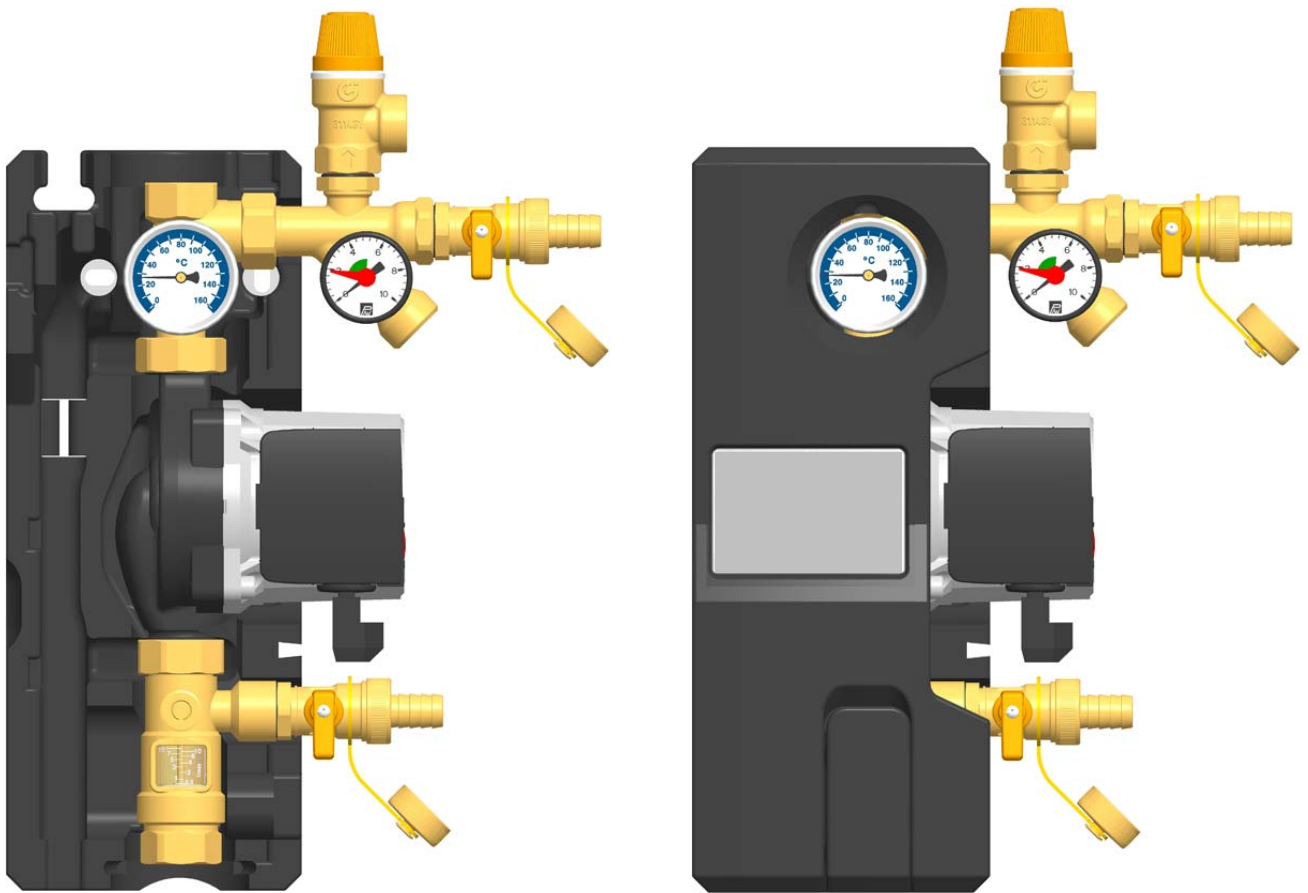




Installation and commissioning instructions

DKP 6-8 EC156

return station



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Translation of the original instructions

We reserve the right to make technical changes without notice!

Printed in Germany

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 function, installation, commissioning and operation of the DKP 6-8 EC156 solar return station. The chapters called [specialist] are intended for specialists only. For other components of the solar system, such as collectors, storage tanks, expansion tanks and controllers, please observe the instructions of the corresponding manufacturer.

