



English

Installation and Operation Instructions

Transfer station

SolexMini TW - DN 15

[Hydraulics]

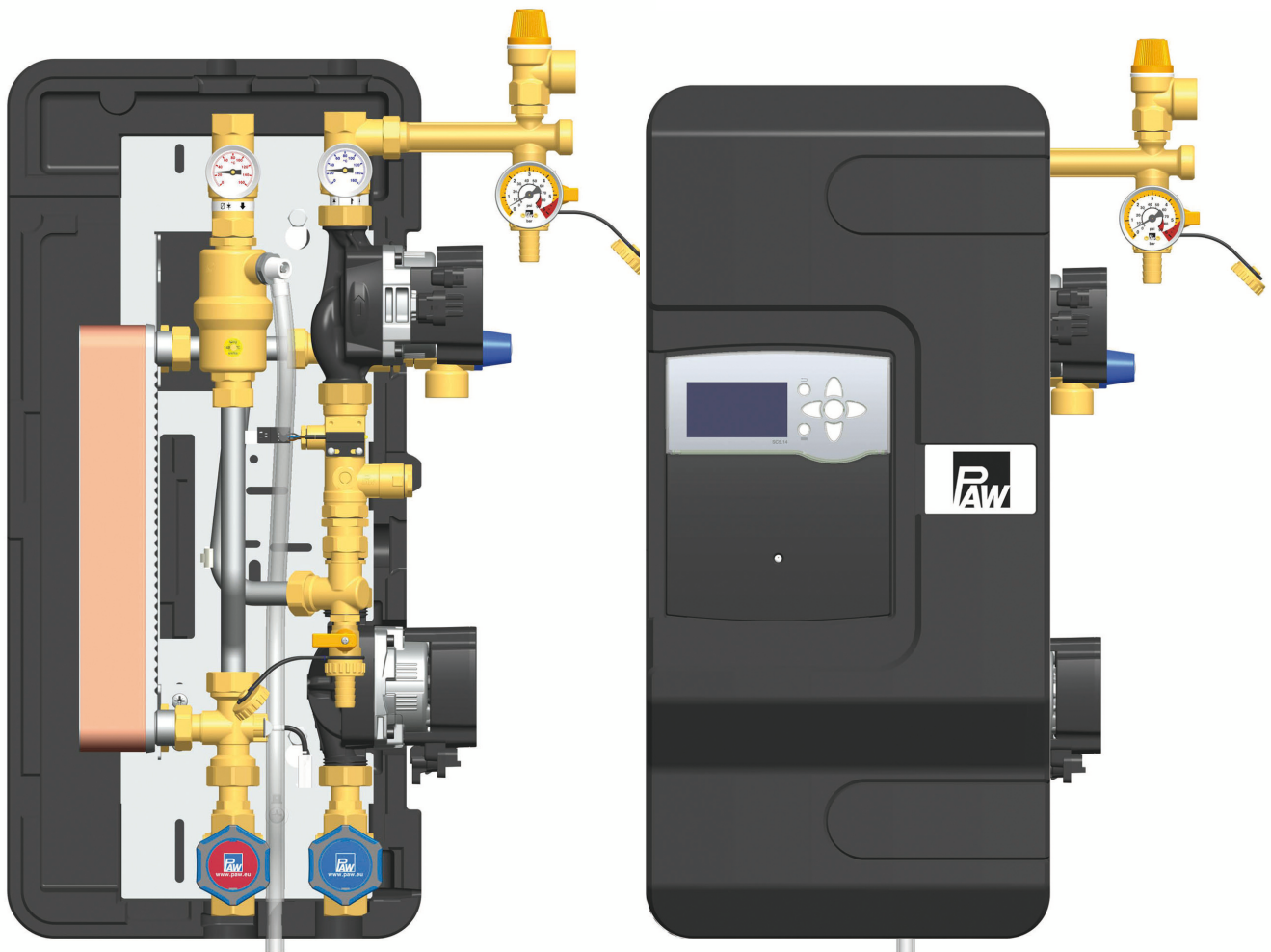


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1 General Information



Carefully read these instructions before installation and commissioning.

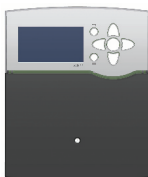
Save these instructions in the vicinity of the installation for future reference.

1.1 About these instructions

These instructions describe the functioning, installation, commissioning and operation of the SolexMini TW transfer station.

The chapters called [specialist] are intended for specialists only.

For other components of the solar installation, such as pumps, collectors, storage tanks or expansion tanks, please observe the instructions of the corresponding manufacturer.

DN 15	Item number	Controller SC5.14	Max. flow rate	Max. collector surface
SolexMini TW	6091426		750 l/h	36 m ²

1.2 About this product

The station is a premounted group of valves and fittings checked for leakage and used to transfer the heat from the primary circuit (solar circuit) to the secondary circuit (storage tank or domestic hot water circuit).

It contains a preset controller and important valves and fittings and safety equipment to operate the station:

- Ball valves with integrated thermometers in the solar circuit (flow and return)
- Piston valves in the secondary circuit (flow and return)
- Check valves to avoid undesirable gravity circulation in the flow and return of the solar circuit
- Pressure relief valves to prevent inadmissible overpressures in the station
- Pressure gauge to display the installation pressure in the solar circuit
- Vent valves to easily vent the solar circuit
- Flush and fill valves with sealing caps to flush, fill and drain the solar circuit
- Electronic flow rate sensors for heat quantity balancing (primary) and speed control of the secondary pump depending on the performance

On the heating side, the installation must be equipped with a **safety group** that can be ordered separately.

The **expansion tank** required for operation must be adapted to the size and the requirements of the installation and must be ordered separately.

The separately available **cap valve** (item no. 5302) or the **tank connection coupling** (item no. 5310) allow the expansion tank to be easily mounted and separated from the solar thermal system.

1 General Information

1.3 Designated use

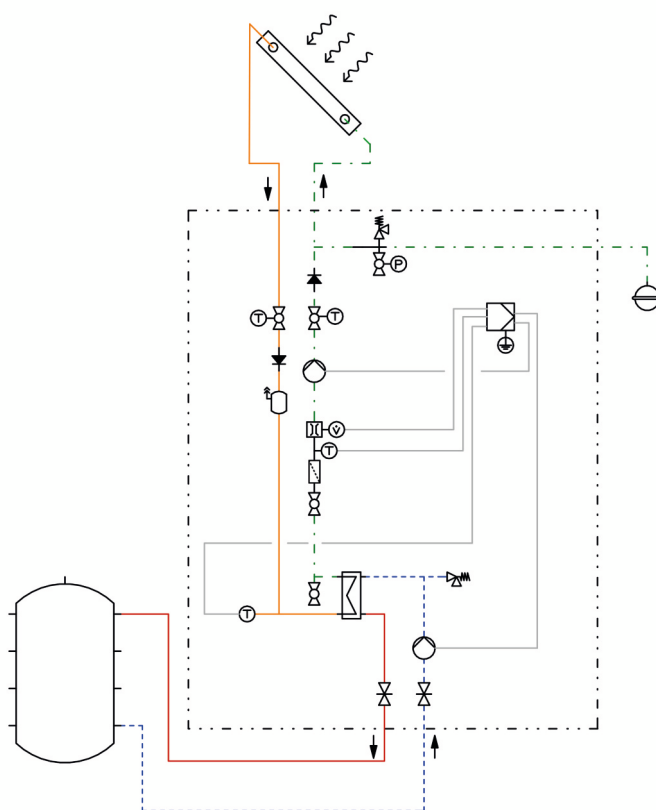
The station may only be used as a transfer station between the solar and the domestic hot water circuit or between the solar and the storage tank circuit, taking into consideration the technical limit values indicated in these instructions. Due to its design, the station must only be mounted and operated as described in these instructions!

Improper usage excludes any liability claims.

