

GB Manual

SLM50HE

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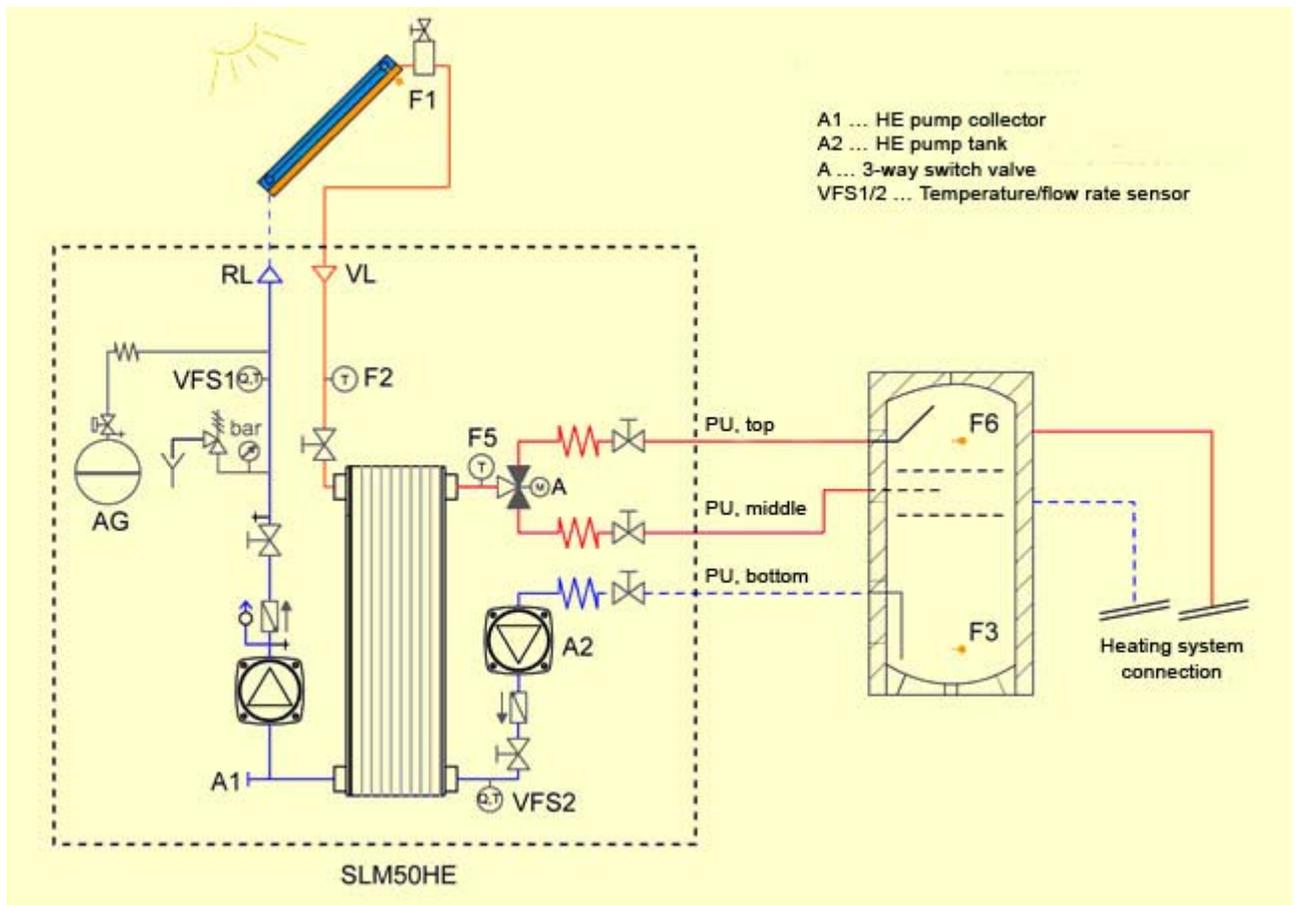
1. General

Before commissioning your new shift layer module, please read all chapters thoroughly and, in particular, please note the warnings given in chapter 3. Incorrect handling can result in damage to the installation.

1.1. Use

The SLM50HE layer loading station makes it possible to load the buffer tank depending on the temperature. Solar layer loading is speed regulated, energy efficient and suitable for large buffer tanks.

