Multiplex Trio E3 fitting, electronic mixing unit

Instructions for Use

for filling a bathtub (electronically controlled), in connection with Multiplex Trio, Multiplex Trio F, Rotaplex Trio or Rotaplex Trio F (optional electric driven)

Model
6146.215

Year built:
from 03/2012

en_INT

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1 About these instructions for use

Trade mark rights exist for this document, further information can be found at *viega.com/legal*.

1.1 Target groups

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

- Heating and sanitary professionals and trained personnel
- Trained electricians
- Operators
- Consumers

It is not permitted for individuals without the abovementioned training or qualification 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 against possible life-threatening injury.

WARNING!
This symbol warns against possible serious injury.

CAUTION!
This symbol warns against possible injury.

NOTICE!
This symbol warns against possible damage to property.

Notes give you additional helpful tips.

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. National regulations can be found on the relevant web site of your country at *viega.com/standards*.

Regulations from section: Fields of application

Scope / Notice	Regulations applicable in Germany
Fulfilled requirements in sanitary fittings	EN 1111 EN 15091
Used in drinking water installations	DIN 1988 EN 806

Regulations from section: Mounting the mixing unit

Scope / Notice	Regulations applicable in Germany
230-V connection	VDE 0100 Part 701 (IEC 6036-7-701:2006, modified)

Regulations from section: Safety

Scope / Notice	Regulations applicable in Germany
Overflow function	EN 274

Regulations from section: Maintenance

Scope / Notice	Regulations applicable in Germany
Thermal disinfection after 72 hours of non-use	VDI 6023
Thermal disinfection after 7 days	EN 806-5

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 electrics 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 power pack.

WARNING!
Risk of scalding from hot water
Excessively hot water can lead to severe scalding, especially in the case of children.

Take the following steps to avoid scalding:

- Do not allow children to play with the control elements unsupervised.
- Disable the temperature safeguard in exceptional cases only.
- Make sure that no one can come into contact with the hot water before carrying out thermal disinfection.

WARNING!
Risk of injury due to control via remote access
Controlling the equipment via remote access is permissible only if there are no persons standing in the direct operating range.

- The safety shutdown of the inlet does not replace the overflow function, see *„Regulations from section: Safety“ on page 7*.
- Before opening the control casing, switch off the mains voltage and take steps to prevent accidental re-activation.
- Lay the cable in the control casing in such a way that it touches nothing.

2.3 Intended use

2.3.1 Areas of use

Preparation of hot water
Only electronic flowthrough heaters may be used to prepare hot water.

We recommend the following models:

- *Stiebel Eltron DHB-E 18, 21, 24 SL*
- *Vaillant VED E 24/7*
- *Flowthrough heaters with comparable features*

The product is a mixing fitting for the bathtub with electronic control of water temperature and filling volume. If an electronic drain / overflow fitting is installed, filling and emptying of the bathtub can be regulated using the mixing fitting.

On technical requirements met and the use in drinking water installations, see *„Regulations from section: Fields of application“ on page 7*.

A drain/overflow, water inlet and a pipe interrupter are required for the complete mounting of the product. Further information on this can be found at *„Required accessories“ on page 19*.

2.3.2 Maintenance

Regular maintenance is part of running the system properly *Chapter 3.5.2 „Maintenance“ on page 48*.

Inform the building owner, the operator or end customer of the maintenance obligations.

2.4 Product description

2.4.1 Overview

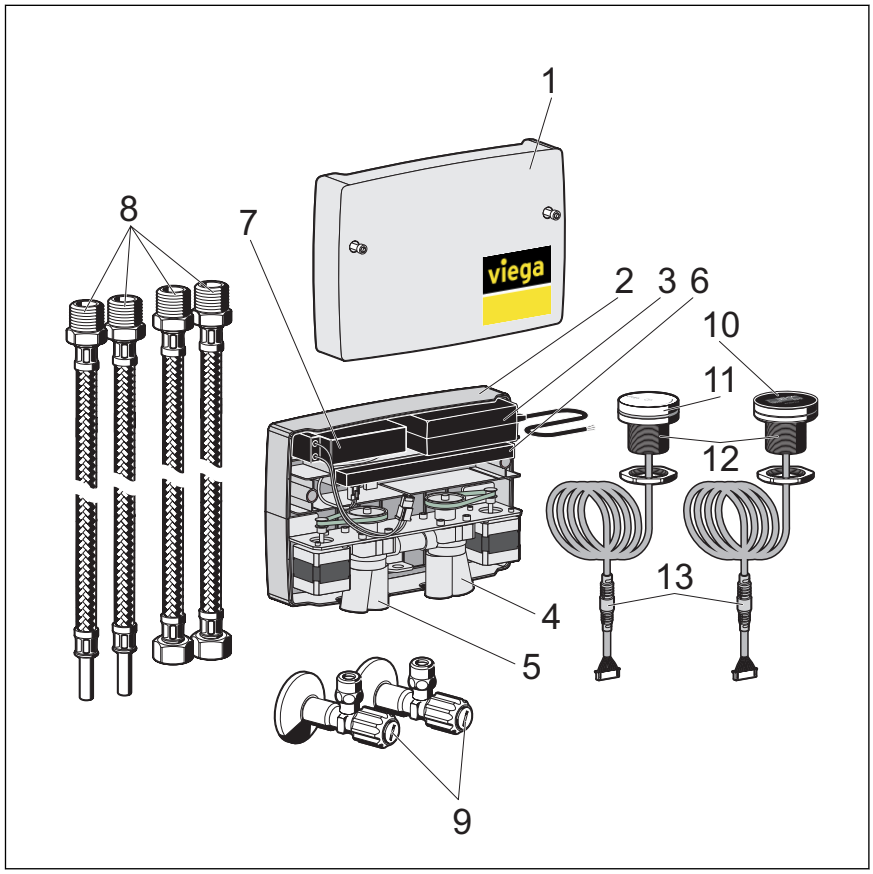


Fig. 1: Components and scope of delivery

1 - casing upper part
2 - casing
3 - power pack 230 V, with connection cable 3 m
4 - actuator unit for switching between tub and hand shower
5 - actuator unit for the hot and cold water mixer
6 - control with plug contacts for all components
7 - battery for emergency operation
8 - connection hoses
2 x R ½ x DN 12
2 x R ½ x G ½ with union nut
9 - 2 corner valves with filter, R ½ x DN 12
10 - display element
11 - control element with illuminated ring
12 - fixing element with union nut and permanently mounted O-ring
13 - connection cable with plug connector (extendable as an option)

2.4.2 Technical data

Operating pressure	maximum 1 MPa (10 bar)
Recommended flow pressure	0.1–0.5 MPa (1–5 bar)
Pressure difference between PWC and PWH	maximum 0.1 MPa (1 bar)

Test pressure	1.5 MPa (15 bar) (1.5 times maximum operating pressure)
Dimensions	*Chapter 3.1.2 „Installation dimensions“ on page 24*
Flow capacity	*Fig. 2* or *Fig. 3*
Warm water temperature	T_{max} ≤ 60 °C (from 40 °C upwards, the anti-scalding protection lowers the temperature increase when the control element is turned.) *with thermal disinfection:* T_{max} ≤ 85 °C
Power supply	100–240 V AC, 50/60 Hz
Power consumption	Standby operation < 1 W; P_{max} 45 W
Length of the connection cable to the control element	3 m (optionally extendable by another 3 m)
IP Code of electronic mixing unit	IPX4
IP Code of control element	IPX4

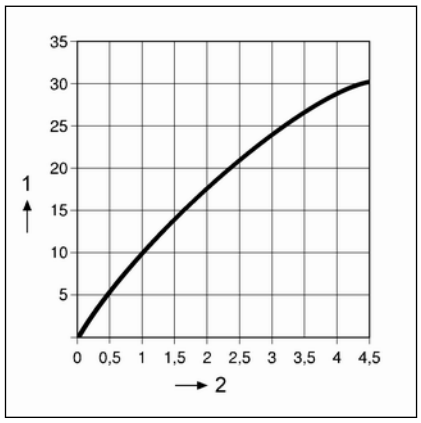


Fig. 2: Rate of flow without accessories (corner valves, filling hose, pipe interrupter)

1 - l / min
2 - Δp/bar

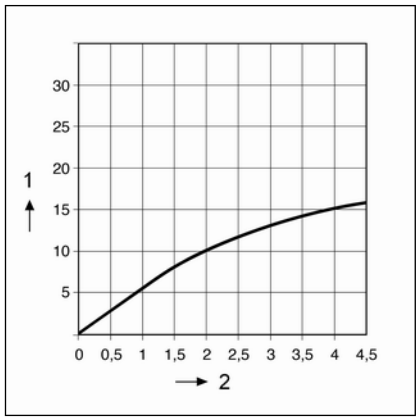


Fig. 3: Rate of flow with accessories (corner valves, filling hose, pipe interrupter)

2.4.3 Functions

The electronic mixing fitting is intended to fill a bathtub with the individually desired water temperature. To this end, the mixing fitting has three memory presets to which the individual preferred settings for water temperature, filling volume, and filling height of the tub can be saved, ready to be used for the next bath.

Basic functions

The electronic mixing fitting has been optimised for the control of electrically operated Viega bathtub drains and overflows. When a manually operated drain and overflow is used, all functions of the mixing fitting can be used with the exception of the electronic opening and closing of the drain.

