WE KEEP SMART THINGS SIMPLE.

Installation, operation and maintenance

Safety Disconnecting Unit STS 5

SYR®

Haustechnik mit System

Table of content

1.1. Notes on the operating instructions

These operating instructions enable you to use your SYR Safety Disconnecting Unit STS 5 safely and efficiently. They are part of the scope of delivery and must be kept accessible to the user at all times.

Due to technical development, illustrations and descriptions in these operating instructions may deviate slightly from the actually delivered Safety Disconnecting Unit STS 5 safely and efficiently.

We accept no liability for damage caused by non-observance of these operating instructions.

1.2. Symbols used

All safety instructions in this operating manual are identified by corresponding symbols. The signal words at the beginning of the safety instruction express the extent of the danger.

Danger!
This combination of symbol and signal word indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

Warning!
This combination of symbol and signal word indicates a possibly hazardous situation which, if not avoided, could result in death or serious injury.

Caution!
This combination of symbol and signal word indicates a possibly hazardous situation which, if not avoided, may result in minor injury.

Vorsicht!
Diese Kombination aus Symbol und Signalwort weist auf eine möglicherweise gefährliche Situation hin, die, wenn sie nicht gemieden wird, zu geringfügigen Verletzungen führen kann.

1.3. Copyright / Standards / Warranty

The manufacturer provides the warranty in accordance with the terms and conditions of sale and delivery.

The warranty claim expires if:

- Damage is caused by improper operation,
- repairs or modifications are carried out by unauthorized persons,
- original SYR accessories or spare parts are not used,
- defective components are not repaired immediately in order to minimize the extent of damage and not to impair the safety of the device (repair obligation).

2.1. Reference to other instructions

To ensure safe and trouble-free operation of the system, the instructions for external devices must also be observed in addition to these installation and operating instructions.

2.2. General safety instructions

These instructions contain basic information that must be observed during operation. The permissible data, operating conditions and conditions of use specified in the technical data sheet and the installation and maintenance instructions must be observed when using the safety disconnecting unit.

- Never exceed the permissible operating limits specified in these instructions with regard to pressure, temperature, etc.
- Follow all safety instructions and handling instructions in this manual.
- Notices affixed directly to the safety disconnecting unit must be observed and maintained in a fully legible condition.
  This applies for example to:
  - Safety instructions
  - Connections indicator
  - Type plate
- Prior to installation and commissioning, the instructions must be read by the operator as well as by the responsible qualified personnel/operator and must be available at the place of operation at all times.
- Installation and maintenance work may only be carried out by authorized specialist personnel using suitable tools.
- The technical condition of the safety disconnecting unit must be checked by the operator at regular intervals.
- The local safety and accident regulations must be observed for the operation of the safety disconnecting unit.
- The generally recognized rules of technology must be observed for the installation and operation of the safety disconnecting unit.
- Modification of the safety disconnecting unit is not permitted and will result in the loss of all warranty claims.
- After an interruption of the electrical or fluid supply, a defined or controlled restart of the process must be ensured.
  process must be guaranteed.
- The operator is responsible for compliance with location-specific regulations not taken into account in the instructions.

2.3. Further safety regulations

In addition to the safety instructions listed in this manual and the intended use, the following safety regulations apply:

- Accident prevention regulations, safety and operating regulations
- Safety regulations for handling hazardous substances
- Applicable standards and laws, in particular the following technical standards: DIN EN 12056, DIN 1988, DIN 1986, DIN EN 1717, DIN EN 806.
- Always observe country-specific standards and laws as a matter of priority!

2.4. Consequences and dangers of non-observance of the instructions

- Failure to observe these instructions will result in the loss of warranty and damage compensation claims.
- Failure to do so may result in the following hazards, for example:
  - Danger to persons from electrical, thermal, mechanical and chemical effects.
  - Failure of important functions of the product.
  - Failure of prescribed methods of maintenance and repair.
  - Danger to the environment due to leakage of hazardous substances.

2.5. Duty of care of the operator

The safety disconnecting unit has been designed and built taking into account a risk assessment and after careful selection of the harmonized standards to be complied with, as well as other technical specifications. The product thus corresponds to the state of the art and ensures maximum safety. However, this safety can only be achieved in operational practice if all the necessary measures are taken. It is the operator's duty of care to plan these measures and to monitor their execution. In particular, the operator must ensure that

- The safety separation station is only used as intended.
- The safety isolating station is only operated in perfect, functional condition.
- these instructions are always available in a legible condition and complete at the place of use of the safety separation station.
- only sufficiently qualified and authorized personnel install, commission, maintain and carry out maintenance on the safety separation station.
- this personnel is regularly instructed in all applicable questions of occupational safety and environmental protection, and has read and understood the instructions and in particular the safety instructions contained therein.
- no safety and warning labels attached to the safety separation station are removed and all remain legible.
- a risk assessment (in accordance with the German Occupational Health and Safety Act, § 5) must be carried out to determine any further hazards arising from the specific working conditions at the site where the safety separation station is to be used.
- all further instructions and safety instructions resulting from the risk assessment are summarized in an operating instruction (in the sense of the Work Equipment Usage Ordinance § 6).
- the channel drainage is sufficiently dimensioned.

2.6. Safety instructions for maintenance, inspection and assembly work

- Conversion work or modifications to the safety isolating station are only permitted with the manufacturer's consent.
- Only use original parts or parts approved by the manufacturer. The use of other parts may void liability for the resulting consequences.
- Only work on the system when it is at a complete shutdown.
- Plant aggregates must have assumed ambient temperature.
- Refit the safety and protective devices immediately after completing the work or put them back into operation. Before recommissioning, observe the points listed for commissioning.
- Keep unauthorized persons (e.g. children) away from the safety disconnecting unit.

