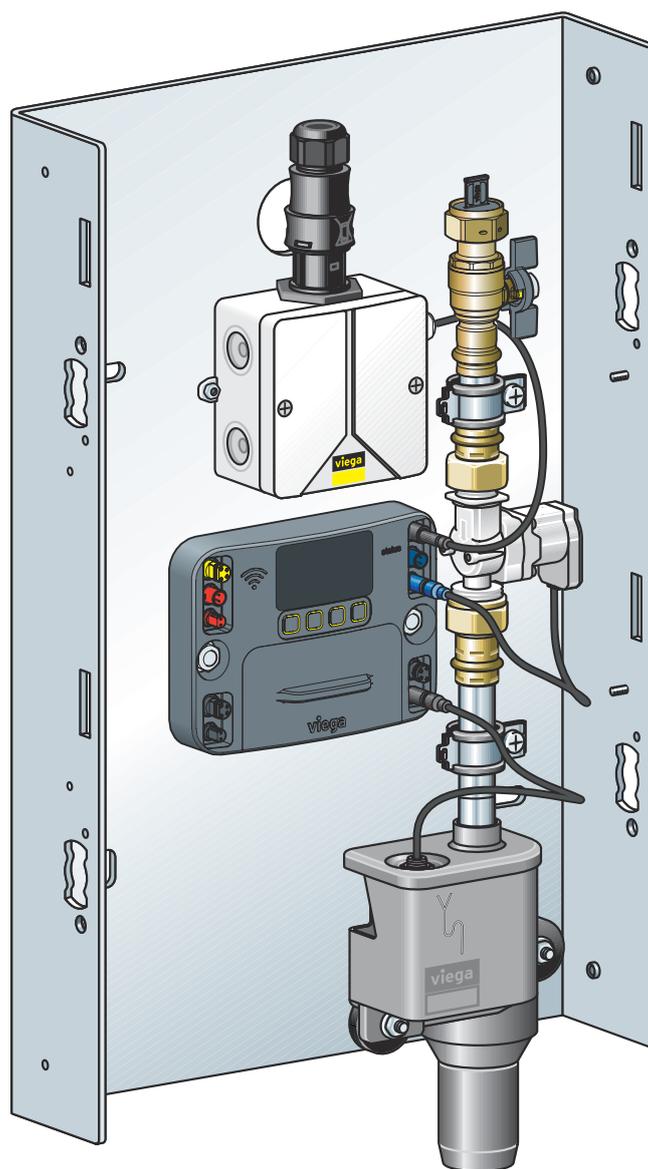**Instructions for Use**

Flushing station with Viega Hygiene function

**for one flushing section, for use in ring and series pipeline instal-
lation, wall-mounted and concealed installation, and for installa-
tion in wet and dry construction as well as pre-wall systems**

Model	**Year built (from)**
2241.10	09/2017

viega

Table of contents

1 About these instructions for use

Trade mark rights exist for this document; for further information, go to *viega.com/legal*.

1.1 Target groups

The information in this instruction manual is directed at the following groups of people:

- Heating and plumbing experts and trained personnel
- Qualified electricians
- Operators

Individuals without the abovementioned training or qualification are not permitted to mount, install and, if required, maintain this product. This restriction does not extend to possible operating instructions.

The installation of Viega products must take place in accordance with the general rules of engineering and the Viega instructions for use.

1.2 Labelling of notes

Warning and advisory texts are set aside from the remainder of the text and are labelled with the relevant pictographs.

DANGER!
This symbol warns of possible life-threatening injury.

WARNING!
This symbol warns of possible serious injury.

CAUTION!
This symbol warns of possible injury.

NOTICE!
This symbol warns of possible damage to property.

This symbol gives additional information and hints.

1.3   About this translated version

This instruction for use contains important information about the choice of product or system, assembly and commissioning as well as intended use and, if required, maintenance measures. The information about the products, their properties and application technology are based on the current standards in Europe (e.g. EN) and/or in Germany (e.g. DIN/DVGW).

Some passages in the text may refer to technical codes in Europe/Germany. These should serve as recommendations in the absence of corresponding national regulations. The relevant national laws, standards, regulations, directives and other technical provisions take priority over the German/European directives specified in this manual: The information herein is not binding for other countries and regions; as said above, they should be understood as a recommendation.

2 Product information

2.1 Standards and regulations

The following standards and regulations apply to Germany / Europe and are provided as a support feature.

Regulations from section: Functionality

Scope / Notice	Regulations applicable in Germany
Free discharge in the odour trap	DIN EN 1717

Regulations from section: Sound protection

Scope / Notice	Regulations applicable in Germany
Sound protection test by Fraunhofer Institut	DIN 4109

Regulations from section: Mounting conditions

Scope / Notice	Regulations applicable in Germany
Output times in ring and series pipeline installations PWH	VDI 6003
Permitted sealants	DIN 30660
Permitted sealants	DIN EN 751-2

Regulations from section: Connecting the supply and wastewater pipes

Scope / Notice	Regulations applicable in Germany
Connecting the wastewater pipes	DIN EN 12056:2001
Connecting the wastewater pipes	DIN 1986-100:2008:05
Connecting the supply lines	DIN EN 806, part 1 - 5
Connecting the supply lines	DIN EN 1717
Connecting the supply lines	DIN 1988
Connecting the supply lines	VDI/DVGW 6023
Connecting the supply lines	Trinkwasserverordnung (TrinkwV)

Regulations from section: Mounting the multi-functional sensor

Scope / Notice	Regulations applicable in Germany
Permitted sealants for sealing of threads	DIN 30660
Permitted sealants for sealing of threads	DIN EN 751-2

Regulations from section: Connecting electrical components

Scope / Notice	Regulations applicable in Germany
Installation in the protected zones 0 and 1 of shower rooms and bathrooms is not permitted	VDE 0100-701
Connection to the 230 V mains plug with flexible line only	VDE 0100-520

Regulations from section: Flushing the system

Scope / Notice	Regulations applicable in Germany
Flush before leakage test Information on proper flushing in drinking water installations	ZVSHK-Merkblatt "Spülen, Desinfizieren und Inbetriebnahme von Trinkwasserinstallationen"

Regulations from section: Leakage test

Scope / Notice	Regulations applicable in Germany
Regulations for leakage tests	DIN EN 806-4
Regulations for leakage tests	ZVSHK Merkblatt "Dichtheitsprüfungen von Trinkwasserinstallationen mit Druckluft, Inertgas oder Wasser"

Regulations from section: Disposal

Scope / Notice	Regulations applicable in Germany
Disposal of electronic components	WEEE-Richtlinie 2012/19/EU

2.2 Safety advice

⚠ **DANGER!**
Danger due to electrical current
An electric shock can lead to burns and serious injury and even death.

- Work on the electrical system may only be carried out by trained electricians.
- Switch off the mains voltage before opening the casing.
- Switch off the mains voltage before connecting the mains plug.

⚠ **WARNING!**
Risk of scalding from automatic regulation
By way of pre-set parameters, the control can independently control flushings and set the temperature of the flushing water.

If a thermal disinfection process is initiated centrally, the system cannot check whether there are persons close to a fitting who may be at risk from this process.

- Ensure that there are no persons in the danger zone when a flushing / thermal disinfection is carried out.

WARNING!
Danger in case of unauthorised third-party access to the computer network

It cannot be excluded that third parties who get into the computer network may also gain unauthorised access to the browser-based software for controlling the flushing station.

■ Protect your user name and password from third-party access.

■ A possible breach of this access protection cannot be technically excluded. For this reason, change your password regularly.

Technical progress

The flushing station has been developed in accordance with the state-of-the-art in computer and network technology.

It cannot be excluded that the flushing station will no longer be compatible with any future computer and network systems.

■ It is possible that the flushing station will require technical retrofitting.

Data protection

The user behaviour of a certain fitting can possibly be ascribed to one individual user. The data collected in this way is personal data.

■ Inform the user of the flushing station that data is collected.

■ The user must give his or her consent.

Data protection

It is possible to access the system externally using mobile end devices. As operator of the flushing station, you are obliged to check whether the usage is legally permitted, in particular if the collected and saved data is subject to professional or specific official secrecy.

■ Ensure that personal data is processed and used only in compliance with the applicable data protection regulations.

2.3 Intended use

2.3.1 Areas of application

The flushing station is intended for use in potable water installations. It supports the operator in upholding potable water quality and can be installed in ring or series pipelines.

The flushing station can be controlled directly via the display or the Internet application. For control via the Internet application, the end devices can be connected to the flushing station by means of a WIFI or Ethernet connection. The flushing station can be connected to a higher-level control system for building automation (BA). To this end, connection options via Ethernet are available.

2.3.2 Maintenance

Regular maintenance is part of running the system properly, see ♦ *Chapter 3.7.3 'Perform maintenance' on page 72*.

> **i** Inform the building owner or the operator of the potable water installation of their inspection and maintenance obligations.

2.4 Product description
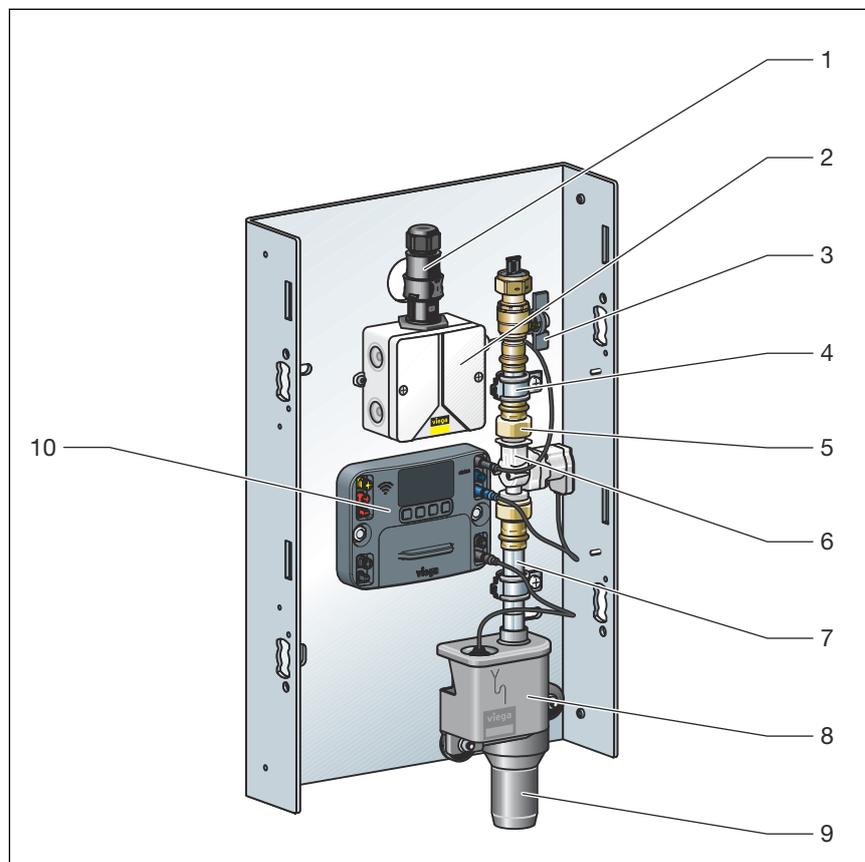
2.4.1 Overview and description of component

Fig. 1: Overview and scope of delivery

2.4.2 Operating mode

Flush actuation

By providing for controlled water exchange, the flushing station helps to ensure that drinking water systems are used as intended.

Flushing can be carried out as follows:

Start function:

- pursuant to interval (factory setting)
- pursuant to time
- pursuant to use
- pursuant to temperature

Stop function:

- on reaching the flush volume (factory setting)
- at constant temperature
- When target temperature is reached

The flushing station can be used with or without multi-functional sensor. Without the multi-functional sensor, flushing is carried out time controlled pursuant to interval or time.

Multi-functional sensor

With a multi-functional sensor, the water temperature and the usage behaviour can be taken into consideration as well. If equipped with sensor, the system checks for insufficient use or impermissible temperature change at the specified point in time. This would indicate insufficient water exchange or stagnation in the pipeline. In this case, the system will trigger flushing pursuant to the set parameters at the specified points in time.

Flow limiter

A flow limiter is located under the sieve insert in the inlet side of the magnet valve. The flow limiter limits the flushing water volume to 0.07 l/s (4.2 l/min). This provides for water exchange with the lowest possible flow noise.

The flow limiter must not be removed.

Backflow sensor

A backflow sensor is located in the odour trap. It monitors the water level in the odour trap base unit. In case of backflow, it stops an ongoing flushing and ensures that no further flushing is triggered.

Flow sensor

A flow sensor is used to accurately determine the flush volume during the flushing process. The flow sensor is mounted below the magnet valve at the wastewater side.

Odour trap

A free discharge pursuant to applicable regulations and a backflow sensor are integrated in the odour trap, see ↳ *'Regulations from section: Functionality' on page 6*.

2.4.3   Sound protection

All components with water contact are mounted on the basic holder system with acoustic insulation.

The Stuttgart Fraunhofer Institut für Bauphysik tested the flushing station for noise emissions according to the applicable directives when mounted in Viega pre-wall systems, in traditional dry construction, and in solid construction, see ↳ *'Regulations from section: Sound protection' on page 6*.

2.4.4   Technical data

Characteristics of the plug-in contacts

- splash water protected
- polarity reversal protected
- colour-coded

Operating conditions

Pressure max.	1 MPa (10 bar)
Operating temperature	10 °C up to 80 °C
Flowthrough volume max.	0.07 l/s (4.2 l/min)
Flow pressure min.	0.1 MPa (1 bar)

Magnet valve

Flowthrough	0.07 l/s (4.2 l/min)
Pressure	MOP 1 MPa (10 bar)
Temperature range	10 °C up to 90 °C
Output state	Closed in de-energized state
IP Code	IP54
voltage	12 V

Backflow sensor

Switching capacity	max. 10 W
Switching voltage	max. 180 V
Switching current	max. 0.5 A
IP Code	IP 68
Operating temperature	-30 °C up to 80 °C

Power pack

Input voltage	220 - 240 VAC
Output voltage	12 V
Output current	max. 1300 mA
Input frequency	50 Hz
Power consumption	max. 15.6 W

Control

voltage	12 V
Operating temperature	5 °C up to 50 °C
Humidity	up to 95% relative humidity
IP Code	IP54
Battery	CR2032 / 3 V

Interfaces

RJ-45	2x
WIFI	1x

Flow sensor

Supply voltage	5-24 VDC
Measuring range	1 l/min to 10 l/min
Deviation	+/- 3 %
Operating temperature	-20 °C up to 100 °C
Operating pressure	max 25 bar

Multi-functional sensor (model: 2241.61 / 2241.62 / 2241.53 / 2241.54)

Deviation	+/- 1.3°C with 1 m of cable
Temperature range	-10 °C up to 100 °C
Current consumption	constant at 2.75 mA

Supported operating systems

Windows 7
Windows 8.1
Windows 10
OS X

Supported mobile operating systems

Android
iOS

Supported browsers

Internet Explorer
Firefox
Chrome
Safari
Microsoft Edge

2.5   Information for use

2.5.1   Installation variants

The flushing station is suitable for installation in ring and series pipeline installations.
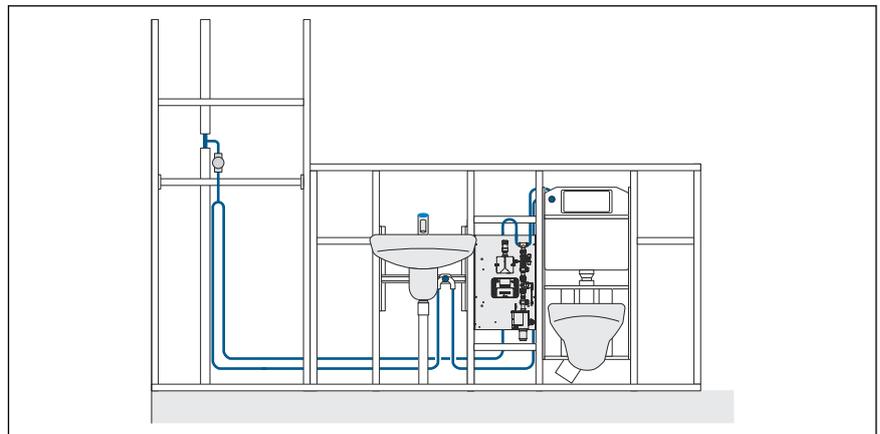
Ring system installation

