

Installation and service manual

Powerful domestic water boiler

HFS
600 - 750

Dear customer,

Thank you for purchasing this appliance.

Be sure to read this manual carefully before using the product and keep it in a safe place for future use.

To ensure continued safe and proper operation, we recommend having the product serviced regularly. Our service and customer service organisation can assist you with this.

We hope you will continue to enjoy the product for many years to come.

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1 Introduction

1.1 Symbols used

This manual uses various danger levels to draw attention to the special instructions. We do this to increase the safety of the user, to prevent problems and to ensure the technical reliability of the device.



Danger

Chance of dangerous situations that can cause severe personal injury.



Danger of electric shock

Danger of electric shock



Warning

Chance of dangerous situations that can cause minor personal injury.



Attention

Chance of property damage.



Explanation

Attention, important information.



See

Reference to other manuals or other pages in this manual.

HW: hot water

1.2 General information

Congratulations! You have chosen a quality product. We advise you to read the instructions below in order to ensure the optimal operation of your installation. We are confident that this product will meet your expectations. The manufacturer cannot be held liable for damage resulting from incorrect use of the appliance, deficient or inadequate maintenance or incorrect installation of the appliance (it is your responsibility to have the installation performed by an authorised heating installer).

2 Safety instructions and recommendations



Attention

Installation, commissioning and maintenance must be performed by a competent technician and in accordance with the applicable legal requirements and supplied instructions.



Attention

Heating water and domestic water may not come into contact with each other.

Regular maintenance of the appliance is necessary to ensure reliable and safe operation. If the hot water boiler is modified in any way, the warranty will be void.

3 Technical description

3.1 General description

The HFS 600 / HFS 750 is a powerful hot water boiler for legionella-free heating of domestic water based on continuous recirculation with heating boiler and solar energy installation. The hot water boiler is suitable for use where there is a high demand for hot water, in the types of situations found in:

- Hotels
- Care complexes
- Apartment complexes
- Campsites
- Sports accommodations
- Farm / cattle ranches
- Process industry
- etc.

Description of the product:

- Steel boiler vessel with a volume of 600 and 750 litres respectively
- Boiler vessel externally protected by a rust-inhibiting layer, black
- Domestic water coil made of corrugated stainless steel pipe, grade 1.4404
- Insulation of polyester fibre (120 mm) with Neopor white outer covering.
- Incl. thermometer met immersion sleeve

3.2 Technical data

Type		HFS	600	750	
Buffer vessel	Nominal volume	Litre	620	750	
	Max. operating overpressure	bar	6	6	
	Max. operating temperature	°C	95	95	
Heatexchanger	Corrugated stainless steel coil	Litre	46	52	
	Max. operating overpressure	bar	8	8	
	Consumed energy at 35 K	kW	150	195	
	Continuous capacity 35 K	l/hr	3000	4800	
	Situation 1: Return line from the heating boiler connected to the upper connection (connection 3 + 6, page 7)				
	Flow in 10 min. at 35 K (mixed) (1)	l/10 min	750	990	
	Power index		18	45	
	Situation 2: Return line from the heating boiler connected to the lower connection (connection 8, page 7)				
Flow in 10 min. at 35 K (mixed) (1)	l/10 min	900	1200		
Power index(1)		25	62		
Stand-by losses Vtotal = 55 °C (primary temperature)	kWh/24 h	2.7	3		
Cooling constant Cr		0.13	0.14		
ErP data					
	Boiler volume V	l	653	742	
	Standby heat loss S	W	113	125	

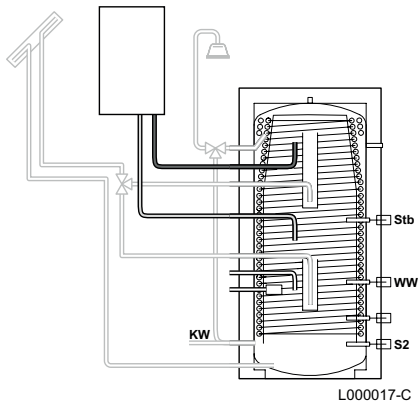
(1) Temperature cold water supply: 10 °C - Outlet temperature hot water unit: 45 °C - Primary temperature 80 °C
Target value hot water unit: 70 °C

3.3 Description of operation

3.3.1 Filling the hot water boiler

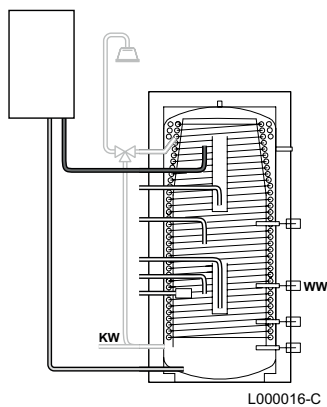
■ Situation 1: Heating boiler + collector circuit