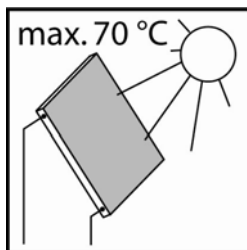
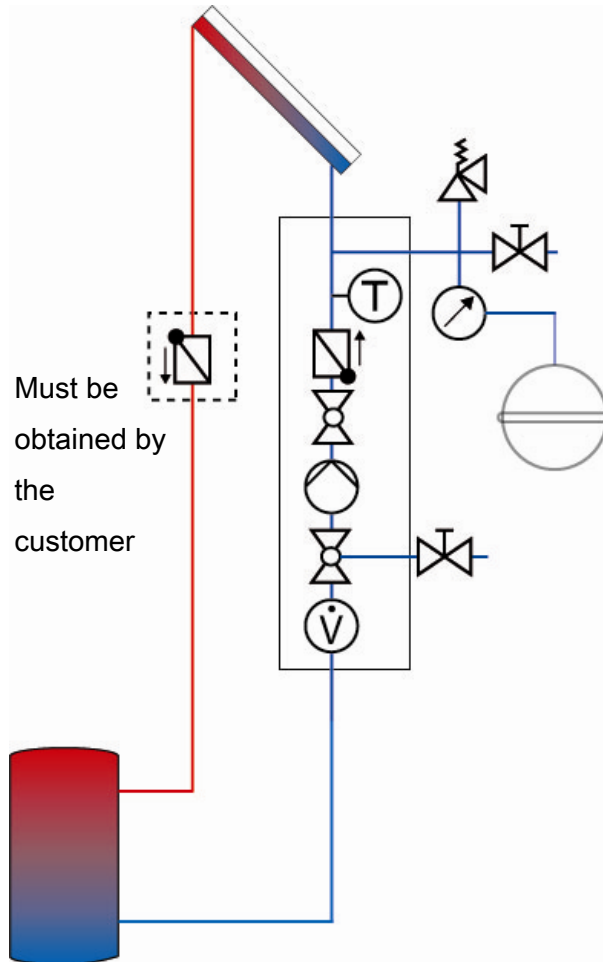
1.2 About this product

The solar station is a premounted fitting group checked for leakage. It is used to circulate the solar fluid in the solar circuit. It is mounted on a wall bracket and fixed with a clip. The station contains components and safety devices important for the operation of the installation:

- Ball valve
- Check valve
- Thermometer
- Pressure gauge to display the installation pressure
- Flowmeter to display the flow rate
- Ball valve to restrict the flow rate
- Solar pressure relief valve
- Connection for expansion tank
- Flush and fill valves

1.3 Designated use

The solar station may only be used as a pump station in the solar circuit taking into consideration the technical limit values indicated in these instructions. Due to its design the station must be mounted and operated as described in these instructions! Only use PAW accessories with the solar station. Improper usage excludes any liability claims.





When the sun shines, the collector can become very hot. The solar fluid in the circuit can 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 this manual

	 WARNING
	<p>Danger of scalding due to vapour escape!</p> <p>With pressure relief valves there is risk of scalding due to vapour escape. During installation, check the local conditions and if a discharge line must be connected to the safety group.</p> <ul style="list-style-type: none">➤ Observe the instructions regarding the pressure relief valve.

	 CAUTION
	<p>Personal injury and damage to property due to overpressure!</p> <p>By closing the two ball valves in the primary circuit you isolate the pressure relief valve from the heat exchanger. A rise in temperature in the storage tank will cause high pressures and could result in personal injury or damage to property!</p> <ul style="list-style-type: none">➤ Only close the ball valves for service and maintenance.

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.

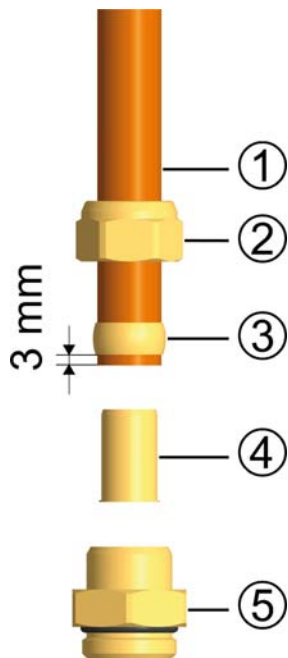
- It is imperative to avoid that EPDM gets in contact with substances containing mineral oils.
- Use a lubricant based on silicone or polyalkylene and free of mineral oils such as Unisilikon L250L and Syntheso Glep 1 of the Klüber company or a silicone spray.

NOTICE

Material damage due to high temperatures!

Install the fitting group at a sufficient distance from the collector field, since the solar fluid may be very hot near the collector. It may be necessary to install an intermediate tank in order to protect the expansion tank.