Fig. 2: Example for flushing station PWC in a ring system installation
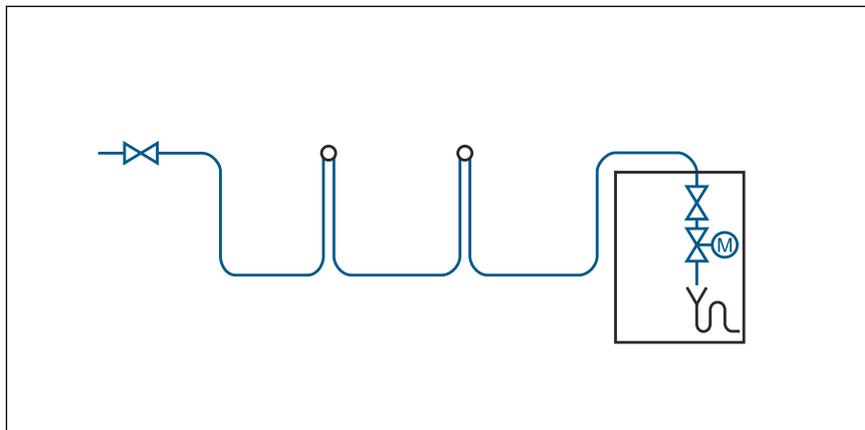
Series pipeline installation

Fig. 3: Diagram for a PWC series pipeline installation
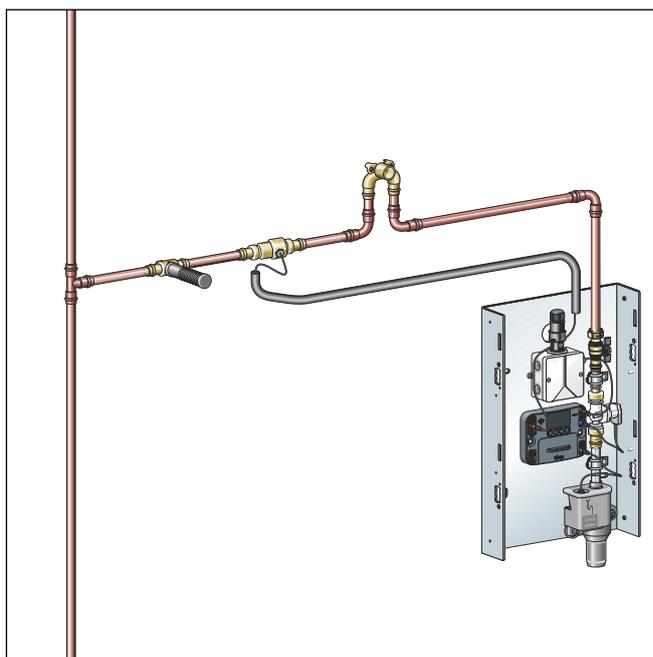
Multi-functional sensor

Fig. 4: Installation with multi-functional sensor

Examples for multi-functional sensor PWC in a series pipeline installation.

2.5.2   Installation variations

Viega pre-wall installations

Viega recommends to use it together with Viega pre-wall systems.

■ Prevista Dry
■ Prevista Dry Plus

Installation in commercially available pre-wall systems is possible.

3 Handling

3.1 Transport and storage

Observe the following with transport and storage:

- Avoid heavy blows and vibrations.
- Store components in a clean and dry place.
- Do not remove the components from the packaging until immediately before use.

3.2 Assembly information

3.2.1 Mounting conditions

Mounting the device is permissible only if the following conditions are met:

- The device must be mounted in potable water installations only.
- In series pipelines, the flushing station must be arranged as the last consumer.
- In ring and series pipelines for hot potable water (PWH), comply with the output times pursuant to the applicable regulations, see ⬦ *'Regulations from section: Mounting conditions' on page 6*.
- Access to the flushing station must be possible for maintenance and repair. All components of the flushing station must be easily accessible.
- Installation below the backflow level is only permissible if the water is drained by means of a wastewater pump station.
- Only use DVGW approved sealants in accordance with the applicable regulations, see ⬦ *'Regulations from section: Mounting conditions' on page 6*.

3.2.2 Potential equalisation

⚠️ **DANGER!**
Danger due to electrical current

An electric shock can lead to burns and serious injury and even death.

Because all metallic piping systems conduct electricity, unintentional contact with a live part can lead to the whole piping system and components connected to it (e. g. radiators) becoming energised.

- Only allow electrical work to be carried out by qualified electricians.
- Always integrate the metal piping system into the potential equalisation.

The flushing station must not be integrated as a separate component.

ℹ️ It is the fitter of the electrical system who is responsible for ensuring that the potential equalisation is tested and secured.
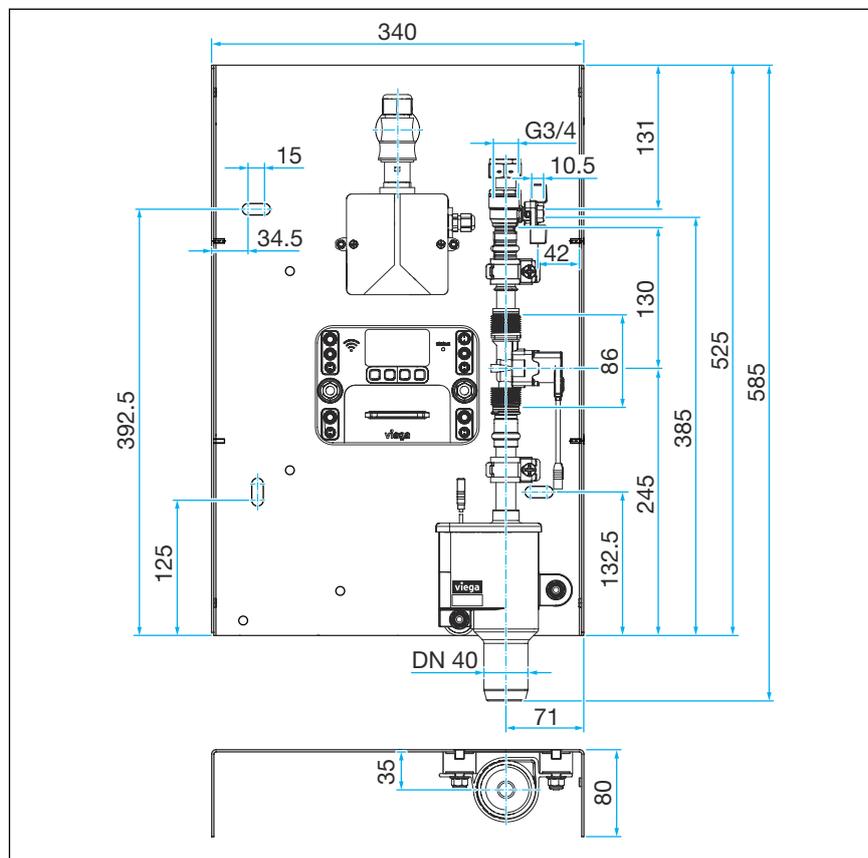
3.2.3 Installation dimensions
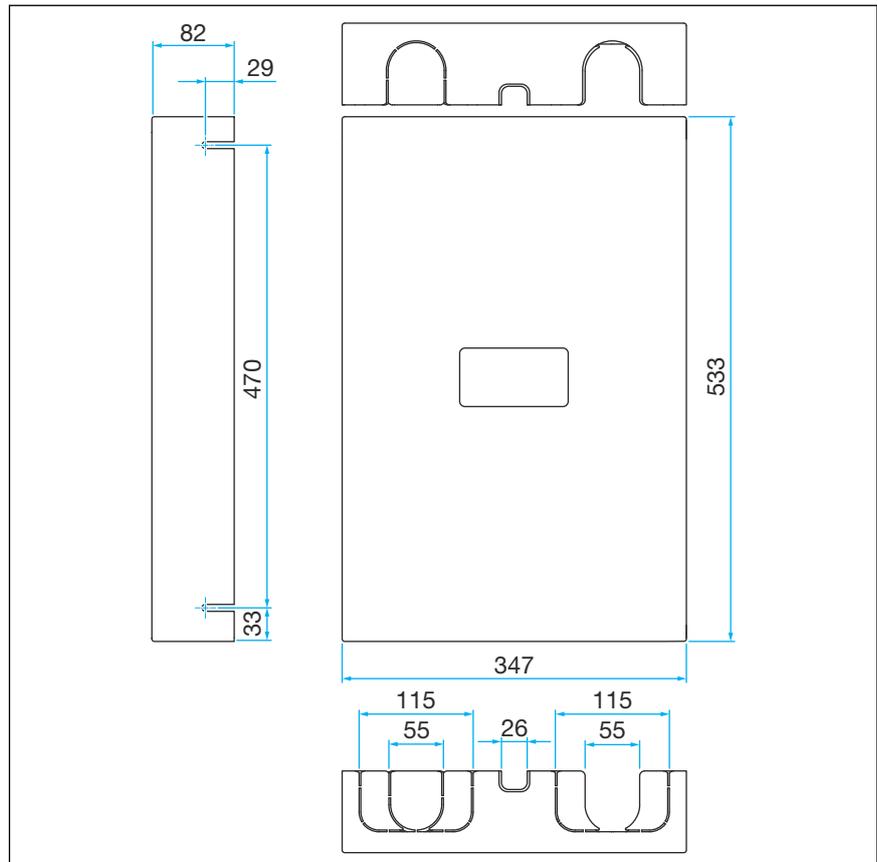

Fig. 5: Dimensions of the flushing station

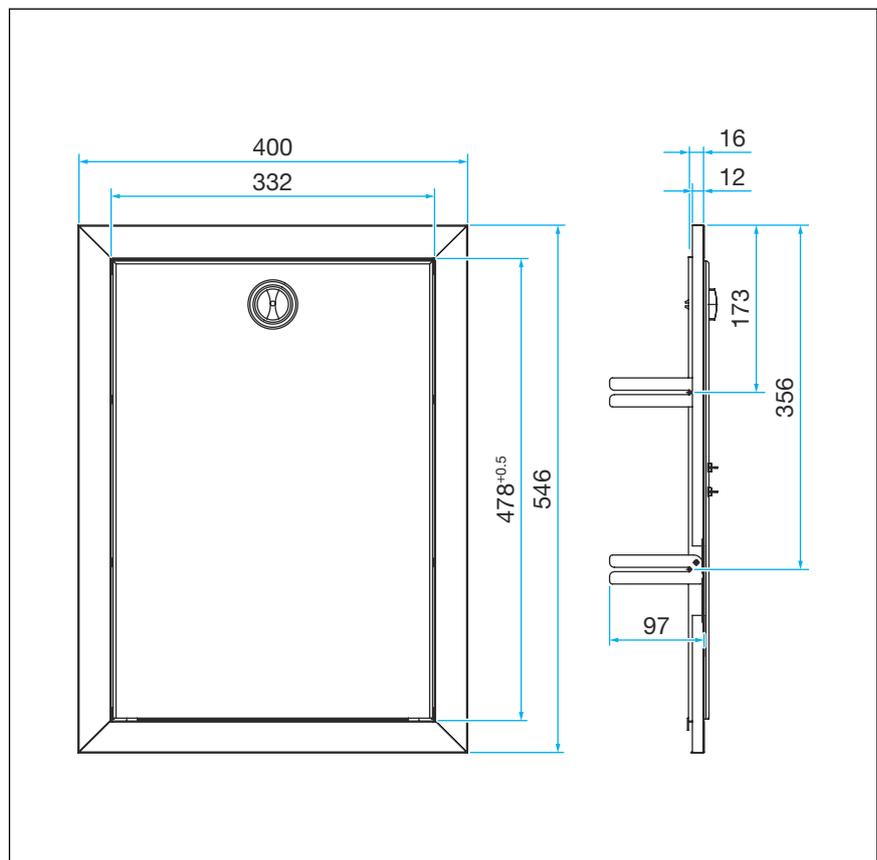**Fig. 6: Dimensions of the wall-mounting cover**

Fig. 7: Dimensions concealed-mounting cover

3.2.4 Required accessories

For commissioning and configuring the flushing station, you will need:

■ Either laptop computer, smartphone or tablet computer (note the system requirements, see ⬯ *Chapter 2.4.4 'Technical data' on page 13*).

> **i** Operating the control only via display is possible as well.

3.3 Assembly

3.3.1 Mounting the base

The flushing station is delivered pre-assembled and ready for connection. All components are mounted to the base and have been tested for leak tightness and proper function.
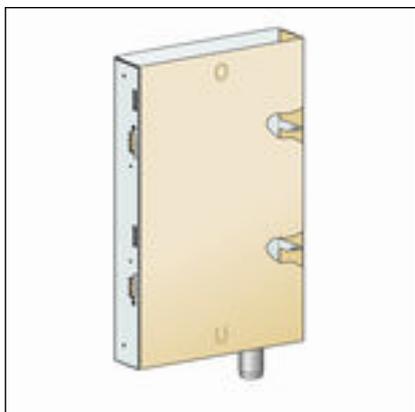
Site protection

Fig. 8: Protective cardboard box, delivery condition

The flushing station is delivered packaged in a cardboard box. This box is later used for site protection (also see ⬯ *Chapter 3.3.9 'Notes on wall construction' on page 35*).

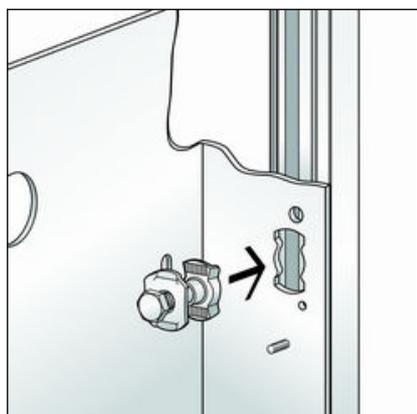> **i** Take care not to damage the cardboard box, it will be required later.

▶ Do not remove the cardboard box until you are ready to mount the device.

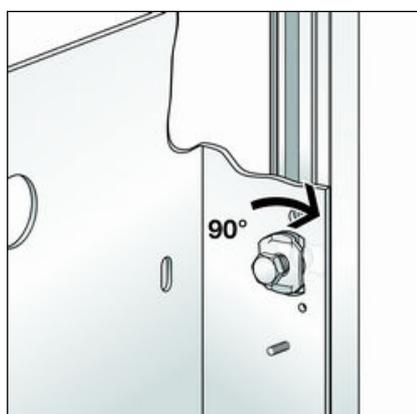▶ Put the cardboard box in a dry and clean space for interim storage.

> **i** To give you a better view, an empty base is shown for the following assembly steps.
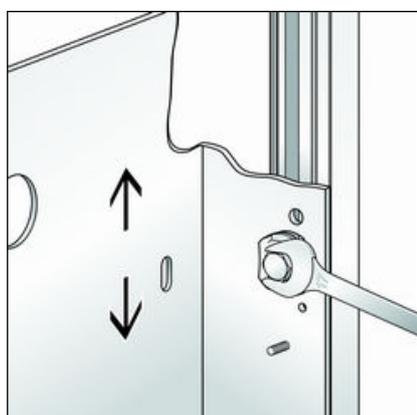
Prevista Dry Plus

Use Prevista Dry Plus slot nuts model 8437.90 for assembly.

▶ Push the slot nuts through the cuttings of the basic holder system into the open sides of the mounting rail.

▶ Turn the screws with the slot nuts through 90° and hand-tighten them.

▶ Align the basic holder system using a spirit level, and tighten the screws.

Further see ⬃ *Chapter 3.3.2 'Connecting the supply and wastewater pipes' on page 25*.

Prevista Dry

> **i** The inside dimensions of the Prevista Dry frame element (model 8570) are wider than the flushing station's basic holder system. For this reason, different methods must be used to fasten the two sides of the basic holder system.