1.2. Application example



2. Description

Shift layer module SLM50HE is used to connect a solar collector plant up to 50 m² in size to a buffer tank. The solar heat from the collector system is transferred to the buffer system with highly-efficient heat exchangers. Thereby, it provides an intelligent control system dependent on sunlight for optimum interaction between the solar and buffer loading pump and guarantees high heat transfer capacity.

The module loads the buffer using speed control and the corresponding temperature zone of the buffer depending on the temperature.

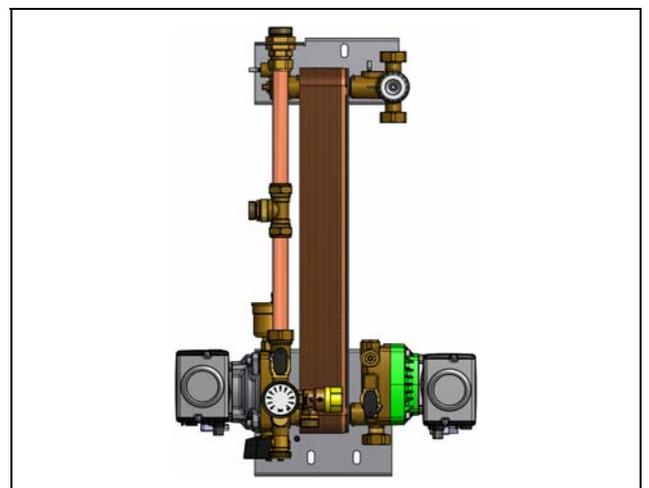
3. Warning



- Installation and operation should be executed in accordance with the locally applicable specifications and standard practices.
- Only qualified technical personnel should carry out the assembly, maintenance and cleaning of the shift layer module.
- Unauthorised modifications or changes are not permitted for safety reasons and will inevitably lead to the voiding of the warranty for the machine.
- The operating pressures provided may not be exceeded!
- If any errors occur – no matter of what type – please contact your heating system installer. Please do not carry out any repairs to the plant yourself, since these are not permitted by law and you can expose yourself to hazards as a result.

4. Structure of the shift layer module

Due to technical advancements, we reserve the right to make constructional changes on our products. Each of these changes are taken into account in the operating manual by replacing the respective pages. The module may sometimes vary from the appearance given in the illustration!



5. Safety Instructions



The station is to be connected paying attention to the following norms, country-specific guidelines and local water company regulations.

- **DIN EN 12828**
Heating systems in buildings
- **DIN 1988**
Technical rules for drinking water supply installation
- **DIN 4708**
Central warm water heating system
- **DIN 4751**
Heating system safety equipment
- **DIN 4753**
Water heater and water heating system for drinking supply and industrial water
- **DIN 4757**
Solar heating and solar-thermal systems
- **DIN 18380**
Central heating systems and service water systems
- **DIN 18381**
Gas, water and waste water installation work
- **DIN 18382**
Electrical cable and wiring systems in buildings
- **DIN EN 12975**
Thermal solar systems and their components
- **VDE 0100**
Setting up electrical operating equipment
- **VDE 0185**
General notes for setting up lightning protection systems
- **VDE 0190**
Main potential equalisation of electrical systems

This appliance is not intended for use by persons (including children) with limited physical, sensory or mental abilities or with a lack of experience and/or knowledge, unless they are being supervised by a person who is responsible for their safety, or have received instructions from such a person as regards its use. If the power supply cable of this device is damaged, then this must be replaced by the manufacturer or their customer service or similarly qualified technicians, in order to prevent hazards.

6. Installation and Commissioning

Before you start installation, please keep the following in mind:

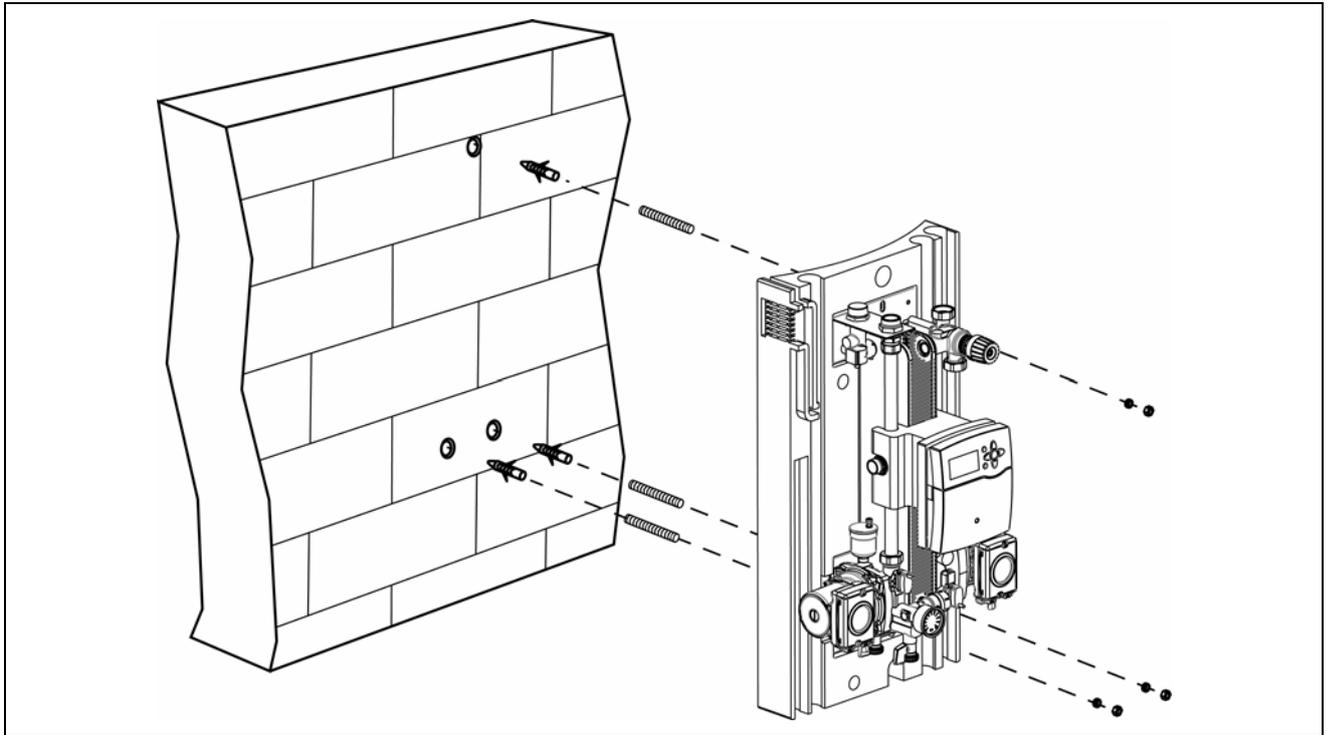
- Read through the entire operating manual and pay particular attention to the section Warnings.
- This device is not intended for operation by people (including children) with limited physical, age or mental abilities.
- Uninformed or inexperienced persons are permitted to operate the machine only under the supervision or instruction of a person responsible for the safety.
- The installations must sufficiently satisfy the respective official specifications.

6.1. Installation

The erection and installation must be done by an approved technical facility. This facility will also take on the responsibility for correct installation and commissioning. A dry, frost-free room that provides sufficient space for maintenance work is required as the installation site.

The shift layer module must be installed so that it is protected from splashing water and should be run only at room temperatures below 40°C.

