

Installation

SolvisStrato

Stratified buffer tank

Type sizes: SR-727, SR-917, SR-1427 and SR-1817

- Installation
- Start-up
- Maintenance



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1 Information About These Instructions

These instructions are intended for you as a technician from an installation company. You will find the specifications for installation, start-up and maintenance of the system here.

Please keep these instructions with the system so they can be referred to when necessary.

We recommend that you participate in a Solvis training course to ensure safe and proper installation.

As we are interested in improving our technical documentation, we appreciate feedback of any kind.

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A list of our international representatives is provided at www.solvis.com.

Please understand that the telephone numbers are reserved for use by our installers.

Interested system operators should contact their installer.

Using these instructions

Additional documentation

Additional documentation, see → *sec. "Scope of Delivery"*, p. 6.

The following documents, which may be required, are also referred to in these instructions:

- Operating instructions for system operators for SolvisVital 3 (BAL-SV-3-K) or SolvisDirekt (BAL-SD-3-K)
- Operating instructions for installers for SolvisVital 3 (BAL-SV-3-I) or SolvisDirekt (BAL-SD-3-I)

- System diagram for SolvisVital (ALS-SV-3-HE) or SolvisDirekt (ALS-SD-3-HE)
- Start-up report for SolvisVital (PTK-SV-3-I)
- Installation instructions for solar heat transfer stations (MAL-SUES or MAL-SUES-HE)
- Installation instructions for fresh water station (MAL-FWS-HE)
- Installation instructions for charging lance (MAL-BLL)

Symbols used



DANGER

Immediate danger, with serious health consequences and even death.



WARNING

Danger, with potentially serious health consequences.



CAUTION

Possible risk of moderate or light injury.



CAUTION

Risk of damage to unit or system.



Useful information, notes and work tips.



Change of document, referring to another document.



Energy-saving tip with suggestions on how to save energy. This reduces costs and helps protect the environment.

2 Safety Notes



Observe the safety notes

This is for your own safety

- Make sure that you are familiar with the safety notes before beginning work.
- Observe and adhere to the relevant safety regulations and the accident prevention regulations.



CAUTION

Observe instructions

Solvis is not liable for any damage resulting from non-observance of these instructions.

- Read the instructions carefully before operating or installing the system.
- Contact our Technical Sales department if you have any questions.



CAUTION

Check for damage

Damage to the controller, to cables or to connected pumps or valves may cause severe damage to the system.

- Do not operate the system/unit if there is visible damage to any of its components.



CAUTION

Do not make any unauthorised modifications

Otherwise, there is no guarantee that the system will function correctly.

- You must not make any changes to the components of the unit.
- Only use original spare parts.

- DIN 4752 Hot water heating systems
- DIN 4757 Solar heating systems
- DIN 4753 Water heating systems
- DIN 4807 Expansion vessels
- DIN EN 1717 Protection of drinking water
- DIN 1988 Drinking water supply systems (TRWI)
- DIN EN 806 Specifications for installations inside buildings conveying water for human consumption
- VDI 2035 Part 1, Prevention of damage in water heating installations - Scale formation
- VDI 2035 Part 2, Prevention of damage in water heating installations - Water corrosion
- Directives of the German Institute for Structural Engineering
- German Building Regulations ("Landesbauordnung" - LBO)
- VDE 0100/IEC 60364 Erection of low voltage systems



Work to be performed by qualified technicians

- Only trained specialist companies may install or maintain the system.
- Only qualified electricians may work on electrical equipment.

Intended use

The units and components in this system are intended only for heating and for hot water production with possible solar support, as described in this document.

Operating this system for any other purpose is prohibited. Exceptions require express written approval or statement from Solvis in advance.

Exclusion of liability

Solvis accepts no responsibility for damage to the unit or resulting damages if:

- installation and start-up have not been carried out by a specialist company recognised by Solvis,
- the system is not being used as intended or is being operated incorrectly,
- maintenance was not performed, or
- maintenance, modifications or repairs have been performed on the heating system by someone who is not a specialist.

Observe the following regulations

- DIN EN 12828 Heating systems in buildings

3 Equipment

3.1 Applications

The SolvisStrato stratified buffer tank is especially designed for large systems and has many connection options. It is the central component in the heating system. It is the universal heat manager.

The SolvisStrato allows you to connect:

- One or more heat generators (on-site)
- One or more heating circuits (on-site)
- Hygienic drinking water heating in direct flow
- A primary side circulation return, which increases the efficiency of the stratification
- A solar system, charged by our highly efficient, patented stratified chargers
- A system for power-heat coupling via the provided high temperature difference



The main applications are for the SolvisDirekt and SolvisVital systems, and for storage tank extensions in SolvisMax systems.

3.2 Scope of Delivery

The SolvisStrato stratified buffer tank consists of:

Tank

See → Fig. 1.

Insulation

Consisting of:

- Tank insulation (in three or four parts, depending on the type size)
- Cover strips (three or four pieces, depending on the type size)
- Foot edge
- Cover disks, floor disk, base shell
- Upper cover

Instructions

- Installation instructions (MAL-SR-7, this document)

Seperate package

- sensor cable harness
- manual bleeder
- plastic tubing for manual bleeder
- carrying aid
- floor levelling pack



Fig. 1: SolvisStrato stratified buffer tank (without insulation)



Which connections are made depends on the system being used.