Use hammer head screws model 8013.23 for assembly.
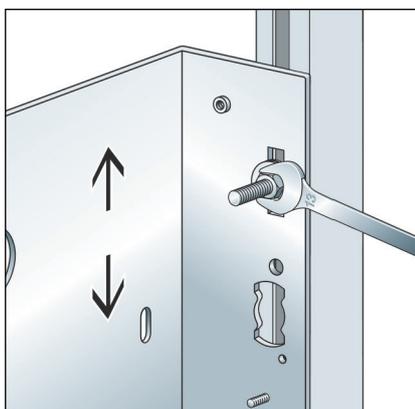
1st side
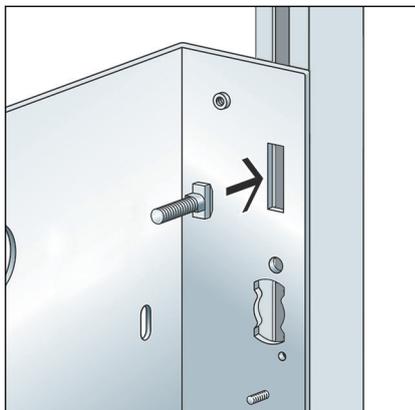
▶ Push the screws into the rail of the frame element through the cuttings of the basic holder system.
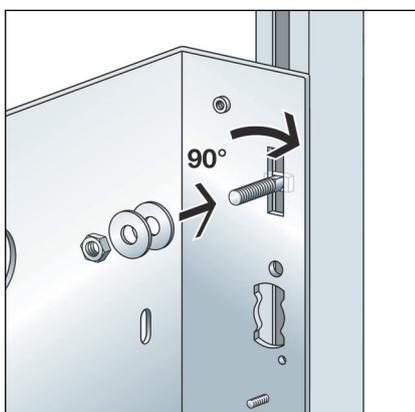
▶ Turn the screws through 90°.

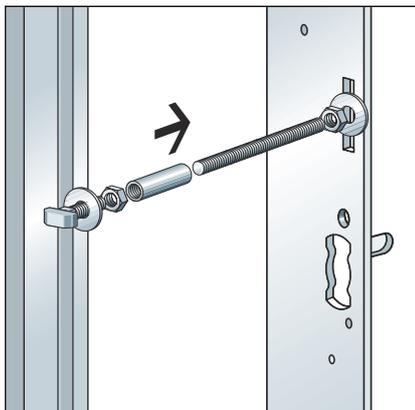▶ Place two washers on each screw and use a nut to hand-tighten them.

i Be sure to use the second washer so that the nut can be tightened properly.

▶ Align the basic holder system using a spirit level.

▶ Tighten the nut.

2nd side

- Put a hammer head screw into the rail of the basic holder system and turn it by 90° (1).
- Use the washer and nut to tighten it on the frame element (2).
- Put a coupling M8 on the thread of the hammer head screw and hand-tighten it.
- Screw a threaded rod to the required length in the coupling (3).
- Use washers and nuts to tighten at the base (4).

Further see ♦ *Chapter 3.3.2 'Connecting the supply and wastewater pipes' on page 25*.

Dry construction
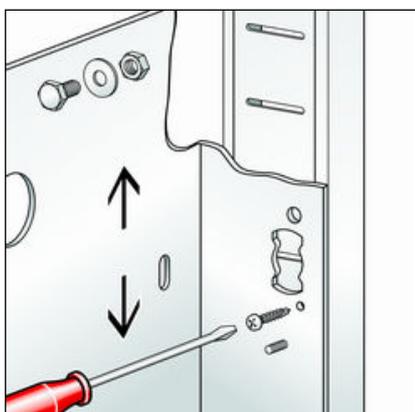
- Align the basic holder system and fix it at both sides by means of a screw.
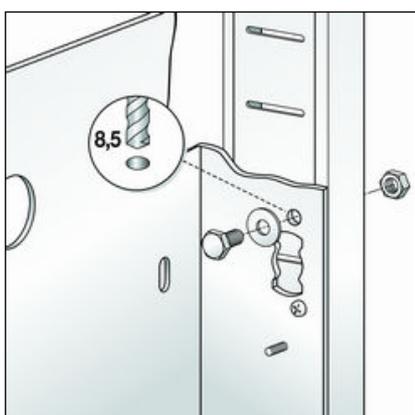
- Drill the holes for fixing the basic holder system.
- Use suitable fixing material to fasten the basic holder system to the stud frame.

Further see ♦ *Chapter 3.3.2 'Connecting the supply and wastewater pipes' on page 25*.

Concealing mounting

Select the fixing material in accordance with the underground.
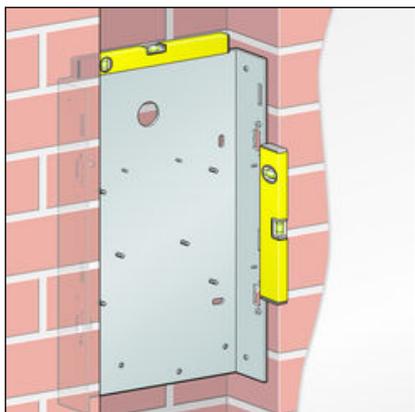
▶ Align the basic holder system using a spirit level.
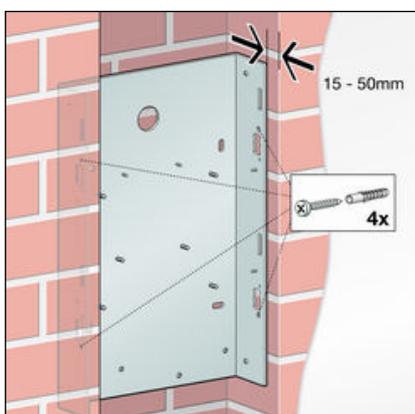
▶ Mark the positions for the dowel holes.

▶ Drill the holes and insert the dowels.

▶ Put the basic holder system on the dowels and hand-tighten the screws.

▶ Align the basic holder system once more using a spirit level, and tighten the screws.

The distance between the base and the front edge of the finished wall must be 15 to 50 mm. This ensures that the cover can be professionally mounted later.

Wall mounting

Select the fixing material in accordance with the underground.

▶ Align the basic holder system using a spirit level.

▶ Mark the positions for the dowel holes.

▶ Drill the holes and insert the dowels.

▶ Put the basic holder system on the dowels and hand-tighten the screws.

▶ Align the basic holder system once more using a spirit level, and tighten the screws.
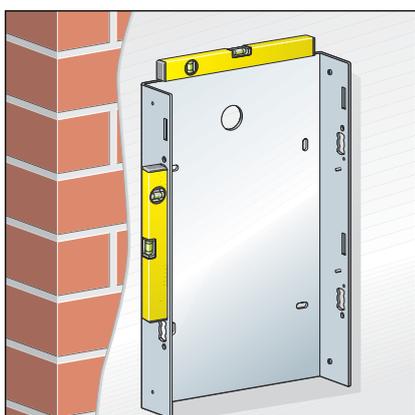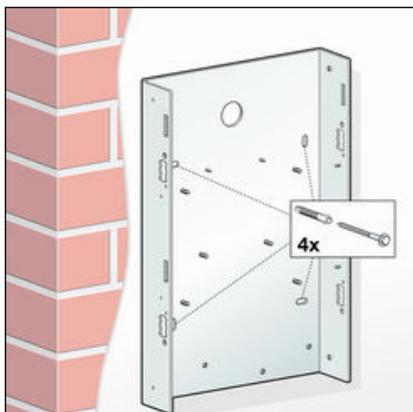
Further see ↳ *Chapter 3.3.2 'Connecting the supply and wastewater pipes' on page 25*.

3.3.2 Connecting the supply and wastewater pipes

i **Installation variants**

■ If you intend to insert the flushing station in a **ring system installation**, you need to mount a T-piece in the pipe. Next, the flushing station must be connected via a single connection pipeline which should be as short as possible.

■ If you intend to insert the flushing station in a **series pipeline installation**, the flushing station must be mounted and connected as a last consumer.

Connecting the wastewater pipes
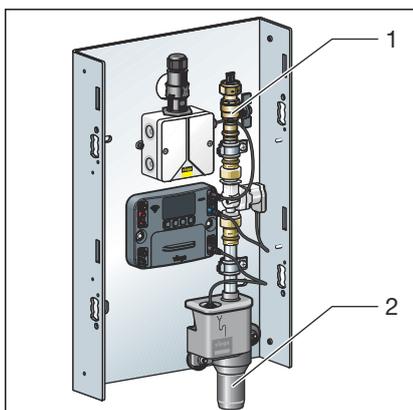
i When connecting the odour trap to the disposal system, observe the general rules of engineering, see ↳ *'Regulations from section: Connecting the supply and wastewater pipes' on page 7*.

No additional odour trap is required.

▶ Connect the wastewater pipe (2).

Connecting the supply lines

i The general rules of engineering must be observed for the planning, execution, operation and maintenance of potable water installations, see ↳ *'Regulations from section: Connecting the supply and wastewater pipes' on page 7*.

▶ Connect the supply line (1).

For **series pipeline installations**, connect the potable water pipeline directly at the ball valve. If you intend to use a multi-functional sensor in a series pipeline installation, it must be mounted at a distance of 10 d_i to the shut-off, see ↳ *Chapter 3.3.3 'Mounting the multi-functional sensor' on page 26*.

For **ring system installations**, use a T-piece to connect the pipeline and the ball valve. Mount the multi-functional sensor at one of the inlet sides to the T-piece.

3.3.3 Mounting the multi-functional sensor

Note on prevention of damage

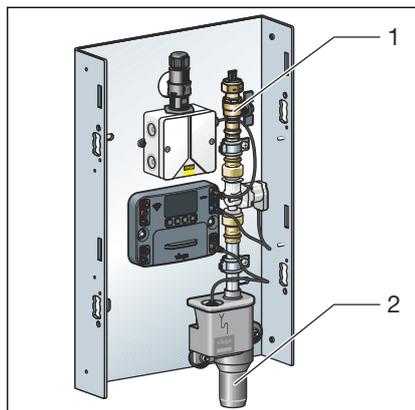- In series pipeline installations, mount the multi-functional sensor at the beginning of the series with a distance of minimum 10 x d_i to the storey shut-off or the section branch-off.
- Only place the fork spanner (size 30) on the intended key surface on the screw-in part. This prevents bending or twisting of the sensor bracket.
- Ensure that there is no mechanical load on the plug contacts.

> **i** For thread sealing, only use commercially available and chloride-free, DVGW approved sealants in accordance with the applicable regulations, see ↳ *'Regulations from section: Mounting the multi-functional sensor' on page 7*.

Notes on errors of measurement due to improper cable extensions

Excessively long cables and too-small cable cross-sections may result in errors of measurement.

- Cables should not be longer than 30 m.

  With a cable length of 30 m and a cable cross-section of 0.75 mm^2, the error of measurement is approx. 0.4°C.
- Use extension cable model 2241.95 or 2241.96 only.

  With connection lengths > 30 m, extension cables can be divided and extended using suitable cable types.

  The connections must be properly made using wire end ferrules, plastic branches, and cable terminals.
- Viega recommends to install the connection cables in a protective pipe (model 2004).

Mounting the multi-functional sensor with screw-in part in the pipeline

The following section describes an example for installation with screw-in part in a pipeline.
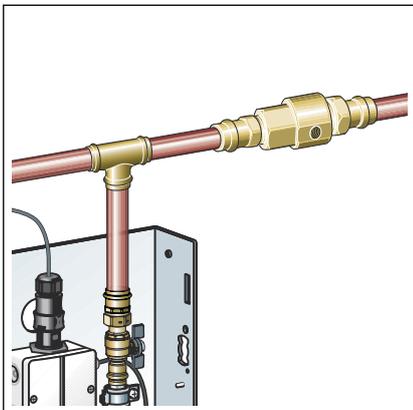
▶ Seal the thread.

▶ Mount the screw-in part in the pipeline upstream of the outlet to the flushing station.
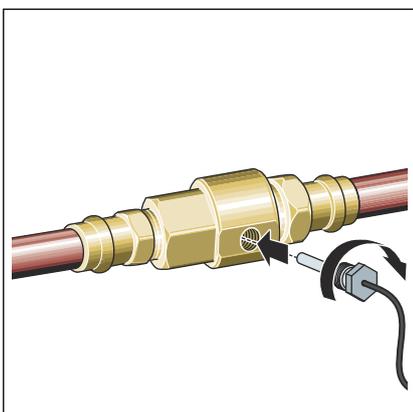
▶ Screw the sensor into the screw-in part and tighten it.

Mounting the multi-functional sensor in a T-piece
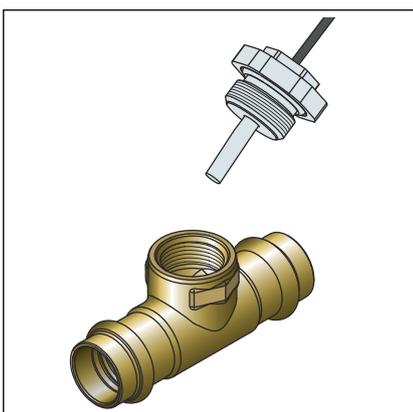
▶ Place the T-piece or double wall plate and press in.

▶ Check that the internal thread of the T-piece is free of burrs.

▶ Deburr if necessary.

▶ Screw the multi-functional sensor into the T-piece or double wall plate.

▶ Tighten the multi-functional sensor with a fork spanner.

The sensors are supplied with 1 m length of 0.34 mm^2 cables. Extensions are possible, see ⵗ *Chapter 2.4.4 'Technical data' on page 13*.

3.3.4 Connecting the sensor cable
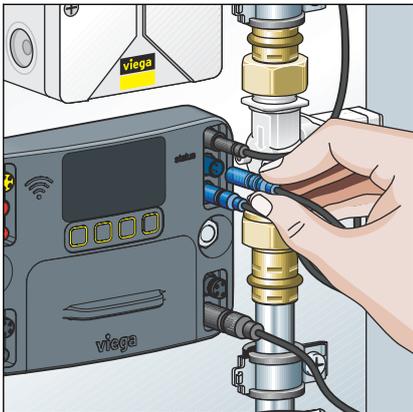
▶ Connect the sensor cable to the control.
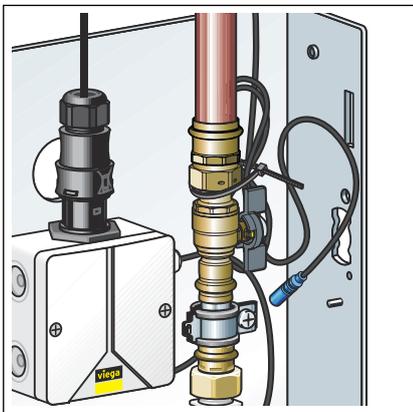
▶ Roll up any non-required connection cable and secure it on the threaded bolt behind the pipe clamp using a cable tie.

Ensure that there is no mechanical load on the plug contacts.

▷ You have connected the multi-functional sensor.

3.3.5 Connecting the flow sensor (optional accessories)
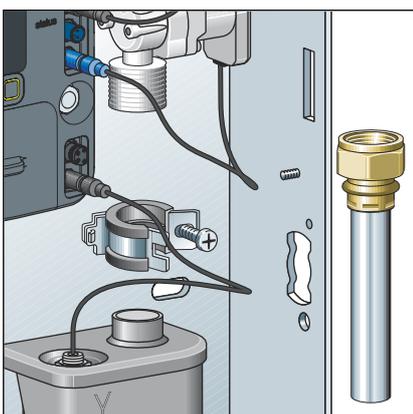
▶ Remove the drainpipe.
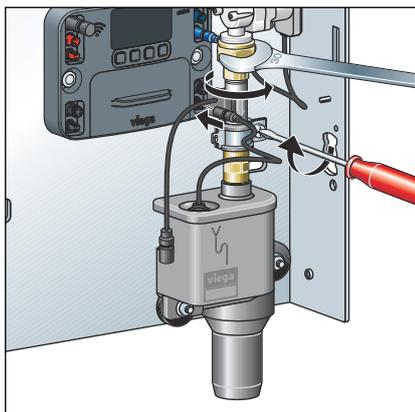
▶ Install the flow sensor and the new seal.

▶ Tighten the screw fitting of the flow sensor.

▶ Re-close the pipe clamp.

▶ Pull the protective plug off the connection for the flow sensor.
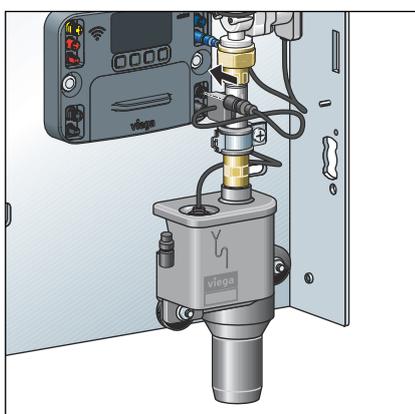
▶ Insert the plug connector in the respective socket at the control (see arrow).

▷ You have connected the flow sensor.

> **NOTICE!**
> Before you can use the flow sensor, enable it in the Configuration menu, see ⭗ *'Configuration' on page 51*.

Connecting the external alarm sensor

To connect the external alarm sensor, refer to ⭗ *'Connecting the external sensor' on page 33*.