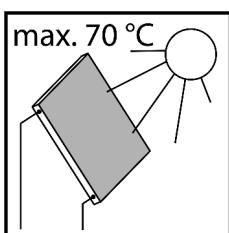
This product complies with the relevant directives and is therefore labelled with the CE mark.

The Declaration of Conformity is available upon request, please contact the manufacturer.

Only use PAW accessories with the transfer station.



NOTICE



Under the influence of solar radiation, the collectors will heat up considerably.

The solar fluid in the solar circuit may heat up to more than 100 °C.

Only flush and fill the solar circuit when the collector temperatures are below 70 °C.

2 Safety instructions

The installation and commissioning as well as the connection of electrical components require technical knowledge commensurate with a recognised vocational qualification as a fitter for plumbing, heating and air conditioning technology, or a profession requiring a comparable level of knowledge [specialist].

The following must be observed during installation and commissioning:

- relevant local and national regulations
- accident prevention regulations of the professional association
- instructions and safety instructions mentioned in these instructions

WARNING



Danger of scalding due to the escape of hot fluids!

With pressure relief valves, there is a risk of scalding due to the escape of vapour or hot fluid.

Please ensure for each pressure relief valve that no personal injury or material damage may occur due to possibly escaping medium.

- ▶ Install a discharge line.
- ▶ Observe the instructions regarding the pressure relief valve.
- ▶ The pressures for the expansion tank calculated by the plant designer and the operating pressure of the installation must be set.

WARNING



Personal injury due to polluted potable water!

Heating water contains harmful substances that must not be washed into the domestic hot water circuit.

If the station has been used to charge a buffer tank, there is still heating water in the valves and fittings and in the pump of the secondary circuit, even after draining. The heating water can not be completely removed.

- ▶ The station must **not** be connected to a domestic hot water circuit any more.

2 Safety instructions

CAUTION



Risk of burns!

The valves and fittings and the pumps can become heated up to more than 100 °C during operation.

- ▶ The insulating shell must remain closed during operation.

CAUTION



Personal injury and material damage due to overpressure!

Closing both ball valves in the primary circuit will separate the safety group from the heat exchanger. A rise in temperature in the storage tank may result in high pressures, which may lead to personal injury and material damage!

- ▶ Only close the ball valves for service and maintenance.
- ▶ When closing the ball valves in case of servicing, also put the pumps out of operation and close the ball valves / piston valves of the secondary circuit.

NOTICE

Material damage due to mineral oils!

Mineral oil products cause lasting damage to seals made of EPDM, whereby the sealant properties are lost. We do not assume liability nor provide warranty for damage to property resulting from sealants damaged in this way.

- ▶ It is imperative to prevent the EPDM sealing elements from making contact with substances containing mineral oils.
- ▶ Use a silicone- or polyalkylene-based lubricant free of mineral oil such as Unisilikon L250L and Syntheso Glep 1 from Klüber or a silicone spray.

3 Mounting and installation [specialist]

NOTICE

Material damage due to high temperatures!

Since the solar fluid near the collector can be very hot, the group of fittings must be installed at a sufficient distance from the collector field. It may be necessary to install an intermediate tank in order to protect the expansion tank.

NOTICE

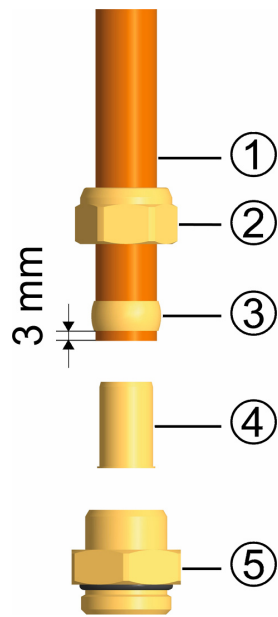
Damage to property!

The installation site must be dry, stable, frost-proof and protected against ultraviolet radiation in order to prevent material damage of the installation. Furthermore, access to the controller and safety equipment must be guaranteed at all times during operation!

NOTICE

Damage to property!

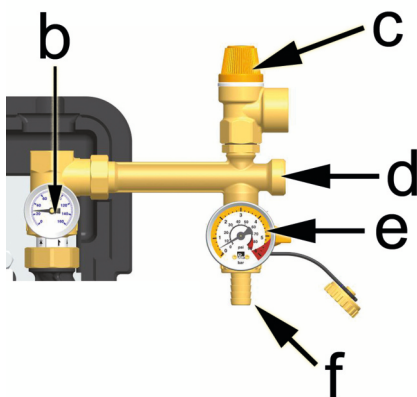
The discharge line of the pressure relief valves must be conducted into heat-resistant collecting containers of corresponding size. This prevents uncontrolled discharging into the environment and enables the circuits to be refilled!



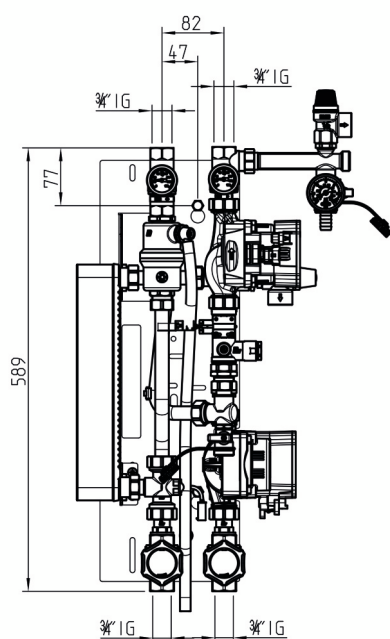
Not included in the scope of delivery!

Accessories: compression fitting

1. Push the union nut ② and the cutting ring ③ onto the copper pipe ①. The pipe must protrude at least 3 mm from the cutting ring in order to ensure the force transmission and the sealing.
2. Insert the support sleeve ④ into the copper pipe.
3. Insert the copper pipe with the plugged-on individual parts (②, ③ and ④) as far as possible into the body of the compression fitting ⑤.
4. First, screw the union nut ② manually.
5. Tighten the union nut ② by rotating one full turn. Secure the body of the compression fitting ⑤ against distort in order to avoid damaging the sealing ring.



1. Remove the station from the packaging.
2. Remove the insulating front shell.
3. Mount the safety group consisting of safety valve [c], drain valve [f] and pressure gauge [e] on the connection of the return ball valve [b].



4. Copy the dimension for the mounting holes to the mounting surface.
You will find a corresponding drilling template on the paper board under the station.
5. Drill the holes and insert appropriate wall plugs into the holes.
6. Screw in the screws and let them protrude approximately 3 cm from the wall.
7. Hang the station onto the wall and tighten the screws.

WARNING

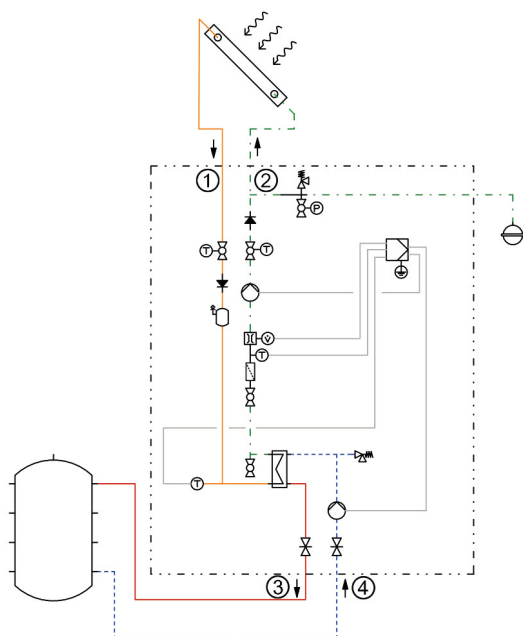


Personal injury due to polluted domestic water!

Heating water contains harmful substances that must not be washed into the domestic hot water circuit.

If the station has been used to charge a buffer tank, there is still heating water in the valves and fittings and in the pump of the secondary circuit, even after draining. The heating water can not be completely removed.