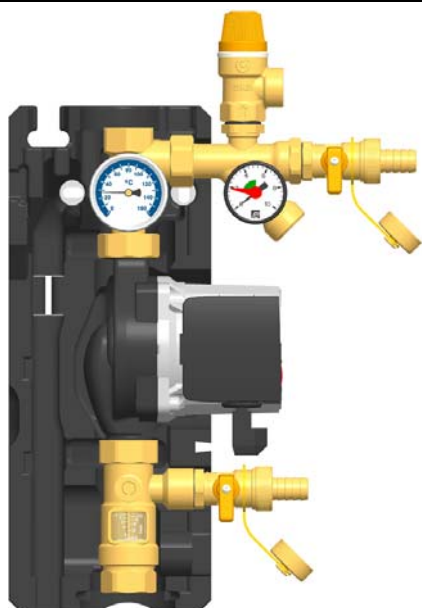
3 Assembly and installation [specialist]



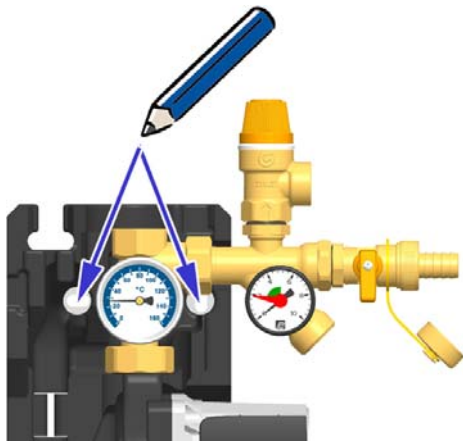
Not included in the scope of
delivery!

Accessories: compression fitting

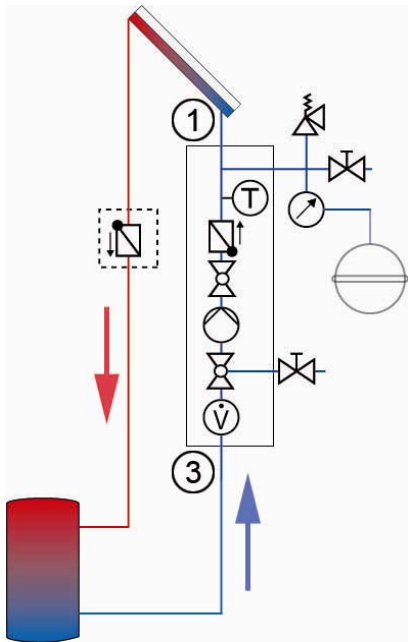
1. Push the union nut ② and the cutting ring ③ onto the copper pipe ①. The pipe must protrude at least 3 mm from the cutting ring in order to ensure the force transmission and the sealing.
2. Insert the support sleeve ④ into the copper pipe.
3. Insert the copper pipe with the plugged-on individual parts (②, ③ and ④) all the way into the housing 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 housing of the compression fitting ⑤ against distort in order to avoid damaging the sealing ring.



1. Remove the insulating front shell.



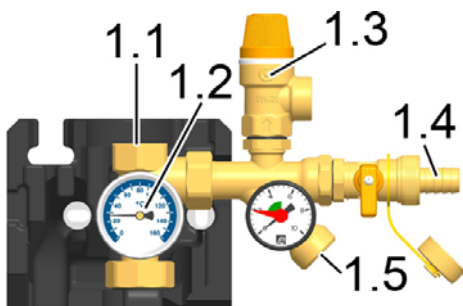
2. Copy the mounting holes of the solar station (see arrows) to the mounting surface.
3. Drill the holes and mount the solar station to the wall with the enclosed wall plugs and screws.



4. Connect the solar station to the system
 - ① Return towards the collector field
 - ③ Return from the storage tank

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

5. In order to prevent any gravity circulation it is essential to install on site a further check valve into the flow.



6. Connect the pipe for the expansion tank below the pressure gauge [1.5] and fix the bracket for the expansion tank.
7. Pressurise the expansion tank as specified by the manufacturer and connect the expansion tank. Observe the separate instructions regarding the expansion tank!
8. Check all screw connections and tighten them if necessary.


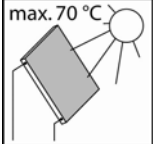


Optionally available!

The assembly of the solar station is completed and you can put the station into operation.

4 Commissioning [specialist]

Observe the following safety instructions regarding the commissioning of the station:

WARNING	
	<p>Risk of burning and scalding!</p> <p>The fittings can heat up to more than 100 °C. Therefore, do not clean or fill the system with the collectors heated (intense sunshine). Please note that hot solar fluid can leak from the pressure relief valve when the system pressure is too high!</p>
	<p>During venting the solar fluid may escape as vapour and cause scalding!</p> <ul style="list-style-type: none">➤ Only flush and fill the installation when the collector temperatures are below 70 °C.

NOTICE

Risk of frost!

It often happens that the solar system cannot be completely drained after flushing. Thus, there is risk of frost damage when flushing with water. Therefore, do only use the solar fluid used later to flush and fill the solar system.