The following basic functions at the mixing fitting can be controlled electronically:

- Starting and stopping the water inlet
- Setting the water temperature
- Setting the strength of the water inlet
- Switching between bathtub inlet and hand shower
- Opening and closing the bathtub drain (only with electronically controlled processes; see product portfolio)
- Saving, using, and deleting personal settings

Special functions

Special functions are those functions not required for the daily use of the mixing fitting. Special functions are for example basic settings and maintenance and cleaning functions.

The mixing fitting has the following special functions:

- Limiting the water inlet temperature
- Limiting the water inlet time
- Locking and unlocking extended menu lists
- Diagnosis mode for performing a functionality test

- Performing a thermal disinfection
- Resetting the factory settings
- Select temperature unit °F or °C
- Displaying statistics of various consumption data

Battery emergency operation

The mixing fitting is equipped with a battery to operate the mixing fitting for approx. 20 minutes in case of power outage.

The battery is recharged immediately after return of the power supply.

If the battery charge drops below a minimum and the user attempts to operate the mixing fitting, the illuminated ring of the control element will flash red five times. This indicates that the battery charge is too low to use the mixing fitting.

Temperature limitation / scalding protection

The mixing fitting has two functions protecting the user from scalding:

- From a temperature of 40 °C, the temperature setting via the control element is stepped down with factor 1:10. This means that the temperature is increased at a much slower rate so that the user cannot unintentionally set a much higher temperature.
  The temperature reduction takes place at the normal rate even if the scalding protection is enabled.
- Via the extended menu list, a maximum water inlet temperature can be specified. To cancel this maximum temperature setting, you must have a key code. A maximum temperature can be set for example to protect children from scalding.

2.4.4 Control elements and menus

Operating status

The electronic mixing fitting differentiates between two operating statuses:

- Operating status *„OFF“* with water supply **switched off**
- Operating status *„ON“* with water supply **switched on**

Depending on the operating status, different menus can be indicated in the display, and various settings can be made.

Control element

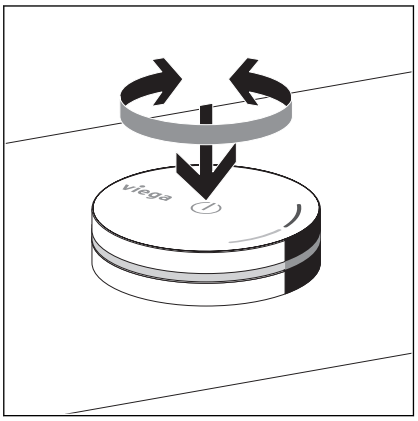


Fig. 4: Control element

The control element can be pressed and turned.

Display element

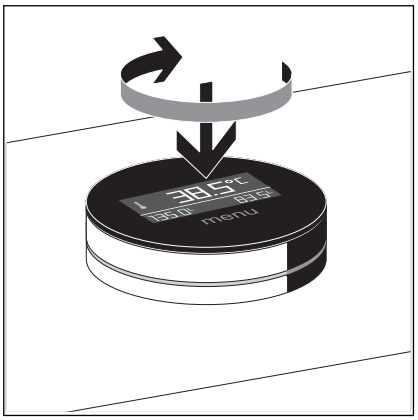
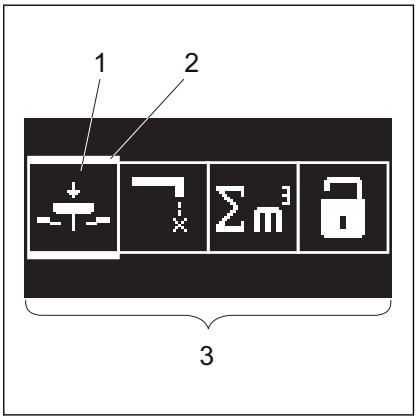


Fig. 5: Display element

The display element can be turned so that the user can read it for example while laying in the bathtub. Press the display element to select a menu item.

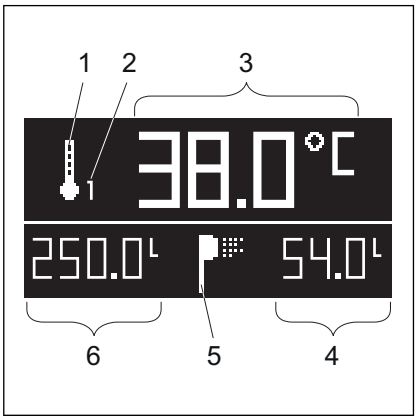
The display element has two different display modes:



1 - Menu icon
2 - Focus
3 - Menu bar

Menu display

This example shows the menu which is indicated in operating mode *„OFF“*.



1 - Symbol = Thermometer for temperature setting
2 - Quick Access = Program memory location 1 is active
3 - Number = Setpoint temperature
4 - Actual value = Water flown in since water inlet was started last
5 - Acknowledge / finding / status symbol = hand shower active
6 - Target value = Target filling volume according to program memory

Live display

The live display indicates the current status of the fitting. The example shows the display in operating states *„ON“*. In this example, the values have the following significance:

When the fitting is in this status, turn the control element to adjust the water temperature.

For more examples of the live display, see *Chapter 3.3 „Control“ on page 31*.

Illuminated ring

The illuminated ring of the control element can emit light in different colours. The colour of the illuminated ring shows which setting is being changed, or can be changed by turning the control element:

- Ring emits turquoise light: Move through the menu
- Ring emits blue-amber-red light: The water flowing in is cold, warm, or hot.
- Ring emits blue-amber-red light (in operating status *„ON“*): The set water temperature has not been reached yet.
- Ring flashes red five times (in operating status *„OFF“*): Actual charge of battery below minimum.
- Ring flashes red (in operating status *„ON“*): Thermal disinfection is running.

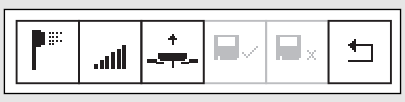
Menu structure

The display element shows four different menus, depending on the status of the product. The menus differ in respect of two factors:

- Operating status
- Locking of the extended menu list

For locking or indication of the extended menu, the following two symbols are provided in the menu list in operating status *„OFF“*:

- locking the extended menu list
- displaying the extended menu list

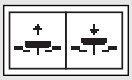
Operating status	Menu
„ON“	
„OFF“	

The greyed-out symbols are visible in the extended menu list only.

The symbol  is the last item in each menu list. When you select it, the menu list is closed immediately. Otherwise, the menu list is closed automatically if the control element remains inactive for five seconds.

Significance of the menu symbols

All menu symbols in these instructions are shown as a black symbol against a white background. The acknowledgment / findings / status symbols, on the contrary, are shown as white symbols against a black background.

Symbol	Meaning
	Water inlet via hand shower.
	Water inlet via bathtub inlet.
	Thickness of water stream
	Saving the settings
	Deleting the settings
	Opening the drain; closing the drain
	Maintenance mode (control element is disabled for 45 seconds)
	Indicating the water consumption
	Limiting the water inlet time
	Limiting the water inlet temperature
	Starting diagnostic mode

Symbol	Meaning
	Indicating statistics
	Changing the temperature display to degree Fahrenheit or degree Celsius
	Thermal disinfection
	Resetting the fitting to factory settings
	Displaying the extended menu list
	Locking the extended menu list
	Setting a new key code (possible only for 30 minutes are connection to power supply)
	Closing the menu list

Significance of the acknowledgement, findings, and status symbols

In these instructions, all acknowledgement, findings, and status symbols are shown as white symbol against a black background.

Symbol	Meaning
	Findings symbol following diagnosis: no malfunctions
	Findings symbol following diagnosis: flow sensor malfunction
	Findings symbol following diagnosis: temperature sensor malfunction
	Acknowledgement symbol in statistics: total operating hours of the fitting
	Acknowledgement symbol in statistics: number of call-ups of program memory space 1

Symbol	Meaning
	Acknowledgement symbol in statistics: number of call-ups of program memory space 2
	Acknowledgement symbol in statistics: number of call-ups of program memory space 3
	Acknowledgement symbol in statistics: number of thermal disinfections
	Acknowledgement symbol in statistics: number of minutes in battery mode
	Status symbol: The water supply takes place according to program memory space 1.
	Status symbol: The water supply takes place according to program memory space 2.
	Status symbol: The water supply takes place according to program memory space 3.
	Status symbol: Thermal disinfection is running.
	Status symbol: System diagnosis is running.
	Status symbol: Bathtub is filled according to program memory space 1 with a temperature of 40 °C or more (arrow on the left =indicates high inflow temperature).

Structure of the operating instructions

All instructions for operating the mixing fitting are of a uniform structure. Two factors influence the function of the product, and a combination of these factors brings a result. These two factors are the current operating status and the action carried out by the user.

Furthermore, the menu symbol is indicated which symbolises the respective function in the display element.

Example:

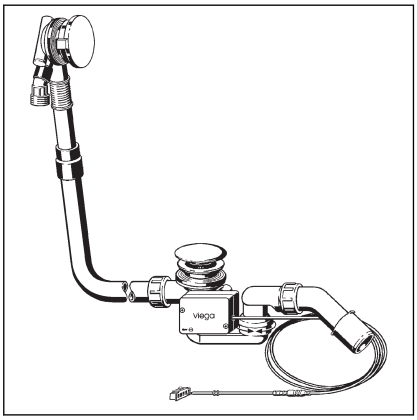
Symbol	
Operating status	*„OFF“*

Action	Briefly press the control element once.
Result	The water starts to flow. (Automatic stop after max. 99 minutes.)

2.5 Accessories

The accessories shown here are not included in the scope of delivery. If required, it must be purchased separately.