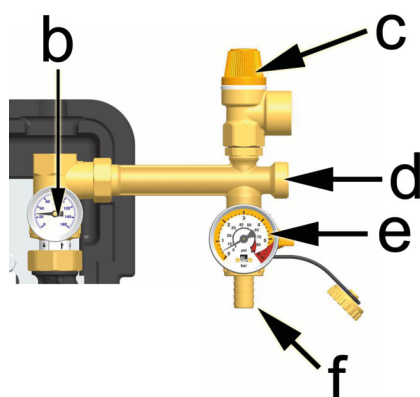
- The station must **not** be connected to a domestic hot water circuit any more.



8. Connect the transfer station to the installation by using the piping:

- ① Solar flow from the collector
- ② Solar return to the collector
- ③ Flow to the storage tank
- ④ Return from the storage tank

All thread connections have $\frac{3}{4}$ " internal threads.



9. Connect the pipe for the expansion tank to the position [d] of the safety group and fix the bracket for the expansion tank.

For service work on the expansion tank, we recommend the installation of a cap valve (item no. 5302) or a tank connection coupling (item no. 5310) on the expansion tank.

NOTICE

Note regarding the expansion tank

The expansion tank must not be connected while flushing and filling in order to prevent dirt particles from being flushed in. Please observe the instructions of the manufacturer.

- 10. Adapt the initial pressure of the expansion tank to the system and connect the expansion tank. Observe the separate instructions for the expansion tank.
- 11. Check all screw connections and tighten them if necessary.

WARNING

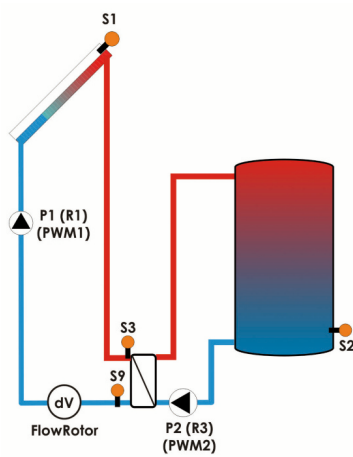


Risk to life and limb due to electric shock!

- ▶ Prior to commencing electrical work on the controller, pull the mains plug!
- ▶ Only after completing all installation work as well as the flushing and filling, the mains plug of the controller can be plugged into a socket. This avoids an unintentional start of the motors.

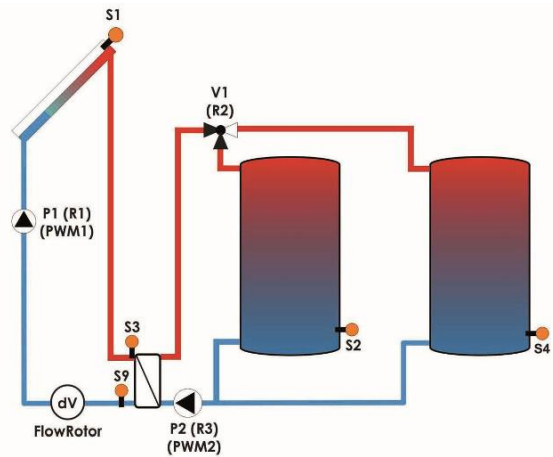
Connection scheme Solex

for DHW systems and heating systems (881)



Source of image: Resol

for heating systems (882)



Source of image: Resol

Please observe the separate instructions of the controller SC5.14!

1. Connect the temperature sensors to the controller:

Collector sensor: S1

Tank bottom: S2

Integrated: S3, S9, dV (FlowRotor)

Collector sensor: S1

Tank 1 bottom: S2

Tank 2 bottom: S4 (required on-site,
item no. E13180)

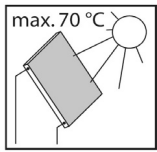
Integrated: S3, S9, dV (FlowRotor)

2. Tighten all union nuts and thread connections.

The assembly of the station is now completed and the station can be put into operation.

4 Commissioning [specialist]

Please observe the following safety instructions regarding the commissioning of the station:

WARNING	
 	Risk of burning and scalding! The valves and fittings may heat up to more than 100 °C. Therefore, do not clean or fill the system when the collectors are hot (intense sunshine). Please note that hot solar fluid leaks from the pressure relief valves in case of too high system pressure! During venting the solar fluid may escape as vapour and result in scalding! ▶ Flush and fill the system only when the collector temperatures are below 70 °C.

NOTICE
Risk of frost! It often happens that solar systems cannot be completely drained after flushing. Thus, there is a risk of frost damage later on when flushing with water. Therefore, only use the solar fluid used later on for flushing and filling the solar installation. ▶ Use a water/propylene glycol mixture with max. 50% of propylene glycol as solar fluid.

NOTICE
Note regarding the commissioning sequence Flush and fill in the following order: 1. Flush the storage tank (to remove scale residues). 2. Fill the secondary circuit. 3. Vent the heat exchanger via the vent plug / safety valve. 4. Flush and fill the solar circuit of the heat exchanger. 5. Flush and fill the collector field. 6. Flush and fill the (entire) solar circuit This avoids that dirt particles are washed into the heat exchanger or the FlowRotor and guarantees that possibly absorbed heat can be dissipated.

NOTICE**Note regarding the expansion tank**

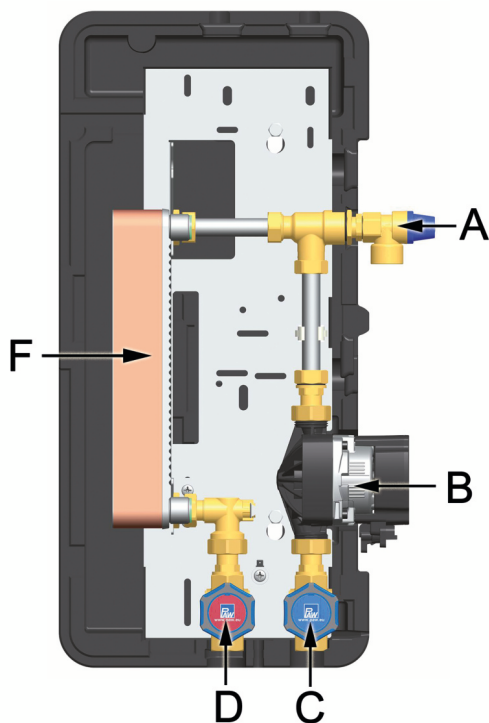
The expansion tank must not be connected while flushing and filling in order to prevent dirt particles from being flushed in. Please observe the instructions of the manufacturer.

4 Commissioning [specialist]

4.1 Flushing and filling the secondary circuit

Depending on the application, the secondary circuit is filled (charging of a domestic hot water tank) via the valves at the domestic hot water tank or (charging of a buffer tank) via the valves of the heating installation. Make sure that only domestic water is used in the first case mentioned. In the second case mentioned, only heating water treated according to VDI 2035 / Ö-Norm H5195-1 must be used.

To avoid that dirt particles are washed into the heat exchanger, shut the piston valves of the station and flush out the dirt particles present in the tank before the first commissioning.



Domestic hot water circuit

1. Open the piston valves [C|D].
2. Vent the secondary circuit by actuating the pressure relief valve [A] on the secondary side.

Make sure that no water enters the electrical components.
3. Fill the secondary circuit via the valves at the domestic hot water tank or at the heating system.
4. During operation, vent the station at the pressure relief valve [A] to eliminate the air still present in the heat exchanger [F].

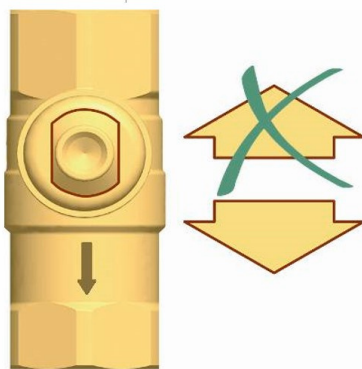
4.2 Flushing and filling the solar circuit

The fill and drain valves required to flush and fill the installation are integrated in the transfer station. Make sure that dirt particles that may be present in the system are not flushed into the heat exchanger and into the expansion tank. For this purpose, disconnect the expansion tank from the solar circuit during flushing and filling if necessary and only use flush and fill stations with fine filters. The solar circuit is flushed against the flow direction. Therefore, make sure that the solar circuit pump does not switch on.