- Use a water and propylene glycol mixture with max. 50 % propylene glycol as a solar fluid.

NOTICE

Note regarding the commissioning sequence

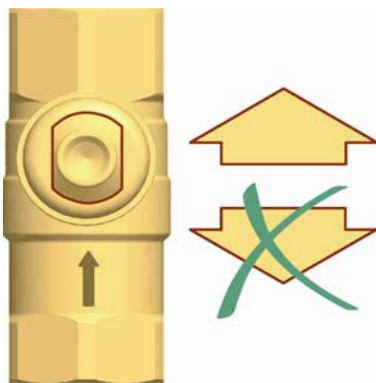
- When putting the system into operation, first fill the heating circuit and then the solar circuit. This guarantees that heat that may possibly be absorbed by the collectors during commissioning can be dissipated.

The fill and drain valves required to flush and fill are integrated in the solar station.

To flush the dirt particles out of the installation, only use flush and fill stations with fine filters.

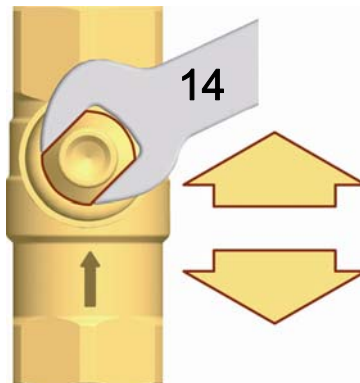
Ball valve with check valve

(Flow direction in the figure: upwards)



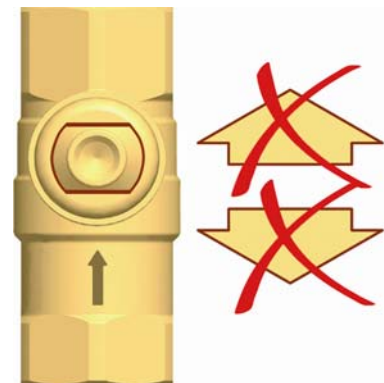
0°

Ball valve open,
flow only in flow direction.



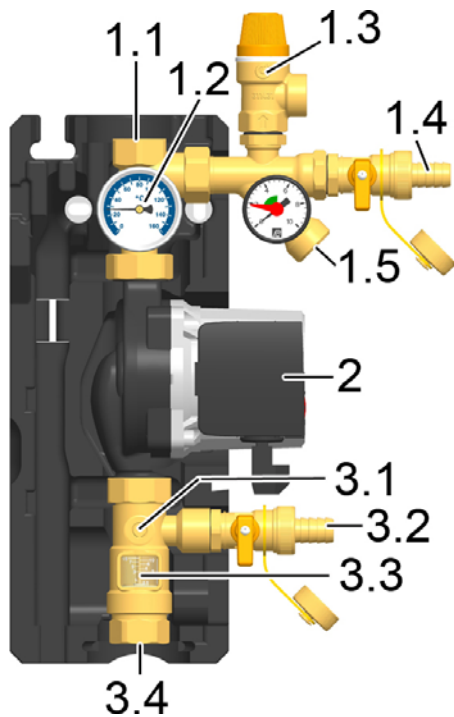
45°

Ball valve half-closed,
flow in both directions.



90°

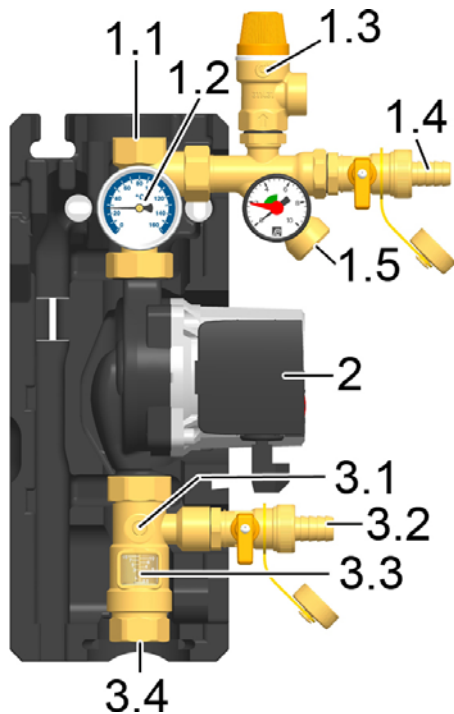
Ball valve closed,
no flow.



