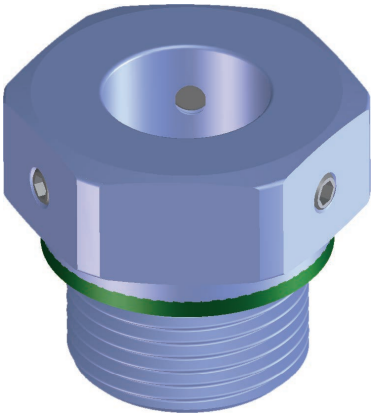
Operating Instructions

Lock fitting ARV-ECL.1

for VEGAPOINT 23

unpressurised operation



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1 About this document

1.1 Function

This instruction provides all the information you need for mounting, connection and setup as well as important instructions for maintenance, fault rectification, the exchange of parts and the safety of the user. Please read this information before putting the instrument into operation and keep this manual accessible in the immediate vicinity of the device.

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.

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 documentation 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

ARV-ECL.1 is used for infinitely variable locking of sensors with tube extension.

You can find detailed information about the area of application in chapter " *Product description*".

Operational reliability is ensured only if the instrument is properly used according to the specifications in the operating instructions manual as well as possible supplementary instructions.

For safety and warranty reasons, any invasive work on the device beyond that described in the operating instructions manual may be carried out only by personnel authorised by the manufacturer. Arbitrary conversions or modifications are explicitly forbidden.

2.3 Warning about incorrect use

Inappropriate or incorrect use of this product can give rise to application-specific hazards, e.g. vessel overfill through incorrect mounting or adjustment. Damage to property and persons or environmental contamination can result. Also, the protective characteristics of the instrument can be impaired.

2.4 General safety instructions

This is a state-of-the-art instrument complying with all prevailing regulations and directives. The instrument must only be operated in a technically flawless and reliable condition. The operator is responsible for the trouble-free operation of the instrument. When measuring aggressive or corrosive media that can cause a dangerous situation if the instrument malfunctions, the operator has to implement suitable measures to make sure the instrument is functioning properly.

The safety instructions in this operating instructions manual, the national installation standards as well as the valid safety regulations and accident prevention rules must be observed by the user.

For safety and warranty reasons, any invasive work on the device beyond that described in the operating instructions manual may be carried out only by personnel authorised by the manufacturer. Arbitrary conversions or modifications are explicitly forbidden. For safety reasons, only the accessory specified by the manufacturer must be used.

To avoid any danger, the safety approval markings and safety tips on the device must also be observed.

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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 " *Packaging, transport and storage*"
- Chapter " *Disposal*"

3 Product description

3.1 Configuration

Scope of delivery

The scope of delivery encompasses:

- Lock fitting ARV-ECL.1 for capacitive level switches VEGAPOINT 23
- Documentation
  - This operating instructions

3.2 Principle of operation

Application area

The lock fitting ARV-ECL.1 is a threaded fitting and can be used together with a level sensor in tube version (VEGAPOINT 23). Depending on the version, the tube extension of the sensor must have a diameter of 18 mm (0.709 in).

The sensor in tube version must have a min. length of 100 mm (3.94 in).

The wetted parts of ARV-ECL.1 are made of steel (316L). The internal seal is available in FKM or EPDM.

The ARV-ECL.1 must only be used in unpressurized vessels.

When correctly installed, the lock fitting fulfils protection rating IP67 (Type 4X).

Functional principle

With the lock fitting, the sensor with tube extension can be locked in infinitely variable positions.

The terminal screws prevent the tube from sliding through.

The following versions are available:

- ø 18 mm - G¾ or ¾ NPT (SW 36)
- ø 18 mm - G1 or 1 NPT (SW 36)

3.3 Packaging, transport and storage

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 packaging of standard instruments consists of environment-friendly, recyclable cardboard. For special versions, PE foam or PE foil is also used. Dispose of the packaging material via specialised recycling companies.

Transport

Transport must be carried out in due consideration of the notes on the transport packaging. Nonobservance of these instructions can cause damage to the device.

Transport inspection

The delivery must be checked for completeness and possible transit damage immediately at receipt. Ascertained transit damage or concealed defects must be appropriately dealt with.

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Storage

Up to the time of installation, the packages must be left closed and stored according to the orientation and storage markings on the outside.

Unless otherwise indicated, the packages must be stored only under the following conditions:

- Not in the open
- Dry and dust free
- Not exposed to corrosive media
- Protected against solar radiation
- Avoiding mechanical shock and vibration

Storage and transport temperature

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

4 Mounting

4.1 Mounting sequence

The figures in brackets refer to the following illustration.

Information:
Required tools:

- Hexagon spanner in size 2.5
- Fork wrench - SW 36

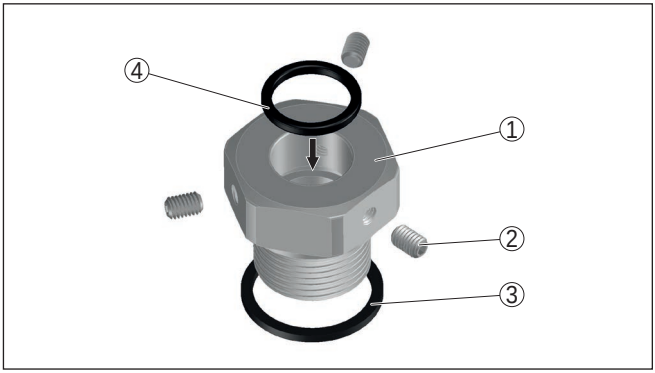

Fig. 1: Lock fitting - unpressurised

1 Lock fitting
2 Terminal screws (3 pieces)
3 Process seal
4 Pipe seal (internal)

1. Screw the lock fitting (1) with a resistant process seal (3) into the thread of your vessel and tighten the lock fitting (1) on the hexagon (SW 36).