Required accessories

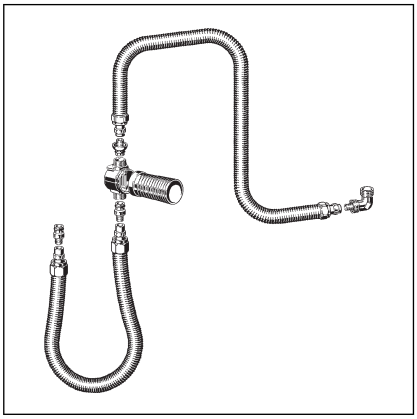


Inlet, drain and overflow

A water inlet and a drain/overflow for the tub are required to be able to install the product completely.

The following four Viega models are optimised for use with an electronic mixing fitting:

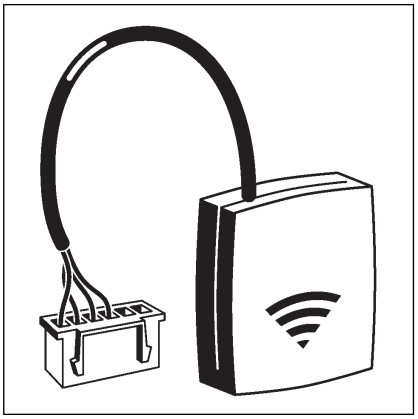
- Multiplex Trio drain / overflow, model 6175.1
- Rotaplex Trio drain/overflow, model 6175.2
- Multiplex Trio F drain / overflow, model 6148.1
- Rotaplex Trio F drain / overflow, model 6148.2



Pipe interrupter

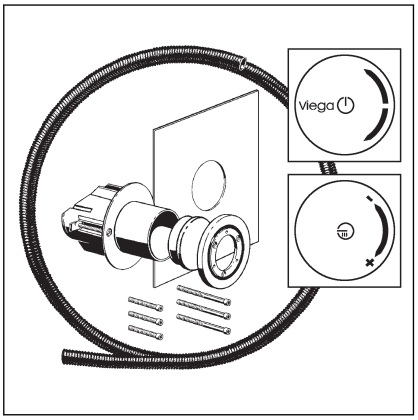
To ensure that no bath water flows back into the drinking water installation, a pipe interrupter must be installed, e. g. the connection set with concealed pipe interrupter DN 20 in acc. DIN EN 1717, model 6161.86. A suitable cover rosette for the pipe interrupter must be purchased separately.

Optional accessories



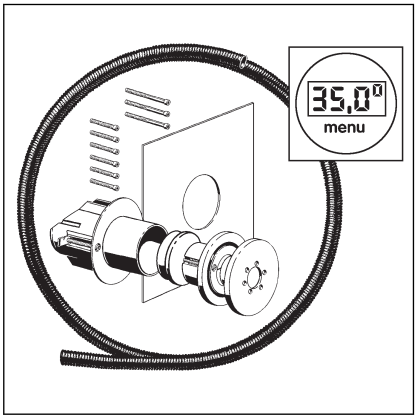
WLAN module

The mixing fitting can be remotely controlled via the web browser with a mobile end device (e. g.smartphone, tablet) or via PC (compatible with Android, iOS or Windows). In addition, you will require the Multiplex Trio E WLAN module, model 6146.224.



Extension set for control elements

The extension set model 6146.36 enables installation of a control element on a wall or pre-wall. It contains a concealed socket, an empty pipe for the connection cable and a fixing set with sealing collar and chrome-plated cover rosette.



Extension set for display elements

The extension set model 6146.221 enables installation of a display element on a wall or pre-wall. It contains a concealed socket, an empty pipe for the connection cable and a fixing set with sealing collar and chrome-plated cover rosette.

Extension cable

3 m extension cable for the control element: model 6146.22.

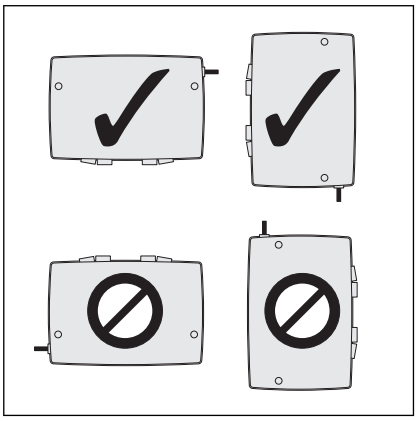
3 m extension cable for the display element: model 6146.222.

3 Handling

3.1 Assembly information

3.1.1 Mounting conditions

Mixing unit



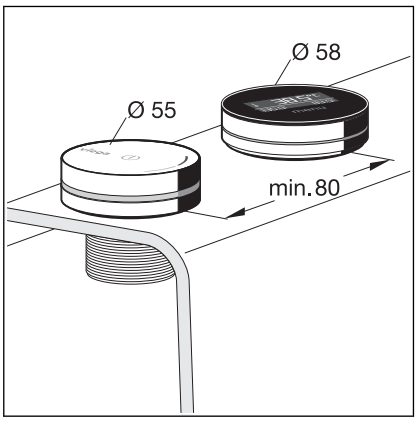
The following requirements exist for the mounting of the mixing unit:

- The mixing unit may only be mounted horizontally or vertically as shown in the illustration.
- The mixing unit must remain accessible for the purpose of maintenance and the top of the casing must be removable.

  Mounting can take place in e. g. a side room or in a pre-wall revision opening.
- A 230 V connection is available as power supply, see *„Regulations from section: Mounting the mixing unit“ on page 7*.
- The mixing unit may only be so far away from the control or display elements that the connection cable (3 m) is not subjected to tensile stress.

  If required, the connection cable of the control or display elements can be extended to 6 m *„Optional accessories“ on page 20*.

Control and display elements



The following requirements exist for the mounting of the elements:

- Fixing can take place on an even surface with the dimensions 60 x 60 mm (e. g. in the pre-wall) or on the tub rim.
- When mounting on the tub rim, it must be ensured that the elements are never submerged in water.

  Contact with splash water does not present a problem.
- If mounting of the element is to take place on the tub rim, we recommend — in as far as is possible — having the drill hole made by the bathtub manufacturer.
- A drill hole with a diameter of 38–40 mm is required for fixing the elements.
- There must be clearance of at least 40 mm planned behind or below the mounting area.
- The centres of the drill holes for the elements must be at least 80 mm apart.
- The elements should be easily reachable from both inside and outside the tub.
- The connection cable must be laid free of tensile stress from the mounting position of the elements to the mixing unit.

  If required, the connection cable can be extended from 3 m to 6 m *„Optional accessories“ on page 20*.

The following requirements exist for the mounting of the drain / overflow:

- The bathtub is installed.
- The drainage line is installed all the way to the bathtub.
- The underside of the bathtub is accessible.

Pipe interrupter

To ensure that no bath water flows back into the drinking water system, a pipe interrupter must be installed in the pipeline between the mixing unit and the tub inlet.

The following schematic diagram shows what this should look like:

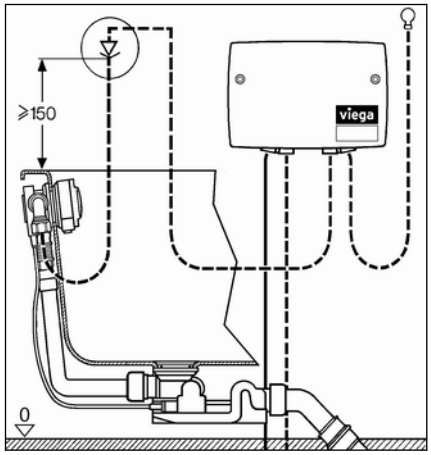


Fig. 6: Mounting scheme with pipe interrupter

It is important that the pipe interrupter is mounted vertically, in the direction of flow and at least 150 mm above the upper edge of the bathtub.

The hand shower must also be protected against bath water flowing back. If no protection is already integrated into the hand shower being used, it may be necessary to install an additional pipe interrupter.

Observe the local standards and regulations.

The pipe interrupter is not included in the scope of delivery and must be ordered separately. Observe the instructions for use of the pipe interrupter.

3.1.2 Installation dimensions

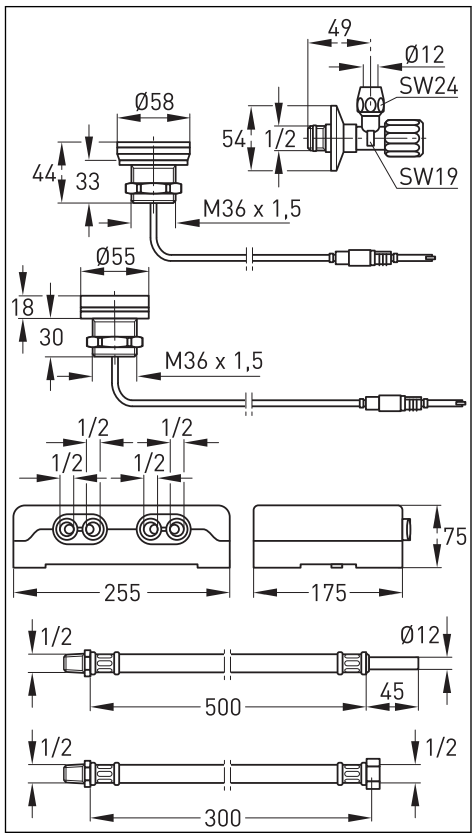


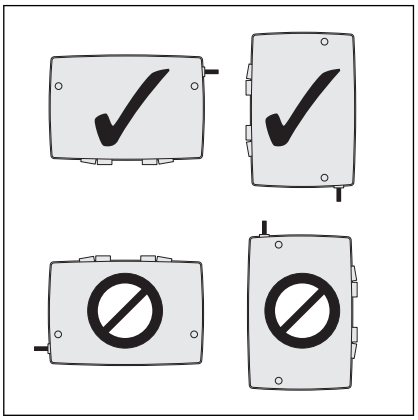
Fig. 7: Dimensions

3.2 Assembly

3.2.1 Mounting the mixing unit

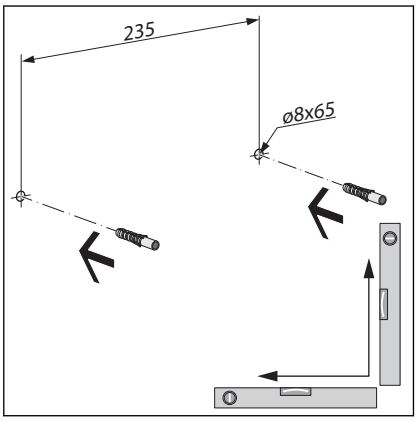
DANGER!
Risk of electric shock
An electric shock can lead to burns and serious injury and even death.