4.1 Preparations before flushing

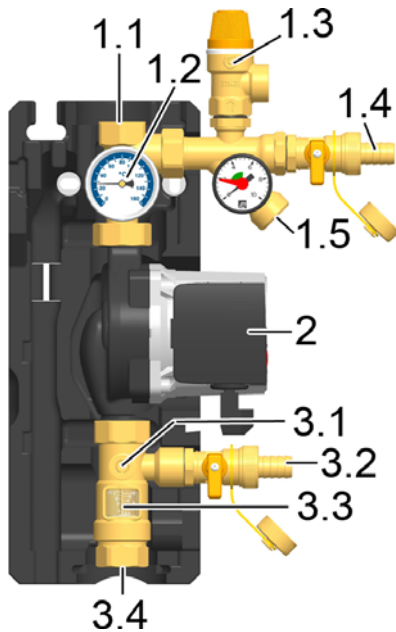
The solar circuit is flushed in the direction of flow.

1. Disconnect the expansion tank from the solar system. Please observe the instructions of the manufacturer.
2. Close the return ball valve [1.2] (90°, see page 10).
3. The ball valve [3.1] at the flowmeter must be open.
4. Connect the fill station to the solar station:
 - Pressure hose to the fill valve [1.4]
 - Flush hose to the drain valve [3.2]



4.2 Flushing and filling

1. Open the fill and drain valves [1.4|3.2].
2. Put the flush and fill station into operation and flush the installation until the solar fluid exits without bubbles.
3. During flushing, vent the solar thermal system several times by means of the vent valves that may be present.

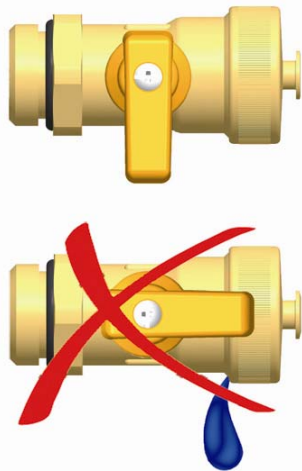


4. Slowly open and close the return ball valve [1.2] several times to vent the pump section.
5. Close the drain valve [3.2] with the filling pump running and increase the system pressure to about 5 bars. The system pressure can be read on the pressure gauge. Close the fill valve [1.4] and switch off the pump of the flush and fill station.



Consider the pressure relief valve (6 bars)!

6. Check the pressure gauge to see whether the system pressure reduces and eliminate leaks where necessary.
7. Reduce the pressure at the drain valve [3.2] to the operating pressure.
8. Connect the expansion tank to the solar circuit and set the operating pressure of the solar system by means of the flush and fill station (see instructions regarding the expansion tank).
9. Close the fill and drain valves [1.4|3.2].
10. Turn the check valves (in the return ball valve [1.2] and in the flow line) to the operating position (0°, see page 10).



11. Connect the controller to the mains and set the solar circuit pump in the manual mode to ON according to the controller instructions.
12. 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 to take up high system pressures. The ball valves must be closed.

4.3 Setting the solar system

1. Set the desired speed of the solar pump depending on the required flow rate. If necessary, the flow rate can be adjusted by means of the ball valve [3.1] (only necessary if the pump is not speed-controlled).

Observe the specifications of the collector manufacturer for the correct adjustment of the flow rate.

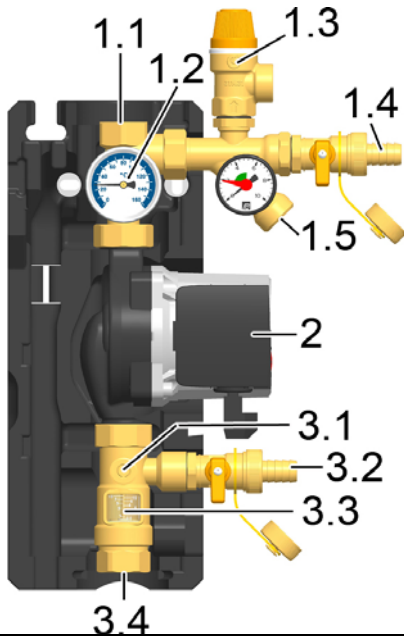
2. Mount the insulating front shell to the solar station.
3. Switch the controller to automatic mode (see controller instructions).

Scale:
0.5-15 /min
Reading edge =
Top edge of the float
Example: about 4 l/min



5 Maintenance [specialist]

5.1 Draining the solar system



1. Switch off the controller and make sure that a restart is not possible.
2. Open the check valve in the return ball valve [1.2] by turning the ball valve to position 45° (see page 10). Open the check valve that may be present in the flow line.
3. Connect a heat-resistant hose to the lowest drain valve of the solar system (or to drain valve [3.2]). Make sure that the solar fluid is collected in a heat-resistant container.

	WARNING
	Danger of scalding due to hot solar fluid!
	<p>The escaping fluid may be very hot.</p> <ul style="list-style-type: none"> ➤ Place and fix the heat-resistant collecting container so that people standing nearby are not endangered when the solar system is being emptied.

