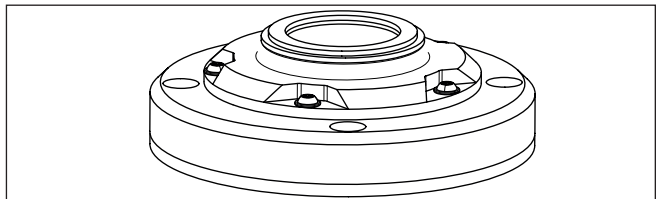


Fig. 2: Alignment device for tank wall mounting

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Sensors	Sensor holder	Art. no.
VEGAPULS C 11, C 21, C 22	G1½, R1½	MBG.G
VEGAPULS 11, 21, 31	1½ NPT	MBG.N
VEGAPULS Air 41		

## 4 Mounting

### 4.1 Mounting preparations

The following tools and material are required for mounting the alignment device with universal flange:

- T20 screwdriver for the internal hexagon head round screws
- SW 24 spanner for the M20 cable gland
- SW 36 spanner for the M32 cable gland
- Fixing material for mounting the alignment device on the tank flange

The following tools and material are required for mounting the alignment device on the tank wall:

- T20 screwdriver for the internal hexagon head round screws
- Fixing material for fixing the alignment device to the tank

### 4.2 Alignment device with universal flange



**Note:**

To mount the sensor, the connecting cable must be loose, i.e. not yet fixed and not yet connected.

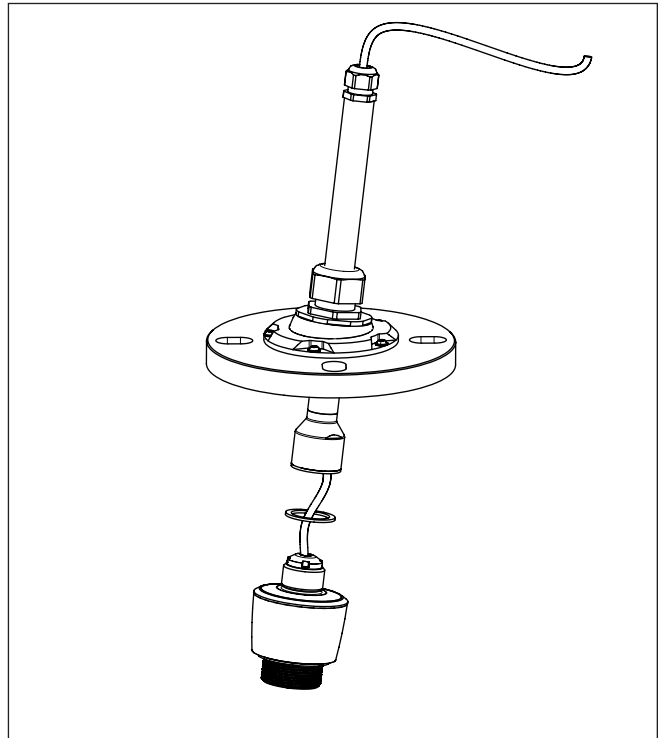


Fig. 3: Mounting the alignment device with universal flange



1. Loosen and remove the counter nut delivered with the sensor. The counter nut is no longer required.
2. Thread the enclosed seal (only with G-thread) onto the connecting cable and place the seal on the sensor.
3. Feed the sensor connecting cable completely through the tube of the alignment device.
4. Screw in the sensor (torque: maximum 5 Nm).
5. Tighten the upper cable gland.
6. Place and fix the alignment device on the tank flange. Make sure that the seal is sitting correctly.
7. Set the vertical position of the sensor:  
Loosen the lower cable gland, shift the tube and re-tighten the lower cable gland.
8. Set the angle of the sensor:  
Loosen the screw, set the angle of the sensor and re-tighten the screws.  
Always tighten the diagonally opposite screws alternately. This prevents uneven load distribution.

Mounting of the alignment device and alignment of the sensor is completed.