3.3.6 Connecting electrical components

The device has the following electrical components:

■ Mains plug for power supply
■ Control of the flushing station

Connecting the mains plug

> ⚠️ **DANGER!**
> **Danger due to electrical current**
> - Only allow electrical work to be carried out by qualified electricians.
> - De-energise the connection cables before connecting the mains plug.

> ❗ **NOTICE!**
> The mains adapter is intended exclusively for use in closed rooms with the flushing stations models 2241.10 and 2241.20.
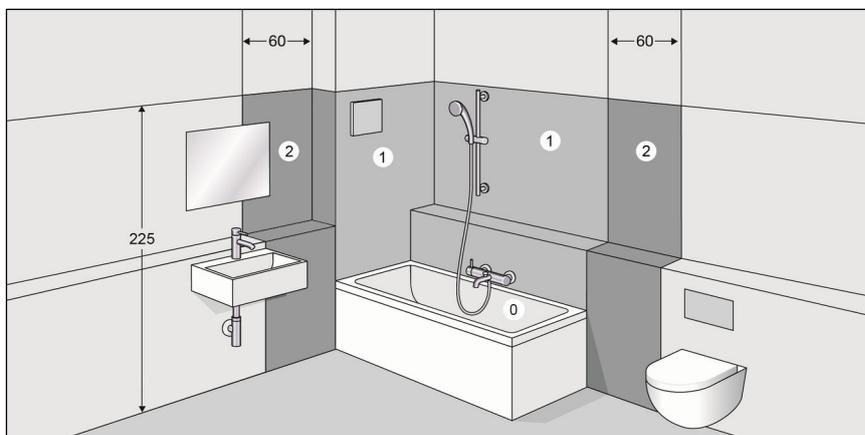
Fig. 9: Protected zones

According to the applicable regulations, installation in the protected zones 0 and 1 of shower rooms and bathrooms is not permitted, see ⮡ *'Regulations from section: Connecting electrical components' on page 7*.

Requirement:

- A 230 V mains connection is available on site.
- According to the applicable regulations, installation in the protected zones 0 and 1 of shower rooms and bathrooms is not permitted.
- According to the applicable regulations, connection to the 230 V mains plug is permissible only with a flexible cable.

For the applicable directives, see ⮡ *'Regulations from section: Connecting electrical components' on page 7*.

On delivery, the mains plug is at the mains adapter.
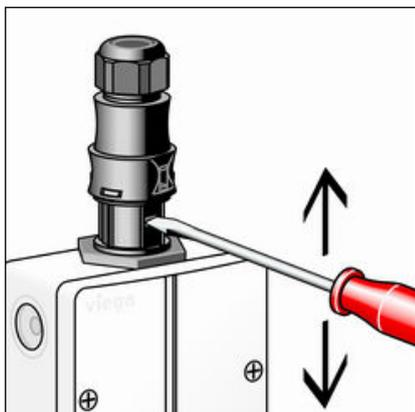
▮▶ Use a small screwdriver to press down the lock in the middle, and remove the plug.
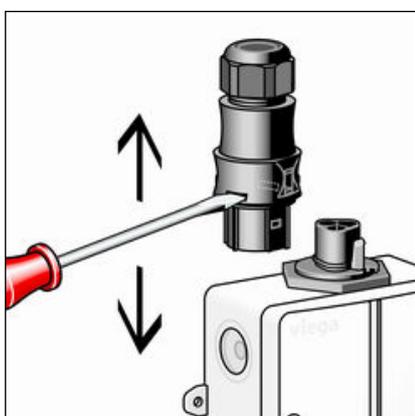
▮▶ Press down the locks at the side one after the other, and push up.

▮▶ Pull the top apart.

▮▶ Unscrew the strain clamp and push it on the connection cable.
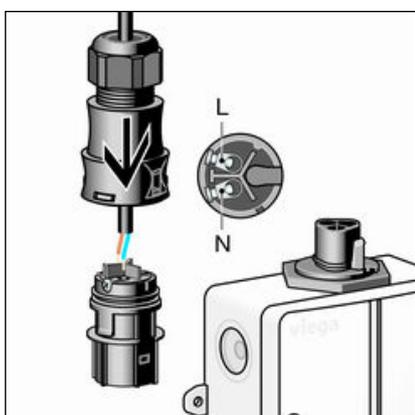
▮▶ Push the connection cable into the top.

▮▶ Connect the leads to the terminals.

- ▪ N = blue
- ▪ L = brown or black

You do not need a PE conductor.
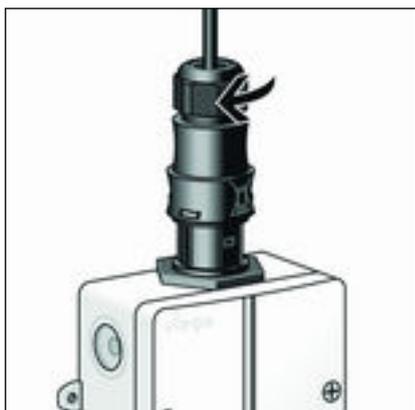
▮▶ Combine the halves of the connector.

▮▶ Hand-tighten the strain clamp.

▮▶ Return the plug to the mains adapter.

▷ You have connected the mains plug.

Control connections

The device is delivered with all components connected.

1 - connection for 12 V power supply
2 - LED indicator for operating status
3 - Connection for multi-functional sensor flushing section (blue)
4 - Connection for magnet valve flushing section (blue)
5 - RJ-45 interface for connection to an end device
6 - Connection for flow sensor flushing section (blue)
7 - Connection for backflow sensor flushing section (blue)
8 - Battery compartment cover
9 - 3 V battery type CR2032
10 - Cable terminal / cable entry
11 - Connection for backflow sensor flushing section (red)
12 - Connection for flow sensor flushing section (red)
13 - Terminal with potential-free contacts for alarm devices and reset
14 - RJ-45 interface for network or Internet connection
15 - Connection for magnet valve flushing section (red)
16 - Connection for multi-functional sensor flushing section (red)
17 - Connection for the BMS module
18 - LED indicator for WIFI status

Terminal assignment with potential-free contacts
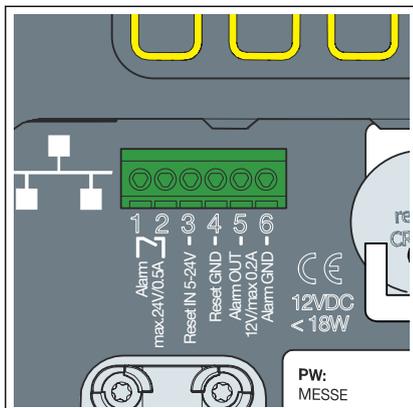
1 - Potential-free contact max. 24 VDC, 0.5 A
2 - Potential-free contact max. 24 VDC, 0.5 A
3 - Reset OUT 24VDC
4 - Reset IN 24VDC
5 - Alarm-Out 12 VDC (power supply via control)
6 - Alarm-Out GND (power supply via control)

Connecting the external sensor

An external sensor can be connected to the control by means of the Phoenix terminal. If you use an external power supply, terminals 1 and 2 must be assigned. To connect an external sensor to them, you may need an additional relay as the terminal is currentless open.

If the external sensor is to be supplied via the control of the flushing station, terminals 5 and 6 must be assigned (max. 12V/250mA).

External sensor with external power supply

Whether you used a relay or not, please ensure to connect the external sensor in such a way that the assignment described below is present.
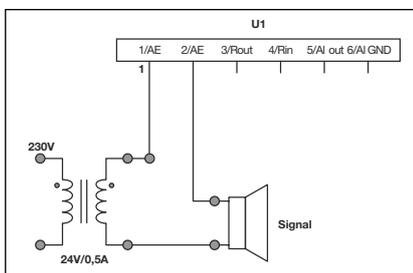
▶ Connect the cable to terminal 1 for a light signal.

▶ Or connect the cable to terminal 1 for a light and sound signal.

▶ Connect the external power supply + max. 24V/0.5A to terminal 2.

▶ Connect the external sensor cable to the earth (GND) of the external power supply.

External sensor with power supply via the flushing station
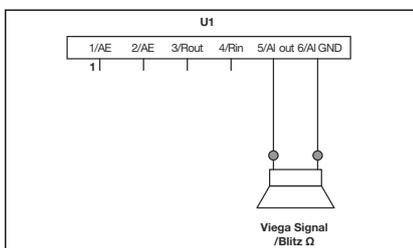
▶ Connect the cable to terminal 5 for a light signal.

▶ Or connect the cable to terminal 5 for a light and sound signal.

▶ Connect the earth cable to terminal 6.

**Connecting the acknowledge-
ment button**
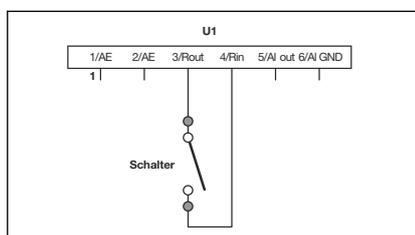
▶ Bridge terminals 3 and 4 using a switch or relay contact (potential-free).

3.3.7   Flushing the system

After performing the leakage test, the system must be flushed according to the valid regulations, see ✋ *'Regulations from section: Flushing the system' on page 7*.

Flushing

▶ Open the ball valve.

▶ Flush the water pipe section by means of the [Test flushing] function.

For information on proper flushing in potable water installations, see the applicable regulations under ✋ **'Regulations from section: Flushing the system' on page 7**.

▶ Close the ball valve again.

▶ Open the screw fittings of the magnet valve.

▶ Check the sieve, clean or replace if necessary.

▶ Re-install the magnet valve with sieve and seals.

3.3.8   Performing a manual functionality test

Description

> **i** Always perform a manual functionality test after completion of the installation or rectifying a fault.

To start the functionality test, either press the button at the control of the flushing station or execute the respective menu of the Web application.

The following components are queried:

- Magnet valve
- Backflow sensor
- Multi-functional sensor (if enabled)
- Flow sensor (if enabled)
- Battery

Execution

▶ Perform the functionality test via the control of the flushing station or via the Web application.

▷ When a functionality test is performed, a log entry is generated independent of the result.

If a fault occurs during the functionality test, a status LED at the control emits yellow light.

The display of the control indicates all components and their status, whether they have been enabled or not. Thus, the trade professional on site can check whether they have been properly installed. If the functionality test is started via the Web application, the function of the individual components is shown by means of a status indication.

> **i** If the system detects a backflow, the magnet valves will not be tested because of the overflow risk. Testing of the magnet valve is resumed once the backflow has been remedied.

LED emitting yellow light

In case of fault, proceed as follows:

▶ Check all plug connections and cables.

▶ Repeat the functionality test.

▶ *If the fault continues, see* ↻ *Chapter 3.6 'Errors, faults and remedy' on page 67.*

3.3.9 Notes on wall construction

After mounting, be sure to place the protective cardboard box back over the device.

It fulfills the following functions during the construction phase:

■ It protects the flushing station from damage and dirt.
■ The next technical crews (e.g. dry construction, tilers) must work up to the outer edges of the protective cardboard box.

Fig. 10: Protective cardboard box

▶ Rotate the protective cardboard box through 180° and place it over the device.

▷ The protective box ensures that the internal area of the base will not be obstructed and that there will be no problems with the subsequent installation of the concealed-mounting cover.

ℹ Make sure the next technical crews are aware of the following conditions:

■ The next wall constructions (dry construction, plastering and tiling work) must not proceed beyond the protective cardboard box.

■ The wall construction from the front edge of the basic holder system until the upper edge of the finished wall must have a maximum thickness of 50 mm. Otherwise, professional mounting of the concealed-mounting cover will be impossible.

3.3.10 Mounting the cover

Mounting the concealed cover
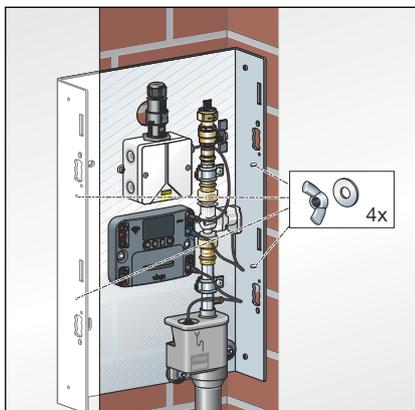
▶ Screw the wing nuts and washers on the threaded bolts at the side.
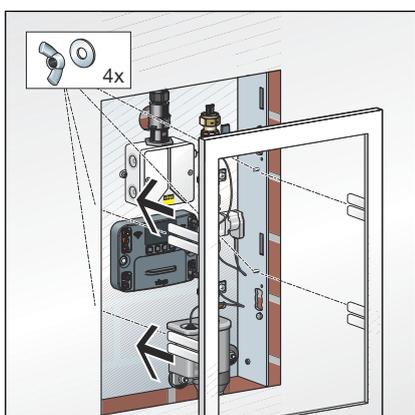
▶ Insert the frame and tighten the wing nuts.
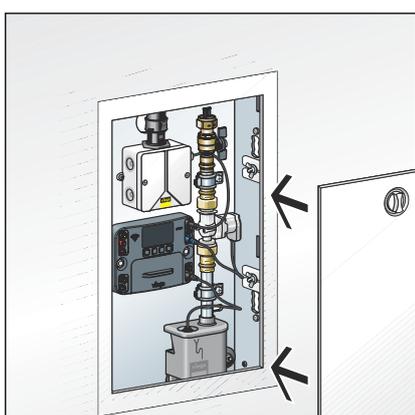
▶ Insert the door.

i	If required, replace the screw cap by the cylinder lock model 1294.9.

Mounting the wall-mounted cover
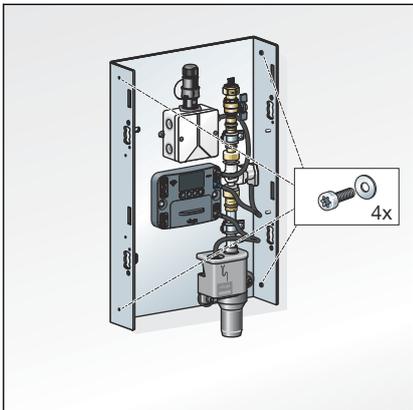
▶ Screw in the fixing screws and the washers from the outside into the threads at the side.
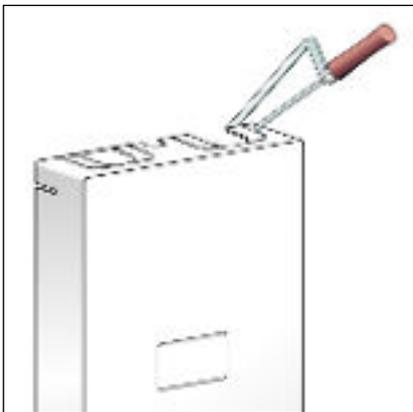
▶ Cut the bars pursuant to the pipeline dimension and pipe insulation.
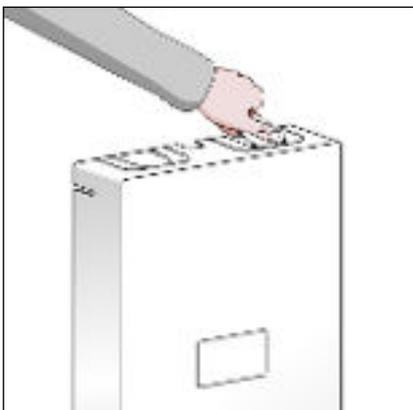
▶ Break off the tabs.

▶ Guide the mains cable through the top cable gland.

The bottom cable gland can be used with ready-made cables.
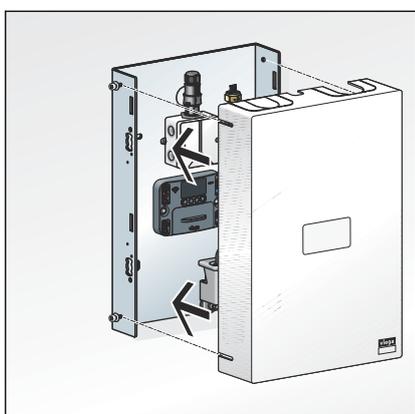
▶ Put the cover on.

▶ Tighten the screws.

3.4 Commissioning

3.4.1 Leakage test

The trade professional must perform a leakage test (load and leakage test) before commissioning pursuant to the applicable directives, see ⤵ *'Regulations from section: Leakage test' on page 8*.

Carry out this test on a system that is finished but not covered yet.

The result must be documented.

3.4.2   Configuring the control

Commissioning via the control module

Commissioning can only be performed via the control module of the flushing station.

> **i** External connection option such as WIFI or Ethernet can only be used once commissioning is completed.