2.7. Requirements for the operators

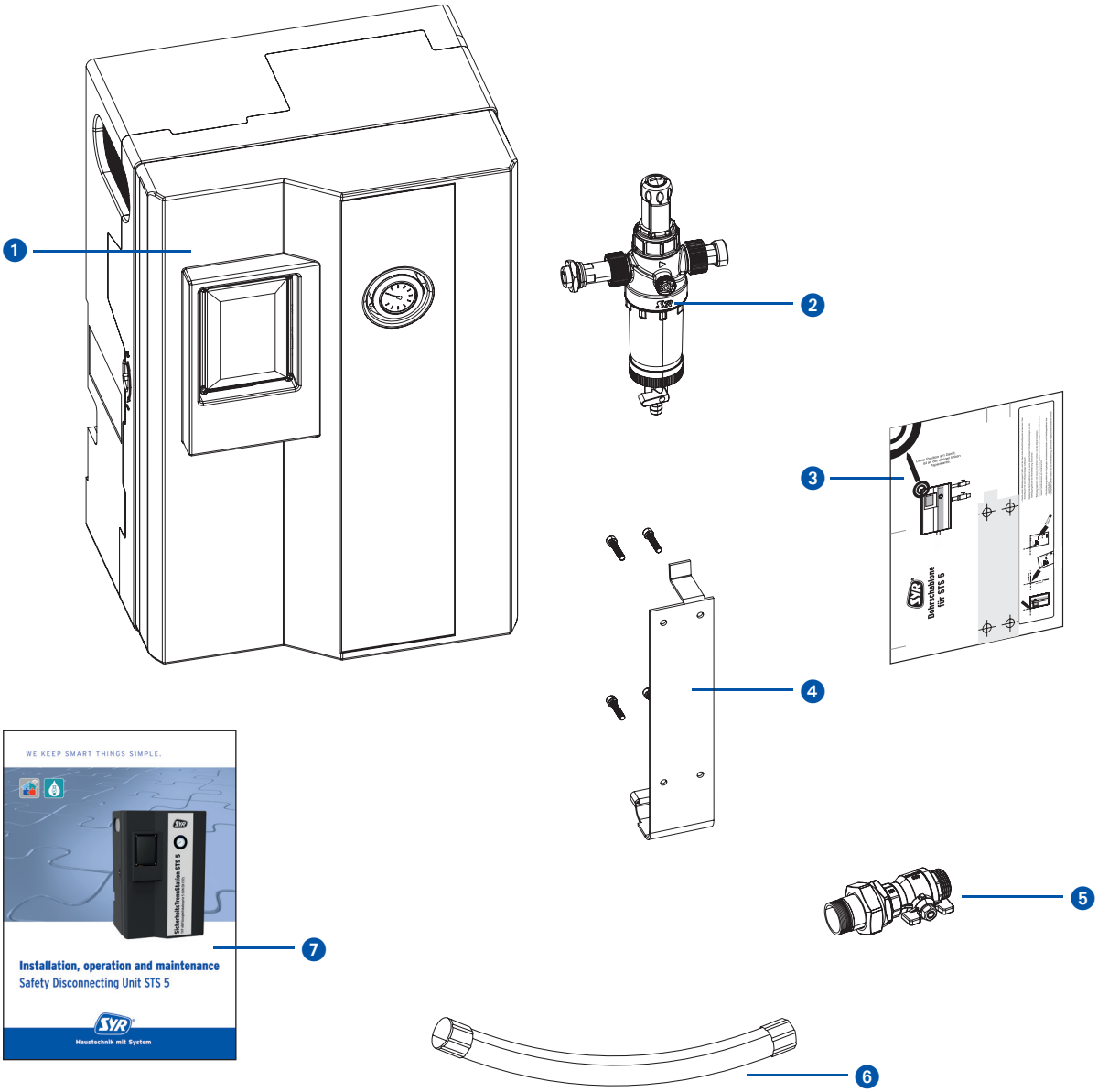
The safety disconnecting unit may only be installed, started up, maintained and shut down by persons who have been trained, instructed and authorized to do so. If necessary, the operator can provide training by commissioning the manufacturer/supplier. Training on the safety disconnecting unit may only be carried out under the supervision of qualified technical personnel. The respective powers of the personnel are to be clearly defined by the operator in the form of operating instructions. In addition, special qualifications are required for the following activities:

- Work on the electrical equipment may only be carried out by qualified electricians.
- Assembly, maintenance, servicing and repair work may only be carried out by qualified personnel.

The basic regulations on occupational safety and accident prevention must be observed

3. Design and function

3.1. Scope of delivery



1. Safety Disconnecting Unit STS 5
2. Ratio DFR to STS 5
3. Drilling template
4. Wall bracket
5. Connection set
6. Armored hose
7. Installation-, operation- and maintenance instruction

3.2. Function

The safety disconnecting unit separates the drinking water and liquids of category 5 according to EN 1717 (type AB). A separation of drinking water and process water is mandatory in the drinking water ordinance. The DIN EN 1717 shows different possibilities: For service water of category 5, such as rainwater and gray water, but also for standing water in pressure boosting systems and underground sprinkler systems, the "free outlet" is mandatory.

The float valve in the safety separation station monitors the filling level in the integrated drinking water tank and, if necessary, switches on the drinking water replenishment to fill the tank; when the tank is full again, it switches off the replenishment. The integrated centrifugal pump is fully automatic. It switches on pressure-dependent and switches off volume-flow-dependent. A dry run protection is also included.

Depending on the application (e.g. drip irrigation in the garden), the installation of a separate drinking water expansion vessel should be considered. The installation of such a vessel prevents possible "cycling" of the pump. Use a suitable sizing program for sizing.

Continuous cycling of the pump can lead to the flow monitor first becoming defective and then the pump not being switched off. Unless water is then drawn off, the pump will suffer irreparable damage as a result. The starting condenser of the pump can also suffer premature damage.

The diaphragm pressure expansion vessel must be suitable for operation with service water. The upstream pressure in the diaphragm pressure expansion vessel must be 0.3 to 0.5 bar below the switch-on pressure of the pump.