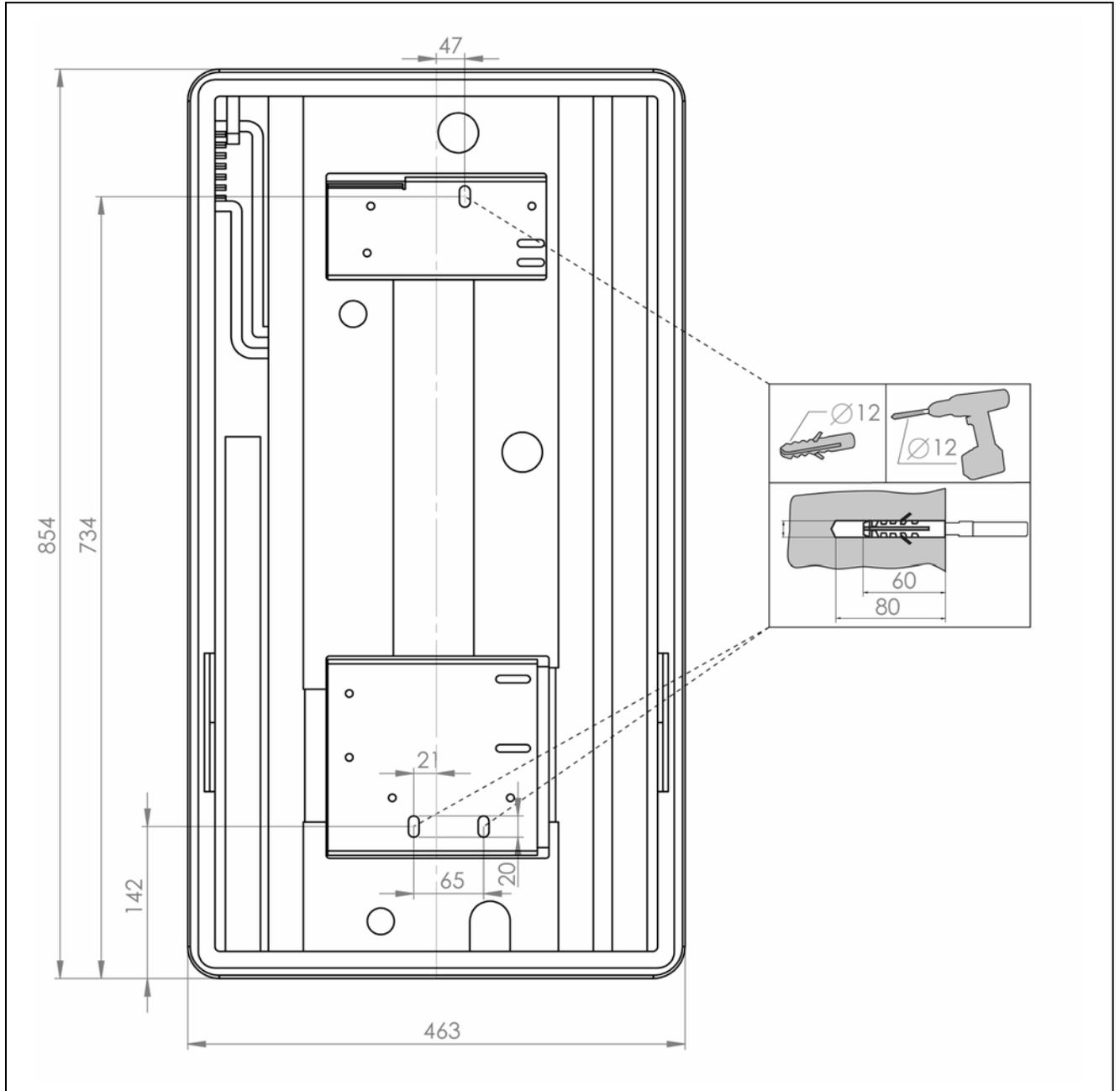
Wall installation



Wall installation takes place as follows with the included attachment material (3x M10 stair bolts, M10 nuts and 3 M10 washers):

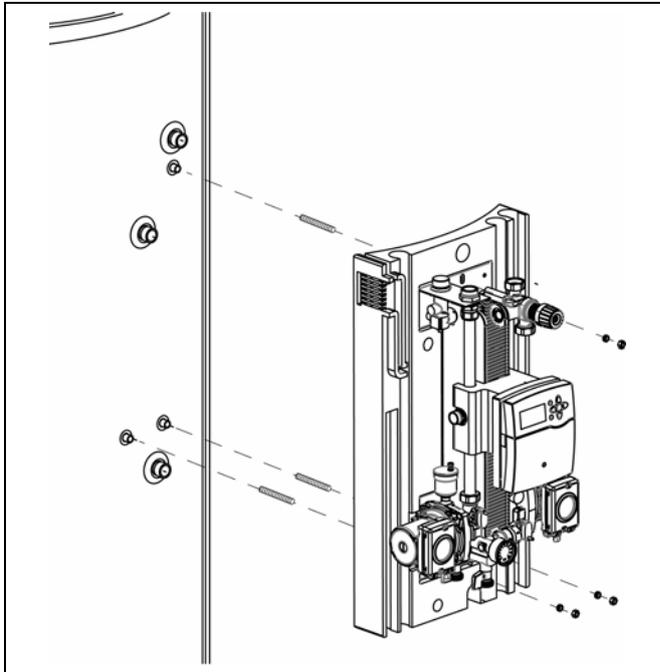
1. Drill at least 8 cm deep on the designated drill points with a \varnothing 12 mm according to the Drilling template (rear part insulation) included.
2. Afterwards, insert wall plug into the hole and screw the stair bolts into the wall until the wall plug threads are no longer visible.
3. Now hang the shift layer module on the threaded bolts and mount it using the flat washers and nuts.