S2: Solar boiler sensor
Stb: Boiler sensor



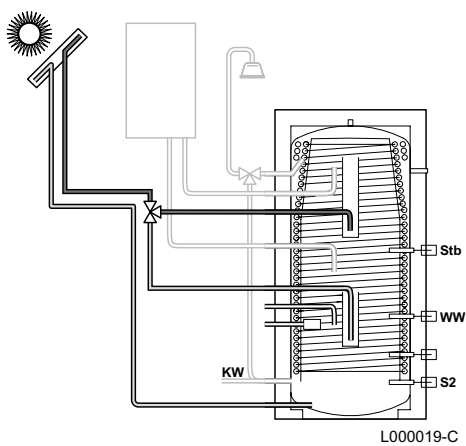
■ Situation 2: Only heating boiler

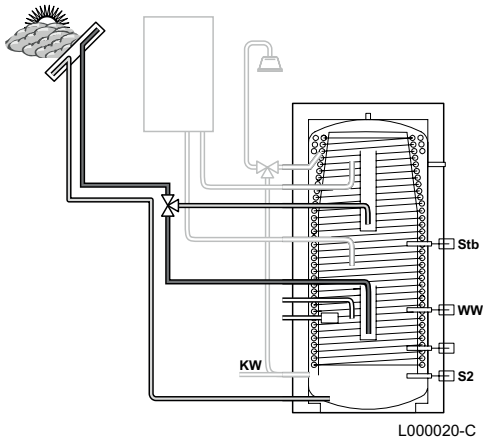
HW: Boiler sensor



■ Situation 3a: Charging via the solar energy installation, at top, with boiler

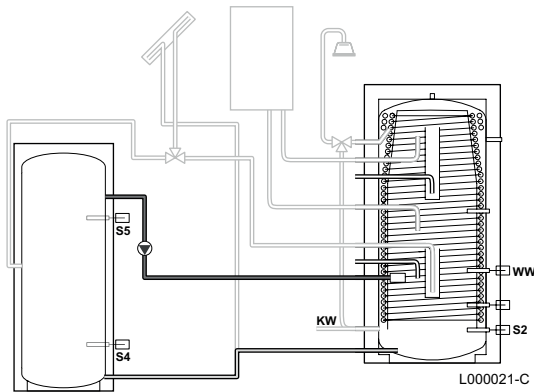
S2: Solar boiler sensor
Stb: Boiler sensor





■ **Situation 3b: Charging via the solar energy installation, at bottom, with boiler**

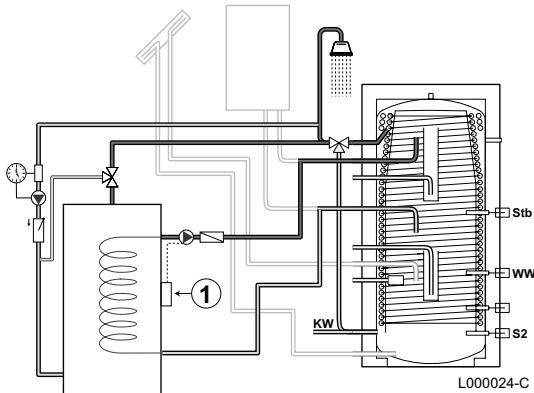
S2: Solar boiler sensor
Stb: Boiler sensor



■ **Situation 4: Filling / draining via buffer**

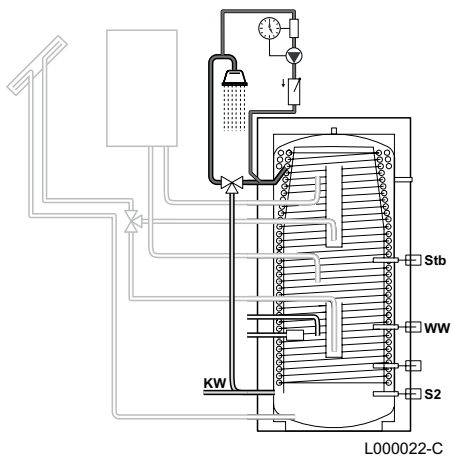
S2: Solar boiler sensor
S4: Buffer - bottom
HW: Boiler sensor
S5: Buffer - top

3.3.2 Installation of a recirculation line



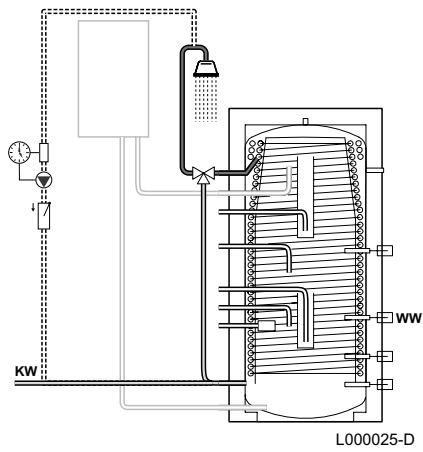
■ **Situation 1: Recirculation: use of a separate recirculation buffer (with a flow rate loss of more than 250 l/hr: see ISSO publication 55.1 section 4.2.3 Thermal management concept).**

① Thermostat x °C
S2: Solar boiler sensor
Stb: Boiler sensor



■ **Situation 2: Recirculation: use of optional recirculation connection set 100020184 at a flow rate loss of up to 250 l/hr (see ISSO publication 55.1 section 4.2.3 Thermal management concept).**

S2: Solar boiler sensor
S4: Boiler sensor CH boiler



- **Situation 3: Recirculation without collector circuit (at a flow rate loss of more than 250 l/hr: see ISSO publication 55.1 section 4.2.3 Thermal management concept).**

HW: Boiler sensor

4 Installation

4.1 Installation instructions

All aspects of the installation must be carried out in accordance with the current regulations for work performed and technical systems in private, public or other buildings.