4. Open the drain valve at the lowest point of the solar thermal system.
5. Open a vent valve that may be present at the highest point of the solar system.
6. Dispose of the solar fluid observing the local regulations.

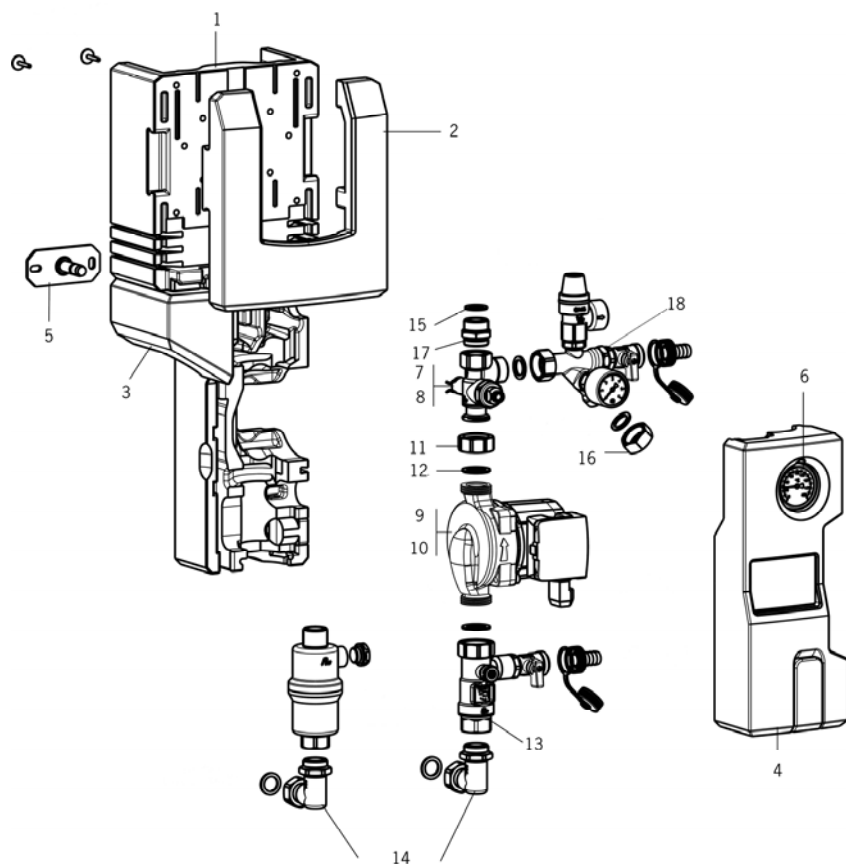


5.2 Deinstallation

To remove the solar station from the mounting plate, pull the clips to the side using a screwdriver. Then you can take off the station (consider the tubing!).