Language selection

Use the [LANGUAGE] menu to change and select the language. On delivery, German is set as a standard language.

▶ Use the arrow keys to select the language.

▶ Press ✓ to confirm your selection.

```
SPRACHE
⦿ DEUTSCH
○ ENGLISH
○ NEDERLANDS
  ▲  |  ▼  |  ✓  |  ✗
```

Setting date and time

Use the [TIME / DATE] menu to change or set the time and the date.

▶ Use the arrow keys to set the date.

▶ Press ✓ or X to move from digit to digit.

▶ Use the arrow keys to set the time.

▶ Press ✓ or X to move from digit to digit.

▶ After setting the last digit, press ✓ to confirm the date and time setting.

```
UHRZEIT / DATUM
UHRZEIT: HH:MM        ∧
              1 3:52
                      ∨
  ▲  |  ▼  |  ✓  |  ✗
```

Entering the registration code

During commissioning, enter the registration code in the [REGISTRATION] menu. You must register your flushing station on the following website: *viega.com/ sp2* In addition to the object-related data, you will need the serial number of your device and the WIFI password, which you can find in the flap below the display (battery compartment).

```
REGISTRIERUNG
SN: 201605203456
0 - 0 - 0 - 0 - 0 - 0
  ▲  |  ▼  |  ✓  |  ✗
```

> **i** To register, you will need the serial number and the WIFI password.
>
> Keep the registration code in a safe place. If you happen to forget the password, you will need the registration code to enable the control.

▶ Use the arrow keys to enter the registration code.

▶ Press ✓ or X to move from digit to digit.

▶ Press ✓ to confirm the entry of the registration code.
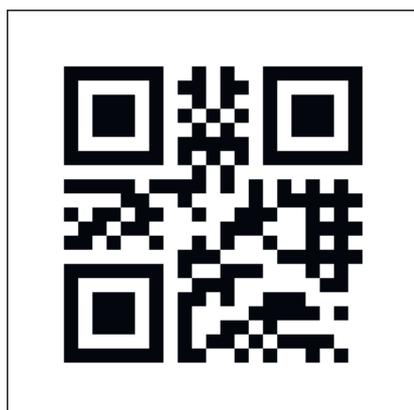
Programming the flushing settings

BLUE
INTERVAL: ▪-H
FLUSHING VOL.:025L
OFF-TIMES   YES
▲ | ▼ | ✓ | ✗

To complete initial commissioning, confirm or adjust the flushing settings.

▶ Use the arrow keys to program the settings.

▶ Press ✓ or X to move from digit to digit / value to value.

▶ After setting the cutoff time, press ✓ to confirm and save the entry.

> **i** After commissioning, the control can only be set by means of an interval-controlled flushing which can only be stopped according to the 'flush volume' criterion.

> **i** After commissioning, check whether a software update is available. If so, install it immediately.

3.4.3 Configuring the flushing station

Setting the flushing intervals

Via the web application, the following settings can be made:

> **i** With short intervals or large flush volumes, there is the risk of condensate formation and possibly risks to masonry / building.

Start options

■ Start flushing – pursuant to interval

If this option is selected, flushing will always be performed automatically after expiry of an interval specified by the operator. The interval can be set, accurately to the hour, between 1 and 168 hours. The time of day entered here is the time of the first flushing triggered by the system. The cutoff times are taken into consideration as well, and flush actuation is performed only after the end of the cutoff time.

> **i** If a flushing is scheduled during a cutoff time, it will be performed after the end of the cutoff time. The interval will start anew at this point in time.

■ **Start flushing – pursuant to point in time**

Flushings are performed at fixed dates at defined times. One flushing per day is possible which can be programmed accurate to the minute and hour. Cutoff times are not taken into consideration for this type of flushing.

■ **Start flushing – pursuant to usage (requires a multi-functional sensor)**

Flushings are triggered only if the multi-functional sensor has not detected any usage during the period of time (menu item [Usage-controlled]).

Usage periods between 1 and 168 hours can be set. If usage is detected, no flush actuation will be triggered. To exclude flushing at certain times of day, a cutoff time can be enabled.

■ **Start flushing – pursuant temperature (requires a multi-functional sensor)**

If this function is enabled, the operator can specify an individual temperature. Depending on the selected configuration for the water section, a temperature above or below a temperature level can be set. The time of day is the time for the first flushing pursuant to this start condition. Within the interval, the target temperature is compared with the current temperature; flushing is performed if the temperature is in the critical range.

Stop options

■ **Stop flushing – when flush volume is reached**

This stop function can be combined with all above-named functions. The maximum flush volume can be set and, if required, defined by means of the integrated calculation tool.

With very short intervals or very large flush volumes, the maximum flush volume is reduced to ensure that the other water section will be flushed as well.

Flushings are performed with a set flush volume of 1 to 300 l (factory setting: 25 l), see ↻ *'Determining the flush volume' on page 43*.

■ **Stop flushing – when temperature is constant and / or flush volume is reached**

This stop function can be combined with all above-named functions. Flushing stops as soon as a constant temperature is reached within the minimum / maximum flush volume. The flush volume can be set from 1 to 300 litres. See the table below.

If no constant temperature is reached after flowthrough of the maximum flush volume, the flushing stops and an entry reporting an improperly performed flushing is written to the log.

The flushing station goes to warning status, the status LED emits yellow light. In this case, Viega recommends to adjust the flushing parameters. However, the next flushings are still performed at the set values. If a constant temperature is reached at less than the maximum flush volume, the flushing station will automatically return to regular mode.

■ **Stop flushing – when target temperature and flush volume are reached**

Flushing stops as soon as the selected target temperature is reached. The minimum / maximum flush volume can be set from 1 to 300 litres. See the table below.

If the target temperature is not reached after flowthrough of the maximum flush volume, the flushing stops and a fault alarm is issued (red LED at the control flashes, an entry is written to the log).

The next flushings are performed pursuant to the set start and stop conditions.

> **i** To determine the required flush volumes for temperature-dependent flushing, Viega recommends to perform a test flushing.

Determining the flush volume

Usually, the required flush volume is calculated in the planning phase of the system.

Sanpress pipes

d x s [mm]	Volume per metre of pipe [l/m]
12 x 1.0	0.1
15 x 1.0	0.1

d x s [mm]	Volume per metre of pipe [l/m]
18 x 1.0	0.2
22 x 1.2	0.3

Raxofix pipes

d x s [mm]	Volume per metre of pipe [litre/m]
16 x 2.2	0.1
20 x 2.8	0.2
25 x 2.7	0.3

Raxinox pipes

d x s [mm]	Volume per metre of pipe [litre/m]
16 x 2.2	0.1
20 x 2.8	0.2

Copper pipes

d x s [mm]	Volume per metre of pipe [l/m]
12 x 0.8	0.1
12 x 1.0	0.1
15 x 1.0	0.1
18 x 1.0	0.2
22 x 1.0	0.3

3.5 Control

3.5.1 Menu structure of the control module
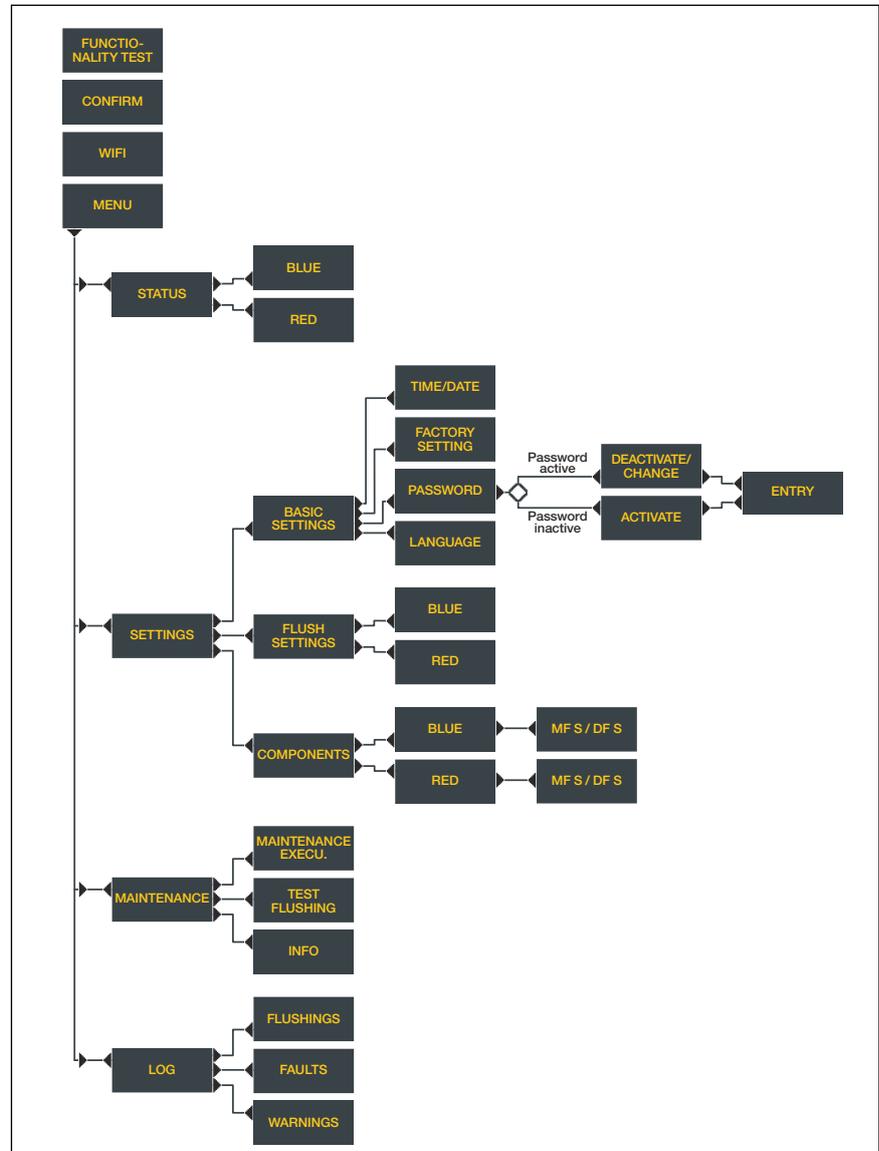

Fig. 11: Menu structure of the control module

3.5.2 Operation via control module

Indication of standby

After five minutes of non-use of the control, the system will go to the standby screen. After five more minutes without entry, the display will switch off. To re-enable the display, press any key.

[FUNCTIONALITY TEST]

■ Start the functionality test at once.

[CONFIRM]

■ Acknowledge an alarm / a fault; the status LED changes from red to yellow.

[WIFI]

■ Enable / disable WIFI

■ WIFI and LAN connections can be used simultaneously.

■ You need a password to enable the point-to-point connection via WIFI.

> **i** You will find the WIFI password for generating the point-to-point connection under the cover of the control and on the cardboard box.

> **i** If the WLAN of the flushing station is switched off, it will remain switched off after a re-start of the flushing station; it can only be switched on again manually via the control.

[Menu]

■ Calling up the main menu

Main menu

The main menu provides the following options:

■ ⟳ 'Status' on page 46

■ ⟳ 'Settings' on page 46

■ ⟳ 'Maintenance' on page 48

Status
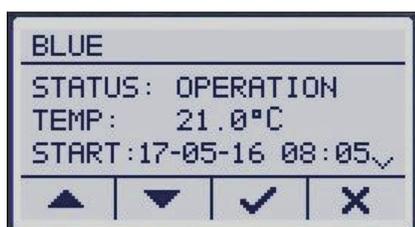
After selecting the water section (blue), the following information can be retrieved:

■ the status of the water section ([OPERATION] / [WARNING] / [ERROR])

■ the current temperature in °C

■ the start time of the last flushing

■ the current operating mode ([INTERVAL] / [TIME] / [USAGE] / [TEMPERATURE])

■ the volume of the last flushing

■ the entire volume of all flushings since commissioning the control

If a section has not been configured, the text [DISABLED] is indicated.

Settings

Under [Settings], the following options are provided: [BASIC SETTINGS], [FLUSHING SETTINGS], and [COMPONENTS].

Under [COMPONENTS], the currently connected flow and multi-functional sensors are shown. Component deactivation is not possible via the control but only via the web application.

Basic settings

[TIME/DATE]

■ Adjust the time and the date.

[FACTORY SETTING]

The following entries are changed:

■ Flushing mode is set to Interval.
■ The set flushing interval is 72 h.
■ Flush stop is performed after a flush volume of 25 litres.
■ Cutoff time is enabled from 22:00 to 6:00 o'clock.
■ Optional components are disabled (e.g. the BMS module).
■ The password is reset.

The following entries remain unchanged:

■ Language setting
■ Registration
■ Log entries
■ Maintenance date

[LANGUAGE]

■ Select another language (German, English, Dutch).

[PASSWORD]

■ Enable or disable the password query.
■ Change the password.

ℹ If you happen to forget your password, you can use the registration code instead as a master password.

Flushing setting

After selecting the water section (blue), the following settings can be made:

[Flushing setting] for the water section

[INTERVAL]

■ Specify the interval for the next flushings. The intervals can be between 1 and 168 hours.

[FLUSH VOLUME]

■ Specify the flush volume for the next flushings. Values between 1 and 300 litres can be set.

[OFF-TIMES]

■ Specify whether cutoff times should be considered for interval flushings.

After confirming the cutoff time, the current flush actuation is set to [INTERVAL] mode; from the current time, the flushings will be performed with the previously set values. The start point of the interval is the current point in time.

Factory settings

Interval:	Start 12 o'clock
Interval duration:	72 h
Flush volume:	25 l
Off-times:	22:00 – 6:00 o'clock

Maintenance

```
MAINTENANCE
NEXT:    2018-04-19
▶ MAINTENANCE EXECU.
▶ TEST FLUSHING         ⌄
  ▲  |  ▼  |  ✓  |  ✗
```

[NEXT]

- Indicates the date of the next maintenance.

[MAINTENANCE EXECU.]

- Confirms that maintenance has been performed.

[TEST FLUSHING]

- Select this menu item to actuate a test flushing for one of the two water sections. Flushing continues as long as you keep the button of the control pressed.

```
INFO
HW:       :222123B
SW:       :1.17 - 1.31
SN:       1602020001
  ▲  |  ▼  |  ✓  |  ✗
```

[INFO]

- Hardware version number
- Software version number
- Serial number

Functionality test

```
FUNCTIONALITY
■ TEST RUNNING

  ▲  |  ▼  |  ✓  |  ✗
```

During a functionality test, the following components are tested in sequence:

- Magnet valve (blue section)
- Backflow sensor (blue section)
- Multi-functional sensor (blue section)
- Flow sensor (blue section)
- Battery

```
VIEGA
FUNCTIONALITY TEST
CONFTIRM------┐
WIFI----┐     ┊
MENU|   ↓  |  ↓  |  ↓
```

▶ Actuate the functionality test via the control of the flushing station.

▷ When a functionality test is performed, a log entry will be generated irrespective of the test result.

If a fault occurs during the functionality test, it is indicated by means of a yellow status LED at the control.

The display of the control indicates all components and their status. The components are shown whether they have been enabled or not. Thus, the trade professional on site can check whether they have been properly installed. If the functionality test is started via the Web application, the function of the individual components is shown by means of a status indication.

viega

Log

```
LOG
▶ FLUSHINGS
▶ FAULTS
▶ WARNINGS
  ▲  │  ▼  │  ✓  │  ✗
```

Go to the [LOG] menu to retrieve the following log entries:

[FLUSHINGS]

- List of all flushings, sorted by date.
- For detailed information on a log entry, select an entry via the arrow keys.
- Press ✓ to call up details of the log entry.

[FAULTS]

- List of all faults, sorted by date.
- For detailed information on a log entry, select an entry via the arrow keys.
- Press ✓ to call up details of the log entry.

[WARNINGS]

- List of all warnings, sorted by date.
- For warnings, the year, month, day, and time of occurrence are documented.

▶ For detailed information on a log entry, select an entry via the arrow keys.

▶ Press ✓ to call up details of the log entry.

> **i** If date and time have not been set after a power failure (backup battery expired), the date will be reset to 01.01.2000. Events after this period will be documented from that date to enable you to determine the intervals between the occurrences.

3.5.3 Operation via web application

In addition to controlling the flushing station via the display of the device, you can also control it via the web application.

> **i** The operation via the web application, which is similar to a browser, does not require any previous software installation.

> **i** The user working on the appliance display has top priority. As long as the control is not in standby mode, you cannot change any settings via the web application. A respective message is shown on the user interface.