Attention

The installation must be carried out in accordance with the current regulations, best practices for technical work, and the instructions in this manual.

4.1.1 Domestic water quality

Self-cleaning effect

Boilers with corrugated stainless steel coil for heating of domestic water are insusceptible to deposits of pure lime (pure calcium). Pressure differences in the pipe during opening and closing of the taps cause pressure surges in the corrugated stainless steel coil. This causes the coil to stretch slightly and then contract again.

These movements in the coil are sufficient to cause 'normal' lime deposits (calcium) to flake off. The dissolved lime is flushed away when a tap is opened.



Attention

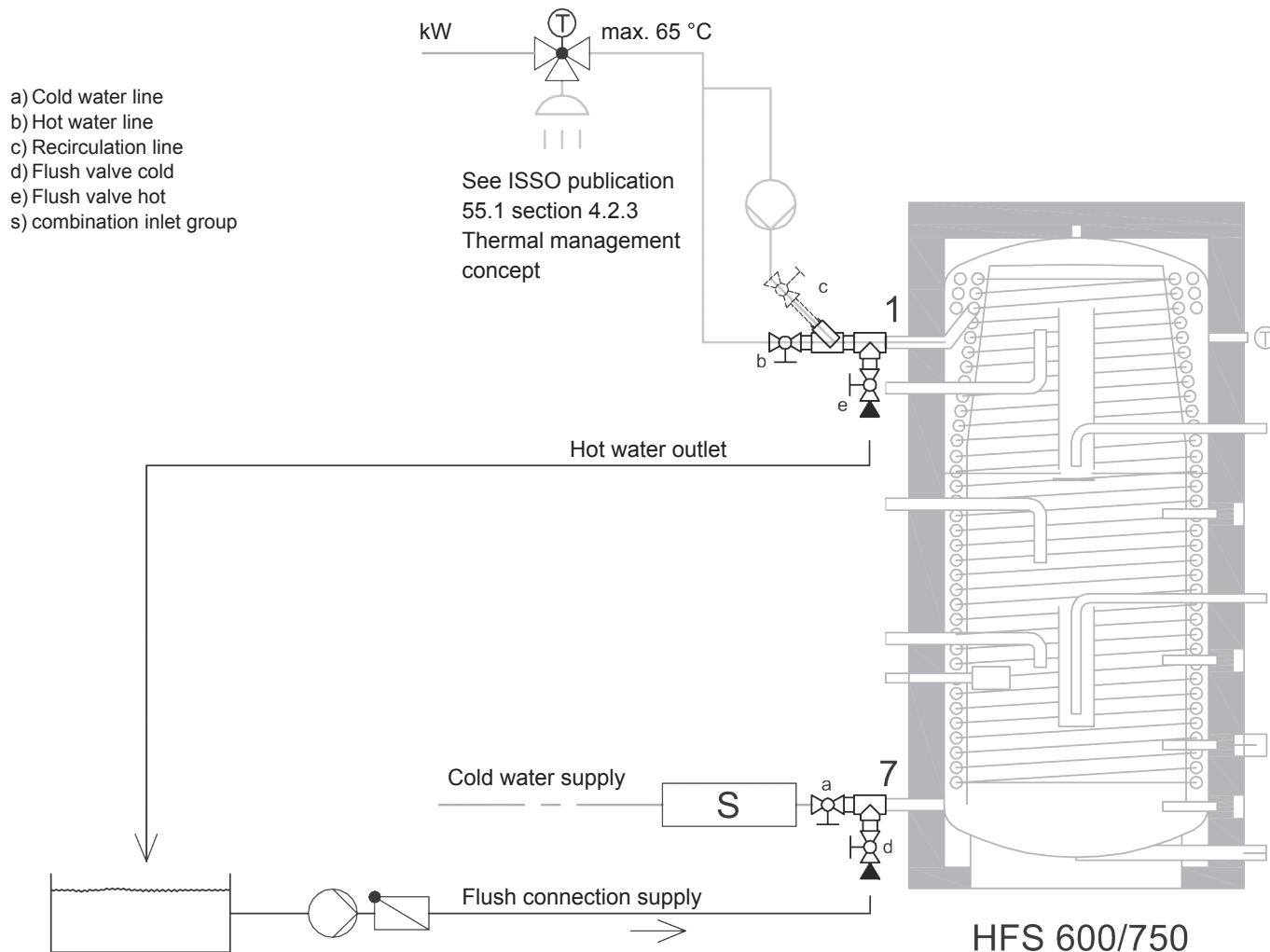
This self-cleaning effect of the corrugated stainless steel coil in HFS boilers is no longer sufficient when in addition to the lime (calcium) there are also other substances such as free carbonic acid and magnesium present in the water. When lime and free carbonic acid are present in the water, these substances react to form 'scale'. The presence of magnesium in the water at a filling temperature > 60 °C promotes the formation of scale.