Drilling template for wall installation

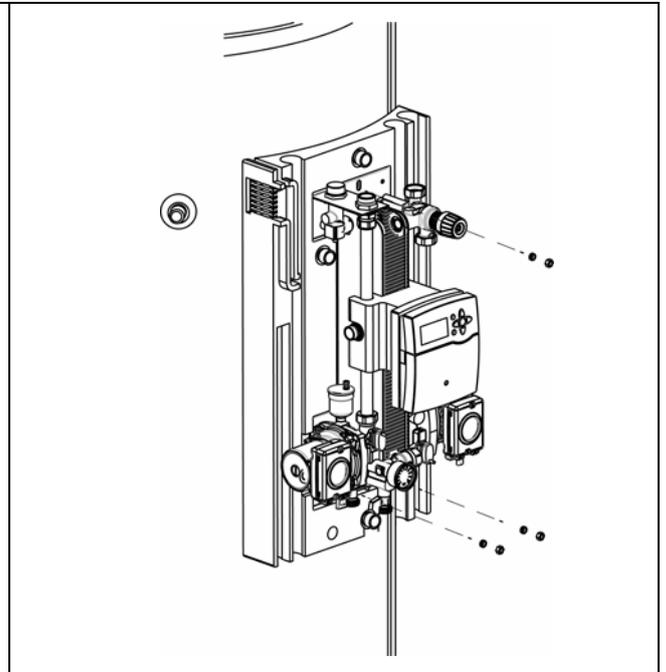


Tank installation

Tank installation takes place as follows in 3 steps with the installation material included:

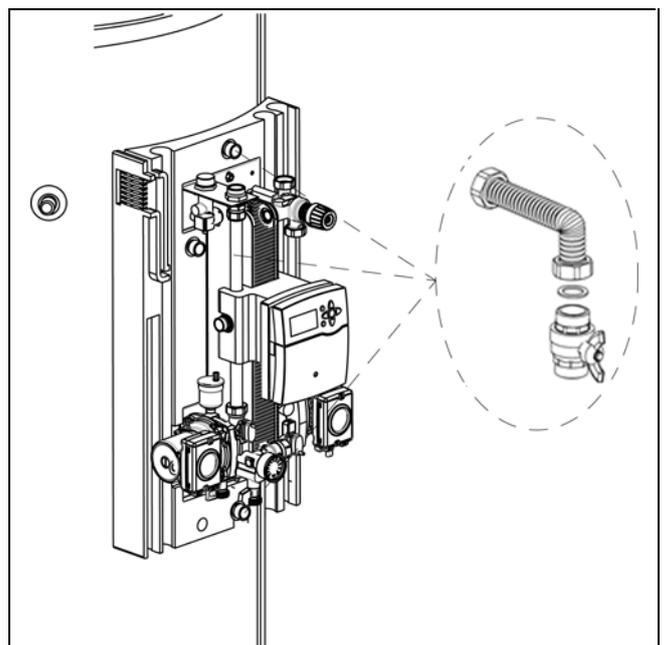


Step 1: (Image above)
Install and tighten the 3 threaded rods onto the respective tank connectors.



Step 2: (Image above)
Push the shift layer module over the threaded rods and fix the module to the tank using the flat washers and nuts.

Step 3: (Image right)
Install the 3 corrugated tubes with the seals to the module.



6.2. Hydraulic connection

Line connection takes place according to the installation layout in this manual. See 1.2. Application example:

- The line paths to the buffer should be as short as possible!
- We recommend steel or copper piping as line material. The installation order is to be followed for all lines and fittings in order to prevent electrochemical corrosion.
- Installation of a gravitational heating system is not permitted!
- Connection of the collection circuit expansion tank must take place as a direct connection.
- Installation of shut-off valves (except for suitable maintenance units like cap valves) is not permitted!
- Connections are to be tightened only after the tubing has been sealed. Tightening torques or impact of forces on components and connections that have already been pre-mounted must be avoided at all costs!



Additionally, check all flat sealing screws for proper swivel nut tightening torque (screws can become loose during transport!).

6.3. Electrical connections

Internal wiring of electrical equipment is conducted onsite. Connection to the power supply (230 V/AC, 50 Hz) takes place by means of the preclamped supply cable.

The buffer sensors included are installed on the respective buffer tank metering points according to their labelling **Buffer top** and **Buffer bottom** and connected to the affected control clamps as well as the collector sensor included in the scope of delivery. The controller manual contains comprehensive information on the controller integrated in the module.

Work on live parts of the module is carried out only after following the respective regulations of the electricity supply company and the relevant standards applicable.

6.4. Commissioning



Only use water prepared according to the standards (e.g., ÖNORM H 5195-1:2010). All lines must be diffusion resistant.