4. Installation

4.1. Installation room

The safety disconnecting unit must be installed in a frost-free, dry and well ventilated room. The room temperature should be in the temperature range of 5° Celsius to a maximum of 35° Celsius in order to minimize hygienic risks in the service water tank.

Before the unit is installed, make sure that the backflow level must be observed in the event of a subsequent sewer connection, see here chapter 4.3.3, S. 10.

Attach the device:

- in a dry and frost-free room, e.g. basement.
- in a room with floor drain to the sewer.
- at least 40 cm below the room ceiling, measured from the top edge of the unit (necessary for any maintenance/service work).
- on a flat wall (prevents tensions in the device).
- horizontal (prevents the occurrence of malfunctions).

Do not operate the safety disconnecting unit in the vicinity of living rooms or bedrooms due to the noise of the makeup water and the pump.

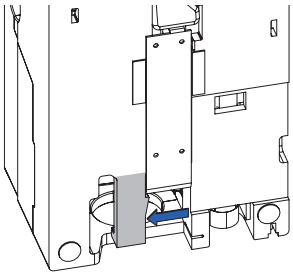
Take into account the space required for operation and maintenance.

The installation room must have a suitable floor drain/pump sump in order to be able to safely drain off the overflowing water quantity in the event of backwater via the emergency overflow slot of the service water tank.

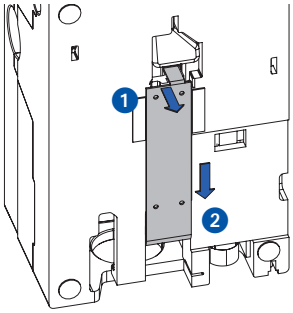
4.2. Wall mounting

For transport reasons, the wall bracket is already inserted in the corresponding receptacle on the back of the device. Before you can start wall mounting, it is necessary to remove the wall bracket.

- Bend the lower retaining tab to the side.



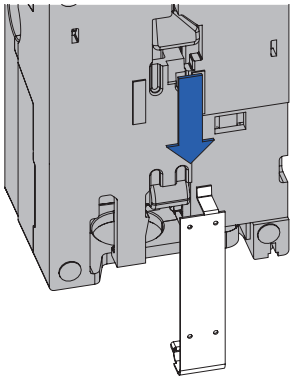
- Pull the wall bracket (colored gray) backwards (1) and then downwards (2).



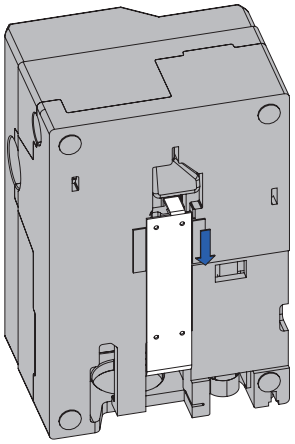
- Hold the device at the mounting location and draw the upper left corner or intersection points.
- Place the enclosed drilling template at the previously drawn intersection points, align the template using a spirit level and mark the mounting holes of the wall bracket.
- Drill the mounting holes with an 8mm drill bit and insert the dowels.

Make sure that the wall bracket is level and vertically aligned so that no malfunctions occur on the device.

- Screw the wall bracket in place using the hexagonal bolts and washers provided and check that the wall bracket is firmly in place so that no consequential damage can occur.
- Slide the unit into the wall mount from above and check that the receptacles are back in the appropriate guides.



- Make sure that the device is properly positioned in the guides of the wall mount and is pushed down until the retaining tab can be felt to engage again



4.3. Connection with water pipes

All connections of the safety disconnecting unit are provided with 3-piece brass fittings, which facilitate later maintenance / repair.

To allow flexible connection of the individual lines, the scope of delivery includes a "connection set", hereby:

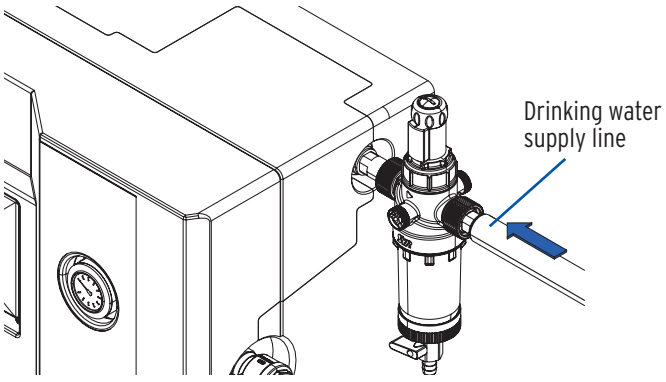
- the lines can be shut off at any time.
- malfunctions can be eliminated with little effort.
- repairs and maintenance work are possible at any time.
- can be used to stop the water supply during long absences.

To prevent a pressure increase due to thermal expansion in the pressure line, an appropriate expansion vessel must be installed in the pressure line (e.g. SYR Art.-No. 4807.00.924). The installation of such a vessel also prevents the pump from cycling.

4.3.1 Connection with the drinking water pipe

Connect the drinking water supply line to the upstream filter on the upper right side of the safety separation station and seal the connection.

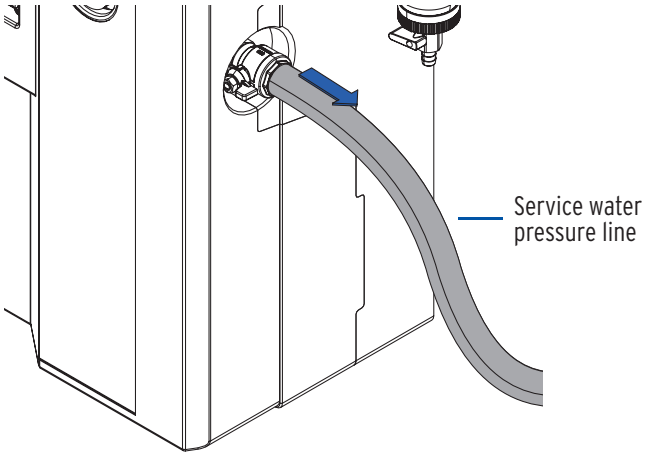
The float valve is designed for a maximum pressure of 4.0 bar. Higher pressures in the drinking water supply can lead to defects in the device.