Generating the connection with the flushing station

Point-to-point connection via WIFI

Press the respective button at the display of the control to switch the WIFI of the flushing station on and off. When the blue LED to the left of the display is lit, WiFi is on and a mobile device can be connected to the flushing station.

The name of the WIFI net consists of the word "Hygiene" and the serial number of the flushing station.
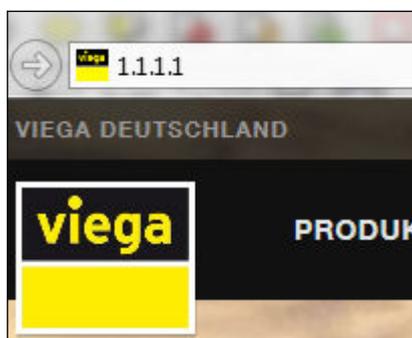
▶ Enter the IP address [1.1.1.1] in the address line of the browser.

▶ Press Enter to confirm.

Point-to-point connection via LAN
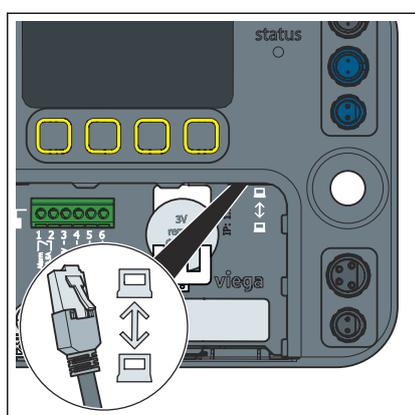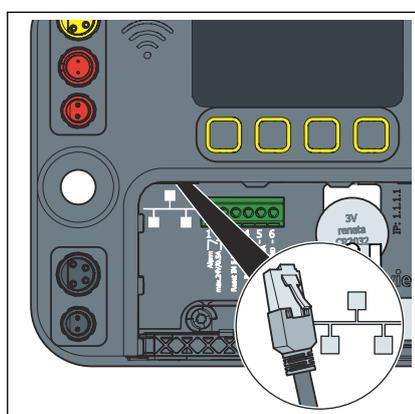
Via the Ethernet port on the right-hand side of the control, you can generate a cable connection.

▶ Enter the IP address [1.1.1.1] in the address line of the browser.

▶ Press Enter to confirm.

Connection to a local network

Use the left-hand-side Ethernet port to connect the flushing station to a local network. Contact your system administrator for information on how to integrate the flushing station in a network.

Language selection

The web application supports the languages German, Dutch and English. The language is selected according to the browser setting.

The language set for the user interface is not saved on the control and does not affect the language setting for the display of the control.

▶ Select the language in the top right corner of the web application.

Setting date and time

When the station is connected with the Internet, the time will be updated automatically. If it is not connected with the Internet, set the time of the control manually via the display.

> **i** After you have changed the time manually, re-start the control.
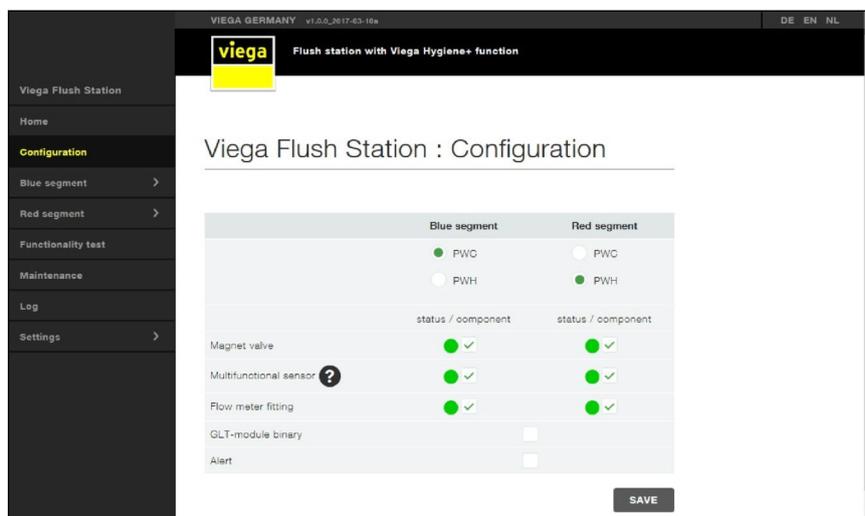
Configuration

Fig. 12: Configuration

> **i** In delivery state, the flushing station comes with the PWC on the blue section and the PWH on the red section. Subsequently connected components are detected and their status is indicated, but they must be enabled separately.

Setting the water type for each section

The red and blue sections can be freely configured as cold or hot water section.

▶ Below the respective water section (red), mark a selection field as PWC or PWH.

Selecting installed components

Use the check marks to select or deselect the respective components. For non-connected components, the respective field is shown greyed out. A status indication before the respective box indicates the operating status of the respective component.
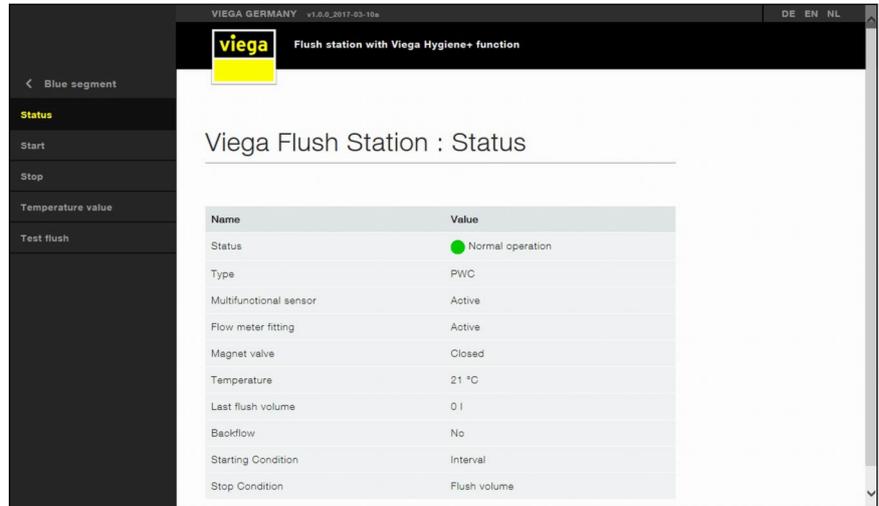
▶ Select the installed components under the respective water section (red).

Set the check marks under [Status / component] to enable the external alarm or the operation via the BMS module.

> **i** If the multi-functional sensor is essential for the current flushing program, deselection of the sensor is not possible.

Section

Fig. 13: Status of blue segment

Status

Indicates the current status of the water section and the installed components.

Start

Define the start conditions for a normal flushing cycle.

Start conditions

Interval:	■ Set the time for the first flushing and the intervals for the next flushings. ■ Cutoff times are taken into consideration.
Time:	■ Set the flushing times (days and time). ■ Cutoff times are not taken into consideration.
Usage:	■ Check whether the system has been used during the set interval; depending on the findings, the flushing is performed or not. ■ Cutoff times are taken into consideration. ■ This start condition is only available if the multi-functional sensor has been activated.
Temperature:	■ Set the target temperature dependent on the set water section. ■ Set the intervals for flushing the system. ■ Cutoff times are taken into consideration. ■ This start condition is only available if the multi-functional sensor has been activated.

Factory settings (correspond to behaviour during emergency pro-
gramme)

Interval:	Start 12 o'clock
Interval duration:	72 h
Flush volume:	25 l
Cutoff time:	22:00 – 6:00 o'clock

i If flushings are scheduled during cutoff times, the last
flushing will be performed after the end of the cutoff time.

If flushings are performed interval-controlled, the interval
will re-start with the postponed flushing.

i Irrespective of the set flushing program, a 60-second
functional flushing will be performed every Monday at 10
o'clock. It is intended to refill the water seal in the siphon
and to protect the magnet valve.

Thermal disinfection

This function is only available if the multi-functional sensor has been
activated. It opens the magnet valve automatically as soon as a temper-
ature set by operator is reached. The opening duration can be set indi-
vidually, just like the disinfection temperature.

During thermal disinfection, the two magnet valves will never open at
the same time, so ensure a sufficient duration of the disinfection
process.

If, after the actual temperature has exceeded the disinfection tempera-
ture three times, this temperature is not maintained over the whole
duration of disinfection, a respective entry is written to the log. Suc-
cessful disinfection is documented as well.

Stop

Define the stop conditions for a flushing.

Stop conditions

Flush volume:	■ Flushing stops after a defined flush volume has flown through the system.
Constant tempera-ture:	■ Flushing stops when a constant tempera-ture is reached or after the maximum flush volume has flown through the system. ■ If flushing is stopped because the max-imum flowthrough volume has flown through the system, an additional entry is written to the log. The status LED changes to yellow. ■ At any rate, the minimum flowthrough volume will flow through the system. ■ This stop condition is available only if a multi-functional sensor has been installed.
Reaching of the target temperature:	■ Flushing stops when the target tempera-ture is reached or the maximum flush volume has flown through the system. ■ If flushing is stopped because the max-imum flowthrough volume has flown through the system, an entry is written to the log and the status LED changes to yellow. If a subsequent flushing operation is completed successfully according to the parameters, the status LED will change back to green. ■ At any rate, the minimum flowthrough volume will flow through the system. ■ This stop condition is available only if a multi-functional sensor has been installed.

Temperature values

Under [Temperature values], the temperature curve for the last 24 hours is indicated. Each day at midnight, a log entry with the values for this day is generated. The temperature value measured at every full hour is indicated and logged.

Test flushing

Go to [Test flushing] to manually open the magnet valve. Now, you can use a multi-functional sensor to monitor the flow by way of the temperature change, or – if a flow sensor is connected – directly observe the flowthrough volume to adjust a temperature-controlled flush stop to the conditions on site.

If no flow sensor is installed, the flowthrough volume will be computed.

After the test flushing, the measured values can be output as a .csv file and / or deleted.

> **i** The data of the test flushing are deleted when you exit the screen. Perform the .csv export before adjusting the stop condition.

Functionality test
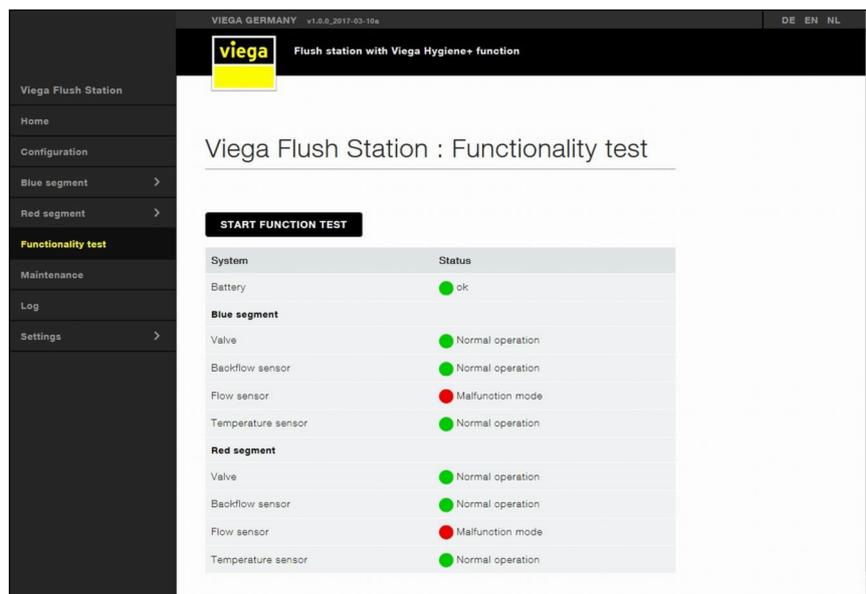
Fig. 14: Start functionality test

For a functionality test, only the connected and enabled components are shown.

Maintenance

The web application reminds you of the annual maintenance when due.
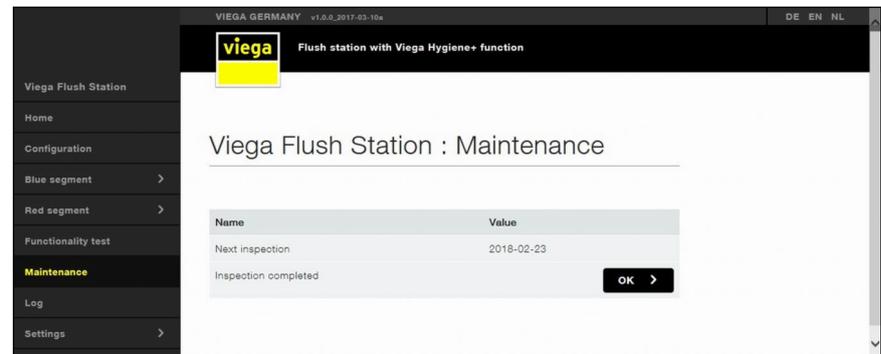
Fig. 15: Maintenance

- 30 days before the scheduled maintenance, a warning message is indicated and a log entry generated; the status LED changes from green to yellow.
- When the due date is reached, another warning message is indicated and log entry generated; the status LED emits yellow light. In the web application, a popup message appears reminding you that maintenance is due.

When you confirm that the maintenance has taken place, a new maintenance date is set (current date plus 1 year), and a log entry is generated.

Log
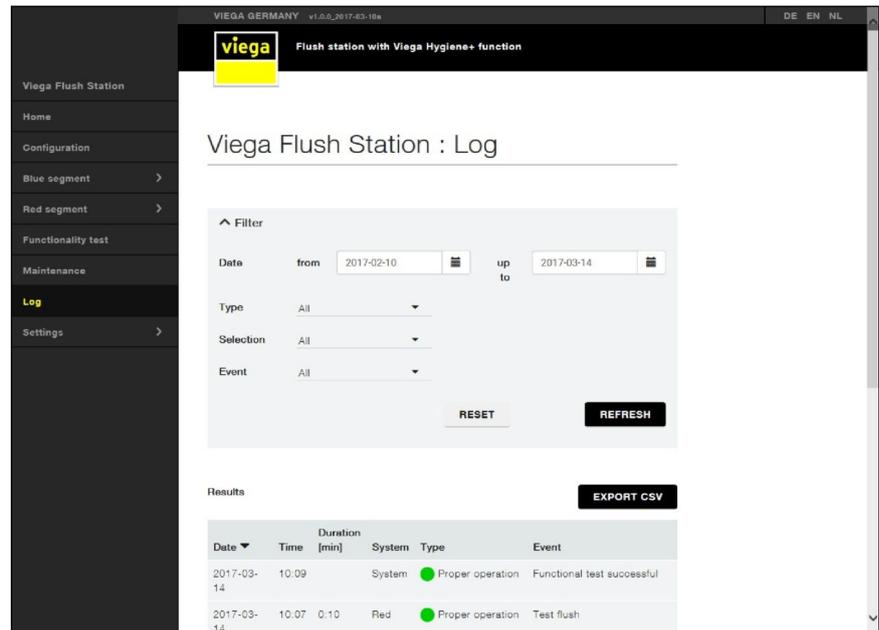
Fig. 16: Log

In the [Log] menu, all events of the flushing station are recorded. Click the [EXPORT CSV] button to download the entire log. Unless settings are changed, the date of the first entry and the date of the last entry are preset.

Retrieving entries

▶ Define the filter settings.

- ■ Enter the data range for which entries are output.
- ■ Select the type of entry (normal operation, warning, fault, all).
- ■ Select for which object the entries are output (blue section, red section, red / blue section, system, or all).
- ■ Filter the events to see specific types of log entries.

▶ Click [REFRESH].

▶ Click on a log entry to see the details further down on the screen.

▷ The results are shown in table form in the menu. If you download a .csv file, it will contain only the contents defined by the previously set filter.

Settings

Name

Fig. 17: Setting - Name

Under [Name], you can change the name of the flushing station.

> ℹ️ Viega recommends to select a name which reflects the site of the flushing station. The user name is limited to 32 characters. All characters of the German keyboard are permissible (except "%„ und "&„).

▶ Under [Settings] / [Name], enter the name of the flushing station.

▶ Click [Save] to save the settings.