Ball valve with integrated check valve

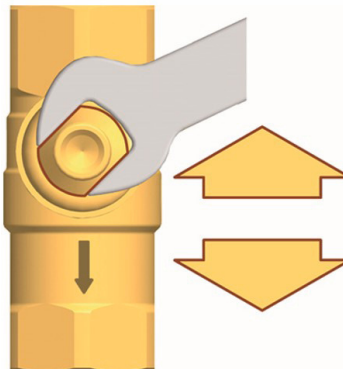
(normal flow direction in the figure: downwards)

position 0°



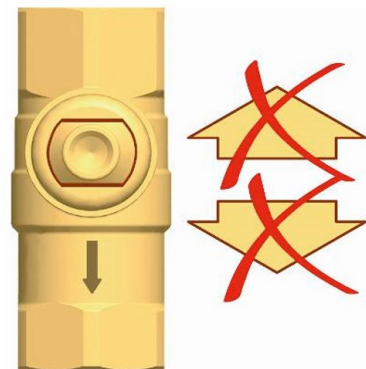
Check valve is operating,
flow only in flow direction.

position 45°



Check valve not operating,
flow in both directions.

position 90°

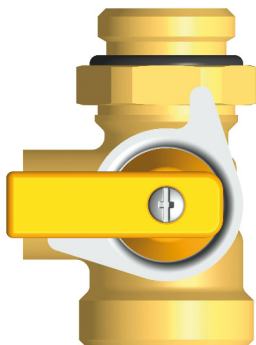


Ball valve closed,
no flow.

Functions of the fill and drain valve within the safety group

Position

Function



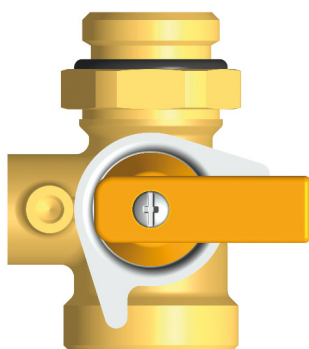
Position "closed" (station in operation):

Fill and flush circuit is closed. Pressure gauge indicates system pressure.



Position "open" (fill and flush processes):

Fill and flush circuit is open. Pressure gauge indicates pressure.



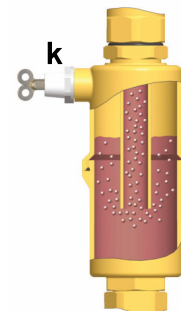
Position "maintenance" (maintenance work):

Fill and flush circuit is closed. Pressure gauge indicates, after removal of cap, no pressure.

Attention: Remove stop bolt before changing the position!

Airstop

The Airstop (with manual vent valve) is used to vent the solar system. To ensure a perfect venting of the solar circuit, the flow velocity must be at least 0.3 m/s in the flow line.



Pipe diameter [mm]		Flow rate at 0.3 m/s	
∅ outside	∅ inside	l/h	l/min
15	13	~ 143	~ 2.4
18	16	~ 217	~ 3.6
22	20	~ 339	~ 5.7

WARNING



Danger of scalding due to escaping vapour!

The escaping medium can have a temperature of more than 100 °C and cause scalding.

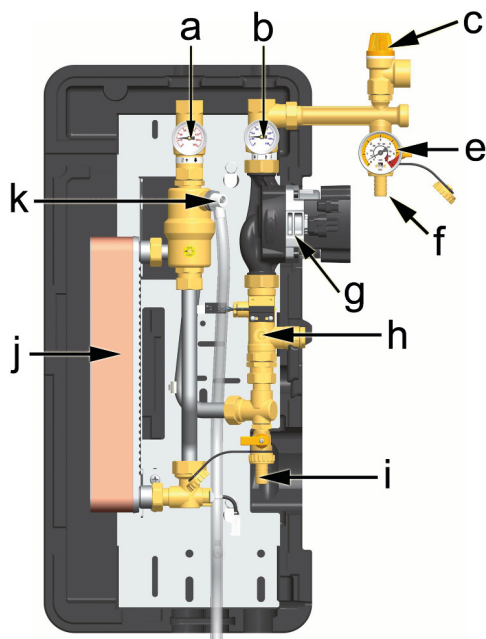
- Carefully open the vent plug and close it again as soon as fluid escapes.

The air liberated from the solar fluid is collected in the upper area of the Airstop and can be discharged via the vent plug [k].

Venting the solar installation after commissioning

At the beginning, vent the solar installation daily by means of the vent plug [k] and then weekly or monthly, depending on the vented air quantity. Thus, an optimum operation of the solar installation is ensured. Check the system pressure after venting and increase it to the prescribed operating pressure, if necessary.

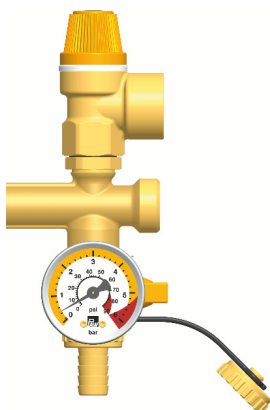
Flushing and filling



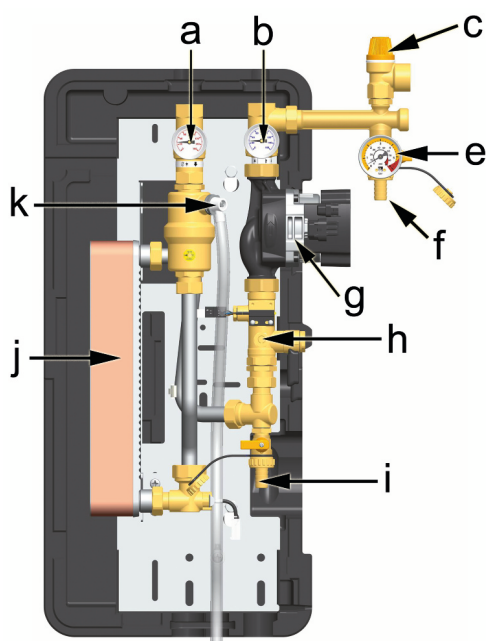
Primary circuit

1. Switch off the pump of the solar circuit.
2. Disconnect the expansion tank from the solar system. This prevents dirt particles still present in the pipes from being flushed into the expansion tank.

Observe the separate instructions for the expansion tank!
3. Put the check valve out of operation by turning the flow ball valve [a] into position 45°, see chapter 4.2.
4. The return ball valve [b] must be closed.
5. Connect the flush and fill station:
 - pressure hose to the fill valve [i]
 - flush hose to the drain valve [f].
6. Open the fill and drain valves [i|f], see section **Functions of the fill and drain valve within the safety group**, and put the flush and fill station into operation.
7. Open and close the return ball valve [b] during flushing in order to vent the pump section.
8. Flush the solar circuit until the solar fluid exits without bubbles.



Consider the pressure relief valve (6 bars)!



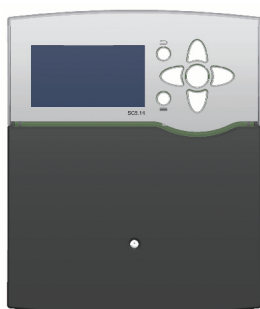
9. Close the drain valve [f] with the filling pump running, see section **Functions of the fill and drain valve within the safety group** and increase the system pressure to about 5 bars. The system pressure is displayed on the pressure gauge [e].
10. Close the fill valve [i] and switch off the pump of the flush and fill station.
11. Check the pressure gauge [e] to see if the system pressure decreases and eliminate leaks where necessary.
12. Reduce the pressure on the drain valve [f] to the operating pressure of the installation.
13. Connect the expansion tank to the solar circuit and set the operating pressure of the solar installation by means of the flush and fill station (for the required operating pressure, see the instructions of the expansion tank).
14. Close the fill and drain valves [i|f], see section **Functions of the fill and drain valve within the safety group**.
15. Put the check valves into operating position by turning the ball valves [a|b] into position 0°, see chapter 4.2.