- Only allow electrical work to be carried out by qualified electricians.
- Always de-energise the connection cable before work is commenced.



Requirements:

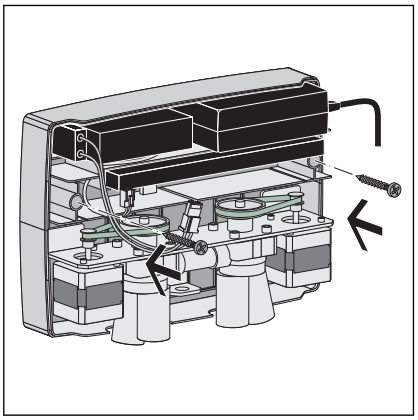
- The mounting site must be permanently accessible also after mounting, and the casing cover can be removed (e.g. through a revision opening).
- The mounting site is such that the planned installation site of the control elements can be reached with a cable of 3 m length (6 m with extension).
- A 230 V connection is available as power supply, see *„Regulations from section: Mounting the mixing unit“ on page 7*.
- The mixing unit can be mounted with the connections facing either down or to the left. Other mounting positions or mounting at an angle impair the functionality of the mixing unit.



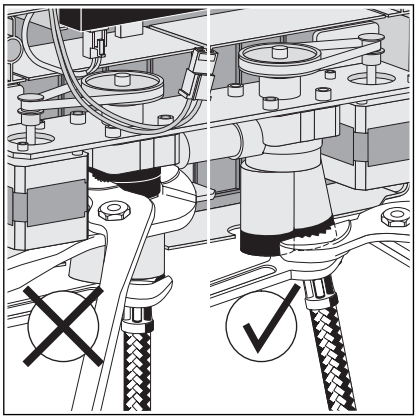
Set the 8 mm dowels pursuant to the specified dimensions.

Distance: 235 mm
Drill hole depth: 65 mm

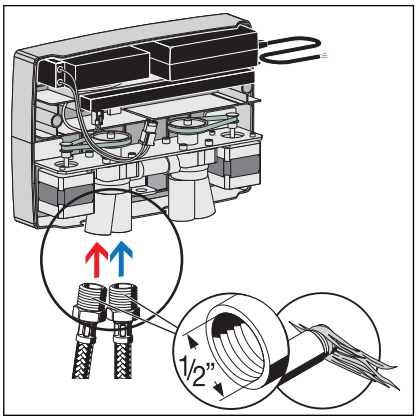
Use a spirit level for horizontal and vertical alignment.



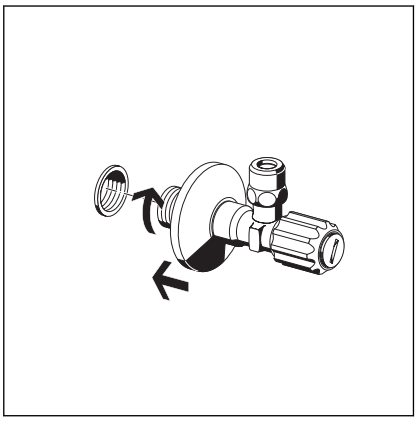
Attach the mixing unit.



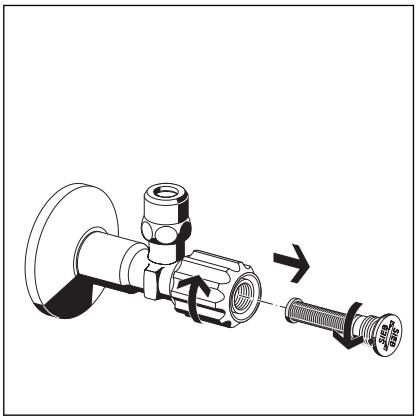
INFO! When screwing the hoses to the connections, always apply the pipe wrench at the bottom end of the inputs and outputs of the mixing unit. Applying the wrench at the top end may damage the mixing unit.



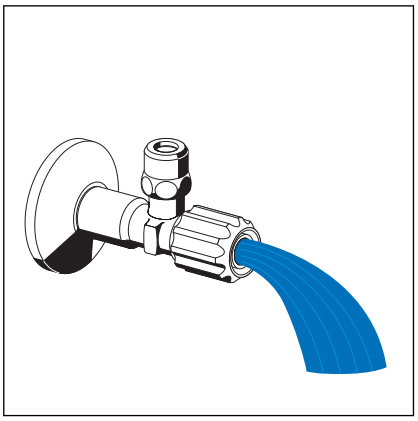
- Seal the hoses for the water connection (2 x R ½ x DN 12).
- Screw the hoses to the hot and cold water inputs.



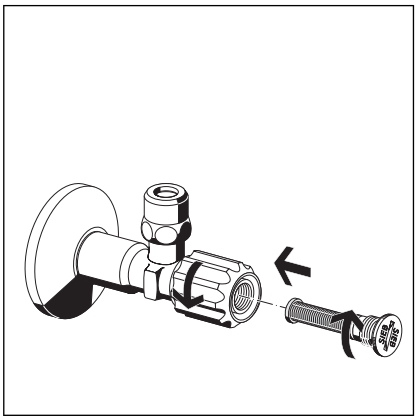
- Mount the corner valves to the hot and cold water installations.



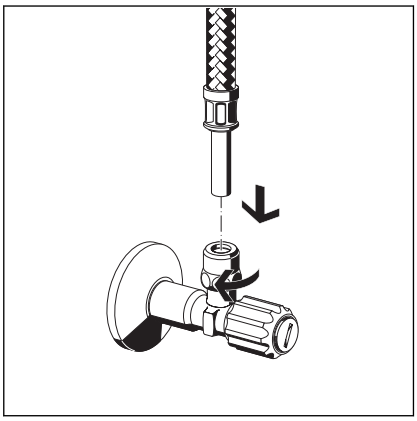
- Unscrew the filter in anti-clockwise direction.
- Remove the filter.



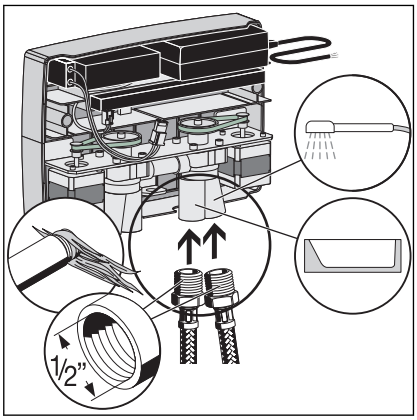
- Open the water inlet for a few seconds to flush the pipe.



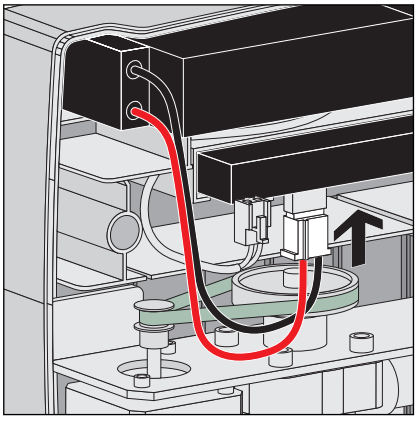
- Screw the filter into the corner valve.



- Connect the hoses of the hot and cold water inputs of the mixing unit to the respective corner valves.

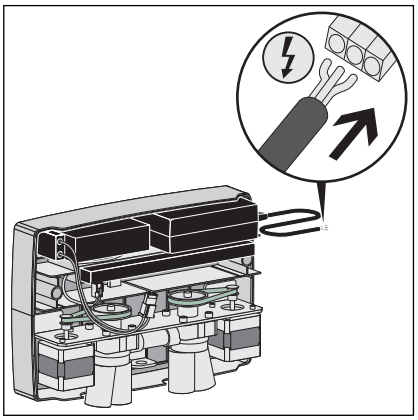


- Seal the hoses for connecting the bathtub and the hand shower (2 x R ½ x G ½ with union nut).
- Screw the hoses to the outputs of the mixing unit for bathtub and hand shower.



- Connect the battery to the control electronics.

  Make sure that it is properly aligned. Push the battery in until you feel the plug snap into place.



DANGER! This step must only be done by a qualified electrician!

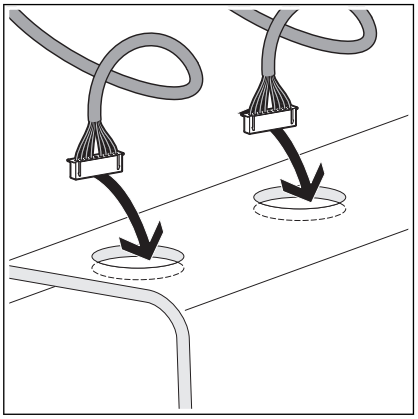
- Connect to the mains.