### 4.3 Alignment device for tank wall mounting

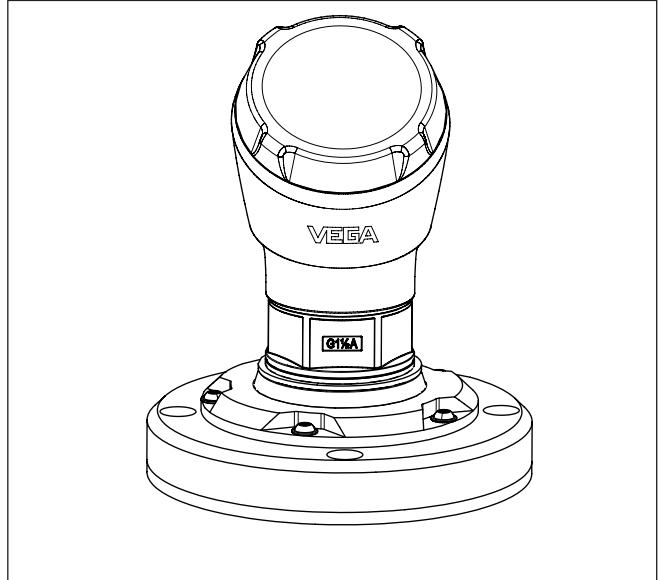


Fig. 4: Mounting the alignment device on the tank wall

1. Place the alignment device on the tank and fix with suitable screws depending on the tank material. Pay attention to the correct seating of the enclosed foam rubber ring.
2. Screw in the sensor (torque: maximum 5 Nm).
3. Set the angle of the sensor:

Loosen the screw, set the angle of the sensor and re-tighten the screws.

Always tighten the diagonally opposite screws alternately. This prevents uneven load distribution.

Mounting of the alignment device and alignment of the sensor is completed.

## 5 Technical data

### Materials and weights

---

#### Material

- |   |   |
|---|---|
| - Alignment device  | Polypropylene with 30 % fibre glass (PP GF30) |
| - Cable glands  | PA  |
| - Fixing screws   | StSt  |
| - Sensor seal (only with G-thread)  | FKM   |
| - Seal between the alignment device and the tank (only for alignment device for tank wall mounting) | EPDM, 5 mm                                    |

#### Weight

- |   |                   |
|---|-------------------|
| - Alignment device with universal flange DN 80  | 1.2 kg (2.65 lbs) |
| - Alignment device with universal flange DN 100 | 1.4 kg (3.1 lbs)  |
| - Alignment device for tank wall mounting       | 0.5 kg (1.1 lbs)  |

### Movement areas

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#### Alignment device with universal flange

- |                             |                |
|-----------------------------|----------------|
| - Angle of inclination      | 0° to 13°      |
| - Vertical adjustment range | 0 mm to 177 mm |

#### Alignment device for tank wall mounting

- |                        |           |
|------------------------|-----------|
| - Angle of inclination | 0° to 10° |
|------------------------|-----------|

### Torques

---

#### Max. torque

- |  |                   |
|--|-------------------|
| - T20 internal hexagon head round screws | 3 Nm (2.2 lbf ft) |
| - Cable gland M20                        | 3 Nm (2.2 lbf ft) |
| - Cable gland M32                        | 6 Nm (4.4 lbf ft) |

### Mechanical environmental conditions

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- |                       |   |
|-----------------------|---|
| Sinusoidal vibrations | Class 4M5 acc. to IEC 60271-3-4                       |
| Impacts               | 50 g, 2.3 ms acc. to IEC 60271-3-6 (mechanical shock) |