4.3.2 Connection with the service water pressure line

Connect the service water pressure line with the 3-piece brass threaded connection and the ball valve of the safety disconnecting unit and seal it by connecting the union nut of the armored hose tightly and firmly with the 1" male connection of the 3-piece screw connection of the safety disconnecting unit.

The discharge line must be fitted with pipe clamps for secure fixing. Install the first pipe clamp no further than 10-15 cm from the unit.



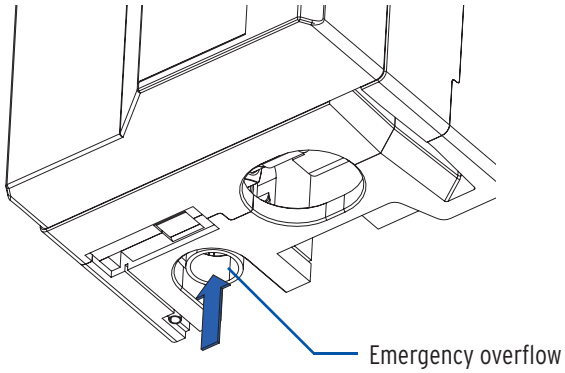
4.3.3 Emergency overflow

Connect the service water pressure line with the 3-piece brass threaded connection and the ball valve of the safety disconnecting unit and seal it by connecting the union nut of the armored hose tightly and firmly with the 1" male connection of the 3-piece screw connection of the safety disconnecting unit.

If the unit is installed below the backflow level, the overflow must be fed into a lifting unit that discharges the water above the backflow level into the sewer via a pipe loop.

This overflow becomes effective if the mechanical float valve of the drinking water backfeed should malfunction, causing the water to rise above the maximum level in the service water storage tank.

- Feed the DN 50 drain pipe of the unit into the sewer or lifting unit via a free fall section of at least 50 mm and a downstream DN 70 funnel.
  An additional siphon downstream of the funnel can be used as an odor trap!
- Make sure that the subsequent DN 70 pipe retains the nominal size and maintains a vertical fall distance of at least 50 cm before a possible bend is set.
  Otherwise, the water cannot drain off correctly in the event of a possible overflow of the unit.



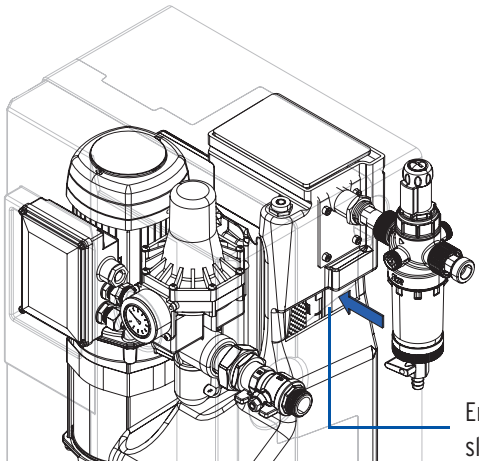
The backwater level is the level to which an overloaded sewer system can back up. It usually corresponds to the respective street level. Please enquire at your responsible building authority.

Attention.
The sewer connection or the lifting unit must be capable of safely discharging the maximum drinking water make-up quantity.
Route the overflow line to the sewer / lifting unit with the same nominal width of the emergency overflow connection without narrowing the cross-section.
If the overflow connection is not connected to the sewer connection, there is a risk of flooding the installation room.

4.4 Emergency overflow slot type AB

If a backwater should occur due to a sewer backwater or a defect in the lifting unit as far as the service water storage tank of the safety disconnecting unit, the water is discharged into the installation room via the tank emergency overflow slot. This free overflow is mandatory according to DIN EN 1717 to protect the drinking water pipe.

It is mandatory that the installation room has a suitable floor drain / pump sump in order to be able to safely drain off the overflowing water quantity in the event of backwater via the tank emergency overflow slot of the service water storage tank.



4.5 Power connection

- All electrical components of the safety isolating station are wired at the factory.
- The unit is ready for operation as soon as the mains plug is plugged in.

5. Operation of the components

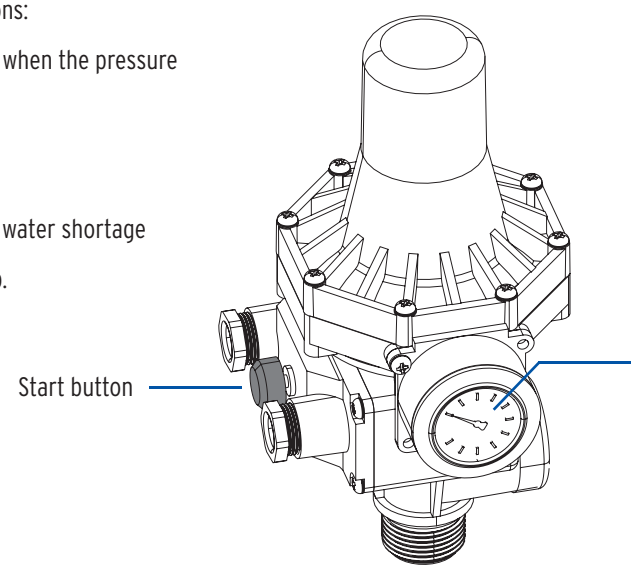
5.1 Flow guard

The flow guard takes over the pressure-dependent starting and flow-dependent switching off of the pump and regulates the dry-running protection of the pump.

The flow guard performs the following functions:

- Pressure-dependent starting of the pump when the pressure falls below 2.4 bar,
- flow-dependent shutdown of the pump, if the flow is less than 1 liter per minute,
- Dry run protection of the pump in case of water shortage

Press the red start button to restart the pump.