Update

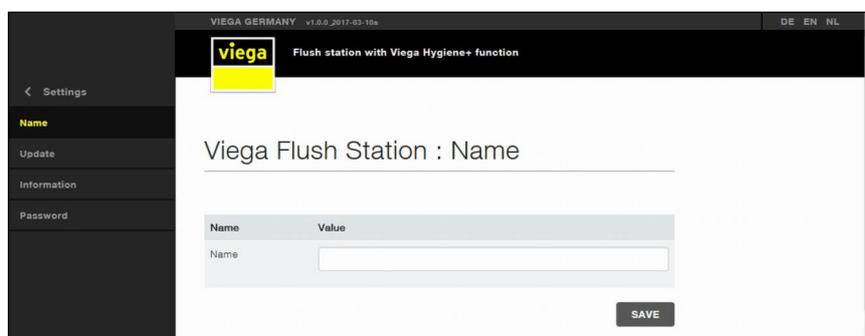Under [Update], the currently installed software version of the flushing station is indicated. It is possible to perform a manual update by means of point-to-point connection if required. Refer to ⬦ *Chapter 3.5.7 'Performing software updates' on page 65*.

Information

Under [Information], you will find the contact data of the Viega Service Center and the disclaimer.

Password

Under [Password], you can define a password to restrict the access via web application to the flushing station to specific users only. The password is limited to 32 characters. All characters of the German keyboard are permissible (except "%„ und "&„).

If you happen to lose the access data for the web application, there is a time window of five minutes after a system restart when no password is required. Use the serial number of the flushing station as a user name, and the WIFI password as password. You will find the WIFI password under the cover of the control.

Setting the fault alarms of the BMS module

Click the individual arrows to assign each input and output individually. The BMS module can be used to output the following parameters to the building management system:

- actual temperature of blue section ≥
- actual temperature of blue section ≤
- Fault MFS blue section
- Level sensor blue section enabled
- Magnet valve blue section open
- Malfunction
- Communication with control lost
- Alarm maintenance
- Alarm battery
- small leakage < 2 l/min, blue section
- small leakage < 2 l/min, red line
- small leakage > 2 l/min, blue section
- small leakage > 2 l/min, red line

Regarding the inputs, there are the following possibilities:

- Open magnet valve blue section
- Reset faults
- Start functionality test

If no input or output is assigned, select the "None" entry.

> **i** When a magnet valve is opened via the building automation, this process is noted as a test flushing in the log.

3.5.4 Troubleshooting for the web application

Any faults in the web application can often be remedied by deleting the browser data (empty the cache, delete the cookies and the browser history).

Internet Explorer, Firefox, Chrome, Microsoft Edge

▣ To delete browser data in the above-named browsers, use the key combination Ctrl + Shift + Del to open the respective dialogue.

Safari

▣ To delete browser data in Safari, use the key combination cmd + alt + e to open the respective dialogue.

Possible errors

Website does not react

▣ Check whether the WIFI connection to the control is established.

Sensor selection not possible

▶ Check the start and stop criteria; they may prohibit the deselection of sensors which are required for the execution of a program.

▶ Check that the sensors exist, are connected, and undamaged.

Settings cannot be saved

The [Save] button is greyed out and cannot be clicked.

▶ Check whether another user is currently editing the flushing station.

▶ Check whether the end device used for accessing the web application has been changed.

▷ The message [Another web user is currently editing] is indicated. This message will be hidden after max. 5 minutes.

▶ If the message is indicated for longer than 5 minutes even though one user only is logged in, close and re-start the browser.

3.5.5 Logs

i	When the maximum number of log entries is reached, delete the entries marked with an asterisk (*).

Normal operation

■ The flushing station works properly and faults-free. There are significant occurrences not resulting in warnings or faults.
■ Status of the optical indicators: GREEN

Wording of the log	Status LED
Flushing *	Green
Automatic time changeover *	Green
Functionality test successful *	Green
Temperature measurement *	Green
Date / time updated *	Green
Maintenance completed	Green
Initial configuration completed	Green
Configuration changed *	Green
Test flushing *	Green
Weekly functional flushing *	Green
Firmware update completed	Green

Wording of the log	Status LED
Factory-performed functionality test *	Green
Fault reset *	Green
Backup configuration *	Green
Thermal disinfection *	Green
Maintenance date set	Green
Power On *	Green
Emergency programme active, MFS *	Green

Warnings

- The flushing station works properly and faults-free. There are significant occurrences not resulting in faults.
- Status of the optical indicators: YELLOW

Wording of the log	Description / trigger	Status LED
Flushing aborted – Temperature not reached *	Temperature of a flushing not reached.	Yellow
Factory settings restored *	Control is reset to factory settings.	Yellow
Maintenance due soon *	The next maintenance is due in less than 30 days.	Yellow
Replace battery *	The battery voltage is below the permissible range.	Yellow
Multi-functional sensor fault *	Fault of the multi-functional sensor	Yellow
Fault of the multi-functional sensor acknowledged - MFS emergency programme active *	Acknowledge the fault message "Temperature sensor defective".	Yellow
Maintenance is due *	The maintenance date has passed.	Yellow
Functionality test with fault alarm *	Unsuccessful functionality test.	Yellow
Backflow warning reset *	Acknowledge the backflow fault.	Yellow
Fault of defect magnet valve reset *	Acknowledgement of the magnet valve defect.	Yellow
Leakage warning acknowledged *	Leakage acknowledged.	Yellow
Warning defect magnet valve or flow sensor reset *	Defect message acknowledged.	Yellow
Fault "Flow sensor defective" acknowledged *	Fault "Flow sensor defective" acknowledged.	Yellow
Initial commissioning cancelled *	Initial commissioning incomplete.	Yellow
Disinfection cancelled *	Disinfection flushing was not completed successfully.	Yellow

Faults

- The flushing station is not operative. A fault is pending if a function has not been completed successfully.
- Status of the optical indicators: Red

Wording of the log	Description / trigger	Status LED
Backflow of wastewater	Flushing aborted, fault alarm, flushing is repeated after 24 h.	Red
Magnet valve fault	Fault alarm, no more flushings are performed.	Red
Flow detection without flush command, leakage	Fault alarm, flushings are still actuated.	Red
No flow while flushing	Fault alarm, flushings are still performed.	Red
Fault of the multi-functional sensor acknowledged - MFS emergency programme active	Fault alarm, change to emergency programme, automatic parameterization to factory settings at temperature-controlled start.	Red
Power failure	The power supply to the control has been interrupted. Fault alarm, potential-free contact of alarm relay open (external sensor not enabled for lack of voltage).	Red
Flow sensor defective	The flow sensor is defective, but flushings are still actuated.	Red
Flushing aborted – Backing-up	Flushing was aborted due to a backing-up in the system.	Red
Flushing aborted – Multi-functional sensor defective	Flushing was aborted due to malfunction of the multi-functional sensor.	Red
Flushing aborted – Flow sensor defective	Flushing was aborted due to a defect in the flow sensor.	Red
Flushing aborted – Magnet valve defective	Flushing was aborted due to a defect in the magnet valve.	Red
Flushing	This entry is generated under 'Faults' when the flushing has not been completed because a significant fault occurred.	Red

Emergency programme MFS or emergency programme DFS

When a flushing is controlled dependent on the temperature or if a flow sensor has been installed and enabled, the control will change to an emergency program if one of the two components is defective. In the emergency program, the flushing station will perform flushing with a volume of 25 litres each in a 72-hour interval, taking the cutoff time from 22:00 to 6:00 o'clock into consideration.

3.5.6 Log export

The flushing station logs events occurring in the monitored sections and in the system:

- Settings
- Operation
- Statuses
- Warnings
- Faults

The user can export this data for documentation purposes as a .csv file (restricted CSV format).

Via the filter settings (date, type, selection, event type), the scope of the data for export can be determined. After selecting the filter settings, press [REFRESH].

The name of the .csv is generated automatically as follows: Name_SerialNumber_YYMMDD_HHMMSS_Log.csv. Day and time are those of the time of the export.
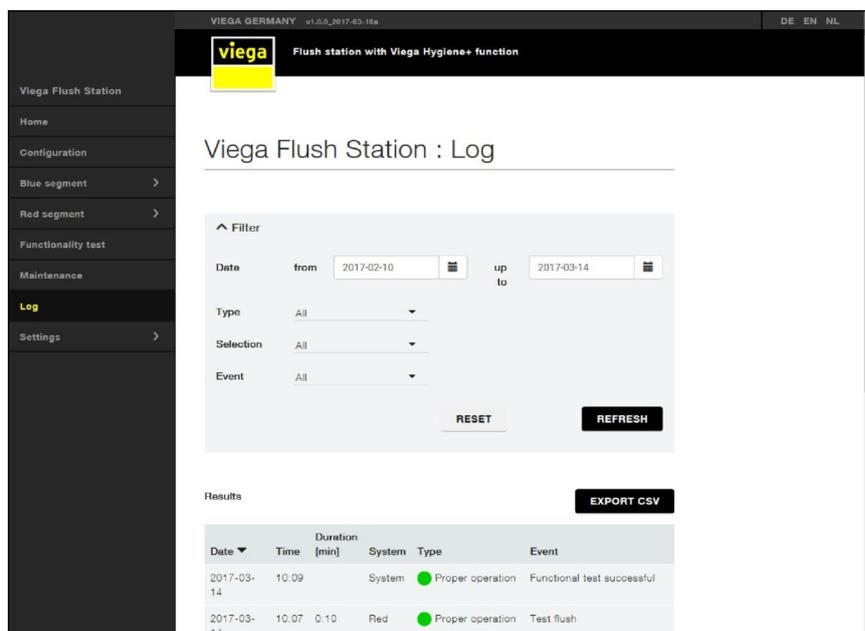
Windows / Mac OS X / Android

Fig. 18: Log

▶ Open the browser.

▶ Enter the IP address "1.1.1.1" in the address line of the browser.

▶ Call up the [Log] menu.

▶ Set the filter (date, type, selection, event type).

▶ Click [REFRESH].

▶ Click [Export CSV].

▶ Open or save the file.

⮕ When you save the file without changing the target directory, it will be saved to the standard download directory.

Sending the file from the mobile end device

▶ Select the file in the download directory.

▶ Click [Share].

▶ Select a forwarding method (mail, Bluetooth, Wifi-direct).

▶ Send the file.

> **i** Saving the file to iOS devices is possible to a limited extent only. If the devices are linked to an e-mail account, the file can be sent attached to an e-mail.

Log indication

Opening CSV in Excel 2010

Usually, the export file can be opened in Excel as described in the following.

▶ Open Excel.

▶ Click on the top left [Office] button.

▶ Click [Open].

▶ Select the file type [Text files (*.prn;*.txt;*.csv)].

▶ Call up the memory location of the .csv file and double-click the file to open it.

If the above method does not work, proceed as follows to open the export file.

▶ Open Excel.

▶ Open the [Data] tab.

▶ Select [Retrieve external data from text].

▶ Select the .csv file and double-click it to open.

▶ In the Text Conversion Assistant, select [Separated] under [Original data type] and click [Next].

▶ Under [Separator], select [Semicolon] and click [Finish].

Opening CSV files on a Mac

To evaluate the file, you will need Office programs for iOS such as Numbers.

▶ Open Numbers.

▶ Click [Memory location].

▶ Click [Open].

▶ Call up the memory location of the .csv file and click to open it.

> **i** Generally, evaluating the data on a smartphone is possible but requires the download of Office programs which may result in extra charges.

Editing and evaluating log data

To edit the data for statistical evaluation, you need to reformat the cells. The cells are output formatted as text for increased compatibility with various Office programs.

Example: Evaluation of the temperatures

▶ Highlight the cells you wish to format.

▶ Via Find and Replace, change all full stops for commas.

▶ Via Find and Replace, remove the "c"; to do so, leave the text field [Replace with] empty.

▶ Format the cells as numbers.

iPhone / iPad

To indicate and edit the CSV files, you will need Office programs for iOS such as Numbers. After installation, Numbers is linked to .csv files. Call the log page up in the browser and download the log file, see ⮎ *'Windows / Mac OS X / Android' on page 63*.

When you click on the file to open it, the system automatically suggests to use 'Numbers'. With this application, you can see, share, and forward the log file.

3.5.7 Performing software updates

All flushing stations must be registered with Viega for initial commissioning.

All stations can be updated manually if necessary. For these stations, a message stating that new updates are available will be sent to the e-mail address specified during registration. The user must download and install the update themselves. Follow the link in the e-mail for the download.

> **i** Perform a functionality test after every software update, see ⮎ *Chapter 3.3.8 'Performing a manual functionality test' on page 34*.

> **!** **NOTICE!**
> Loss of connection (power failure, cutting the cable connection) during an update may result in loss of function and damage to the control.

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> **i** After a new installation, always check for software updates.

Windows / Mac OS X

▶ Download the latest update from the website and save it to the end device.

▶ Establish the connection with the WIFI of the flushing station.

▶ Open the browser.

▶ Enter the IP address "1.1.1.1" in the address line of the browser.

▶ In the web application, open the [Update] menu under [Settings].

▶ Click [Select file] and call up the memory location of the file.

▶ Select the file with the update.

▷ The new software is loaded up to the flushing station, and the update is verified.

Successful completion of the update is announced by a respective message.

Android

▶ Download the latest update from the website and save it to the end device.

▶ Establish the connection with the WIFI of the flushing station.

▶ Open the browser.

▶ Enter the IP address "1.1.1.1" in the address line of the browser.

▶ In the web application, open the [Update] menu under [Settings].

▶ Click [Select file] and call up the memory location of the file.

▶ In the [Select action] menu, open [My files].

Depending which browser you are using, different applications will be shown in the [Select action]. The following is a general explanation of the steps to be taken; depending on the manufacturer of the Android devices, the process may be slightly different.

▶ Call up the memory location of the file.

▶ Select the file with the update.

▷ The new software is loaded up to the flushing station, and the update is verified.

Successful completion of the update is announced by a respective message.

iOS

> **i** With iOS devices (iPhone, iPad), updates are generally not possible as the operating system does not allow you to save files to these end devices.

3.6 Errors, faults and remedy

The LED at the control indicates the operating status of the flushing station:

- Yellow LED = warning; flushings are still performed; possibly, flushings pursuant to the emergency programme are actuated. The cause must be remedied as soon as possible.
- LED emitting red light = malfunction, maybe no flushings are actuated any more. Remedying the fault is mandatory.

> **i** The intended operation of the system must be ensured, if necessary via manual flushing, until the fault / warning is repaired ♦ *Chapter 3.3.7 'Flushing the system' on page 34*.

> **i** After remedying a fault / warning, always perform a functionality test; the status LED will return to green only after a successful functionality test.

Acknowledging a fault

Press the respective button at the display, the BMS module, the respective terminal of the Phoenix terminal or use the log menu of the web application to acknowledge the fault alarm. If the cause of the fault has not been remedied and no successful functionality test has been performed, the status LED continues to emit yellow light.

▶ Press the Acknowledge button.

   ▷ The external alarms are switched off.

▶ Performing a functionality test, see ♦ **Chapter 3.3.8 'Performing a manual functionality test' on page 34**.

▶ Use the log of the flushing station to identify the fault.

Error table

Fault	possible cause	Solution
Fault following manual functionality test	Magnet valve error	■ Check plug contacts. ■ Read the log in the Web application. Remedy any errors on the affected components in accordance with this table.
	Fault multi-functional sensor	
	Flow sensor fault	Replace the flow sensor

| Fault	possible cause	Solution
	Error battery	Replace battery
	Backflow sensor fault	Check wastewater system for backflow ■ Check plug contacts. ■ Read the log in the Web application. Remedy any errors on the affected components in accordance with this table.
Magnet valve does not open	Incorrect programming	Check the programming in the web application
	Coil defective	Replace magnet valve ↻ *'Replace magnet valve' on page 69*
	Valve seat is stuck	
	Sieve insert contaminated	Carry out maintenance ↻ *'Maintenance of the magnet valve' on page 73*
	Flow limiter contaminated	
	Ball valve closed	Ball valve open
	Multi-functional sensor defective/not connected	■ Check plug connections ■ Perform a functionality test ↻ *Chapter 3.3.8 'Performing a manual functionality test' on page 34* ■ Carry out resistance check ↻ *'Measure resistance of the multi-functional sensor' on page 70*
Fault multi-functional sensor	Multi-functional sensor defective / not connected	■ Check plug connections ■ Perform a functionality test ↻ *Chapter 3.3.8 'Performing a manual functionality test' on page 34* ■ Carry out resistance check ↻ *'Measure resistance of the multi-functional sensor' on page 70*
Water squirts out of the odour trap	Flow limiter not mounted	Test flow limiter ↻ *'Maintenance of the magnet valve' on page 73*
	Odour trap mounted improperly	Check the odour trap ↻ *Chapter 3.7.3 'Perform maintenance' on page 72*
Smell from the odour trap	Wastewater installation faulty	■ Check wastewater route ■ Check the installation of the seals ■ Check the installation of the components
Odour trap does not drain	Wastewater pipe is clogged	■ Check odour trap ■ Check water route
Multi-functional sensor provides incorrect values	Considerable difference between water temperature and ambient temperature leads to incorrect values	Check ambient influences, reduce if applicable
	The connection cable is too long	■ Use extension cable 2241.95 or 2241.96 ■ Cable length < 30 metres

Fault	possible cause	Solution
	Multi-functional sensor is damaged	Replace multi-functional sensor ↳ *'Replace multi-functional sensor' on page 71*
Fault of flow sensor at the beginning of a flushing	No flow	■ Ball valve open ■ Check the operating pressure ■ Check ball valve ■ Check the magnet valve
Malfunction is shown outside of a flush	Flow sensor registers flow	■ Deselect flow sensor in the control, or replace ■ Replace magnet valve ↳ *'Replace magnet valve' on page 69*
Thermal disinfection was not successful	see log entry on non-completed thermal disinfection	Check whether the boiler temperature is sufficient to supply water at the set temperature to the flushing station. If necessary, perform a test flushing to monitor the temperature profile during thermal disinfection.