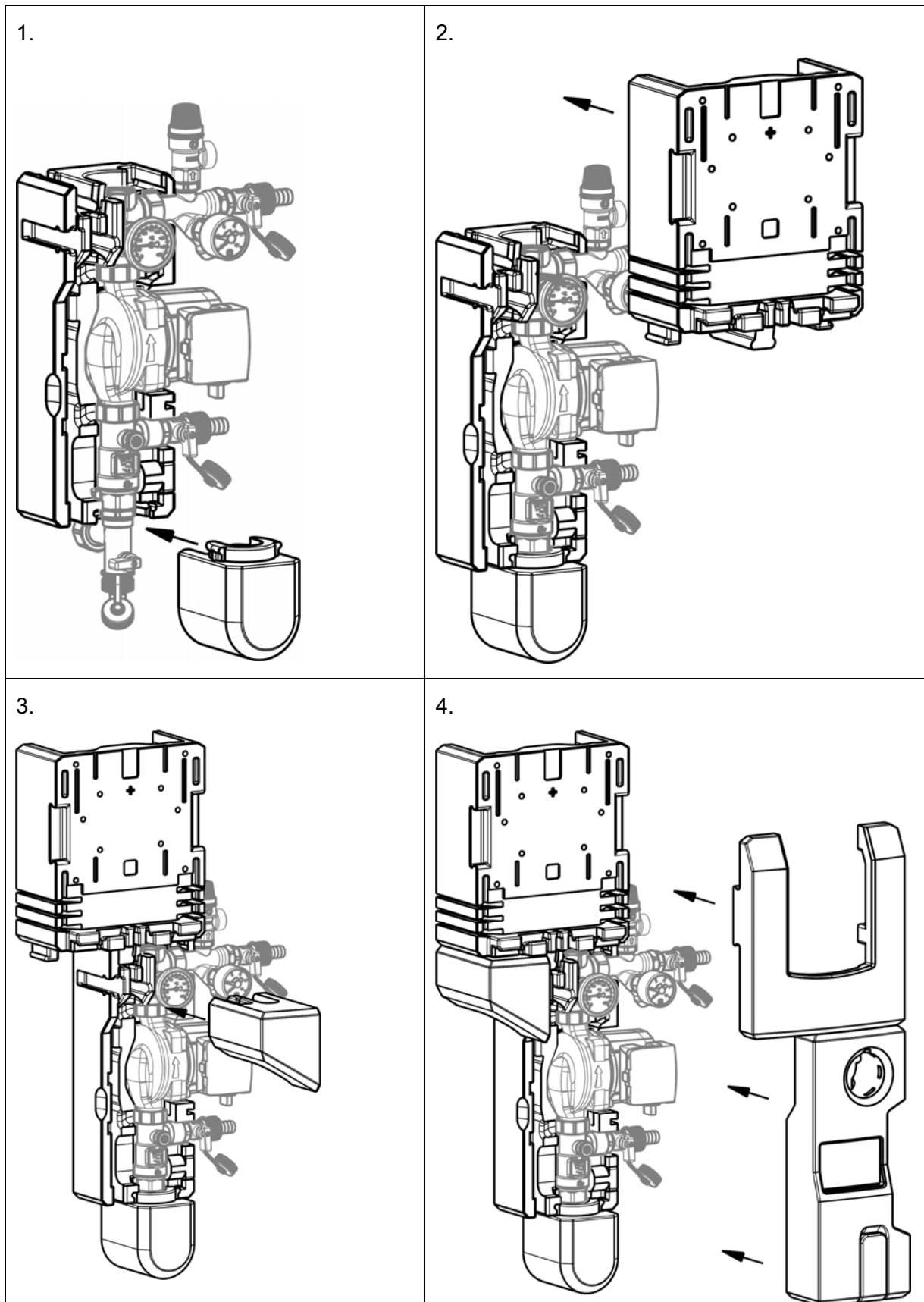
6 Spare parts [specialist]

In case of a complaint, please fill out completely the commissioning protocol on page 19 and send it back to us.



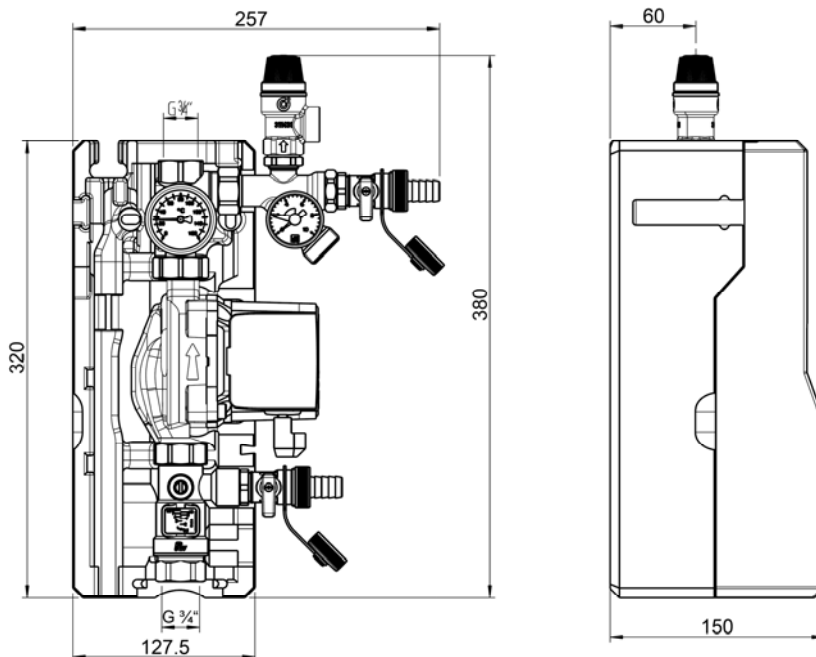
No.	Item no. DD	Designation
1	300026325	Insulation back shell controller module
2	300026326	Insulation front shell controller module
3	300026328	Tube insulation module DKP6-8
4	300026329	Insulation module DKP 6-8
5	300026336	Wall bracket DKP 6-8
6	300026331	Thermometer return
7	300026332	Return ball valve
8	300019551	Clip for ball valve
9	300019797	Pump ST15/6-130 6H
10	300010944	Pump cable LG.2M
11	300010046	Nut 1"
12	300010041	Joint 1/2" 30 X 21 X 2
13	300026330	Flowmeter
14	300003211	Elbow piece 3/4" external thread- 3/4" nut
15	300022601	Joint
16	300003216	Plug 3/4" internal thread
17	300003214	Double nipple 3/4"
18	300026337	Housing for connection of the pressure relief valve DKP 6-8