## 6 Dimensions

### 6.1.1 Alignment device with universal flange

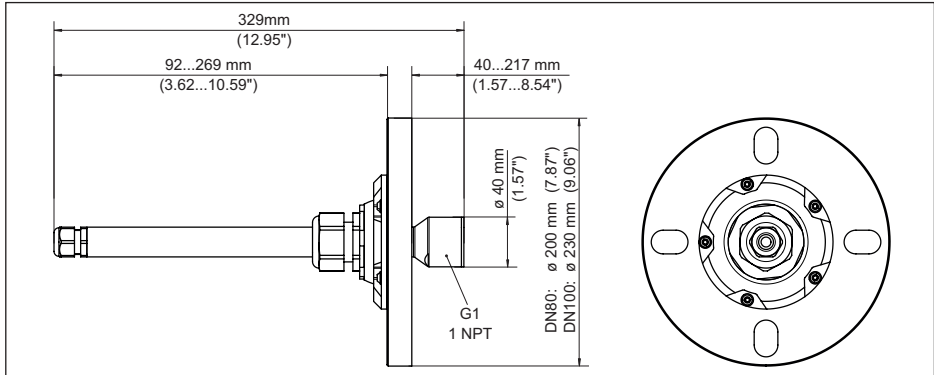


Fig. 5: Alignment device with universal flange

Universal flange  $\varnothing$  200 mm to fit

- DN 80 PN 6 - PN 40
- ASME 3" 150lb
- JIS 80 5K - 10K

Universal flange  $\varnothing$  230 mm to fit

- DN 100 PN 6 - PN 16
- ASME 4" 150lb
- JIS 100 5K - 10K

6.1.2 Alignment device for tank wall mounting