For an overview of systems, see the → *Connection and System Diagrams SolvisVital 3 (ALS-SV-3-HE) or SolvisDirekt (ALS-SD-3-HE)*.

4 Installation Conditions and Transport

Maintain the following conditions

- When (dry) storing, transporting, and assembling the components, ensure that the storage tank is not scratched, warped, or deformed by external factors. Otherwise, the safe and long-lasting operation of the storage tank cannot be guaranteed.



CAUTION

Heavy weight of the system may be hazardous.

Risk of damage to the system and building

- Ensure that the floor has sufficient load bearing capacity to support the weight of the system, especially that of the filled storage tank.



To save even more energy, install the device as close as possible to the drinking water taps. Short hot water paths could make circulation pipes unnecessary.

Storage tank transport



WARNING

Danger due to the heavy transport weight (> 200 kg)

Personal injury or damage to property.

- Provide suitable transport equipment or enough people for installing the storage tank.
- The storage tank connections must be facing up so that they do not get damaged.
- To transport the storage tank, tilt it back on the carrying aid. If necessary, a sack trolley can be used between the rear feet.
- Do not fit the adjustable feet until after transport because they may break or become damaged during transport.



Fig.2: Tilting the storage tank

- Floors must be level at the installation site (+/-1 cm).
- The system must only be operated in a frost-proof room inside a building.
- The system must not be installed in damp rooms such as kitchens, bathrooms, or laundry rooms.

Observe the clearances

- 0.5 m at the front (for operating and performing maintenance work)
- 0.3 m at the side and rear (for the installation of insulation, jacket thickness 120 mm).

5 Installation

5.1 Placement

Position the storage tank

Space requirement: approx. 0.30 m of space on the sides and to the rear of the storage tank for installing the storage tank insulation.

1. Take the floor levelling pack from the separate package.
2. Slightly tilt the storage tank and place the bottom floor disk (round insulation section) under the storage tank.

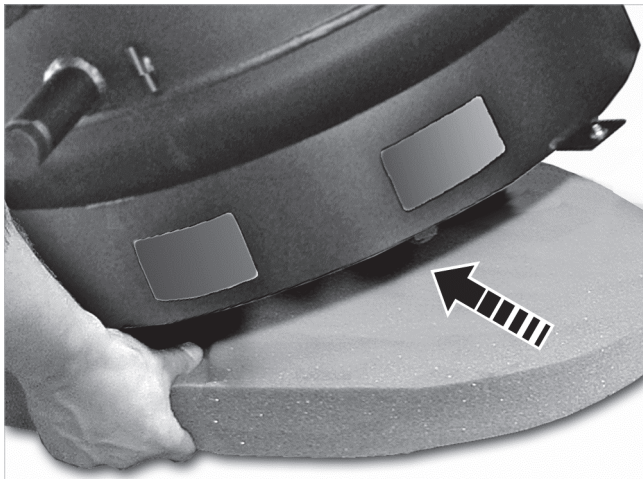


Fig. 3: Place the floor disk under the storage tank

3. Unfasten the carrying aid from the storage tank, seal the manual bleeder and install it on the top of the storage tank.



Fig. 4: Install the manual bleeder

4. Connect one end of the transparent hose to the connecting piece of the manual bleeder and guide the hose downwards under the insulation to the discharge.
5. Align the storage tank vertically using the floor levelling plates.

5.2 Connections



CAUTION

Plan carefully before beginning work

Be sure to clarify which system diagram is to be used for the specific project, as well as the specific details regarding the hot water priority control system.



The system diagram depends on the application, see → *System diagram for SolvisVital (ALS-SV-3)*.

5.2.1 Hydraulic Connection

Lay the on-site piping

1. Dimension the solar, heating, and hot water piping in accordance with the system plan.
2. Install a charging lance if you use any of the connections 2-9.



For information on how to install a charging lance, see → *"Charging Lance Installation Instructions" (MAL-BLL)*.

Plastic pipes in the heating circuit

In particular, older underfloor heating pipes made of plastic are not equipped to prevent the admission of oxygen.

A system separation is therefore prescribed when using plastic pipes in the heating circuit. Exceptions on request. Additional information on this topic can be obtained from our Technical Sales department.

5.2.2 Safety equipment



CAUTION

Expansion vessels are required for solar and heating systems

- Expansion vessels must be used with solar and heating systems.
- Neither install nor operate the system until a system-specific design for the expansion vessel has been laid out.

Correct dimensioning of the expansion vessel (MEV)

The expansion vessel plays a decisive role in the prevention of oxygen entering the heating system:

- The design of the expansion vessel must not be too small.
- Observe the tank volume and the high tank temperatures when dimensioning the storage tank volume.
- Take into account an additional 10% of the storage tank volume.
- The MEV must be dimensioned according to DIN 4807-2 and equipped with a cap valve according to DIN EN 12828, see → *table: "Minimum sizes of expansion vessels"*.
- Expansion vessels must be positioned opposite the heating system so that they can be shut off, and they must be

adequately secured so that they cannot be unintentionally closed.

- Expansion vessels must be maintained once a year.
- **Assumption:** max. media temperature of 95°C, safety valve with 2.5 (3.0) bar, max. static height of 8 m.