3.2.2 Mounting the control element

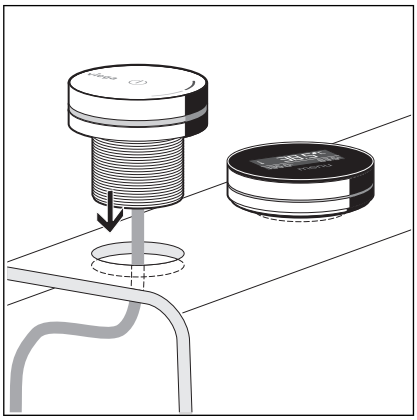
Mounting of the control element and the display element is shown here at the bathtub rim by way of example. For mounting them to another surface, e.g. in the pre-wall, the same preconditions and steps apply.

Requirements:

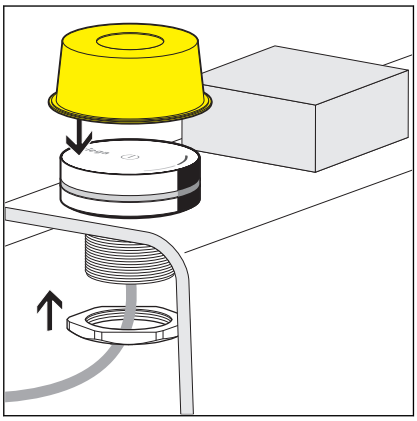
- The planned mounting site of the control and display element can be reached with a cable of 3 m length (6 m with extension) from the mounting site of the mixing unit.
- There must be two drill holes with a diameter of 38–40 mm at the mounting site.
- The centres of the drill holes must be at least 80 mm apart.
- There must be clearance of at least 40 mm behind the drill holes.



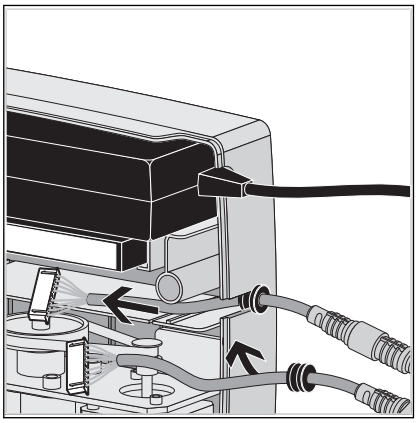
- Guide the connection cable of the control and display element through the drill holes.



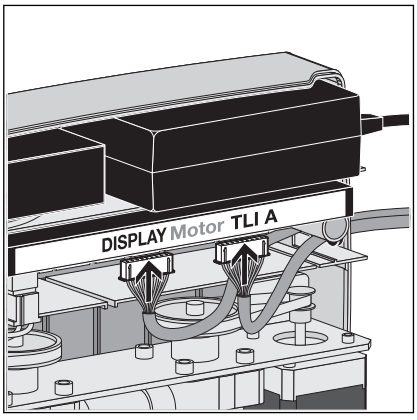
- Insert the control and display element in the drill holes.



- Use the union nut to fasten the control and display element from below.
- Place the site protection on the control and display element.



- Lead cable with cable lead-in into the recess in the right-hand side of the casing of the mixing unit.

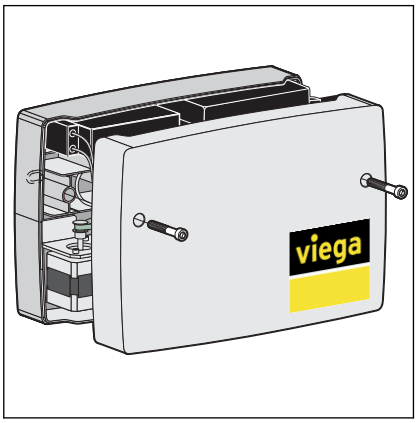


- Connect the plugs of the cables of the control and display element with the sockets of the control unit.

  Connect the control element with the socket marked "TLI A".

  Connect the display element with the socket marked "DISPLAY".

  The plugs have a groove left and right on one long side which must face forward when plugging in.



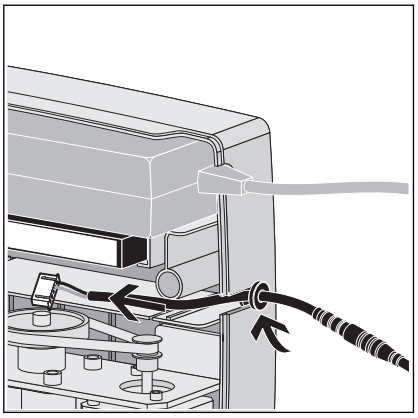
- Set the casing lid on the mixing unit and screw it down.

3.2.3 Connecting the electrical drain (optional)

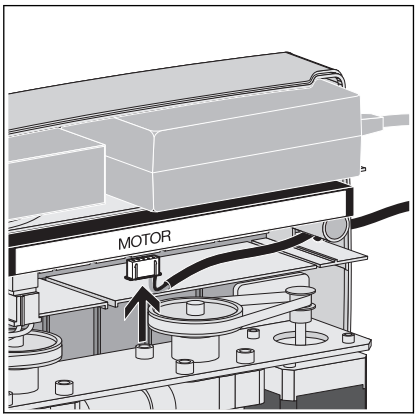
An electrically driven drain and overflow must be used to be able to open and close the drain using the control element. We recommend one of the four models mentioned in *„Required accessories“ on page 19*. The motor of these models has a connection through which it is connected to the control of the mixer unit.

Requirements:

- The mixer unit has been mounted.
- The motor-powered drain / overflow has been mounted.
- The mixer unit is accessible and the lid had been removed.
- The motor of the drain / overflow is reachable from the place of installation of the mixer unit using a 2 m cable (with extension 5 m).



- Lead cable with cable lead-in into the recess in the right-hand side of the casing of the mixer unit.



INFO! The connection of the drain / overflow must take place before applying mains voltage to the mixer unit so that the drain can be detected.

- Connect plug of the cable with the socket of the control unit marked "Motor".

  The plug has a groove left and right on one long side, this should face forward when plugging in.

3.3 Control

3.3.1 Factory settings

Temperature unit	°C
Memory settings 1, 2 and 3	38 °C, 100 % water stream strength
Water volume	Stop after 45 min.
Temperature limitation of water inlet	Limitation to 80 °C (no mixing in of cold water, water flows in at maximum temperature provided) With thermal disinfection: $T_{max} \leq 85$ °C
Key code	000

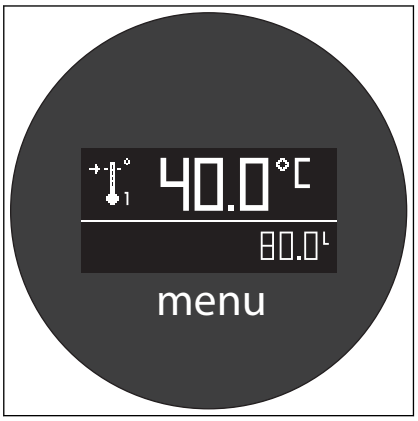
3.3.2 Setting the water inlet

The water inlet takes place pursuant to one of three saved programs:

- Press briefly 1 x = program memory space 1
- Press briefly 2 x = program memory space 2
- Press briefly 3 x = program memory space 3

If you do not wish to use one of the pre-programmed settings, start one of the programs and change temperature and inflow time individually.

Starting the water inlet



Operating status	*„OFF“*
Action	Briefly press the control element 1 x.
Result	The water starts to flow in according to the settings of program memory space 1. The display shows the current water temperature and inflow volume (see Figure).

Stopping the water inlet

Operating status	*„ON“*
Action	Briefly press the control element 1 x.
Result	The water inlet stops.

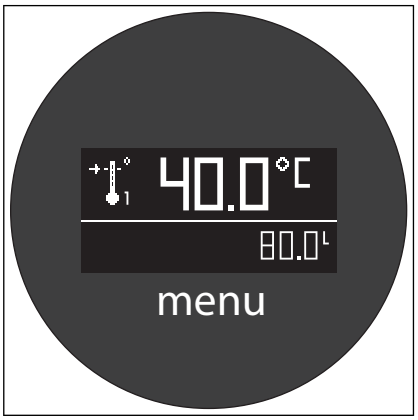
Setting the water temperature

WARNING!
Risk of scalding from hot water

Unless the maximum water inlet temperature has been limited via the menu, the water temperature can be increased to max. 80 °C. Children may suffer scalding at a temperature of 40 °C and up. In severe cases, scalding may be fatal, just as burn injuries. For this reason, take particular care with water temperatures of more than 40 °C.

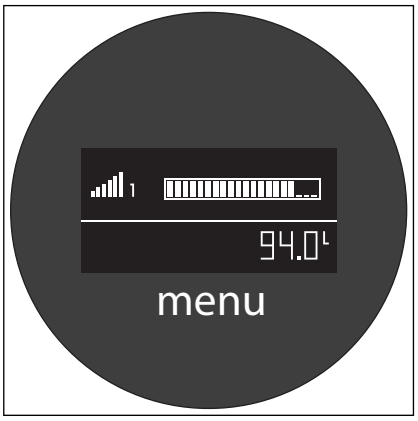
Take the following steps to avoid scalding:

- Beyond a set temperature of 40 °C, the temperature will increase significantly slower when you turn the control element (the rotary movement is stepped down 1:10). Use this scalding protection to set the temperature with higher accuracy and extra caution.
- If necessary, limit the water temperature (*Chapter 3.3.3 „Limiting the water inlet time and temperature“ on page 33*).
- Lock the extended menu list so that the key code must be entered before the limitation of the water inlet temperature can be unlocked (*„Locking the extended menu list“ on page 39*).