WARNING

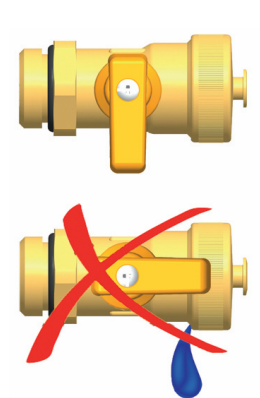


Risk to life and limb due to electric shock!

- Check whether the sensors and pumps have been connected to the controller and the controller housing is closed.
- Only under these circumstances, the mains plug of the controller can be plugged into a socket.



SC5.14



16. Connect the controller to the mains and set the solar circuit pump in manual mode to ON according to the controller instructions.
17. Let the solar circuit pump run at maximum rotation speed for at least 15 minutes.

In the meantime, vent the solar system several times at the vent plug [k] of the airtop until the solar fluid exits without forming bubbles, see chapter 4.2.

18. If necessary, increase the system pressure to the operating pressure.
19. Remove the hoses of the flush and fill station and screw the sealing caps onto the fill and drain valves.

The sealing caps only serve to protect the valves against dirt. They are not designed for high system pressures. Their tightness is ensured by the closed ball valves.

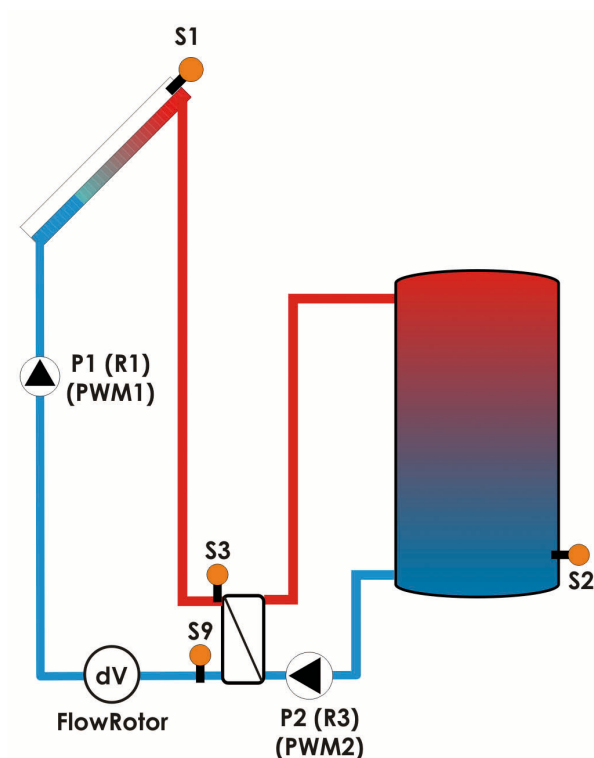
20. Mount the insulating front shell.
21. Switch the controller to automatic mode (see controller instructions).
22. Mount the insulating front shell of the transfer station.

The commissioning of the solar installation is now completed. Please fill in completely the commissioning report.

4.3 Parameters of the controller SC5.14

The parameters for the sensors and pumps are preset in the controller. If another system is selected and saved, the parameters are reset to the factory settings. In this case, the parameters must be modified in the menu. A proper functioning of the installation is thus ensured. You will find a detailed description of the operation of the controller in the separate controller manual.

Preset system (scheme 881) Solex



5 Maintenance [specialist]

WARNING

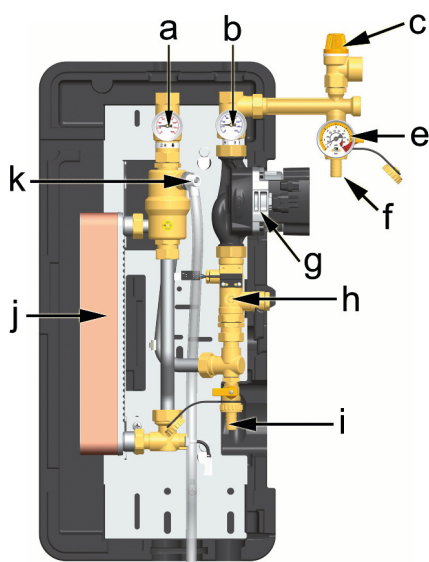


Risk of burning and scalding!

The valves and fittings and the solar fluid can have temperatures of more than 100 °C. The solar fluid may escape as vapour and result in scalding.

- ▶ Perform maintenance work only when the collector temperatures are below 50 °C.
- ▶ Wait until the solar fluid has cooled down to at least 50 °C.

5.1 Replacement / Alignment of the pressure gauge



1. Switch off the controller and make sure that a restart is not possible.
2. Make sure that the valve [f] is closed with a cap.
3. Turn the valve [f] in the maintenance position by removing the stop screw, see chapter 4.2.
4. **Replacement of the pressure gauge:**

Dismount the pressure gauge [e]. It may happen that a small amount of liquid (content of valve) escapes. Afterwards, replace the pressure gauge.

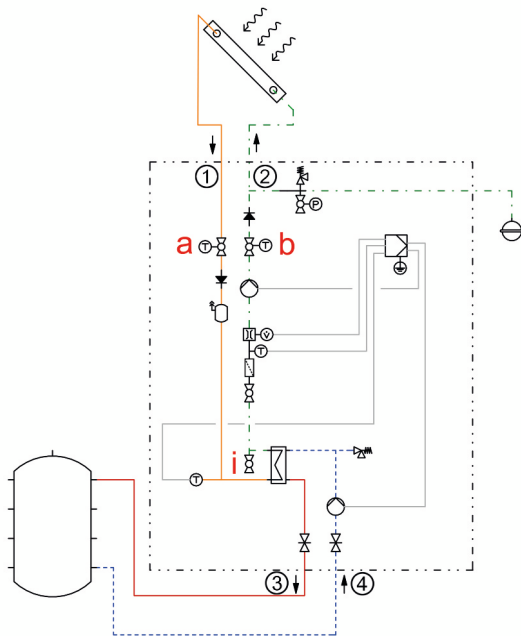
Adjustment of the pressure gauge:

Loosen the counter nut and turn the pressure gauge (from completely screwed in to max. 360°) anti-clockwise. Afterwards, secure it with the counter nut.

5. Turn the valve [f] back to the position "closed" (see chapter 4.2) and mount the stop screw while doing so.
6. Check the pressure gauge [e] for tightness as well as the system pressure and increase it to the prescribed operating pressure if necessary.
7. Vent the installation and repeat this procedure weekly or monthly, depending on the quantity of vented air.

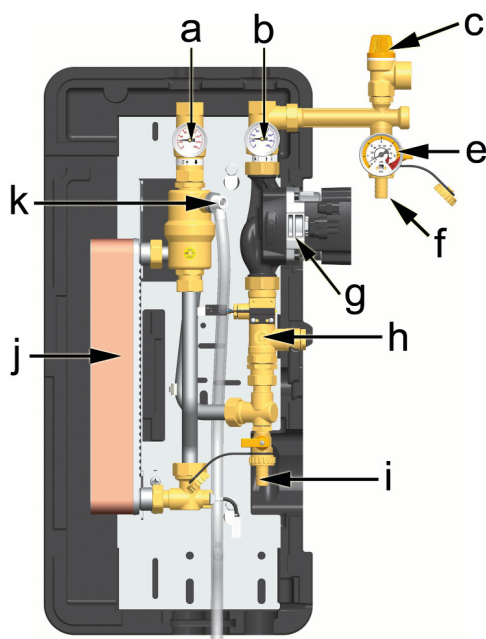
5.2 Maintenance work

Depressurise the installation for all replacement or service work on the station. This does not apply to the replacement of the pressure gauge.