Minimum sizes of expansion vessels

Storage tank capacity	+ Water capacity (estimate)	= Total volume	Minimum volume of expansion vessel*
350 l	150 l	500 l	50 l (50 l)
450 l	150 l	600 l	60 l (50 l)
550 l	150 l	700 l	70 l (60 l)
650 l	150 l	800 l	80 l (70 l)
750 l	200 l	950 l	90 l (80 l)
950 l	200 l	1150 l	110 l (100 l)
1450 l	300 l	1750 l	180 l (150 l)
1850 l	300 l	2150 l	220 l (180 l)

* Minimum volume for safety valves with 2.5 bar (3 bar)

Set the expansion vessel admission pressure (MEV)

1. Determine the admission pressure of the expansion vessel with the following formula. However, it must be a minimum of 1.5 bar and maximum of 2.0 bar.
2. Release the admission pressure on the expansion vessel valve or refill with nitrogen if necessary.



- Admission pressure too low:
Risk of steam build-up and air intake increases.
- Admission pressure too high:
Blow out via the safety valve when the maximum operating temperature is reached causes a risk of water loss and consequent pressure loss.

$$p_o = \frac{H_{Hk} - H_{Sp}}{10} + 0,5 \text{ [bar]} \quad (\text{min. 1,5 bar})$$

p_o Expansion vessel admission pressure [bar]

H_R Height of the highest point of the radiator [m]

H_{St} Height of the lower edge of the storage tank [m]

Installing the safety valve in the heating circuit

1. Install the safety valve on the heating inflow close to the storage tank, see → sec. "Accessories", p. 19.
2. Close the blow out tube.



CAUTION

Incorrect installation of the safety valve can be dangerous

This could result in excessive overpressure and the uncontrolled escape of hot water.

- No shut-off devices may be installed in the safety lines.
- There are to be no constrictions in the pipes leading to the safety valve. In particular, do not connect the safety valve to the bleeder connection.
- The blow out tube of the safety valve must be designed so that there can be no pressure increases.
- Escaping hot water must be freely diverted in a safe and controlled manner.



WARNING

When the safety valve trips:

Escaping hot steam may cause severe scalding, possibly even in the face.

- You must create a blow out tube running from the safety valve to a suitable container.

5.2.3 Electrical connection



CAUTION

Criteria for line installation

Malfunction or failure of heating system possible.

- Check that all cable and plug connections are connected correctly.
- The bus and sensor lines must be routed separately from lines over 50 V to prevent the controller from being influenced by electromagnetic fields.
- Do not install control devices directly adjacent to control cabinets or electrical devices.
- The electrical lines must not come into contact with hot parts.
- If possible, run all lines in a cable channel and, if necessary, secure with strain relief devices.



CAUTION

Criteria for line length

Risk of heating system fault or failure.

- The total cable resistance for the sensor cables must not exceed 2.5 ohms. For cables with a cross section of 0.25 mm², this corresponds to a length of up to 5 m.
- For cross sections of 0.5 or 0.75 mm², the maximum cable length is 15 or 50 m.
- Sensor cables for temperature sensors should not be unnecessarily long. For very long cables, sensor correction can be performed to minimise the systematic variance errors.
- The sensor cable for volume flow encoders should not be longer than 10 m.

Position the sensor on the storage tank



CAUTION

Avoid defective sensors

- Ensure the temperature sensors are correctly positioned.
- When you install the cable that connects the sensor to the controller, make sure that it cannot come into contact with any hot parts.
- We recommend that you use suitable cable channels (provided by the customer).

1. Apply heat conducting paste to the sensors and insert into the corresponding sensor sleeves (pay attention to the labels on the cables).
2. Fasten the sensor lines.

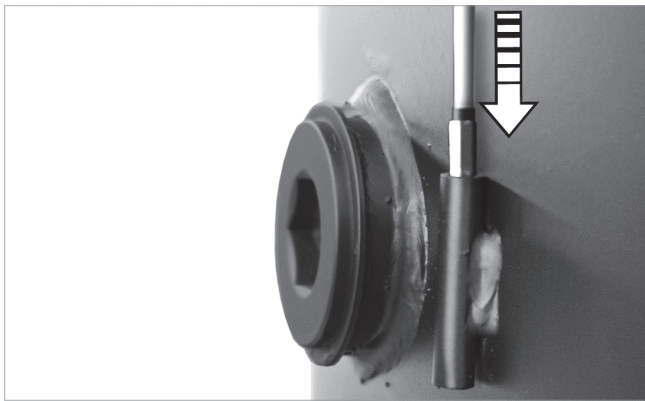


Fig. 5: Install the sensor



The positioning of the sensors depends on the application, see → *System diagram for SolvisVital (ALS-SV-3-HE) or SolvisDirekt (ALS-SD-3-HE)*.

5.3 Filling

5.3.1 Requirements for the heating water



CAUTION

Procedures before filling the storage tank

- To prevent damage from limescale formation and corrosion on the heating system, the condition of the fill and make-up water is very important.
- Before filling the system, a water analysis (according to DIN 50930-6) of the fill water must be available. This can be obtained, for example, from the responsible water supply company.
- If the water exceeds the recommended values of the VDI ("Association of German Engineers"), the water must be treated.