6. Start-up

6.1. General

Commissioning is to be carried out by qualified personnel only.
The following points must be ensured before commissioning:

- The safety disconnecting unit is electrically connected in accordance with the regulations.
- The relevant VDE or country-specific regulations are observed and complied with.
- Emergency overflow nozzle of the safety disconnecting unit connected to the sewer system.
- Drinking water feeding connected to the drinking water network.
- Service water pressure connection connected to service water pressure line.
- Shut-off devices for drinking water and service water pressure line closed.
- There is no contamination in the safety disconnecting unit and in the pipelines
- The power plug of the safety disconnecting unit is not yet plugged in.

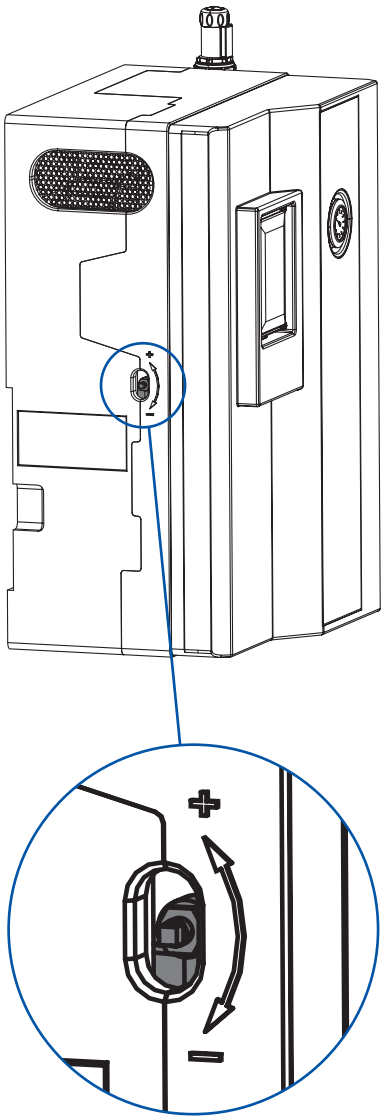
6.2. Start-up

The following steps must be performed in order for commissioning:

- Open the shut-off device of the drinking water supply line to the unit.
- Open the venting tap of the pump by means of the enclosed socket wrench approx. 3-4 turns and leave it open for 1 minute until water emerges from the venting hose at the bottom left. This automatically fills the pump with water.
- Tighten the venting tap of the pump again.
- Open the shut-off device on the pressure side and the connected consumers (e.g. WC, taps) must be opened.
- Insert the power plug of the device into a suitable socket outlet with protective contact.

The power plug must be freely accessible!

- If the pump does not start immediately, press the red start button on the flow monitor (chap. 5.1, p. 11) and keep it pressed until the pump independently builds up a pressure of at least 1 bar.
  - The key bypasses the dry-running protection and the pump starts up again.
- Close consumers as soon as the water escapes without air pockets.
  - Maximum pressure is built up and the pump switches off again after approx. 10 seconds.
- The device can now be operated.



Venting tap

7. Shut down

To shut down the device, proceed as follows.

- Open a consumer.
- Close the shut-off device of the drinking water supply.
- After the pump has run for a short time and the drinking water tank has been drained, the pump's dry-running protection is activated.
  - As soon as the pump has switched off, disconnect the power plug.
- The unit is now out of service.

For re-start-up, proceed as described in chapter 6 Start-up.

8. Inspection

The safety disconnecting unit contains components for which inspection work is necessary.

- Inspections may be carried out by the operator of the unit itself.
- Repairs may only be carried out by qualified personnel.

If defects or damage to the safety disconnecting unit are detected during the inspection, please contact your contractor or dealer.

The listed intervals of the inspection measures as well as the specified work steps should be observed by the operator in his own interest!

8.1. Housing Safety Disconnecting Unit

Check the housing of the safety disconnecting unit for cleanliness and correct fastening and remove dirt with a damp cloth and commercially available dishwashing detergent.

Period: annual

During cleaning, no liquids may get into the electrical components.

8.2. Service water tank

Check the service water tank for leaks, cleanliness, damage and sediment deposits and remove external dirt with a damp cloth and commercial dishwashing detergent.

Period: annual

8.3. Check water connections

Check the potable water and service water connections for damage, leaks, and porous or abraded areas, and replace and reseal hoses or lines as necessary.

Period: semiannual

8.4. Float valve of the drinking water supply

Check the float valve of the drinking water backfeed for tightness and function.

Open a service water consumer and wait until the filling level in the safety separation station has dropped so far that the float valve opens properly. Close the service water consumer again and wait until the float valve closes properly again.

Period: semiannual

Maintenance: Replace the float valve if necessary.

Depending on the lime content or degree of hardness of the drinking water, premature wear of the float valve may occur due to lime deposits. In this case, the float valve must be replaced. The float valve is available as a spare part under item number 6500.00.904).

Period: Depending on the lime content or degree of hardness or in case of premature wear.

8.5. Pump including flow guard

Check the pressure build-up, the tightness, the pump and flow noises and the function. To do this, briefly press the red start button (chapter 5.1, p. 11) on the flow guard until the pump starts.

Period: semiannual

Maintenance: Change the mechanical seal or bearing

Period: Every 10,000 operating hours or after 10 years or in case of premature wear.

8.6. Seal service water tank

Check the correct fit as well as the sealing of the rubber seal between the drinking water tank and the pump suction.

Period: semiannual

Procedure for troubleshooting:

- Disconnect the device from the mains (to do this, disconnect the mains plug from the mains).
- Reconnect the power plug to the appropriate socket.
  - The power plug must be freely accessible and not covered!
- Set the device back to the desired operating state.