   Process fitting - Thread G¾, ¾ NPT - max. 75 Nm (55 lbf ft)

   Process fitting - Thread G1, 1 NPT - max. 100 Nm (73 lbf ft)

2. Thoroughly clean the extension tube of the sensor and the locking fitting from grease, oil and dirt. Insert the sensor into the lock fitting with a slight turning movement. Make sure that the inserted pipe seal (4) is not damaged.

   If the pipe seal (4) is damaged or porous, it must be replaced.

   Standard version: FKM - Article number 2.64826

   Food version: EPDM - Article number 2.64821

3. Slide the pipe into the desired position and hold it

   Make sure that the sensor is in the correct position (height). The height setting of the sensor also determines the switching point

4. Tighten the terminal screws (2) with a torque of 3 ±1 Nm (2.2 ±0.7 lbf ft) (hexagon SW 2.5)

   The terminal screws (2) press lightly into the tube and fix the tube of the sensor in this position.

5 Maintenance and fault rectification

5.1 Maintenance

Maintenance

If the device is used properly, no special maintenance is required in normal operation.

Cleaning

The cleaning helps that the type label and markings on the instrument are visible.

Take note of the following:

- Use only cleaning agents which do not corrode the housings, type label and seals
- Use only cleaning methods corresponding to the housing protection rating

5.2 Instrument repair

If it is necessary to repair the instrument, please contact the agency serving you.

6 Dismount

6.1 Dismounting steps

Note chapter " *Mounting*" and carry out the described steps in reverse order.

If you proceed as follows, it is not necessary to readjust the switching point and the lock fittings must not be dismounted completely.

1. Switch off power supply of the sensor
2. Remove all connection cables
3. Loosen lock fitting with a screwdriver (SW 36)
4. Remove the sensor together with the lock fitting

6.2 Disposal

The instrument consists of materials which can be recycled by specialised recycling companies. Mark the instrument as scrap and dispose it according to the national, legal regulations.

Materials: see chapter " *Technical data*"

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

7 Supplement

7.1 Technical data

General data	
Material 316L corresponds to 1.4404 or 1.4435	
Process fittings	
– Pipe thread, cylindrical (DIN 3852-A)	G¾, G1
– Pipe thread, conical (ASME B1.20.1)	¾ NPT, 1 NPT
Tube diameter of the sensor	ø 18 mm (0.709 in)
Min. length of the sensor	100 mm (3.94 in)
Materials	
– Lock fitting	316L
– Terminal screws (M5)	316TI (1.4571)
– Process seal	Klingersil C-4400 [1]
– Pipe seal - Standard version	FKM
– Pipe seal - Food version	EPDM
Terminal screws	Threaded pin with hexagon socket DIN 913, M5 x 8
Torque	
– Terminal screws (M5)	3 ±1 Nm (2.2 ±0.7 lbf ft)
– Process fitting - Thread G¾, ¾ NPT	max. 75 Nm (55 lbf ft)
– Process fitting - Thread G1, 1 NPT	max. 100 Nm (73 lbf ft)

Process conditions	
Operating pressure	unpressurized
Process temperature	-40 … +115 °C (-40 … +239 °F)
Protection rating	IP67 (Type 4X)

Approvals

The lock fittings have no own approvals

7.2 Dimensions

Lock fitting ARV-ECL.1 for VEGAPOINT 23 - metric threads

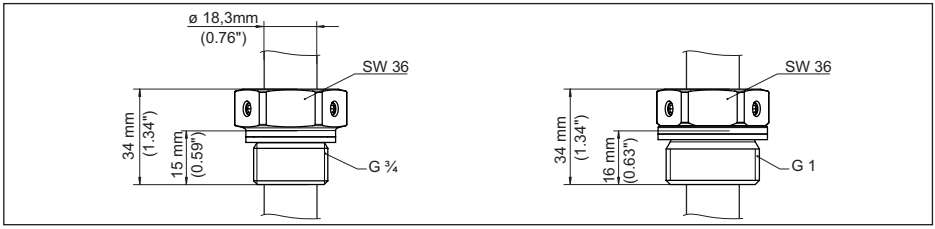

Fig. 2: Lock fitting ARV-ECL.1 unpressurized - Thread G acc. to ISO 228-1 (DIN 3852-A)

[1] Not with thread NPT

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Lock fitting ARV-ECL.1 for VEGAPOINT 23 - NPT threads

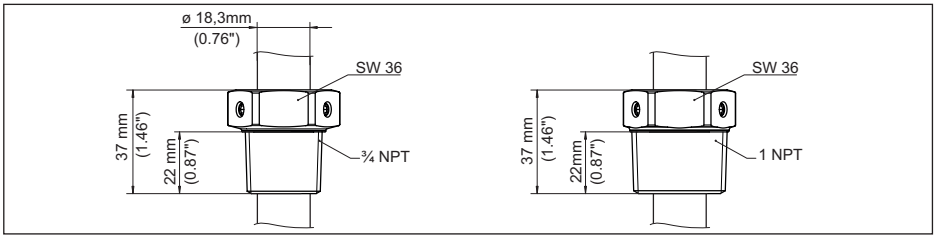

Fig. 3: lock fitting ARV-ECL.1 unpressurized - Thread NPT acc. to ASME B1.20.1

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VEGA Grieshaber KG
Am Hohenstein 113
77761 Schiltach
Germany

Phone +49 7836 50-0
Fax +49 7836 50-201
E-mail: info.de@vega.com
www.vega.com