Symbol	
Operating status	*„ON“*
Action	Turn the control element without pressing it. Turning clockwise: LED amber = warmer; turning anti-clockwise: LED blue = colder
Result	You have changed the water temperature. The display shows the current water temperature and inflow volume (see Figure).

Setting the water stream strength



Symbol	
Operating status	*„ON“*
Action	Keep the control element pressed and turn it. Turning clockwise = water stream stronger; turning anti-clockwise = weaker
Result	You have changed the strength of the water stream. During setting, the display element shows the current strength of the stream (see Figure).

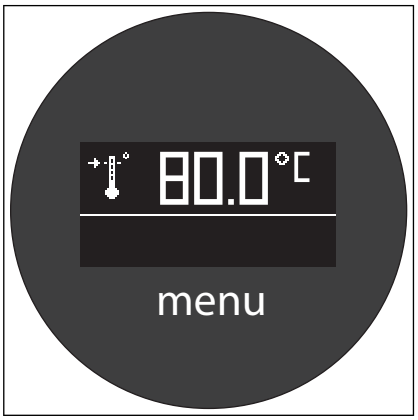
3.3.3 Limiting the water inlet time and temperature

Limiting the water inlet temperature

This setting is only possible via the extended menu list.

First, enable the extended menu list as described in „Displaying the extended menu list“ on page 38.

The fitting offers the option to set a limit value for the water inlet temperature. The limit can be between 4 °C and 80 °C. The factory setting for maximum water inlet temperature is 80 °C.



Symbol	
Operating status	*„OFF“*
Action	■ Briefly press the display element to open the menu. ■ Turn the control element until the focus is on the symbol. ■ Briefly press the control or display element to select the menu item. ■ Turn the control element to set the limit value for the water inlet temperature (see the Figure for the display content). ■ Press the control element to confirm the value.
Result	The selected value is set as a limit value for the water inlet temperature.

Limiting the water inlet time

This setting is only possible via the extended menu list.

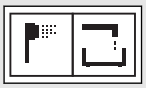
First, enable the extended menu list as described in „Displaying the extended menu list“ on page 38.

You can limit the maximum water inlet time. This setting range is between 1 and 99 minutes. If this setting range is limited, it will not be possible later on to increase the water inlet time for the individual program memory spaces beyond this limit.

Symbol	
Operating status	*„OFF“*
Action	■ Briefly press the display element to open the menu. ■ Turn the control element until the focus is on the symbol. ■ Briefly press the control or display element to start programming mode. ■ Turn the control element to set the limit value for the water inlet time (see the Figure for the display content). ■ Briefly press the control or display element to save the value entered.
Result	You have limited the water inflow inlet to the set value.

3.3.4 Changing the water inlet

Changing between tub faucet and hand shower

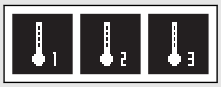
Symbol	 Depending on the current setting, the symbol for the hand shower or for tub filling is indicated.
Operating status	*„ON“*
Action	■ Briefly press the display element. ■ Turn the control element until the focus is on the  or  symbol. ■ Briefly press the control or display element to confirm.
Result	The water inlet changes from water inlet via faucet to hand shower or vice versa.

3.3.5 Using personal settings

The fitting has three memory spaces to save personal preference settings for tub filling. The saved settings can be called up directly, and the tub is filled automatically with the preset values.

The three memory spaces can be differentiated from the small figure shown next to the thermometer symbol (memory space 2 in the example below).

Calling up personal data from the memory

Symbol	
Operating status	OFF
Action	Briefly press the control element 1 x to call up program memory space 1, or briefly press 2 x to call up program memory space 2, or briefly press 3 x z to call up program memory space 3.
Result	The water flows in according to the saved settings. The display shows the memory space, the temperature, the programmed water volume (bottom left) and the water volume currently in the tub (bottom right).

Saving personal settings

Symbol	
Operating status	OFF
Action	■ Briefly press the operating element (1 x, 2 x or 3 x) to select the desired memory space. ■ Turn the control element to adjust the water temperature. Turn clockwise ⇨ for warmer water; turn anti-clockwise ⇨ for colder water. ■ Keep the control element pressed and turn it to adjust the strength of the water stream. ■ Let the water flow in up to the desired filling level. ■ Briefly press the display element to open the menu. Turn the control element to set the focus on the  symbol for "Delete memory". ■ Briefly press the control element to save the settings.
Result	You have saved the water volume currently in the tub and the mean temperature of the flown-in water to the selected memory space. The water inlet stops.

The saved temperature corresponds to the actual temperature of the bath water and can significantly deviate from the target temperature selected last.

Deleting the saved settings (returning to factory settings)

This setting is only possible via the extended menu list.

First, enable the extended menu list as described in „Displaying the extended menu list“ on page 38.

Symbol	
Operating status	OFF

Action	■ Briefly press the operating element (1 x, 2 x or 3 x) to select the desired memory space. ■ Briefly press the display element 1 x. ■ Turn the control element to set the focus on the symbol for "Delete memory". ■ Briefly press the control element 1 x.
Result	You have reset the selected memory space to factory settings (also see *Chapter 3.3.1 „Factory settings“ on page 31*). The water inlet stops.

Changing the unit of the temperature display

This setting is only possible via the extended menu list.

First, enable the extended menu list as described in „Displaying the extended menu list“ on page 38.

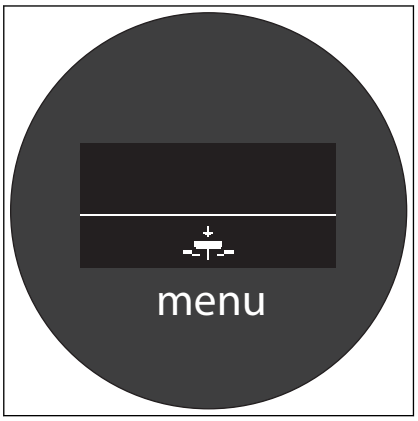
The fitting can show temperature data in the display element either in Celsius (°C) or Fahrenheit (°F).

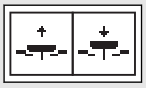
Symbol	
Operating status	OFF
Action	■ Briefly press the display element to open the menu. ■ Turn the control element until the focus is on the °F or °C symbol. ■ Briefly press the control or display element to change the unit of the temperature display.
Result	You have changed the unit in which temperatures are displayed to the selected value.

3.3.6 Electronic operation of the drain

To use this function, an electrically driven drain and overflow must be mounted and connected.

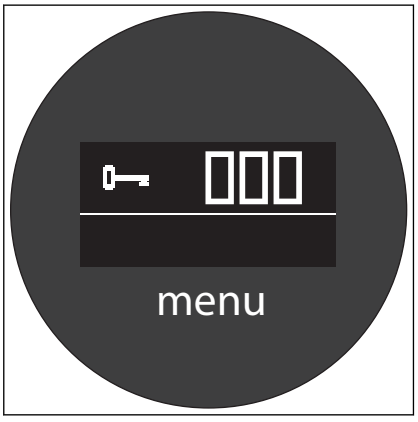
Opening / closing the drain by means of the control element



Symbol	 Depending on the condition of the drain, the symbol for Open or for Close is indicated.
Operating status	OFF
Action	■ Briefly press the display element. ■ Turn the control element until the focus is on the symbol for opening / closing the drain valve. ■ Press the control or display element to confirm.
Result	You have changed the condition of the drain valve. The display indicates the opening or closing of the drain (see Figure on the left).

3.3.7 Configuring the menus and control

Displaying the extended menu list



To display the extended menu list, you have to enter the key code. At delivery, the key code 000 is preset.

Symbol	
Operating status	OFF

Action	■ Briefly press the display element to open the menu. ■ Turn the control element until the focus is on the 🔒 symbol. ■ Briefly press the control or display element to unlock the extended menu list. ⇨ The display asks for the key code (see Figure on the left). ■ Turn the control element to enter the key code. ■ Briefly press the control or display element to confirm the key code.
Result	The extended menu list will be unlocked for approximately 30 minutes. After this, the menu list will be locked once more automatically to ensure that the protected functions are available to authorized persons only. To re-lock the function immediately, call up the 🔒 symbol in the menu.

Locking the extended menu list

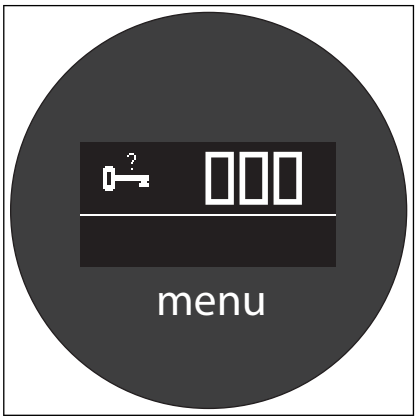
To unlock the extended menu list at a later time, you will need the key code. At delivery, the key code is 000.

Symbol	
Operating status	OFF
Action	■ Briefly press the display element to open the menu. ■ Turn the control element until the focus is on the 🔒 symbol. ■ Briefly press the control or display element to lock the extended menu list.
Result	The extended menu list is locked and can only be unlocked by entering the key code.

Setting a new key code

The key code can only be changed within a period of 30 minutes following the connection to the power supply. After that, the respective menu item is disabled.