Preventing damage caused by limescale formation

Causes of limescale formation

Water contains calcium carbonate (CaCO_3) in the form of calcium bicarbonate ($\text{Ca}(\text{HCO}_3)_2$). The calcium carbonate is

held in solution at ambient temperatures by the "free carbonic acid" dissolved in water (calcium carbonate-carbonic acid equilibrium).

However, the solubility of this carbonic acid in water is temperature-dependent and decreases with increasing temperature. The free carbonic acid then escapes and the lime precipitates out. The lime forms solid deposits, known as limescale.

In particular, the condition of the water and the fill/make-up water quantity is important for the extent of limescale formation. Limescale generally forms in hot water heating systems on heat exchange surfaces.

Damage caused by limescale formation

Limescale deposits (lime deposits) form chiefly on the heat transfer surfaces of heat generators (boilers, solar heat exchangers) and thereby diminish heat transfer and consequently the heat output.

These deposits therefore should be kept as low as possible for economical operation of the systems.

Required water quality

To prevent damage, VDI 2035 - part 1 applies. For example, for systems with a total heat output of ≤ 50 kW, this specifies the following values for the fill and make-up water in the following table:

Specific system volume	Total alkaline earths [mol/m ³]	Total hardness [°dH]
Between 20 to 50 l/kW for most SOLVIS systems	≤ 2	≤ 11.2
> 50 l/kW for SOLVIS systems with a large storage tank	≤ 0.02	≤ 0.11



Specifications in the obsolete units of "degrees of German hardness" (°dH) can be converted to an approximation in mol/m³ by multiplying by a factor of 0.179.

Preventing damage caused by corrosion

Causes of corrosion on water side

Chemically, corrosion is a reaction comprising an anodic reaction of metallic decomposition and a (separated by space) cathodic reduction of oxygen. In between, a flow of ions flows through the water.

This corrosion process is fostered by the following properties:

- Presence of oxygen.
- Electrically conductive topcoat (bare metal, no protective coating against lime/rust, especially in the case of softened/demineralised water).
- Sufficient ions for adequate electrical conductivity.
- Sufficient anions (chloride, sulphate and nitrate ions).
- Few buffering hydrocarbonate ions (in the case of soft or softened water).

Damage resulting from corrosion (holes resulting from rust) on water side

When oxygen is supplied, the following occur as a result: surface corrosion, shallow pit corrosion, pitting corrosion or welding corrosion.

Iron carbonate residue on heat exchanger surfaces

- Reduces heat transfer, which can result in tears and thermal overload.
- Forms in a similar way to limescale (see above); steel and iron react with carbonic acid here.

Water treatment**CAUTION****To be observed during water treatment**

- The pH value of the water in the SolvisMax is to be set to between 8.2 and 8.5 (e.g. using sodium hydroxide to raise the pH value).
- Other chemical additives must not be used in our storage tanks due to the risk of sludge accumulation.

**WARNING****Handling acids and alkalis can be hazardous.**

Risk of acid burns on hands and face.

- Observe the safety data sheet.
- Apply the specified safety measures.

Recommended water treatment

We recommend the "Permasoft-ALU" system of **perma-trade Wassertechnik GmbH**. It involves demineralisation cartridges which are used for filling the system.

Functions:

Water is demineralised by combining a specially designed ion exchange resin with an additional pH stabiliser and is brought to a pH value between 8.2 and 8.5 at the same time.

This results in effective, long-lasting protection against limescale formation and corrosion. No other additives are required for the heating water.

The following cartridge types are suitable:

- permasoft 5000 ALU, type PT-PS 5000 ALU
- permasoft 18000 ALU, type PT-PS 18000 ALU.

For more information can be obtained from our Technical Sales department.

Draining the storage tank**Observe the following when draining the storage tank**

If maintenance or repair work is required on the storage tank that requires the tank to be emptied, use treated water to refill it.

Alternatively, the drained water can be collected and used again.

5.3.2 Filling**Filling the storage tank**

If the system **does not** have a fresh water station, fill the system as follows:

1. Connect a hose to the bleeder connection (top) to divert any water that might overflow (to prevent water damage).
2. Fill the storage tank with treated water.



If the system does have a fresh water station, use the procedure described in the → "Start-up" section in the "Fresh Water Installation Instructions" (MAL-FWS-HE).

5.4 Insulation**Notes before installation of the storage tank insulation**

- **Important:** After installation, the nameplate copy must be attached to the outside of the insulation in a clearly visible location.
- Use the supplied rubber gloves to prevent soiling the insulation.



Do **not** force the tank insulation onto the tank.

Attach storage tank insulation.

1. Place the insulation shell around the base of the storage tank so that the stiffer surface is facing out.

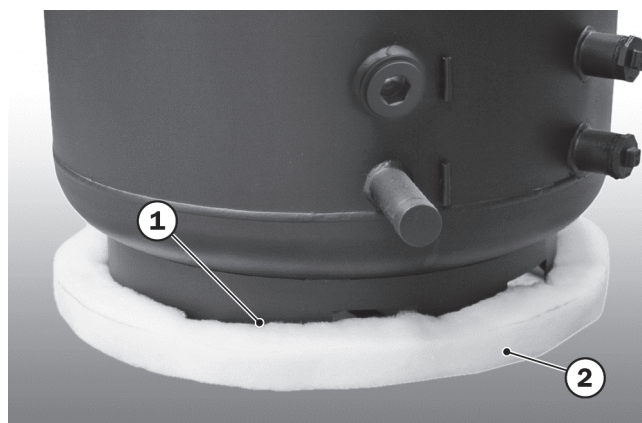


Fig. 6: Place the insulation shell around the base of the storage tank

- 1 The soft surface is touching the storage tank base
- 2 The stiff surface is facing outward

2. Use adhesive strips to attach the insulation shell.
3. Put a narrow insulation section between the connection rows (see → Fig. 7 (1)).
4. Wrap the insulation sections around the storage tank and align them with the narrow insulation section so that the cutouts for the two fastening strips fit snugly around the connections.