Boiler scale, in contrast to lime, is not broken loose by the self-cleaning effect of the corrugated stainless steel coil but rather forms larger deposits. When the pressure is relieved from the corrugated stainless steel coil in the boiler, during maintenance for example, boiler scale in solid form may break loose and clog the coil (heat exchanger).

For domestic water containing these substances, the corrugated stainless steel coil must be inspected regularly and decalcified with a softening agent as necessary or a decalcification system must be installed in the cold water supply line of the HFS domestic water boiler.

Operation:

Flushing connection set HFS 600-750 for flushing the corrugated stainless steel coil to remove deposits of boiler scale

**Flushing provisions on the HFS:**

The flushing provisions on the HFS must, in accordance with regulations, consist of the following parts:

2 T-fittings, 2 shut-off valves

Installation: in the cold water line before the inlet on the HFS boiler and on the hot water outlet.

The extra valves makes it possible to shut off the cold and hot water lines, empty and inspect the corrugated stainless steel coil in the HFS boiler and flush it with a suitable flushing agent if necessary.

After completion of these tasks, the cold water valve must be opened first and the corrugated stainless steel coil must be flushed with clean water.

Only after flushing may the hot water line be opened again.

4.2 Scope of delivery

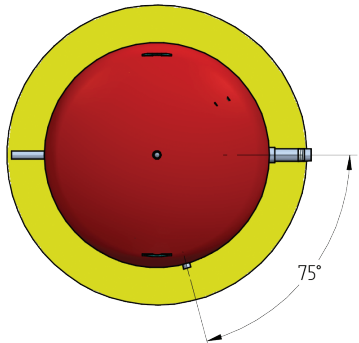
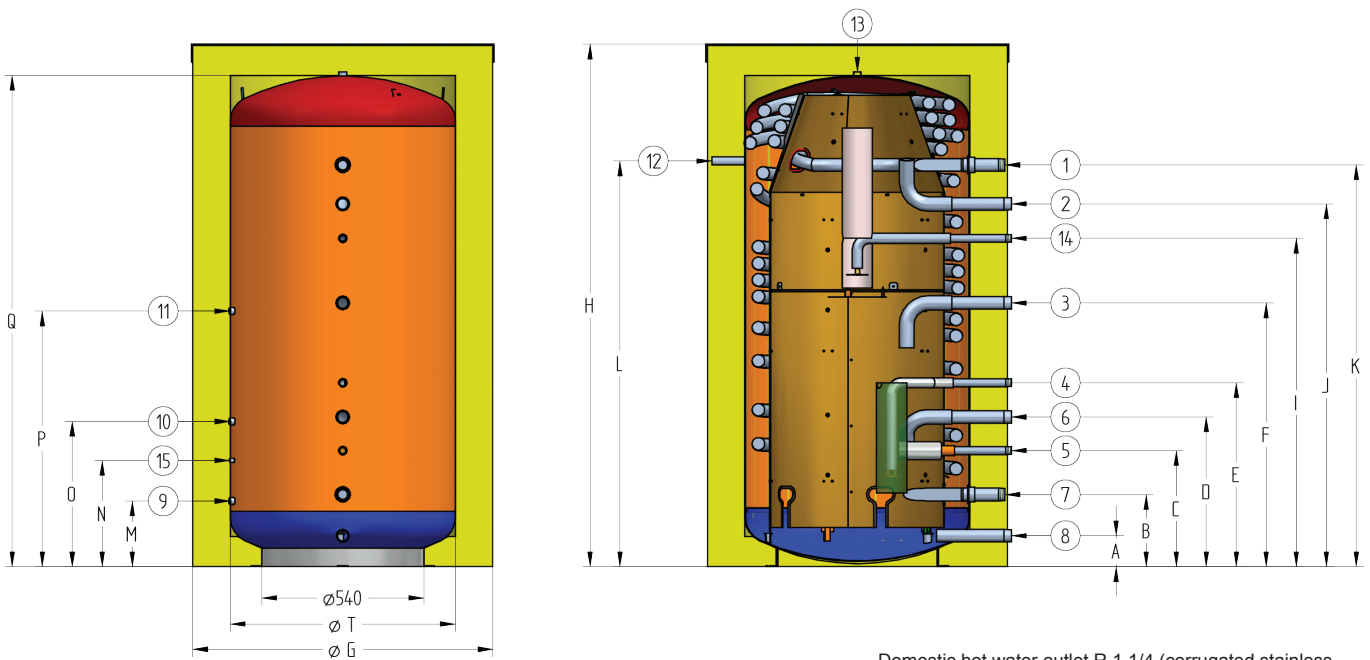
Name	
Buffer vessel	1
Cover	1
Options:	
- Connection set recirculation line set	100020184

4.3 Placement

The device:

- Install in a location protected from freezing temperatures
- Place on a concrete pad to make it easier to clean the space
- Install as close as possible to a tap point to keep heat loss in the pipes to a minimum.