Malfunction	Cause	Remedy
Water leakage at the overflow pipe	The float valve body rubs against the tank wall.	Center the float valve. For this purpose, the float valve must be properly pressed into the retaining clip. Additional adjustment is not required here. Make sure that the armored hose is laid tensi-on-free!
	The float valve has become dirty during pipe installation.	Open a consumer and let the pump run for approx. one minute. This attempts to clean or flush the valve free of contamination.
	The float valve is prematurely limescale due to the hardness of the drinking water.	Check the float valve for function. In case of premature the float valve must be replaced.
The pressure gauge shows 0 bar	The pump has run dry.	Check the float valve and its feed capacity. Check any shut-off valves installed in the supply line. Then put the system back into operation.
The pump goes on and off constantly in short intervals	A connected consumer does not allow enough water to pass and the minimum flow rate of 1 liter per minute is under-exceeded.	Unlock the shut-off valve on the pressure side of the device.
	There is a leak on the pressure side or a consumer is leaking.	Shut off the shut-off valve on the pressure side of the device. Check whether the pressure on the pressure gauge drops and the pump switches on again. If not, the leak is not in the device, but in the downstream pressure line.
	The pressure on the pressure gauge drops even though the shut-off valve on the pres-sure side is closed.	The check valve in the flow guard no longer seals properly and must be replaced.
The pump tries to start, but only hums	The pump shaft of the pump is blocked.	Check the pump shaft and try to get it free again. To do this, try to turn the pump shaft on the fan wheel, insert a flat-blade screwdri-ver in the center of the fan wheel cover and turn the shaft.
	The pump shaft of the pump is smooth, but pump does not turn loose.	Check the starting capacitor of the pump for correct contact, if necessary it must be replaced.

In case of other malfunctions, please contact your contractual partner / dealer.

If the unit is removed from the wall bracket for troubleshooting or other work or if the pump is emptied, shut off the drinking water supply and start the pump so that the service water tank is emptied. To suspend the unit, please observe chapter 4.2, S. 8.

Electrical Data

	Unit	
Supply voltage	V	230 AC
Power frequency	Hz	50
Max. Nominal intake	W	805
Standby	W	18
Protection class		IP 42
Insulation class		F

Hydraulic data

	Unit	
Pump capacity Q_{max}	m^3/h	2,8
Delivery height H_{max}	m	44
Switch-on pressure	bar	2,4
System pressure pd	bar	up to 10
Minimum flow rate	l/min	1