Do **not** force the tank insulation onto the tank.

5. Tapping on the sides will move the the insulation forward enough to subsequently seal it.
6. Snap the fasteners into place around the insulation.

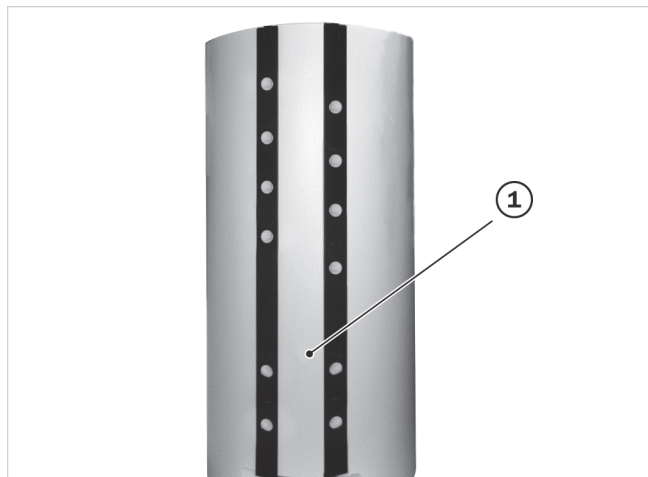


Fig. 7: Close the insulation at the front

1 Narrow insulation section

7. Check that the insulation is properly seated, and then clamp it down, notch by notch (moving from top to bottom).



Fig. 8: Close the insulation sections

8. Attach a cover strip to each of the fastening strips.

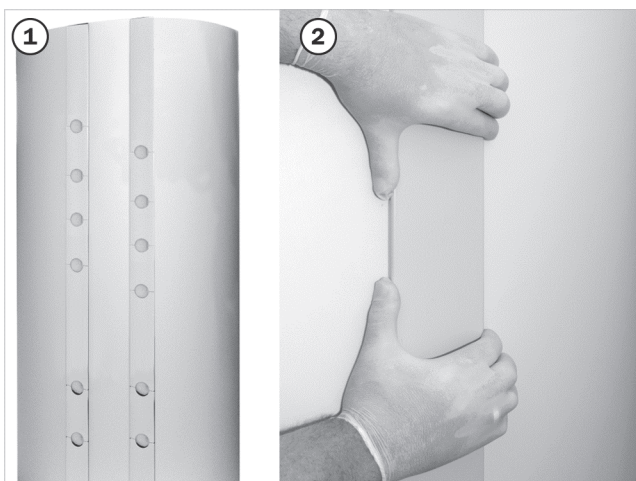


Fig. 9: Attach cover strips to the front (1) and back (2)

9. Place the two cover disks on the top of the storage tank and press them down.



Fig. 10: Insert the cover disks

10. Place the upper cover on top of the cover disks on the storage tank and align it so that the protuberances are positioned over the fastening strips.



Fig. 11: Put the cover on

11. Place the red foot edge around the storage tank and connect it at the front so that it is touching the insulation all the way around.
12. Use the Velcro fastener to tighten and close the foot edge.



Fig. 12: Close the foot edge

6 Start-Up

Start-up takes place in the prescribed order:

 When starting up the system, the start-up report (included in the documentation) must be filled out completely and kept together with the system.

Checking the prerequisites

1. Check the installation of the safety equipment before startup.
2. Check whether the tank is filled with water and that it is properly and completely bled.
3. Check the correct connection of the voltage supply.
4. First set the cold heating system to the calculated admission pressure of the expansion vessel (MEV), see → sec. "Safety equipment", p. 8.

6.1 Configuration of the SolvisControl

Configuring the SolvisControl

SolvisControl must be configured before starting up the system.

After configuration, the startup process can be continued.

1. Configure the SolvisControl.

 To perform all of the described steps, see the → *Start-up section, Operating instructions for installers for SolvisVital (BAL-SV-3-I) or SolvisDirekt (BAL-SD-3-I)*.

 For a basic introduction to operating the system controller, see the → *Operating the SolvisControl section, Operating instructions for system operators for SolvisVital (BAL-SV-3-K) or SolvisDirekt (BAL-SD-3-K)*.

6.2 Heating up the heating system

"Thermally inhibiting" heating water

Before starting up the solar circuit, heat up the heating water to about 60°C, as measured at the top of the heating buffer (S4). This prevents the remaining limescale in the heating water from concentrating in the solar heat exchanger.

The remaining limescale formation can be distributed specifically and uniformly over the heat exchanger surfaces by setting the maximum inflow temperature for the consumer.

If the heating circuits permit such temperatures, the high flow temperature should also be pumped at full pump load throughout all the heating circuits to reach all the heating water.