4.4 Main dimensions – Connections



- ① Domestic hot water outlet R 1 1/4 (corrugated stainless steel coil)
 - ② Heating boiler supply R 1 1/4
 - ③ Heating boiler return line - with modulating heating boiler R 1 1/4
 - ④ Collector circuit connection - supply line 1 R 3/4
 - ⑤ Fill/drain connection R 3/4
 - ⑥ Heating boiler return line 2 - with modulating heating boiler R 1 1/4
 - ⑦ Cold water supply R 1 1/4 (corrugated stainless steel coil)
 - ⑧ Collector circuit return line connection R 1 1/4 heating boiler return line (without collector circuit)
 - ⑨ ⑩ ⑪ Immersion sleeve Ø16 mm
 - ⑫ Thermometer connection Rp 1/2
 - ⑬ Manual air bleed Rp 1/2
 - ⑭ Supply – collector circuit 2 R 3/4
 - ⑮ Immersion sleeve Ø7 mm
- Boiler dimensions
 Diameter: Ø750 mm
 Height HFS 600/750: 1755-1970 mm
 Tilting dimension HFS 600/750: 1740/1950 mm
 R = male thread
 Rp = female thread

	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm
HFS 600 W	100	237	383	495	609	875	1000	1755	1090
HFS 750 W	100	237	596	708	822	1088	1000	1970	1303
	J mm	K mm	L mm	M mm	N mm	O mm	P mm	Q mm	T mm
HFS 600 W	1205	1335	1348	215	350	480	848	1631	750
HFS 750 W	1418	1547	1561	231	405	646	1061	1844	750

4.5 Mounting the appliance

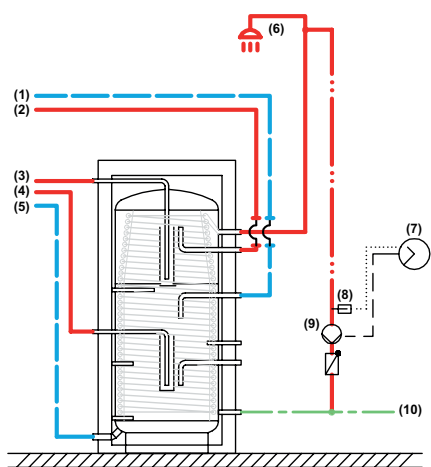
4.5.1 Installation of a recirculation line set

To ensure that hot water is available at the taps, an inline recirculation system can be connected to the HFS. The inline recirculation system is not part of the boiler and must be ordered separately. Be aware that the boiler temperature is reduced by the complete recirculation line. The following hydraulic configurations can be used.

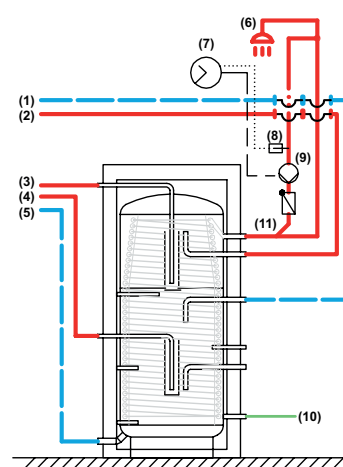
The recirculation set is connected to the outlet of the hot water boiler, directly in series with the outlet or as diversion through use of a T-fitting (depending on the flow). The hose must be inserted in the hot water outlet over a length of at least three meters and connected to the return line of the recirculation line and the cold water supply of the thermostatic tap water mixing valve. A timer must be installed for the recirculation line.



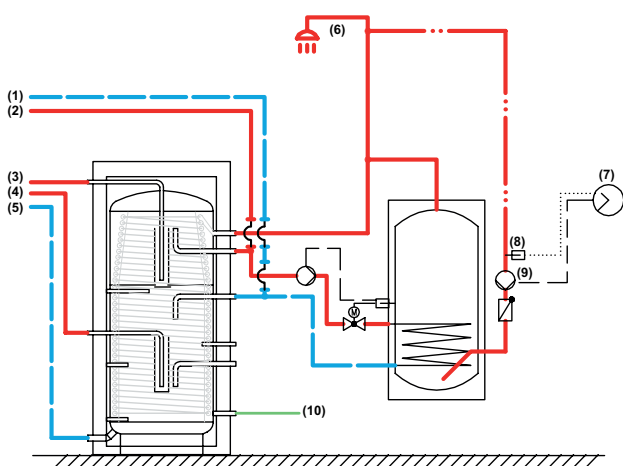
See Thermal management concept ISO publication 55.1, section 4.2.3



Recirculation connection via the cold water line



Recirculation connection through use of the inline recirculation connection set (without tap water mixing valve)



Recirculation connection via the recirculation buffer

Legend:

- 1) return – CH boiler
- 2) supply – CH boiler
- 3) -
- 4) supply – collector circuit
- 5) return – collector circuit
- 6) Domestic hot water
- 7) timer
- 8) sensor
- 9) domestic water pump
- 10) supply – cold water
- 11) inline recirculation line

4.5.2 Mounting the boiler



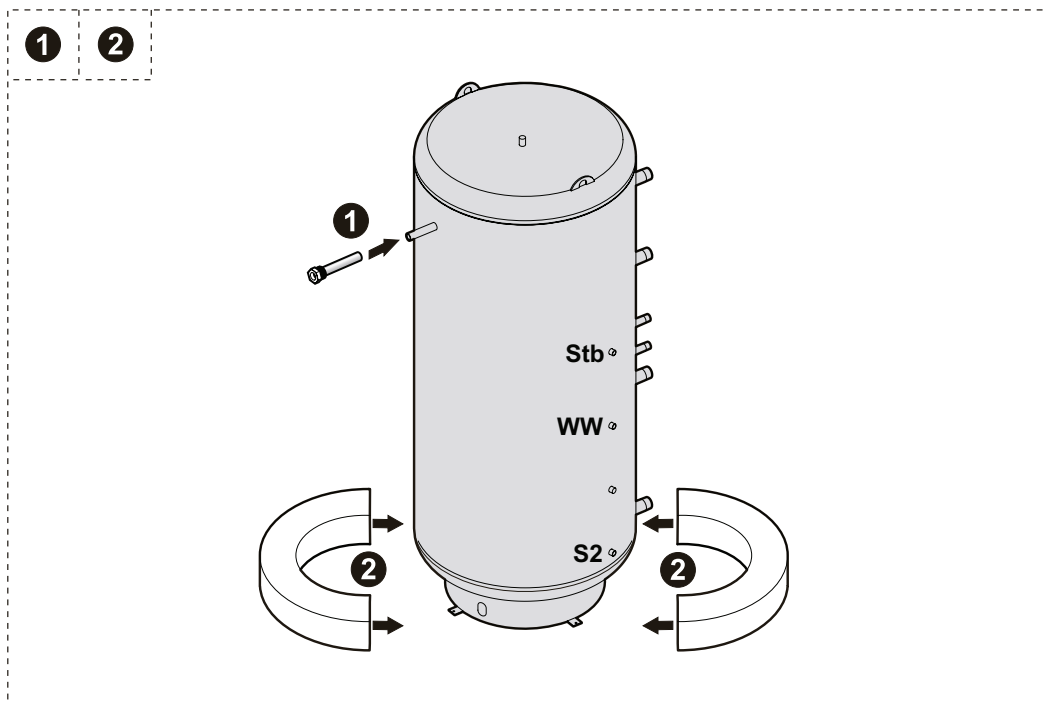
Attention

The installation must be carried out in accordance with the current regulations, best practices for technical work, and the instructions in this manual.



Danger of electric shock

Solar collectors must be protected against lightning strikes and be earthed.