Filling and commissioning must be done by an approved technical facility and concessionary personnel. Here, the function and tightness against leaks of the entire plant including the parts assembled in the manufacturing works should be checked. Safety valve functionality is to be checked at regular intervals. Annual maintenance by an approved technical facility is recommended.

Opening the ball valves slowly at the inlet and outlet of the module prevents pressure shocks during the rinsing process. Use the cleaning connections provided for filling the collector circuit. See 7.1. Construction.

The filling and rinsing must be carried out until it is ensured that the system is completely de-aerated. Flow noises during buffer pump operation indicate that there is still air in the machine that can be removed via the pump and manual primer.

Close the collector return line at the end of the filling process and adjust the system pressure to approx. 3 bar (this applies to expansion tanks with a system pressure of 2.5 bar, the static height of the machine must be taken into consideration as well).



Before opening each control box housing, ensure that it is disconnected from the power supply!

Do not fill in direct sunlight because this can lead to steam hammering!

Cleaning and filling the collector circuit:

The filling and rinsing must be carried out until it is ensured that the system is completely de-aerated. Flow noises during collector pump operation indicate that there is still air in the machine that can be removed via the manual primer.



Before beginning with the cleaning and/or filling process, please read through this item well.

Solar-side (collector side)

See 7.1. Construction.

1. Only heating glycol water mixtures (frost-resistant to at least -25°) may be used for filling the solar circuit.
2. Before beginning with cleaning and filling, make certain that all connections (solar forward/return flows, etc.) are provided with correct seals and are tightly connected.
3. Connect the fill pump forward flow to KFE valve A (filling nozzle).
4. Connect the fill pump return flow to KFE valve B (purging nozzle).
5. First, open KFE valve A (handle in flow direction).
6. Now, open KFE valve B (handle in flow direction).
7. Start the cleaning process of the solar circuit by switching on the filling pump.
8. Let the pump run until the glycol water mixture flows back into the tank without bubbles.
9. Close KFE valve B (handle against flow direction).
10. Pay attention to the gauge.
11. When the gauge has reached the desired operating pressure, close KFE valve A (handle against flow direction).
12. Now, the pump can be switched off and the filling pump connections can be disconnected from the KFE valves A and B.
13. The solar circuit is now completely filled and ready for use.
14. Should air noise be discovered in the circuit during operation, then begin with point 1 again.