Measure the resistance of the magnet valve coil

> **i** The magnet valve opens during resistance measurement. Accordingly, ensure that the wastewater pipe has been connected and leaking water is drain correctly.

▶ Remove the connection adapter of the magnet valve from the control.

▶ Measure the resistance of the coil with a multi-meter.

   Target value = between 15 and 25 Ω

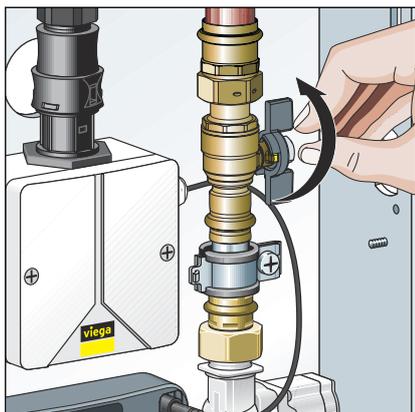▶ Replace magnet valve if required, see ↳ *'Replace magnet valve' on page 69*.
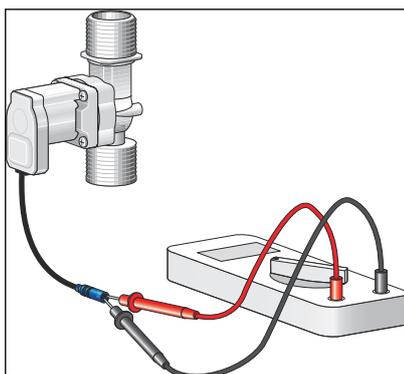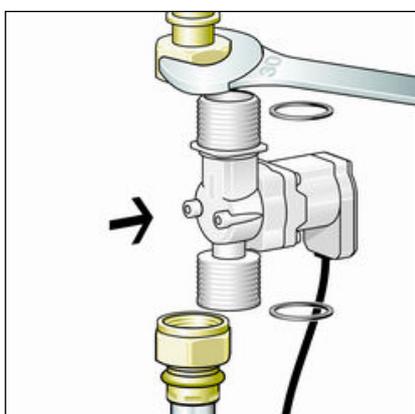
Replace magnet valve

> **!** **NOTICE!**
> **Damage to magnet valve / flow limiter due to incorrect mounting.**
> Do not mount the magnet valve or the flow limiter against the direction of flow.

▶ Close ball valve before the magnet valve.

▶ Loosen screw fittings.

▶ Demount magnet valve and seals.

▶ Discard old seals.

▶ Mount the new magnet valve with new AFM seals (2241.98).

▶ Perform leakage test and functionality test, see ♻ *Chapter 3.4.1 'Leakage test' on page 39*, ♻ *Chapter 3.3.8 'Performing a manual functionality test' on page 34*.

Measure resistance of the multi-functional sensor
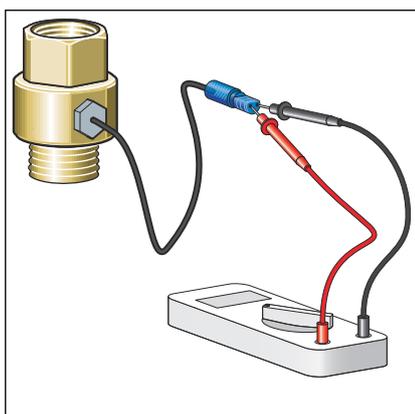
▶ Remove connection plug from multi-functional sensor.

▶ Measure the resistance of the temperature sensor with a multimeter.

▶ Replace multi-functional sensor is necessary.

Resistance curve of the temperature sensor

| Temperature °C	Resistance [Ω]
0	1000.0
10	1039.0
20	1077.9
25	1097.4
30	1116.7
40	1155.4
50	1194.0
60	1232.4
70	1270.0
80	1308.9

Replace multi-functional sensor

> **NOTICE!**
> **Damage to multi-functional sensor due to incorrect mounting.**
> ■ Do not subject the plug contacts to any mechanical strain.

The replacement of a screw-in piece is described below as an example.

▶ Shut off and drain the water pipe to the multi-functional sensor.

▶ Disconnect the defective multi-functional sensor from the control and unscrew it from the screw-in piece.

▶ Screw the new multi-functional sensor into the screw-in piece and connect it with the control.
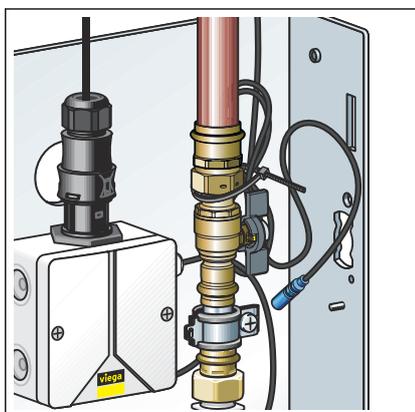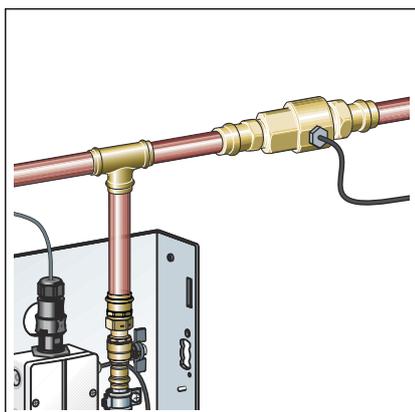
▶ Roll up any non-required connection cable and secure it on the threaded bolt behind the pipe clamp using a cable tie.

▷ You have connected the multi-functional sensor.

▶ Slowly open the shut-off.

▶ Perform leakage test and functionality test, see ⇧ *Chapter 3.4.1 'Leakage test' on page 39*, ⇧ *Chapter 3.3.8 'Performing a manual functionality test' on page 34*.

▶ Carry out a manual test flushing to prevent contamination.

> **ℹ** Ensure that all the water in the pipeline system is replaced during the test flushing.

3.7 Care and maintenance

3.7.1 Maintenance intervals

A monthly inspection must be carried out (⇧ *Chapter 3.7.2 'Inspection' on page 72*).

Once a year, maintenance must be carried out (⇧ *Chapter 3.7.3 'Perform maintenance' on page 72*).

A flushing station operated autonomously (without network operation or external fault alarms) should be checked for fault-free operation at least every 72 hours.

3.7.2 Inspection

Inspection must be carried out by an instructed person.

Inspection comprises:

■ Functionality test pursuant to ♦ *Chapter 3.3.8 'Performing a manual functionality test' on page 34*
■ Visual inspection of the flushing station and the cable connections

3.7.3 Perform maintenance

> **i** Only allow trade professionals to carry out maintenance.

During maintenance, the following components must be checked:

■ Magnet valve
■ Backflow sensor
■ Battery

▶ Perform a functionality test after completing maintenance, see ♦ **Chapter 3.3.8 'Performing a manual functionality test' on page 34**.
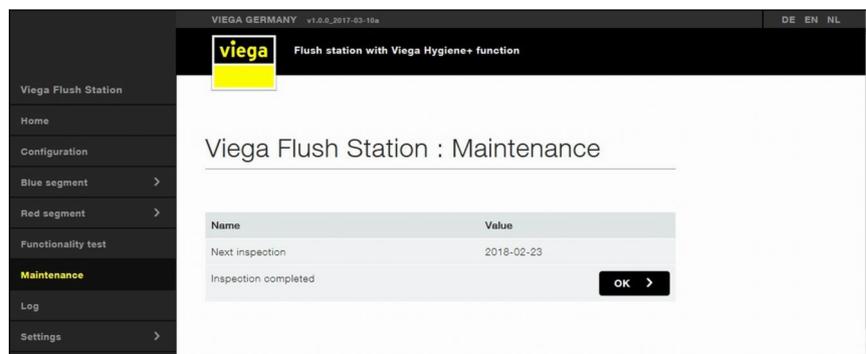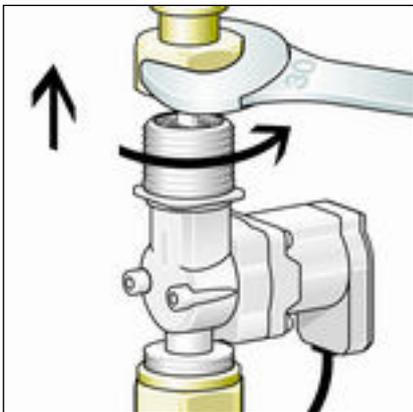

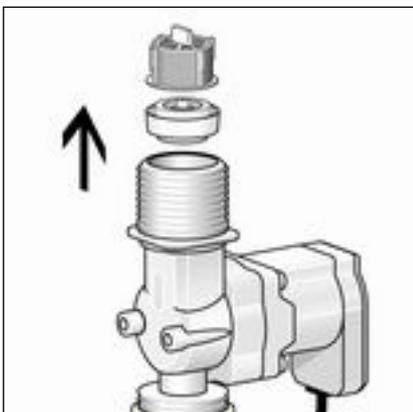▶ Via the display on site or via the web application, click [OK] to confirm that maintenance has been carried out.
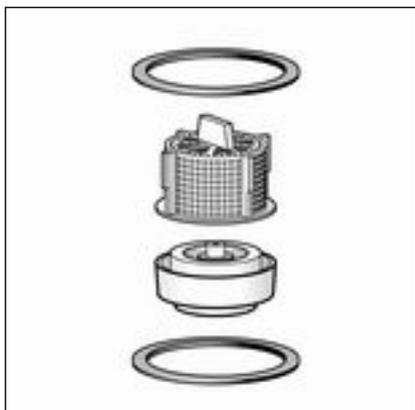
Maintenance of the magnet valve
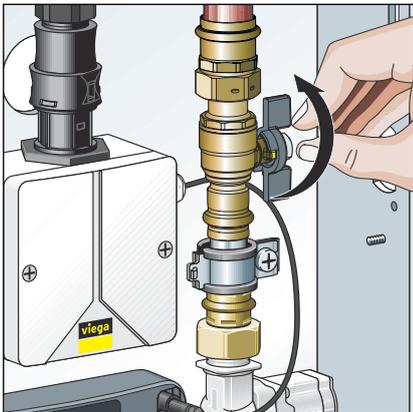
▶ Close the ball valve.

▶ Loosen the screw fittings of the magnet valve.

▶ Remove the flow limiter and the sieve insert from the magnet valve.

▶ Replace the sieve insert and flow limiter by new components from the spare part set model 2241.98.

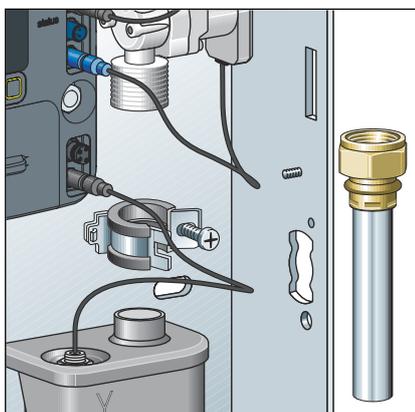▶ Re-mount the magnet valve with new seals from the spare part set.

> **!** **NOTICE!**
> Damage to flow limiter due to incorrect mounting.
>
> Do not mount the magnet valve or flow limiter against the direction of flow.

**Maintenance of the backflow sensor**
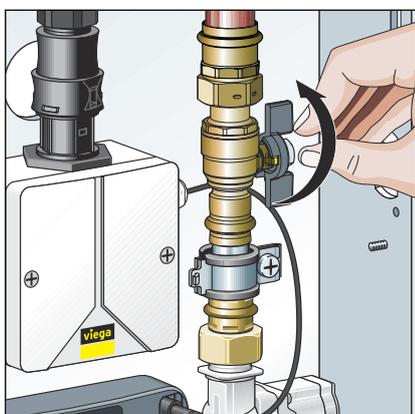
▶ Close the ball valve.

▶ Dismount the drainpipe and remove it together with the seals.

▶ Remove the cover of the odour trap.

▶ Check the float for smooth running.

▶ Use a multi-meter to check the electrical continuity at the backflow sensor:

  ■ Backflow sensor in rest position = electrical continuity
  ■ Backflow sensor in trigger position = no electrical continuity

▶ Put the cover back on the odour trap.

▶ Re-open the ball valve.

Replacing the battery

> **i** Because the control is operated at 12 V, the battery can be replaced during ongoing operation. If the 230-V supply is interrupted during the battery replacement, the parameterization and logs will be retained; however, the date and time settings will be lost.

▶ Remove the cover from the battery compartment.
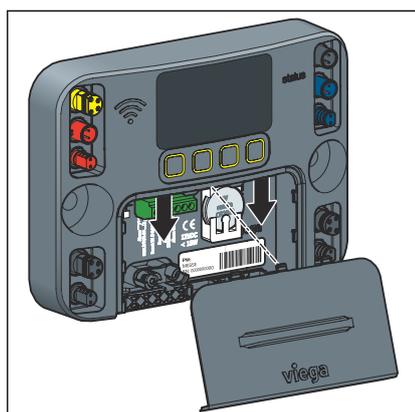
> **i** The cover of the battery compartment is secured with a loss prevention device.

▶ To remove the old battery, press on the holding pin in the middle.

▶ Insert the new battery (type CR 2032 / 3 V).

▶ Close the battery compartment.
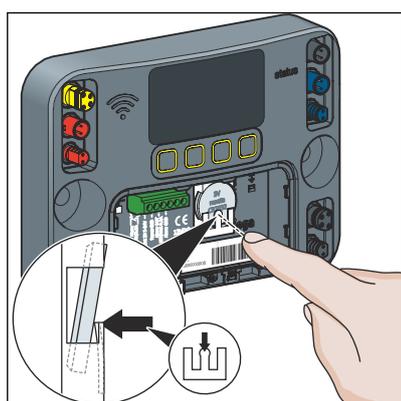
Saving the log file

▶ For saving a log file, refer to ♻ *Chapter 3.5.6 'Log export' on page 63*.

3.8 Accessories and spare parts

The following spare parts can be procured via specialist wholesalers:

Product	Model	Article
Protective cover for concealed mounting Installation depth 12.5 to 50 mm	2241.90	689 554
Protective cover for wall-mounted assembly	2241.91	689 551
Extension cable flushing section (blue) to connect the multi-functional sensor, length 1 m	2241.95	692 612

Product	Model	Article
Extension cable flushing section (blue) to connect the multi-functional sensor, length 10 m	2241.95	693 756
Multi-functional sensor for flushing section (blue), Rp ¾" x G ¾"	2241.53	764 593
Flow sensor	2241.81	706 005
Screw-in sensor flushing section (blue)	2241.60	762 230
Screw-in sensor flushing section (red)	2241.61	762 247
Spare part set	2241.98	693 985
Magnet valve blue	2241.83	706 029
Magnet valve red	2241.84	706 036
Odour trap	2241.85	706 043
Mains adapter	2241.86	707 255
Control	2241.79	762 735

3.9   Storage

The flushing station can be stored in the original packaging at temperatures between -5 and 60 °C and a relative humidity of 5 to 95 % (non-condensing). Protect the packaging from damage.

3.10   Disposal

Separate the product and packaging materials (e. g. paper, metal, plastic or non-ferrous metals) and dispose of in accordance with valid national legal requirements.

Electronic components and batteries must not be put in the domestic waste but must be disposed of appropriately in conformity with the applicable directives, see ⅌ *'Regulations from section: Disposal'
on page 8*.