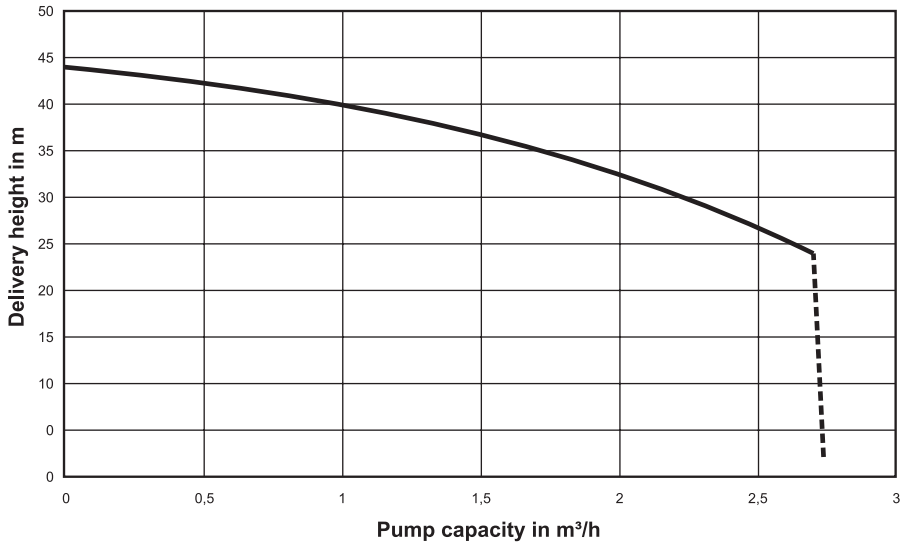
Connections

	Unit	
Potable water	"	¾ AG
Pressure line	"	1 AG
Emergency overflow	DN	50

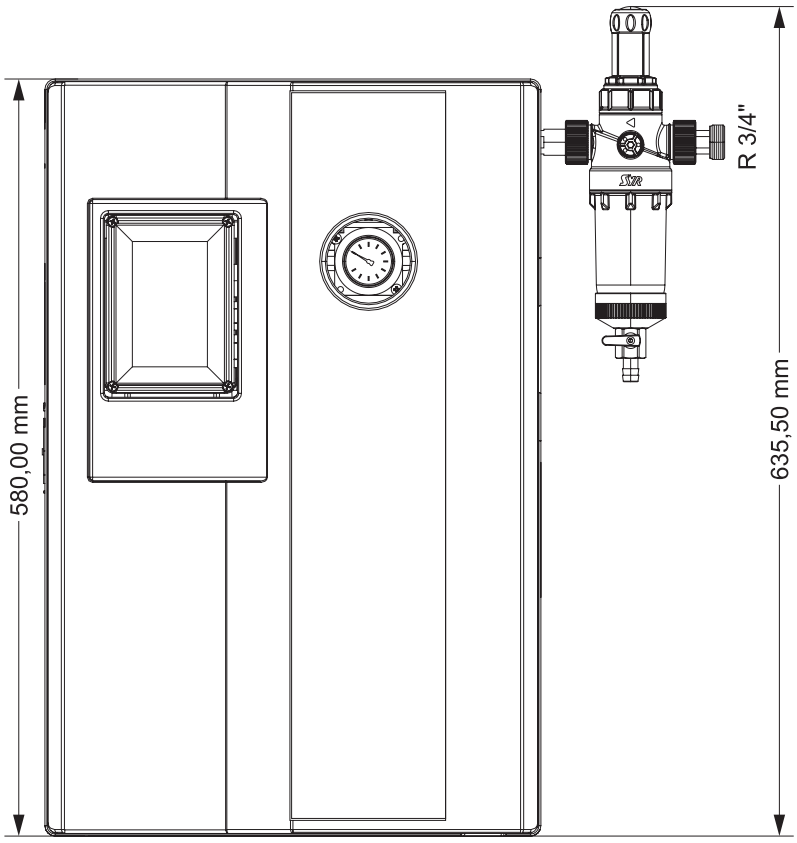
Other

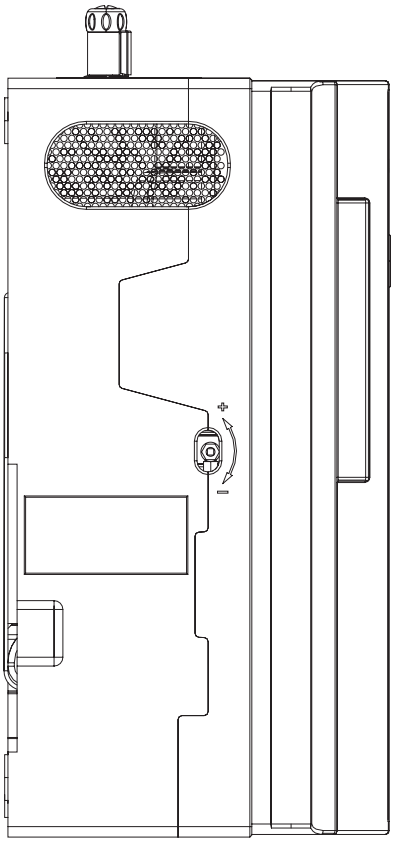
	Unit	
Installation condition		Interior
Ambient temperature	° C	+5°C bis +35°C
Conveyed material temperature	° C	+5°C bis +35°C