Buffer-side

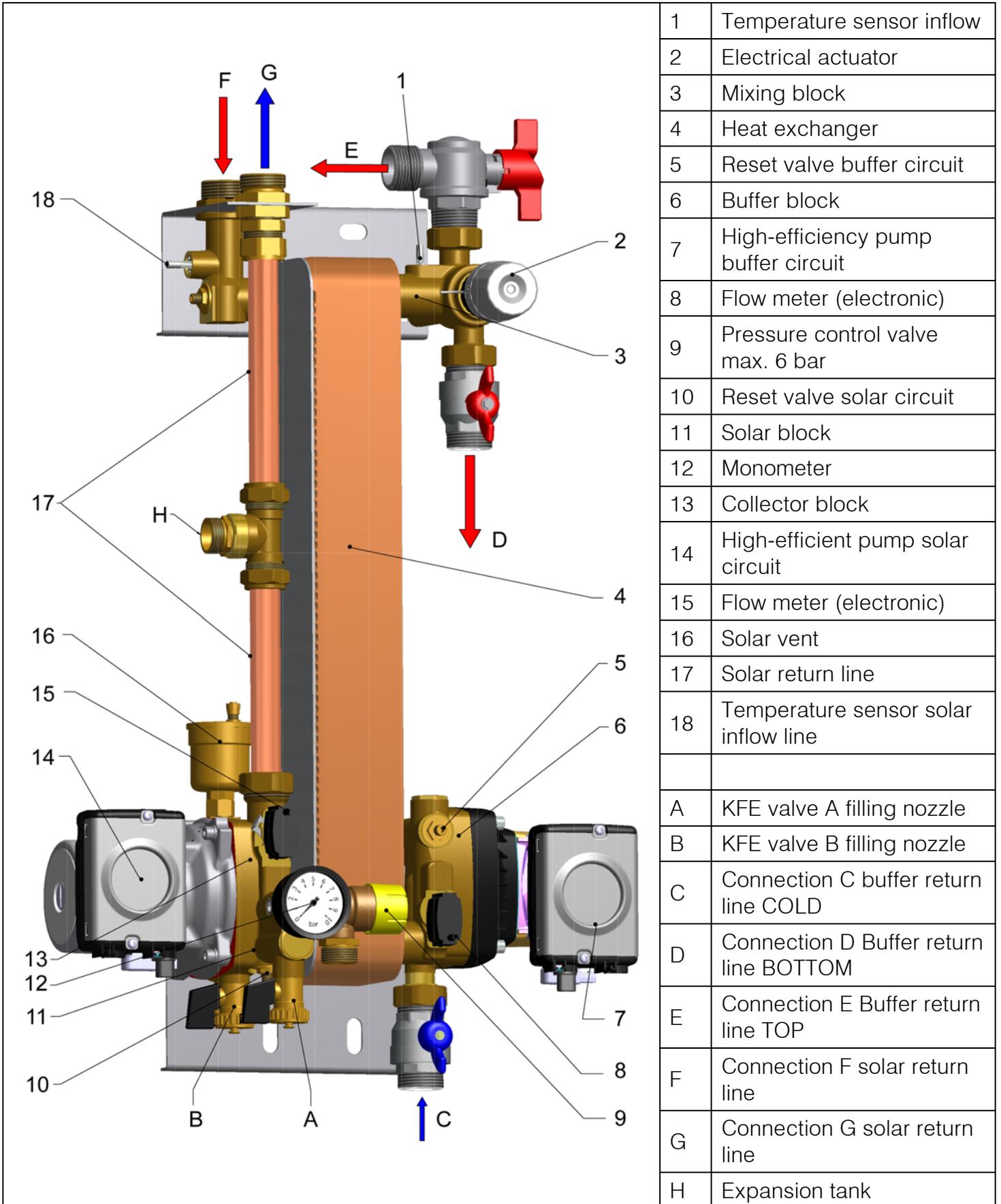
1. Only heating water can be used according to norm ÖNORM H 5195-1:2010 for filling the buffer circuit and buffer tank.
2. Before you start connecting the lines from the shift layer module to the buffer tank, shut the ball valves C, D and E (handle in the direction opposite to the flow) on the shift layer module.

3. Before beginning with filling, make certain that all connections are provided with correct seals and are tight.
4. Now, open all valves to the connection lines on the buffer tank.
5. Now open valve C, then valve D and finally, valve E at the shift layer module.
6. If no water noise is heard, switch the buffer circuit pump on manually. See separate SKSC 3+ Controller user's manual.
7. Let this process run for several minutes. Afterwards, switch the pump off.
8. Vent the buffer tank and top-off with heater water if necessary.
9. The buffer circuit is now completely filled and ready for use.

7. Technical Data

		SLM50HE
Dimensions	Width	470 mm
	Height	850 mm
	Depth	285 mm
Cover		EPP black RG 60 g/l
Solar piping		Copper pipe \varnothing 22 mm * 0.8 mm
Buffer piping		Metal hose stainless steel 1.4404, \varnothing 26.2 mm * 0.18 mm
Weight		~ 25 kg
Connections	A	KFE valve filling nozzle G3/8" AG
	B	KFE valve purging nozzle G3/8" AG
	C	Buffer return line cold G1" AG
	D	Buffer return line warm G1" AG
	E	Buffer return line hot G1" AG
	F	Solar inflow line G1" AG
	G	Solar return line G1" AG
	H	Expansion tank G3/4" AG connection, position in the solar return line high-pressure side
Maximum operating pressure		
Collector circuit		max. 6 bar
Buffer circuit		max. 3 bar
Solar pump	Nominal voltage	230 VAC / 50 Hz
	Nominal output	4 – 70 W
	max. delivery height	0.3 – 7.5 m
Buffer loading pump	Nominal voltage	230 V / 50 Hz
	Nominal output	4 – 70 W
	max. delivery height	0.3 – 7.5 m
Plate heat exchanger (glycol/water)	Power	~ 26 kW
	Inlet temperature	60°C (glycol) / 29°C (water)
	Outlet temperature	35°C (glycol) / 54°C (water)
	Flow rate amount	970 kg/h