1. Close the ball valves [a|b] and release the solar fluid at the fill and drain valve [i]. Make sure that the solar fluid is collected in a heat-resistant container.
2. Replace the defective part by the new one.
3. Fill the solar circuit, see chapter 4.2.

5.3 Draining the solar system



1. Switch off the controller and make sure that a restart is not possible.
2. Open the check valves in the flow and return ball valve [a|b] by turning them into position 45° (see chapter 4.2).
3. Connect a heat-resistant hose to the fill valve [i] of the transfer station.

Make sure that the solar fluid is collected in a heat-resistant container.

WARNING



Danger of scalding due to hot solar fluid!

The escaping solar fluid can be very hot!

- ▶ Position and secure the heat-resistant collecting container such that persons nearby are not put at risk when the solar system is drained.

4. Open the fill valve [i] of the transfer station.
5. To accelerate the draining of the solar circuit, the vent valve possibly present at the highest point of the solar installation can be opened.
6. Dispose of the solar fluid observing the local regulations.

5.4 Deinstallation

1. Drain the solar installation as described in the previous section.
2. Disconnect the pipe connections to the solar installation.
3. Disconnect the cable connections between the controller and the sensors (collector / storage tank).
4. Loosen the fastening screws of the station and take the station off the wall.

6 Scope of delivery [specialist]

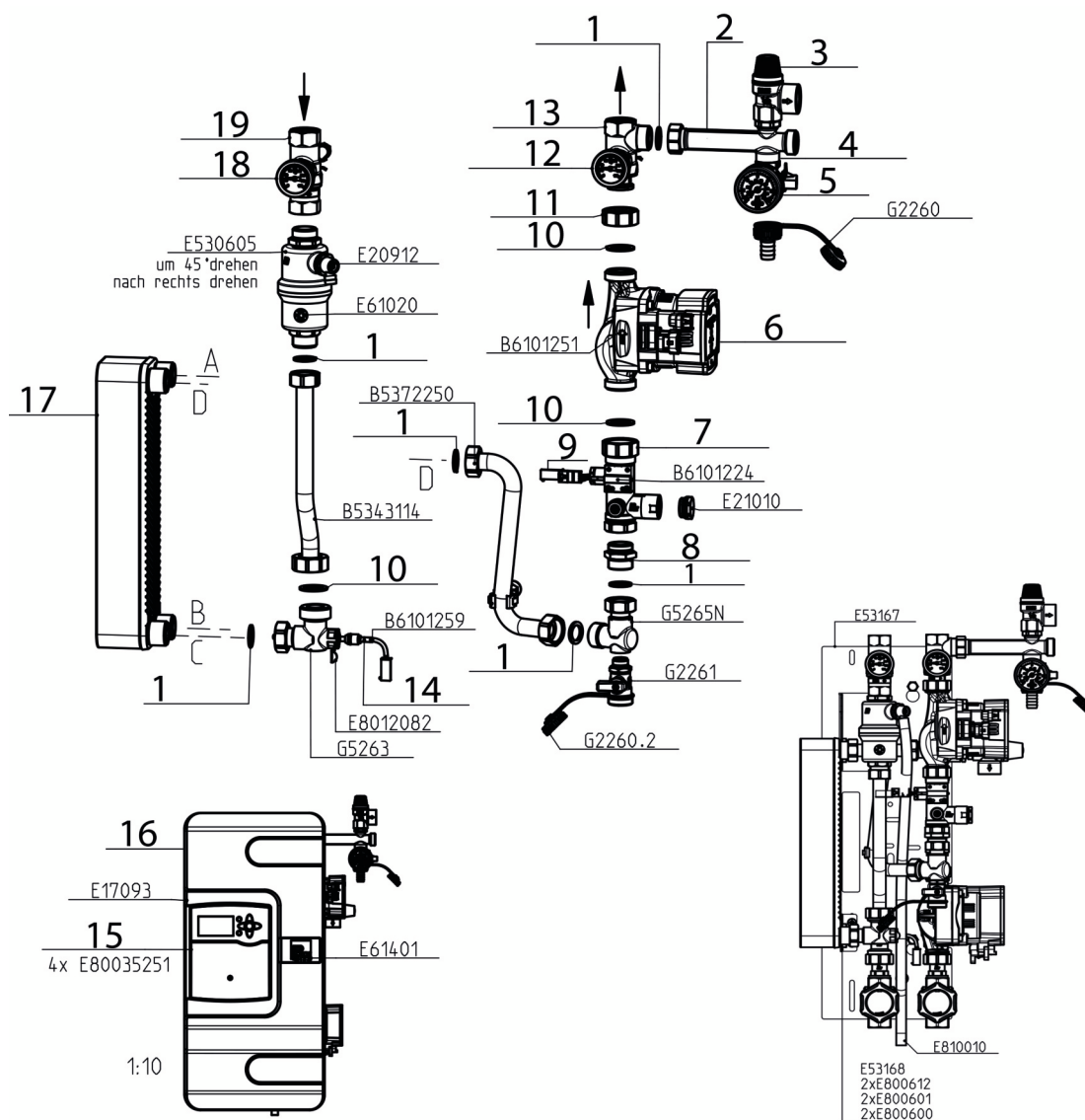
NOTICE

Serial number

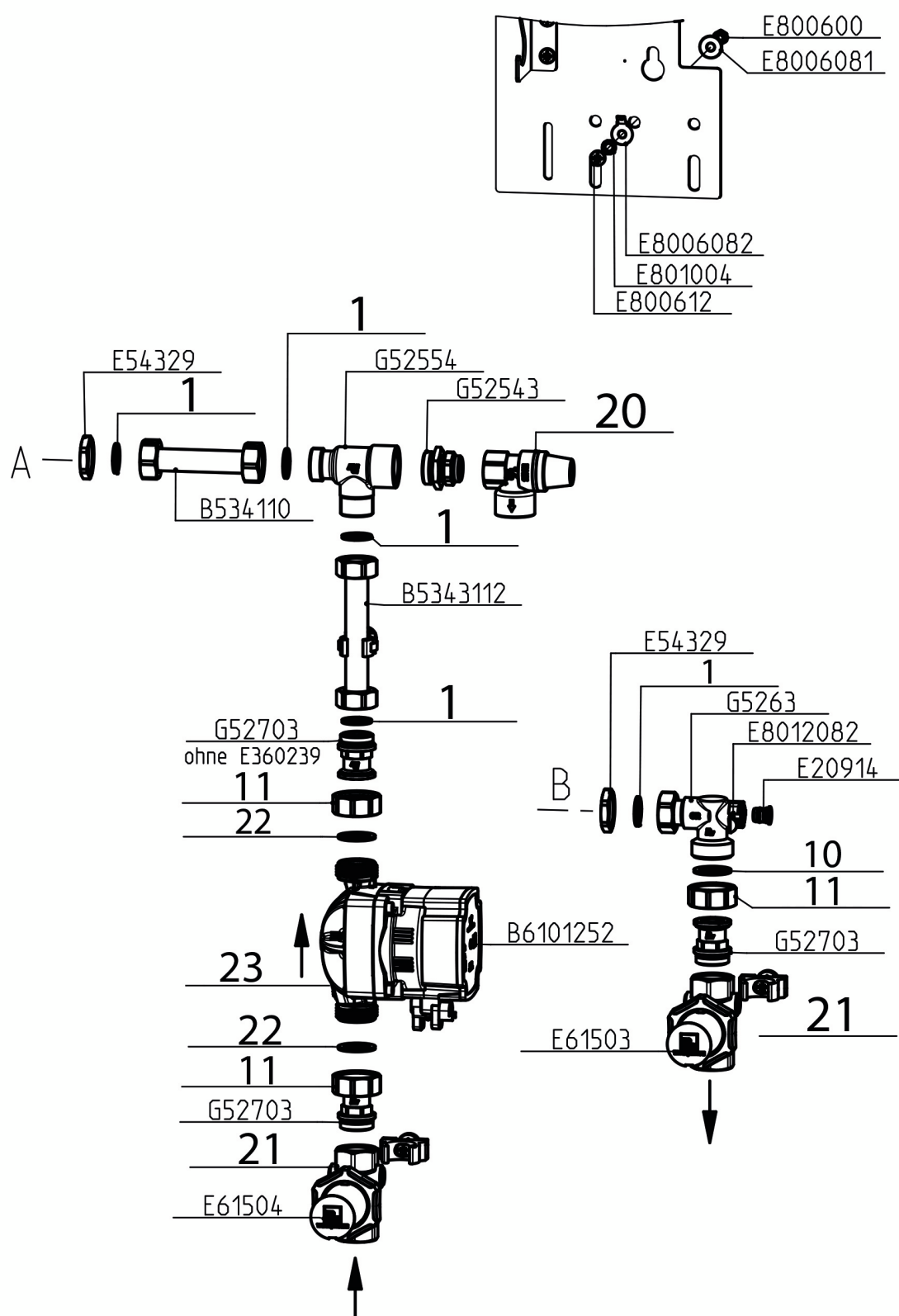
Complaints and requests/orders of spare parts will only be processed with information on the serial number! The serial number is placed on the safety group.