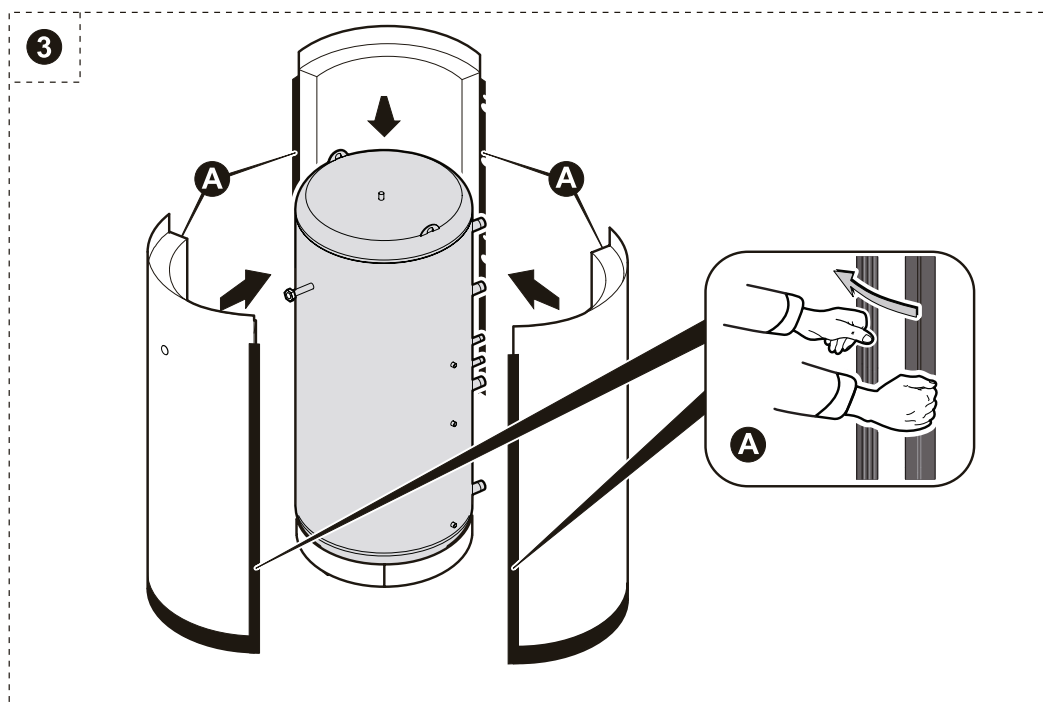


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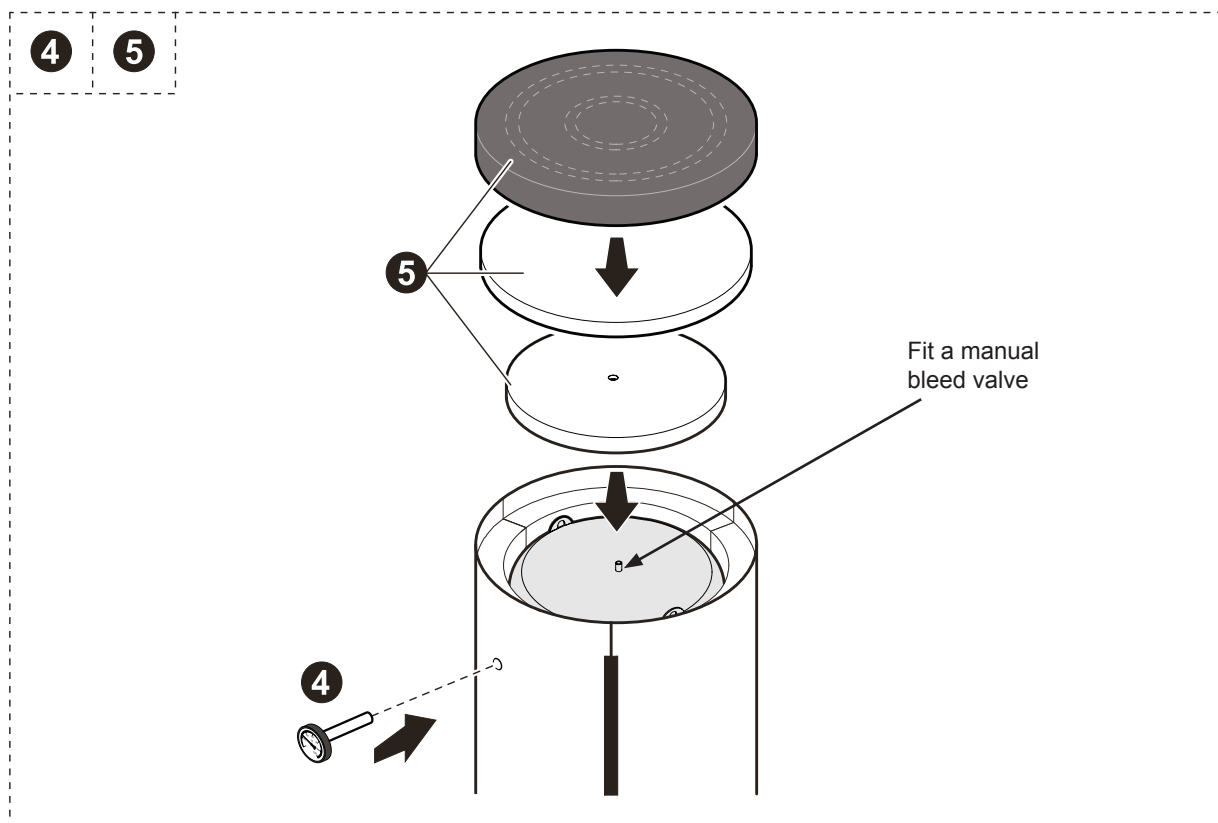
S2, Stb: Before proceeding with the installation the sensors must be placed in the corresponding immersion sleeves.