If you need to change the key code, disconnect the fitting briefly, but for at least 10 seconds, from the mains and from the battery. (This will not reset the other device settings.)



Symbol	
Operating status	OFF
Action	■ Briefly press the display element to open the menu. ■ Turn the control element until the focus is on the  symbol. ■ Briefly press the control or display element to start programming mode (Figure on the left). ■ Turn the control element to set the desired key code. ■ Briefly press the control or display element to save the key code.
Result	You have saved the new key code.

If you have changed and then forgot the key code, set a new key code as described above. You will not need to enter the old code.

Resetting the control completely to factory settings

This setting is only possible via the extended menu list.

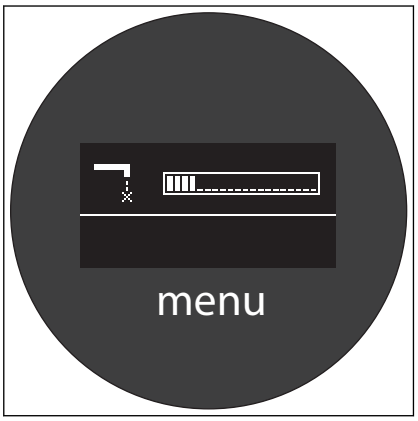
First, enable the extended menu list as described in „Displaying the extended menu list“ on page 38.

It is possible to reset the fitting completely to factory settings. For the full factory settings, refer to *Chapter 3.3.1 „Factory settings“ on page 31*.

Symbol	
Operating status	OFF
Action	■ Briefly press the display element to open the menu. ■ Turn the control element until the focus is on the  symbol. ■ Briefly press the control or display element to reset the settings.
Result	All settings have been reset to the factory settings.

3.3.8 Cleaning functions

Cleaning mode



Use the cleaning mode to disable the fitting for 45 seconds, for example to clean the control element, without startup of the water inlet.

Symbol	
Operating status	OFF
Action	■ Briefly press the display element to open the menu. ■ Turn the control element until the focus is on the  symbol. ■ Briefly press the control or display element to enable the cleaning mode.
Result	The control element is disabled for 45 seconds. For this period of time, the illuminated ring flashes green. During the runtime of cleaning mode, the display element indicates a progress bar (see Figure on the left).

You can disable the cleaning mode before expiry of the 45 seconds by selecting the symbol in the menu.

Thermal disinfection

WARNING!
Risk of scalding from hot water

Unless a temperature safeguard has been set, the water temperature can be increased to max. 80 °C. Children may suffer scalding at a temperature of 40 °C and up. In severe cases, scalding may be fatal, just as burn injuries. For this reason, proceed with particular caution when carrying out a hot water disinfection.

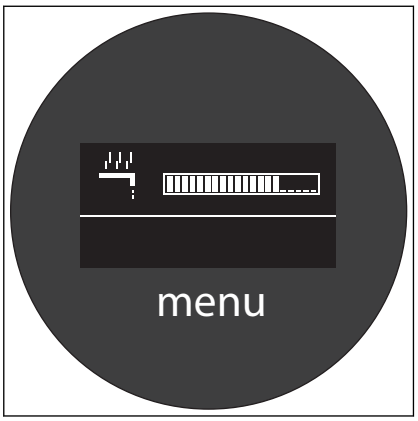
Take the following steps to avoid scalding:

– Ensure that nobody is standing close to the fitting and that splattering of the hot water is excluded.
– Change the key code so that only authorized persons can carry out a hot water disinfection. ↳ *„Setting a new key code“ on page 39*
– After completed disinfection, run some cold water so that no hot water remains in the pipes.
– You can abort the hot water disinfection at any time by briefly pressing the control element.

This setting is only possible via the extended menu list.

First, enable the extended menu list as described in „Displaying the extended menu list“ on page 38.

The hot water disinfection reliably prevents and build-up of germs in the fitting.



Symbol	
Operating status	OFF
Action	■ Briefly press the display element to open the menu. ■ Turn the control element until the focus is on the  symbol. ■ Briefly press the control or display element to start the hot water disinfection.
Result	The fitting undergoes an automatic 5-minutes disinfection program. A minimal water volume of water at the maximum supply temperature is used. During the hot water disinfection, the display shows a progress bar (see Figure on the left). During hot water disinfection, the illuminated ring of the control element flashes red as a warning.

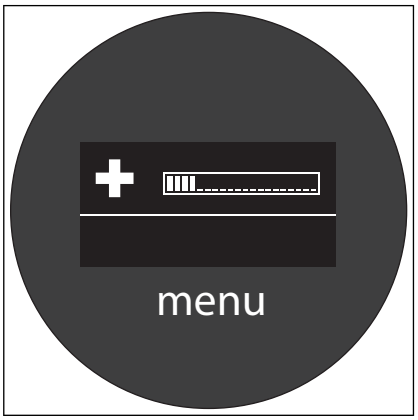
3.3.9 System diagnosis and statistics

Using the diagnosis mode

This setting is only possible via the extended menu list.

First, enable the extended menu list as described in „Displaying the extended menu list“ on page 38.

The fitting can carry out an automatic system diagnosis. In this process, the temperature sensor and the volume flow meter are checked.



Symbol	
Operating status	*„OFF“*
Action	■ Briefly press the display element to open the menu. ■ Turn the control element until the focus is on the ✚ symbol. ■ Briefly press the control or display element to start the diagnosis.
Result	The inspection program proceeds automatically. During the runtime of system diagnosis, the display element indicates a progress bar (see Figure).

During the analysis, the illuminated ring of the control element shows which component of the product is being checked right now.

Indication during the diagnosis:

- Illuminated ring inactive: cartridge position is being checked and calibrated
- Illuminated ring red: hot water ON
- Illuminated ring green: water OFF
- Illuminated ring: cold water ON

Indication of the findings

After completion of the diagnosis, the findings are indicated in the bottom centre of the display. The following results of a diagnosis can be indicated:

Symbol	Findings
	No malfunctions
	Temperature sensor malfunction
	Volume flow meter malfunction

Indicating the statistics

This setting is only possible via the extended menu list.

First, enable the extended menu list as described in „Displaying the extended menu list“ on page 38.

The recorded data can be output via a statistics function.

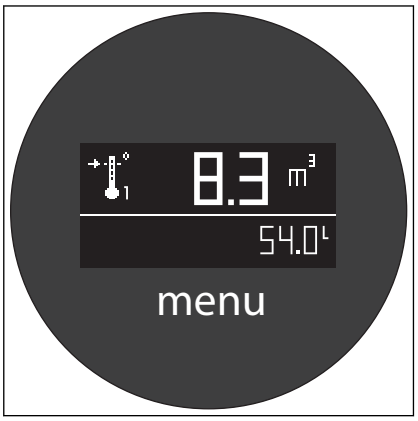
For legal reasons, the statistical data cannot be deleted.

Symbol	
Operating status	*„OFF“*
Action	■ Briefly press the display element to open the menu. ■ Turn the control element until the focus is on the  symbol. ■ Briefly press the control or display element to start the indication of the statistics.
Result	The display element successively shows the various statistical values.

They are indicated by one symbol each which stands for the type of the currently shown statistical value, and by one value.

Symbol	Indicated value
	Total number of operating hours of the fitting (with a maximum deviation of ten hours)
  	Number of call-ups of personal settings with indication of the respective number (with a maximum deviation of ten call-ups)
	Number of hot water disinfections carried out
	Number of minutes in battery mode (with a maximum deviation of ten minutes)

Indicating the water consumption



The total water consumption during the operating life of the fitting is indicated in the top line in m^3.

The consumption during the last filling is indicated in the bottom line in litres.

Symbol	Σm³
Operating status	*„OFF“*
Action	■ Briefly press the display element to open the menu. ■ Turn the control element until the focus is on the Σm³ symbol. ■ Briefly press the control or display element to start the diagnosis.
Result	The water consumption is indicated in the display (see Figure).

3.4 Troubleshooting

Error	Cause	Remedy
The device is not functioning.	The device is not connected to the mains	Connect the device to the mains
	Failure of mains power supply	Check the terminal box
	Power pack not connected to control electronics	Check or establish the connection
	Control and display element not connected	Check or establish the connection
The device switches the water inlet off too early.	Saved inlet time is set too short	Set a longer inlet time *Chapter 3.3.2 „Setting the water inlet“ on page 31*
	Hot and cold water connections mixed up	Exchange the connections
The water temperature is not as desired.	Hot and cold water pipes mixed up	Exchange the connections
	Hot or cold water valve not fully open	Fully open the corner valves
	Connection hoses kinked	Check laying of the hoses
	Connection lines clogged	Flush the lines Clean the filter
	Reservoir empty	Check reservoir

Error	Cause	Remedy
	Flowthrough heater not connected	Check or establish the connection
	Temperature sensor not connected or defective	Carry out the "System diagnosis" function „*Using the diagnosis mode“ on page 42*
	Motor for temperature control not connected or defective	Carry out the "Diagnosis" function „*Using the diagnosis mode“ on page 42*
	Toothed flat belt came off, or defective	Check toothed flat belt
	Pressure difference between cold and hot water inlet too great (Δ > 1 bar)	Adjust pressure
No water flow	Hot or cold water valve not fully open	Fully open the valves
	No water supply	Check main tap
	Supply hoses kinked	Check the laying of the supply hoses
	Filter clogged	Clean the filter
	The device is not connected to the mains	Connect the device to the mains
	Failure of mains power supply	Check the terminal box
	Mains adapter not connected to control	Connect 2-pole plug with control electronics
	Control and display element not connected	Check or establish the connection
The water flow is not as desired.	Hot or cold water valve not fully open	Fully open the valves
	Supply hoses kinked	Check the laying of the supply hoses
	Filter clogged	Clean the filter
	Motor for water flow not connected, or defective	Check connection and function
	Toothed flat belt came off, or defective	Check toothed flat belt
	Saved flow is too small	Reset the function "Factory settings" „*Resetting the control completely to factory settings“ on page 40*
Constant water flow	Motors not calibrated	Carry out the "Diagnosis" function „*Using the diagnosis mode“ on page 42*