- In case of a complaint, please send us the entirely completed commissioning report.

6.1 Spare parts primary circuit SolexMini



6.2 Spare parts secondary circuit SolexMini



Position	Spare part	Item number
1	Sealing kit, 24.0 x 17.0 x 2.0, ¼", for thread connection ¾", 10 pieces	N00030
2	Safety bar DN 20, fill and drain valve ½"	N00462
3	Pressure relief valve ½" x ¾", 6 bars	N00300
4	Fill and drain valve ½", ¾" ext. thread, ½" int. thread self-sealing x ½" ext. thread self-sealing	N00460
5	Pressure gauge 0-6 bars, G ¼" axial; d = 50 mm, 130 °C	N00337
6	Grundfos UPM3 Solar 15-145	N00215
7	FlowRotor DN 20, 1" int. thread x ¾" int. thread x ¼" int. thread, 0.5 - 15 l/min	N00307
8	Double nipple ¾" ext. thread flat-sealing x ¾" ext. thread self-sealing, with o-ring	548310
9	Temperature sensor Pt1000, screw-in sensor 9 mm, G¼"	N00230
10	Sealing kit, 30.0 x 21.0 x 2.0, ½", for thread connection 1", 10 pieces	N00024
11	Union nut G 1", passage 28.1 mm, wrench size 37	N00302
12	Dial thermometer, blue, d = 40 mm, 0 - 160 °C	N00491
13	Return ball valve DN 20, ¾" int. thread x F ¾" x ¾" ext. thread on the right, gaskets	N00290
14	Temperature sensor Pt1000, pluggable, 80 mm long, for 8 mm clip, 80 mm cable, Molex Mini Fit Jr-Male	N00339
15	Controller SC5.14 with wiring harness, SuperSeal	E130148103
16	Insulation DN 15	B170909
17	Heat exchanger copper solder, with gaskets	N00264
18	Dial thermometer, red, d = 40 mm, 0 - 160 °C	N00479
19	Flow ball valve DN 20, ¾" int. thread x ¾" int. thread, with solar check valve	N00291
20	Pressure relief valve ½" x ¾", 10 bars	N00008
21	Piston valve DN 20, 2x ¾" int. thread, blue handle	N00386

6 Scope of delivery [specialist]

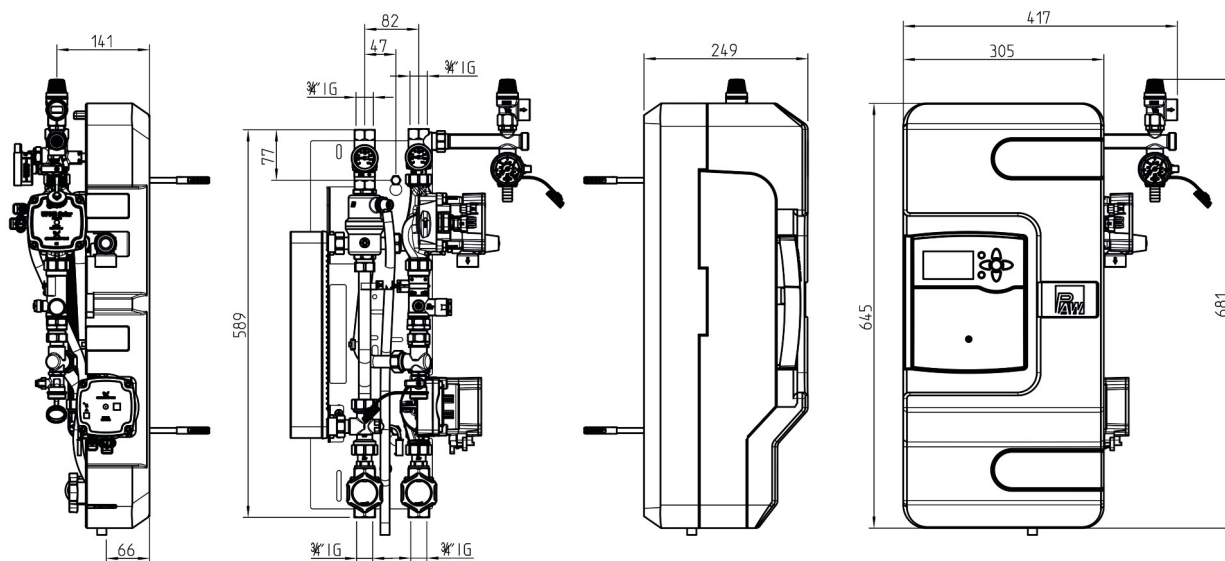
Position	Spare part	Item number
22	Sealing kit, 30.0 x 21.0 x 2.0, ½", for thread connection 1", EPDM, 10 pieces	N00129
23	Pump Grundfos UPM4 15-70 CIL3, 130 mm, 6 o'clock, 1" ext. thread, PWM-C, suitable for DHW	N00383
without pos.	Platinum measuring sensor Pt1000-B, -50 °C up to 105 °C, d = 6 mm, 2.5 m, PVC connection cable (enclosed)	N00358
without pos.	Temperature sensor Pt1000, -50 °C up to 180 °C, d = 6 mm, 1.5 m cable, L = 45 mm (enclosed)	Q00146