1. Switch the hot water pump to "ON" (manual mode) on the SolvisControl while heating up the water to circu-

late the storage tank volume (output A2) ("Installer menu > Outputs > Manual mode").

2. Set the burner to maximum performance ("INSTALLER menu > Heating > Maintenance function").

 The current sensor values are indicated on the SolvisControl in the "System status" window.

Setting the filling pressure of the heating system

1. After heating up the system, set the filling pressure on the storage tank as follows:
 - Filling pressure = admission pressure + 0.8 bar
 - If the difference between the highest point of the radiator and the lower edge of the storage tank is more than 50 m, the system must be separated.
2. Recheck the filling pressure after several days and bleed if necessary.

Bleeding the storage tank



WARNING

Sudden steam blasts that occur when bleeding the storage tank can be hazardous.

Risk of scalding hands and face.

- Use a hose and suitable collecting vessel for safe bleeding.

1. Plug the hose onto the bleeder.
2. Carefully bleed the storage tank.

6.3 Starting up the solar circuit



CAUTION

Observe the following before starting up the solar circuit.

Non-observance can result in damage to the heat exchangers.

- The solar circuit must be set up by qualified personnel.
- The buffer must be heated up by the boiler before starting up the solar circuit.

Start up the solar circuit (if available).



For information on starting up the solar circuit, see the → *Start up section, Installation instructions for solar heat transfer stations (MAL-SUES or MAL-SUES-HE)*.

6.4 Final Tasks



Continue the start-up procedure with the → *Basic settings (part 2) section, Operating instructions for SolvisVital (BAL-SV-3-I) or SolvisDirekt (BAL-SD-3-I)*.

7 Maintenance

Maintenance and cleaning work must be performed once a year in accordance with German Energy Conservation Regulations (EnEV) and to maintain warranty claims.



- Maintenance must be performed by a specialist and documented in the maintenance report.
- Keep the maintenance report together with the system.

7.1 General maintenance

Checking the general condition

1. Check the general condition.
2. Remove dirt with a damp cloth. Do not use caustic or solvent-based cleaners.

Bleeding the storage tank



WARNING

Sudden steam blasts that occur when bleeding the storage tank can be hazardous.

Risk of scalding hands and face.

- Use a hose and suitable collecting vessel for safe bleeding.

1. Plug the hose onto the bleeder.
2. Carefully bleed the storage tank.

Checking the pH value of the heating water

1. Check the pH value of the heating water and readjust it if necessary.

Testing the admission pressure on the expansion vessel (MEV)

1. Check the admission pressure on the expansion vessel and adjust it if necessary.

Checking the filling pressure on the heating system

1. Check the filling pressure on the heating system and adjust it if necessary.
2. Check all connections for leaks (visual inspection).

Checking the safety functions

1. Check the safety valves for leaks and correct functioning in the heating circuit and, if necessary, in the solar circuit.
2. Check the safety temperature limiter on the burner and, if necessary, on the exhaust system.

7.2 Other care measures

Care instructions

In between annual maintenance work, we recommend that you check the general condition of the system on a regular basis. This helps to conserve the value of the system and ensure continuity of supply.

8 Technical Data

Dimensions and weight

Storage tank size		727	917	1427	1817
Height without insulation	h	1,709	2,099	2,124	2,624
Height with insulation	H	1,810	2,200	2,225	2,725
Height with carrying aid	t	1,849	2,239	2,264	2,764
Tilt height without insulation	k	1,738	2,109	2,140	2,620
Diameter without insulation	d	790	790	1,000	1,000
Diameter with insulation	D	1,010	1,010	1,220	1,220
Minimum clearance at front		500	500	500	500
Minimum clearance at sides and to rear		300	300	300	300
Access opening required to bring the unit inside (minimum door width)		800	800	1,010	1,010
Total weight when empty [kg] incl. insulation		Approx. 140	Approx. 180	Approx. 185	230

All dimension specifications in mm

Dimensions and performance data

Component or connection	Dimensions or values
Stratified buffer tank material	S235JR, primed exterior, raw interior
Max. operating pressure of the stratified buffer tank	6 bar
Max. temperature in the stratified buffer tank	95°C
Connections 1 and 11	1½" AG
Connections 10 and 12	1½" IG
Connections 2 to 9	2" IG
Connection Bleeder	½" IG
Solar heat exchanger	External (accessory)
Discharge heat exchanger	External (accessory)

Volumes and heat loss

Storage tank size	727	917	1427	1817
Actual volume [l]	720	908	1,424	1,813
Heat loss ⁽¹⁾ (kWh/24h)	2.84	3.33	3.6	4.53
Hot water standby volume ⁽²⁾ [l]	353	402	764	764
Heating buffer volume ⁽³⁾ [l]	96	200	156	311
Solar volume ⁽⁴⁾ [l]	267	303	506	739
Volume [l] Cover - connection 1	113	113	374	374
Volume [l] Connection 1 - connection 2	48	97	78	78
Volume [l] Connection 2 - connection 3	48	48	78	78
Volume [l] Connection 3 - connection 4	48	48	78	78
Volume [l] Connection 4 - connection 5	48	48	78	78
Volume [l] Connection 5 - connection 6	48	48	78	78
Volume [l] Connection 6 - connection 7	48	152	78	233
Volume [l] Connection 7 - connection 8	48	48	78	78
Volume [l] Connection 8 - connection 10	133	169	253	389
Volume [l] Connection 10 - connection 9	0	0	0	97
Volume [l] Connection 9 - connection 11/12	60	60	97	97
Volume [l] Connection 11/12 - floor	74	74	156	156