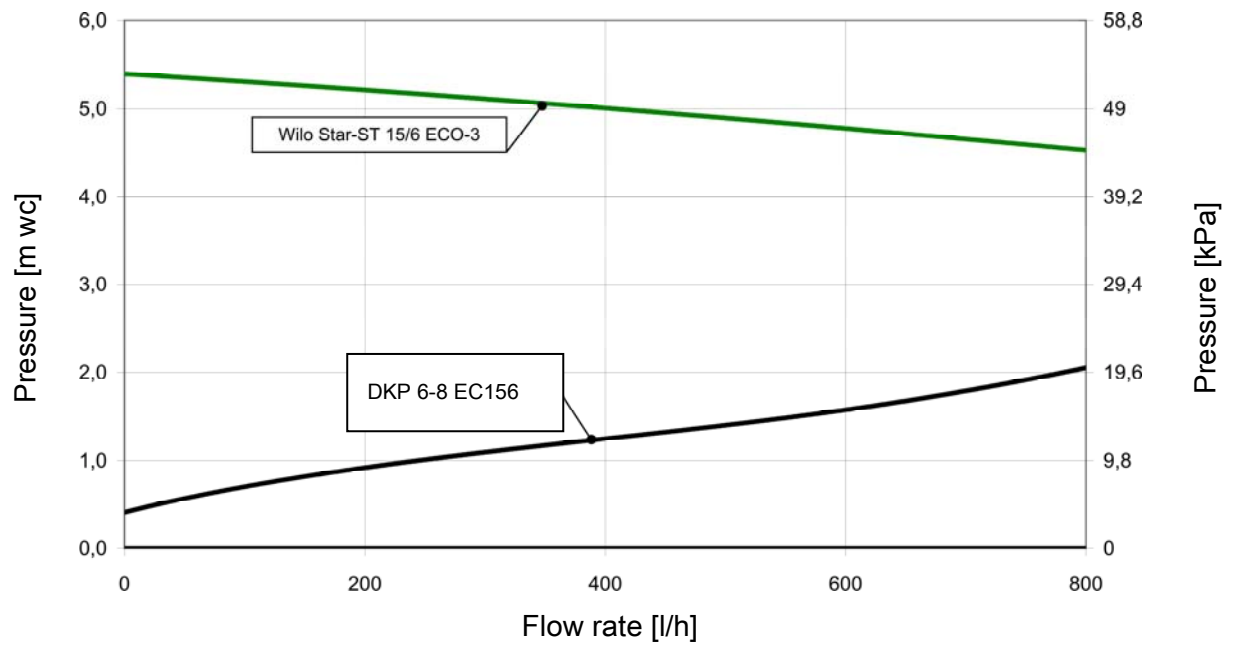
7 Assembly of the insulating shells



8 Technical data

Dimensions:	Height (with pressure relief valve):	380 mm
	Width (with fill and drain valve):	257 mm
	Depth (with insulation):	150 mm
	Pipe connections:	¾" internal thread
	Connection for expansion tank:	¾" external thread, flat sealing
	Outlet pressure relief valve:	¾" internal thread
Operating data:	Max. admissible pressure:	6 bars
	Max. operating temperature:	120 °C
	Max. short-time temperature:	160 °C, < 15 minutes
	Max. propylene glycol concentration:	50 %
Equipment:	Pressure relief valve:	6 bars
	Pressure gauge:	0 – 6 bars
	Check valve:	200 mm wc, can be opened
Materials:	Valves and fittings:	Brass
	Seals:	EPDM
	Check valves:	Brass
	Insulation:	EPP, $\lambda = 0.041 \text{ W/(m K)}$





9 Commissioning report

Installation operator _____

Location of installation _____

Collectors (number / type) _____

Collector surface _____ m²

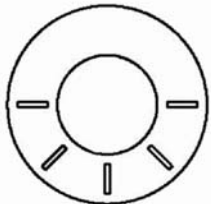
Installation height _____ m (Difference in height between station and collector field)

Pipes \varnothing = _____ mm | = _____ m

Venting (collector field) Manual vent valve Automatic air vent
 No Vented

Airstop (station) Vented

Solar fluid (type) _____ % glycol

Antifreeze tested up to: _____ °C	Serial numbers	
Flow rate _____ l/m	Station	
Pump (type) _____	Controller	
Pump speed level (I, II, III) _____	Software version	
System pressure _____ mbar	Restrictor position:	
Expansion tank (type) _____		
Initial pressure _____ mbar		

Pressure relief valve Checked

Check valves Checked

Plumbing company

Date, signature