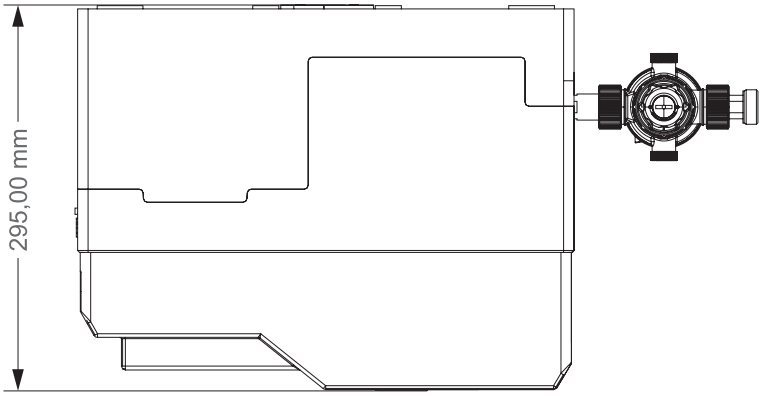
Pump characteristic

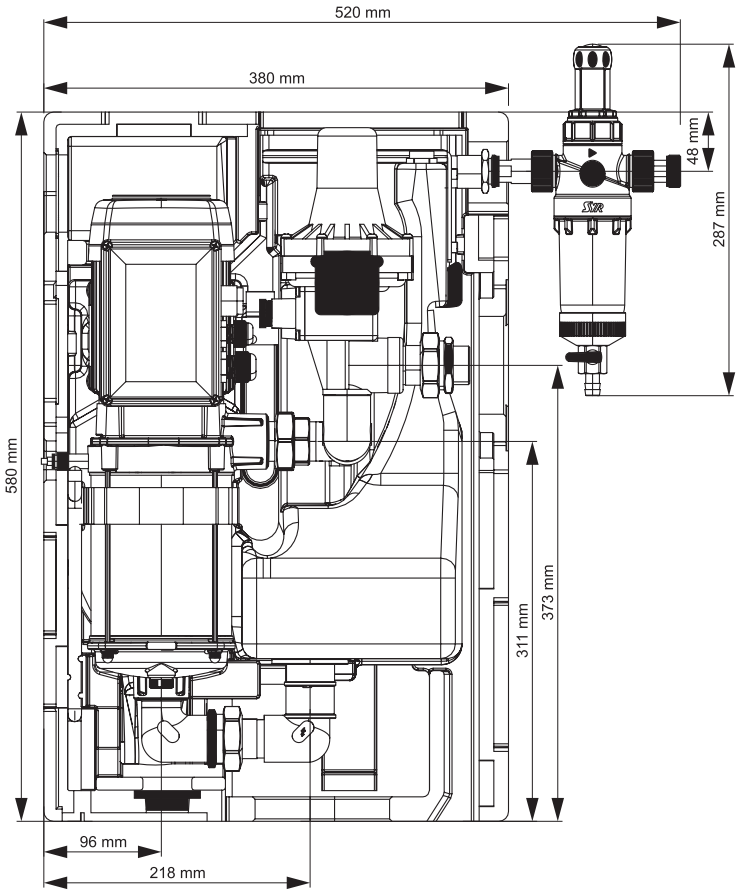


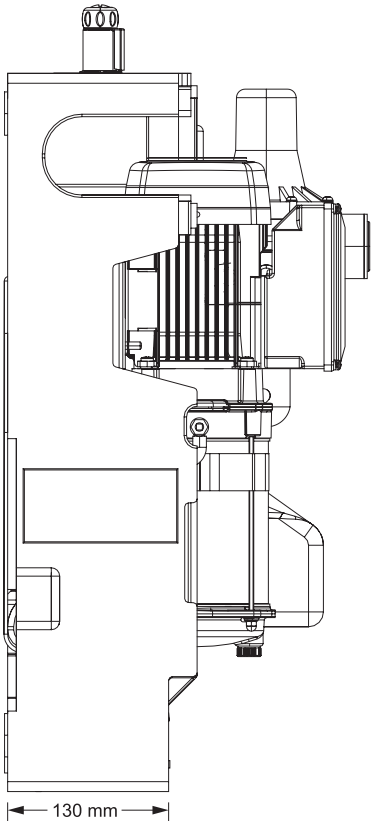
11. Dimensions

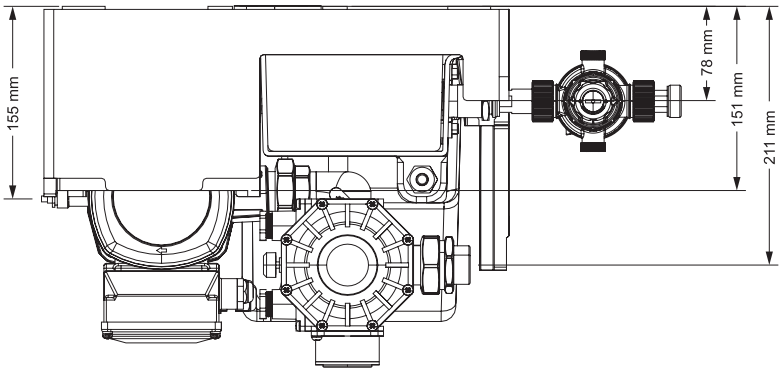


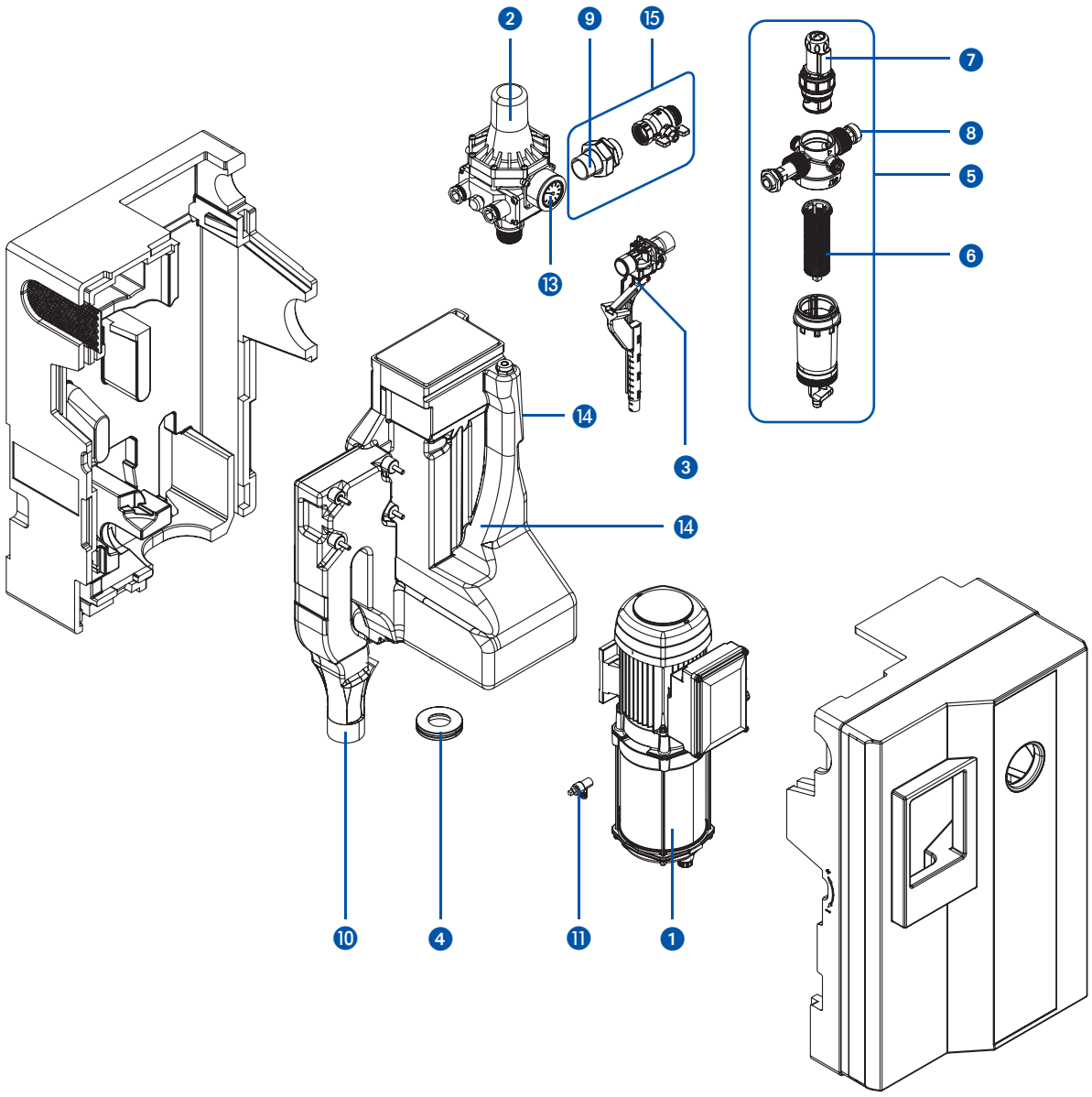





520 mm
380 mm
48 mm
287 mm
580 mm
373 mm
311 mm
96 mm
218 mm


130 mm


155 mm
78 mm
151 mm
211 mm



Spare parts / accessories

1	Pump	6500.00.901
2	Flow guard	6500.00.908
3	Float valve	6500.00.904
4	Tank lip seal	6500.00.906
5	Filter complete	5315.15.004
6	Filter element	5315.15.903
7	Pressure reducing cartridge	5315.00.900

no. pict.	
Assembly key	5315.00.902
Capacitor	6500.00.905

Connections

- 8 Drinking water supply ¾"
- 9 Pressure connection 1"
- 10 Drain DN 50

Other parts

- 11 Venting tap
- 12 Emergency overflow
- 13 Pressure gauge
- 14 Water tank
- 15 Connection set

9.6500.03 2340 Subject to technical changes and errors.

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