⁽¹⁾ Applies to a storage tank temperature of 65 °C and 20 °C in the installation room (information according to DIN 4753/8)

⁽²⁾ Cover to connection 6^(*)

⁽³⁾ Connection 6 to connection 8^(*)

⁽⁴⁾ Connection 8 - floor^(*)

^(*) For systems with constant hot water usage profile as instructed in the → system diagram (ALS-SV-3)

Connections on the storage tank



For information on making the connections, see →
SolvisVital 3 (ALS-SV-3) or SolvisDirekt 3 (ALS-SD-3).

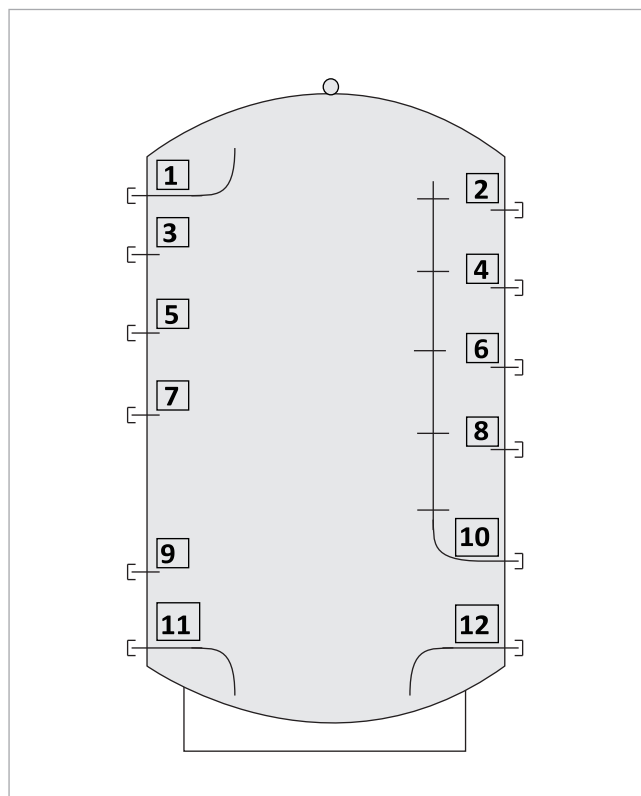


Abb. 13: Connections for the SolvisStrato 3 stratified buffer tank

Connection height

Storage tank size ⁽¹⁾		727	917	1427	1817
Distance from floor to connection	1	1,370	1,760	1,522	2,022
Distance from floor to connection	2	1,270	1,560	1,422	1,922
Distance from floor to connection	3	1,170	1,460	1,322	1,822
Distance from floor to connection	4	1,070	1,360	1,222	1,722
Distance from floor to connection	5	970	1,260	1,122	1,622
Distance from floor to connection	6	870	1,160	1,022	1,522
Distance from floor to connection	7	770	845	922	1,222
Distance from floor to connection	8	670	745	822	1,122
Distance from floor to connection	10	395	395	497	622
Distance from floor to connection	9	395	395	497	497
Distance from floor to connection	11/12	270	270	372	372
Distance from floor to upper bleeder connection	e	1,690	2,080	2,105	2,605

All dimensions are in mm.

⁽¹⁾ All height measurements are without foot plugs; add 5 mm to get the height with foot plugs