7 Technical data

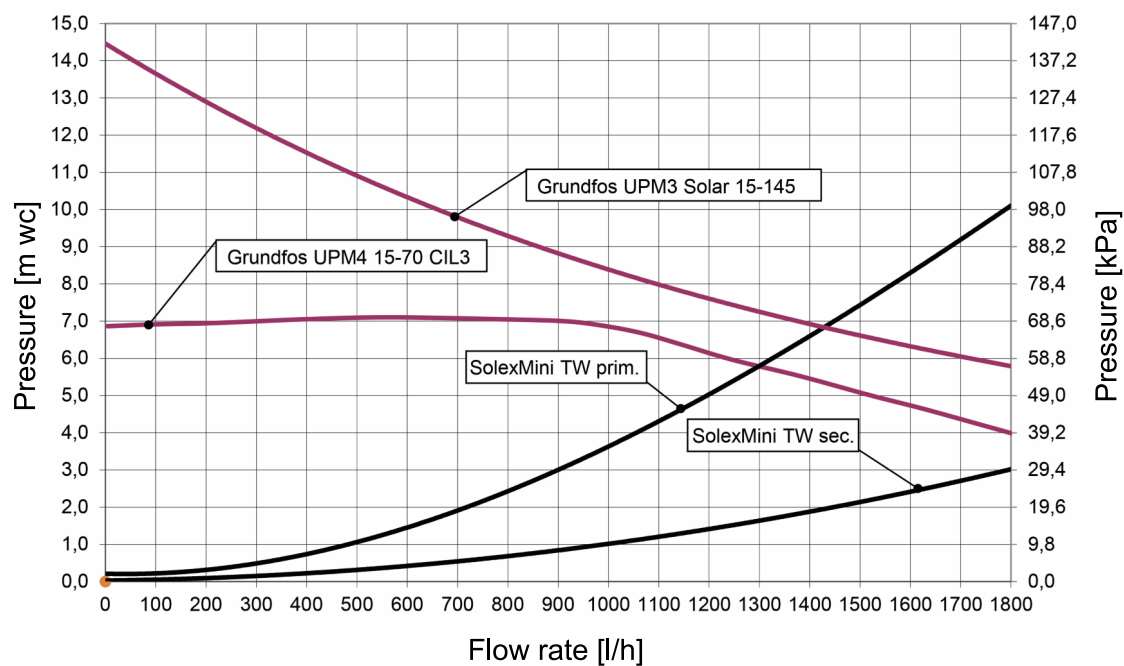
Dimensions	SolexMini TW
Total height	681 mm
Total width	417 mm
Total depth	249 mm
Centre distance flow / return	82 mm
Pipe connections	¾" internal thread
Connection for expansion tank	¾" external thread, flat sealing
Outlet of pressure relief valve	¾" internal thread
Operating data	
Max. admissible pressure	prim.: 6 bar / sec.: 10 bar
Max. operating temperature	prim.: 120 °C / sec.: 95 °C
Max. stagnation temperature	140 °C
Max. propylene glycol content	50 %
Equipment	
Safety valve	prim.: 6 bar / sec.: 10 bar
Pressure gauge	0-6 bars
Flow meter	primary: FlowRotor, measuring range: 0.5 - 15 l/min
Sensors	3 x Pt1000 (integrated), 2 x Pt1000 (enclosed)
Check valves (integrated in the ball valves)	prim.: 2 x 200 mm wc, can be opened
Materials	
Valves and fittings	Brass
Gaskets	EPDM
Check valves	Brass
Insulation	EPP, $\lambda = 0.041 \text{ W/(m K)}$

7 Technical data

7.1 Dimensional drawing SolexMini TW



7.2 Pressure drop and pump characteristic curves SolexMini TW



8 Function of the check valves [Expert]

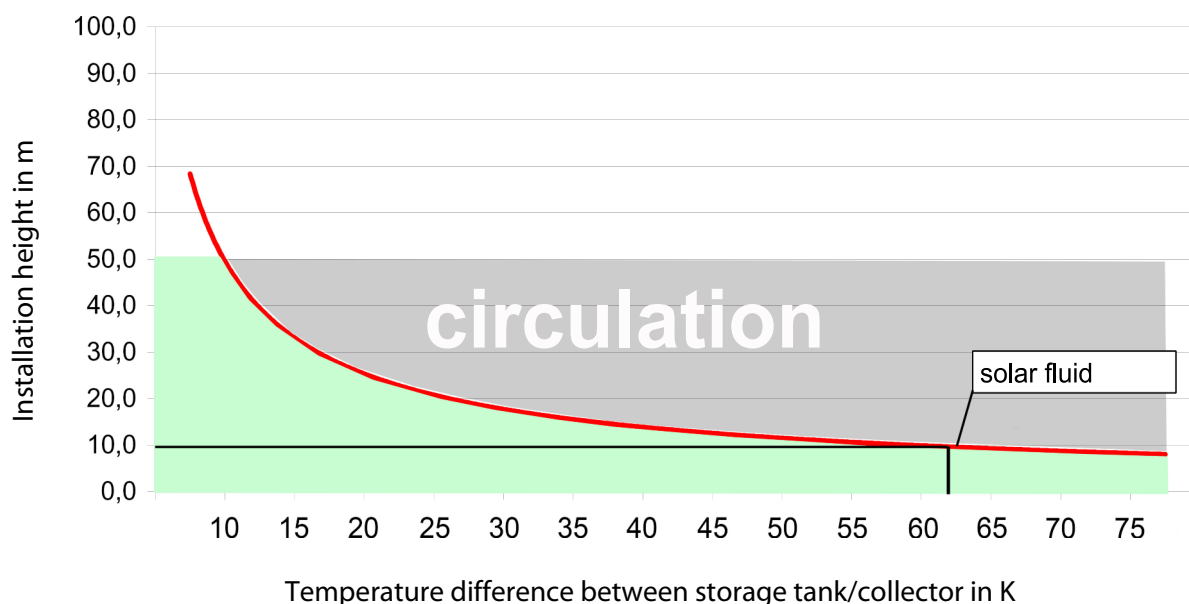
The check valves in this station prevent unwanted gravity circulation within their range of use. The functioning of the check valves depends:

- on the system height
- on the temperature difference between storage tank and collector
- on the solar fluid used

The diagram below indicates if the check valves integrated in the station are sufficient for your installation. If the check valves are not sufficient, additional components must be installed to prevent gravity circulation. You can install, for example, syphons ("heat traps"), 2-way valves (zone valves) or additional check valves.

Example:

- The station contains two check valves (2 x 200 mm wc = **400 mm wc**).
- You use a mixture of water and 40% strength propylene glycol as **solar fluid**.
- The installation height between collector and storage tank is **10 m**.



Result:

The check valves prevent gravity circulation up to a temperature difference of **about 62 K**. If the temperature difference between the collector and the tank is larger, the difference in density of the solar fluid will be so large that the check valves are pushed open.



Do you need to know it exactly?

The density of the solar fluid strongly decreases with increasing temperature. In systems of high system heights and with large temperature differences, the difference in density causes gravity circulation. This circulation can result in the storage tank cooling down.

Calculation example: $\Delta p = \Delta \rho * g * h$

Collector temperature: 5 °C: Solar fluid density $\rho_1 = 1042 \text{ kg/m}^3$

Storage tank temperature: 67 °C: Solar fluid density $\rho_2 = 1002.5 \text{ kg/m}^3$

$$\Delta \rho = \rho_1 - \rho_2 = 39.5 \text{ kg/m}^3$$

$$g = 9.81 \text{ m/s}^2$$

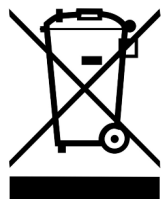
Installation height $h = 10 \text{ m}$

$$\Delta p = 3875 \text{ Pa} = 395 \text{ mm wc}$$

The two check valves of the station (2 x 200 mm wc) are sufficient for an installation height of 10 m and a temperature difference of up to 62 K between the collector and the tank.

9 Disposal

NOTICE



Electrical and electronic devices must not be disposed of in the household waste.

For your return, there are free collection points for electrical appliances and, if necessary, additional points of acceptance for the reuse of the devices in your area.

The addresses can be obtained from your city or communal administration.

If the old electrical or electronic device contains personal data, you are responsible for deleting it before returning the device.

Batteries and rechargeable batteries must be removed prior to the disposal of the product. Depending on the product equipment (partly with optional accessories), single components can also contain batteries and rechargeable batteries.

Please observe the disposal symbols on the components.

Disposal of transport and packaging materials

The packaging materials are made of recyclable materials and can be disposed of with recyclable materials.

10 Commissioning report

System operator			
Location of installation			
Collectors (number / type)			
Collector surface	m ²		
System height	m (height difference between the station and the collector field)		
Pipeline	diameter =	mm;	length = m
Venting (collector field)	☐ not available	☐ vented	
	☐ manual vent valve	☐ automatic vent valve	
Airstop (station)	☐ vented		
Solar fluid (type)	% glycol		
Antifreeze (checked):	°C	serial numbers	
Flow rate	l/m	station	
Pump (type)			
Pump speed level		flow rate sensor	
System pressure	mbars		
Expansion tank (type)		temperature sensors	
Initial pressure	mbars		
Safety valve	☐ checked	controller	
Check valves	☐ checked		
Installation company		Date, signature	

Item no. 996091426-mub-en

Translation of the original instructions

We reserve the right to make technical changes without notice!

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