7.1. Construction



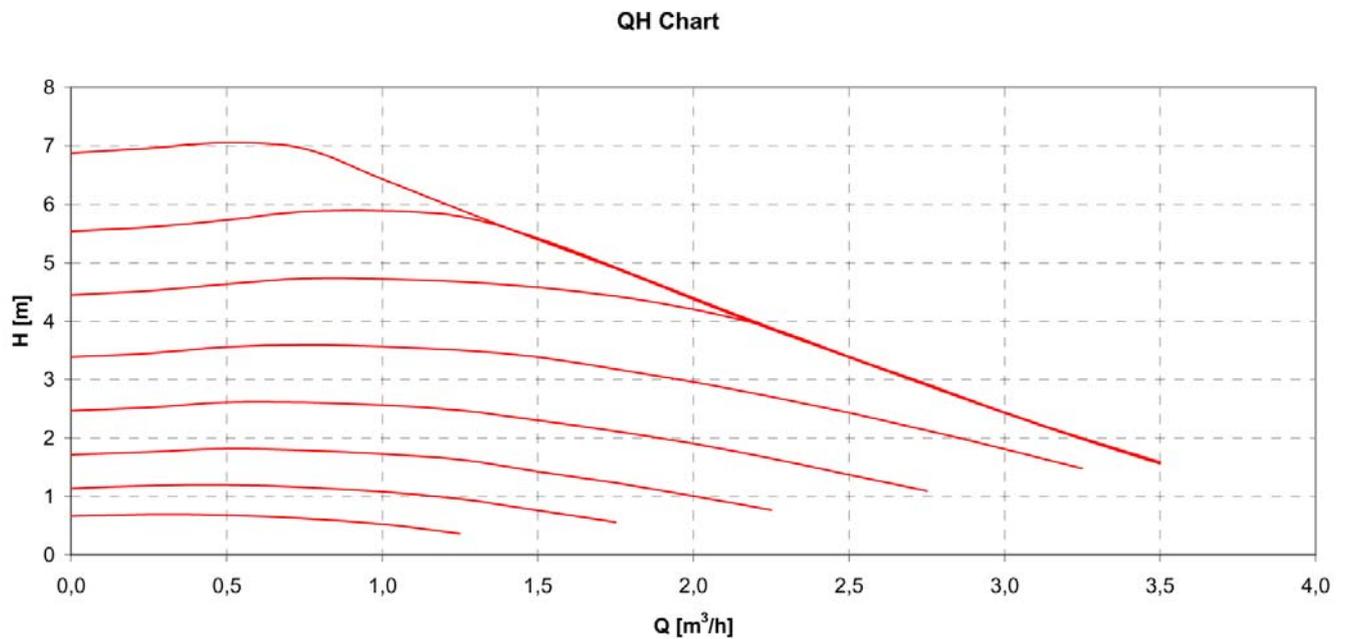
8. Spare parts

Pos. no.	Article description	Article designation	Article no.
2	Actuator for switching valve	SLM50HE-SA	130523
8, 15	Flow sensor VFS 2-40	SLM50HE-DFS	130524
5, 10	Valve insert volume flow control	SLM50HE-VES	130525
9	Pressure control valve 6 bar with safety cotter pin	SLM50HE-ÜDV	130527
12	Manometer 10 bar axial	SLM50HE-MM	130528
16	Solar vent 3/8"	SLM50HE-EL	130529
-	Cotter pin set SLM50HE	SLM50HE-SS	130530
-	Seal set SLM50HE	SLM50HE-DS	130531
-	Tank connector set for SLM50HE	SLM50HE-SAS	130532
-	Installation set for SLM50HE	SLM50HE-MS	130533
-	3-circuit control SKSC3+	SKSC3+	141170
A, B	KFE valve 3/8"	SLM50HE-KH10	130534
7	Tank charge pump UPM2 15/75	SLM50HE-SLP	130535
14	Collector charge pump Solar PM2 15/75	SLM50HE-KLP	130536
-	Insulation (black) incl. logo and icon (5-part) for SLM50HE	SLM50HE-ISO	130537
-	Insulation (black) incl. logo and icon (5-part) for SLM50HE-O	SLM50HE-O-ISO	130538
D	Ball valve, 1" both way incl. 2 seals, red	SLM50HE-KH25R	130567
C	Ball valve, 1" both way incl. 2 seals, blue	SLM50HE-KH25B	130568
E	Angle type ball valve, 1" both way incl. 2 seals, red	SLM50HE-KHE	130569
-	Valve insert for 3-way switching-valve	SLM50HE-VES	130526

9. Warranty

The purchaser has a warranty of 2 years from the date of purchase on the module and its components. Installation and use of the module as specified is required for this.

Pump characteristic line



Declaration of Conformity

The product conforms to relevant guidelines and thus has the CE label.
The Declaration of Conformity can be requested from the manufacturer.

Notes

Notes



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