Dimensions of the system

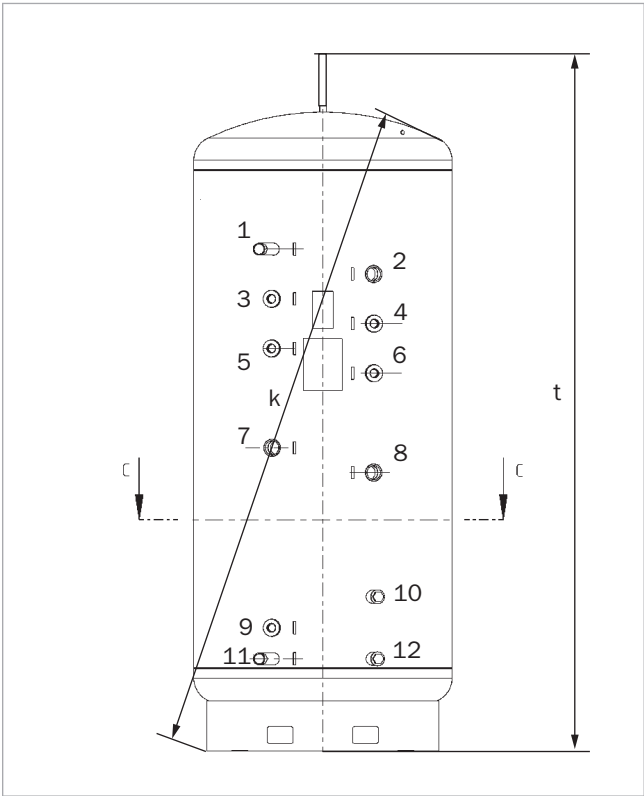


Fig. 14: Front view

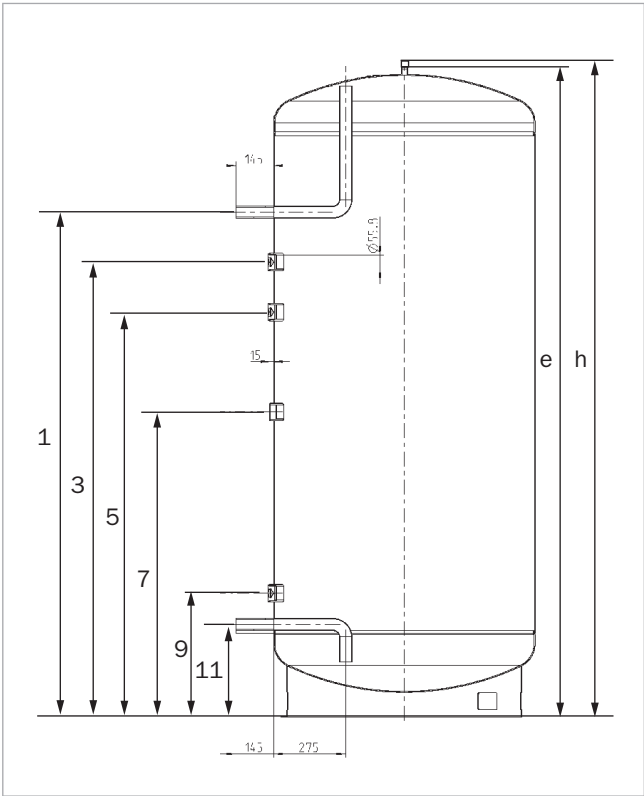


Fig. 16: Section view A - A

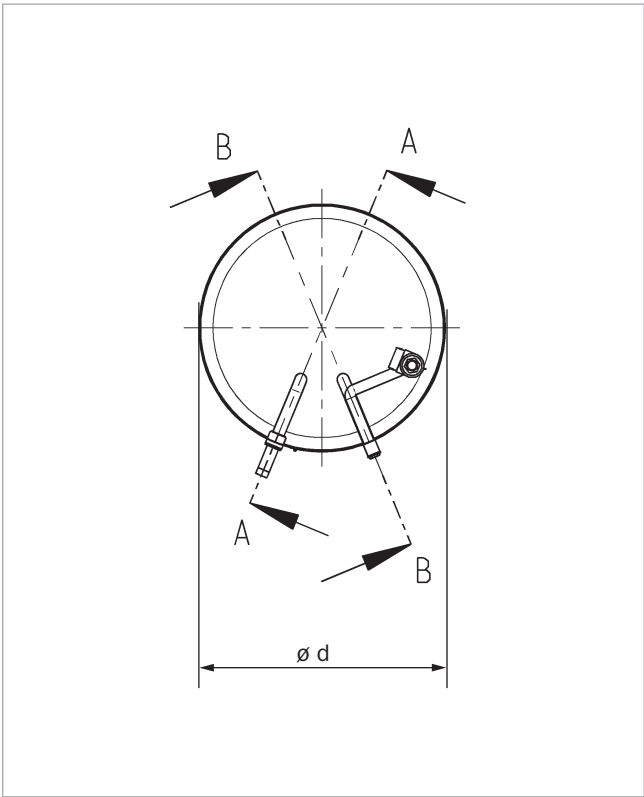


Fig. 15: Section view C - C

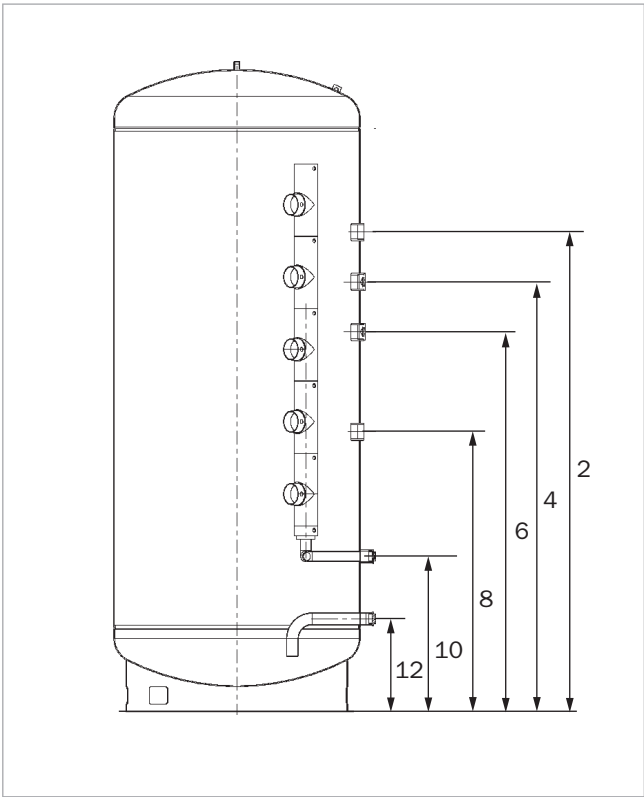


Fig. 17: Section view B - B

9 Appendix

9.1 Accessories

All accessories are listed in the Solvis price list.

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Notes

Notes



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