Error	Cause	Remedy
	Valves do not close	Carry out the "Diagnosis" function „Using the diagnosis mode“ on page 42
The water is turned off after a certain period of time.	On-time limit reached	Adjusting the on-time limit „Limiting the water inlet time“ on page 34
	Individually saved filling volume reached	Carry out the function "Deleting the saved settings" „Deleting the saved settings (returning to factory settings)“ on page 36
The illuminated ring of the control element flashes green.	Cleaning mode enabled	Wait for 45 seconds, or disable the cleaning mode via the menu „Cleaning mode“ on page 41
No operation in case of mains failure	Battery not connected	Connect battery to controller (ACCU)
	Battery empty	Recharge battery for at least 24 hours
	Battery defective	Replace battery
The casing is moist or wet.	Impermissible installation situation	see label on cover
	Inlets and outlets of valves not properly sealed	Check the sealing, re-seal of necessary
	Condensate at the valve bodies	no measures required
The control unit (with cable connection) does not react.	The control unit is not connected properly.	Check the connection
	The control unit is defective	Replace the control unit
	The rotating knob does not turn smoothly	Remove and clean the rotating knob
Only cold water from the hand shower	Preset is on factory setting "cold"	Change preset to desired temperature
The saved filling volume is not correct.	Flow sensor soiled	Clean flow sensor
	Flow sensor defective or not connected	Carry out the "Diagnosis" function „Using the diagnosis mode“ on page 42

3.5 Care and maintenance

3.5.1 Care tips

Normal soap or a mild cleaning agent can be used for regular care and prevention of lime scale on the control elements. Under no circumstances should scouring agent or scratching objects be used.

Strong stains can be removed using typical household cleaner. It should be noted that the cleaning agent should be rinsed off after the prescribed soaking time. There should be no residue on the components.

3.5.2 Maintenance

Replace battery

If the actual charge of the battery drops below a specified minimum, the fitting is locked and cannot be used any more. To indicate an excessively low charge of the battery, the illuminated ring of the control element flashes red five times. Excessively low minimum charge of the battery can be in indication of a defective battery. To avoid this, replace the battery in regular intervals.

Depending on the utilisation, the battery should be replaced every 3 to 5 years.

For a description of the replacement of the battery, see *Chapter 3.5.4 „Changing the battery“ on page 49*.

Changing the filter in corner valves

Depending on the local water quality, the filters in the corner valves must be cleaned or replaced regularly. At commissioning, specify a maintenance interval which is in keeping with the local water quality.

For a description of the filter replacement, see *Chapter 3.5.3 „Changing the filters in the corner valves“ on page 49*.

System diagnosis

Some of the causes for malfunctions can be identified by system diagnosis. As major (also safety-relevant) functions of the fitting are checked during the system diagnosis, it should be run in regular intervals.

We recommend to run a system diagnosis every 18 months. When the device is used very often, reduce the interval correspondingly.

Thermal disinfection

To prevent germ infestation of the water also with infrequent use of the bathtub, we recommend to carry out a thermal disinfection in the following cases and intervals:

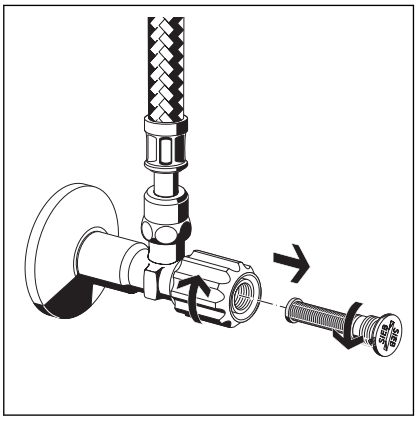
- after the bathtub has not been used for 72 hours, see *„Regulations from section: Maintenance“ on page 7*
- otherwise after 7 days at the latest, see *„Regulations from section: Maintenance“ on page 7*

3.5.3 Changing the filters in the corner valves

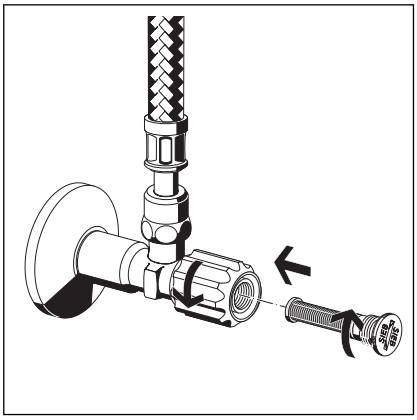
Depending on the local water quality, the filters in the corner valves need to be changed regularly.

Requirements:

- The corner valves are accessible (e.g. through a revision opening).
- Two spare filters are available.



- Turn off the water supply to the mixing unit.
- Unscrew the filter in anti-clockwise direction.
- Remove the filter.



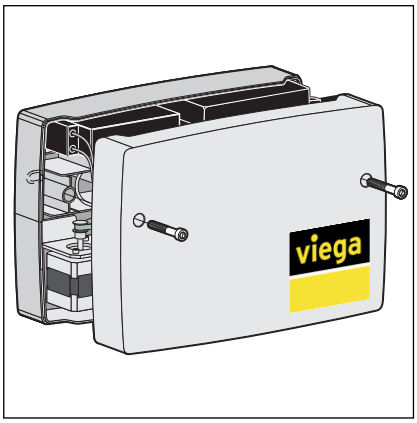
- Insert a new filter.
- Tighten the filter in clockwise direction.
- Turn the water supply to the mixing unit back on.

3.5.4 Changing the battery

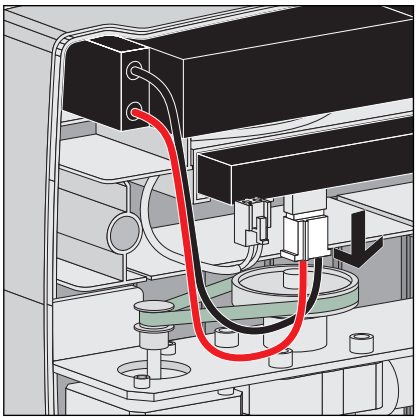
The battery of the mixing unit should be replaced regularly because the mixing fitting cannot be used if the battery charge is below a specified minimum.

Requirements:

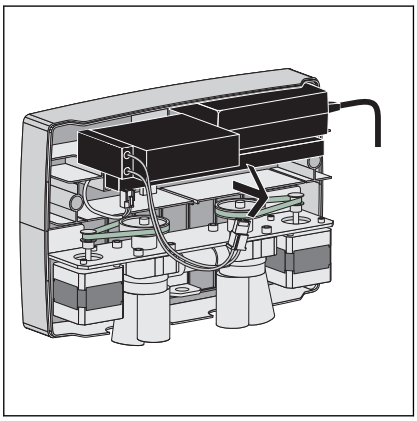
- The mixing unit is accessible (e.g. through a revision opening).
- The lid of the mixing unit can be removed.
- A spare battery is available.



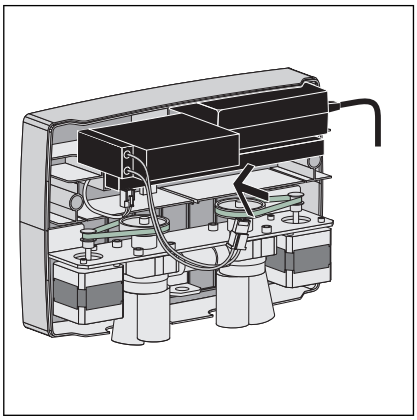
- Loosen the screws of the casing cover and retain.
- Remove the casing cover.



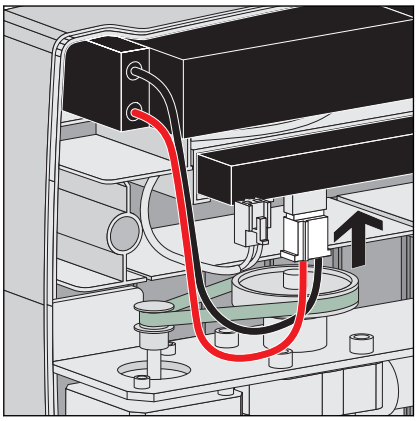
- Pull the plug straight away from the control to disconnect.



- Remove the battery from the mixing unit and dispose of properly.

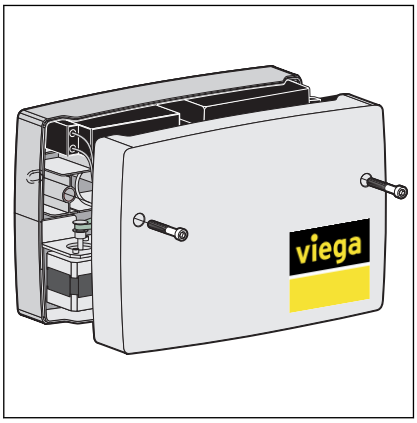


- Insert the new battery.



- Connect the battery to the control electronics.

  Make sure that it is properly aligned. Push the battery in until you feel the plug snap into place.



- Place the casing cover in the mixing unit and re-fasten it.

3.6 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.