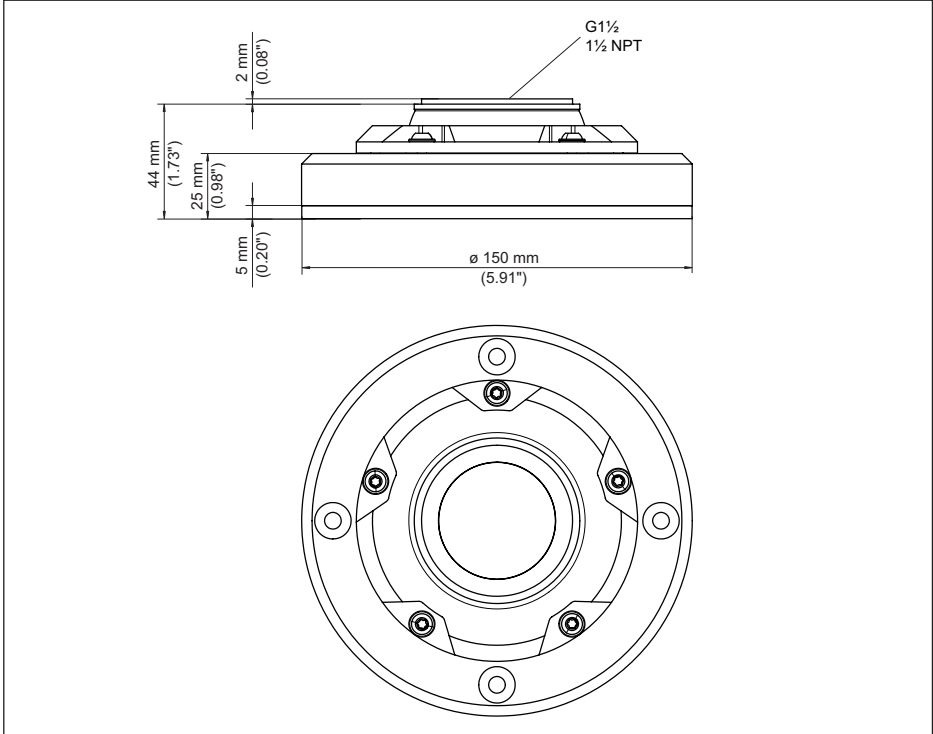
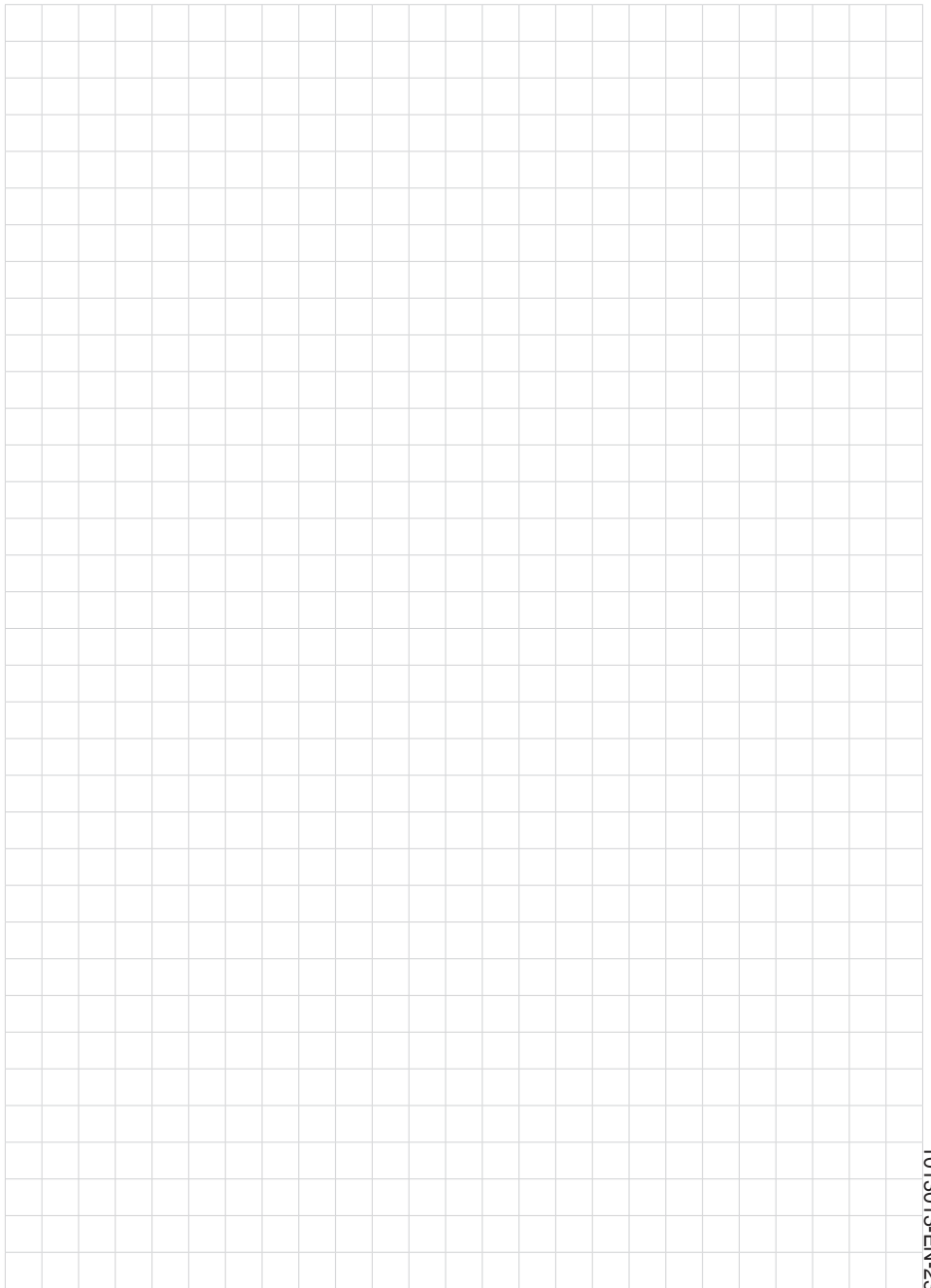


Fig. 6: Alignment device for tank wall mounting





1013013-EN-230327

Printing date:

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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.

Subject to change without prior notice

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1013013-EN-230327

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