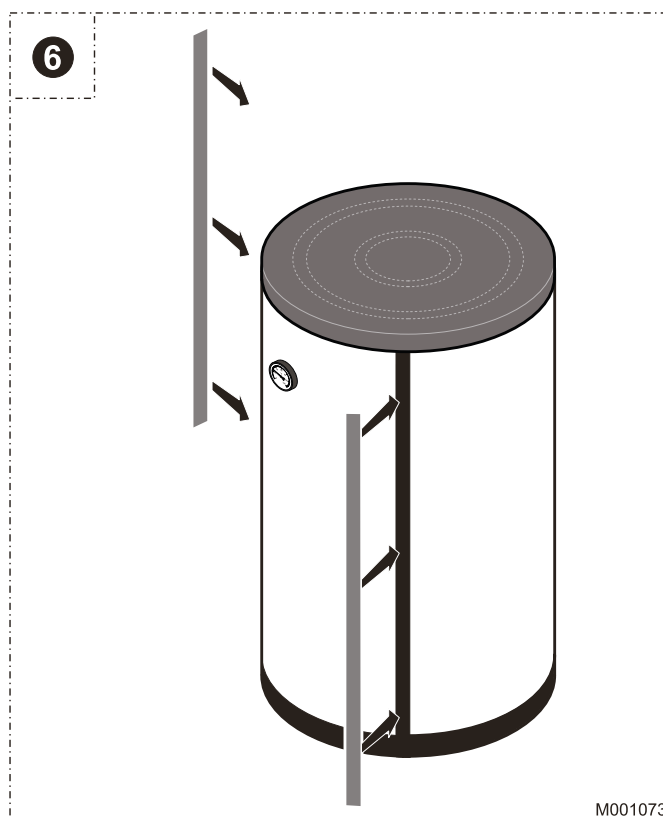
See
Page 5



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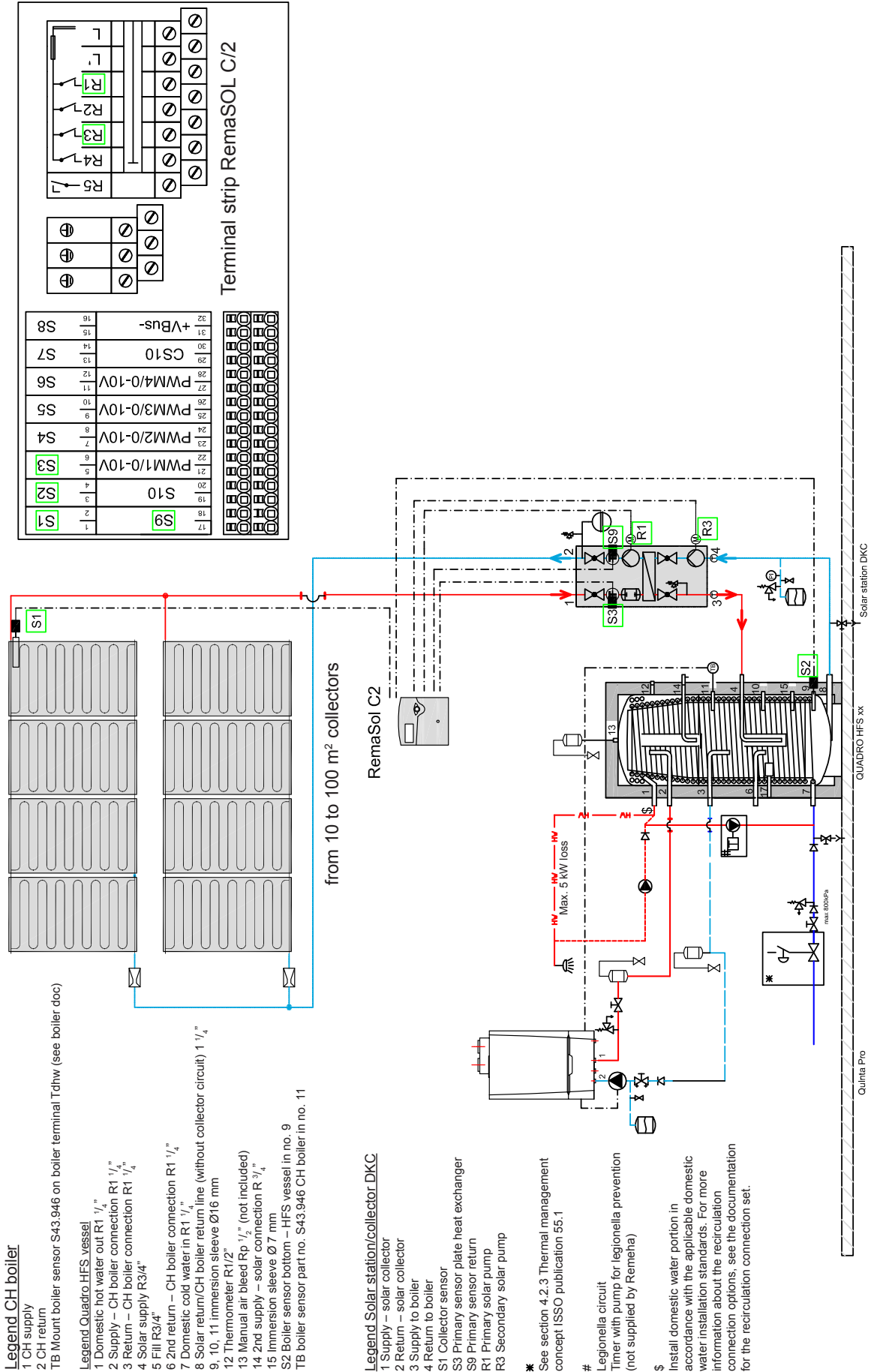
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4.6 Hydraulic examples

1. Quinta Pro + HFS + DKC + collector field

Select diagram SC514000.SET from the SD card (see control station doc section 2.4)
The components enclosed in a green rectangle are used.



2. Quinta Pro + HFS + P-buffer + DKC + collector field

Select diagram SC514000.SET from the SD card (see control station doc section 2.4)
The components enclosed in a green rectangle are used.

Legend CH boiler

- 1 CH supply
- 2 CH return
- TB Mount boiler sensor S43.946 on boiler terminal Tdhw (see boiler doc)

Legend Quadro HFS vessel

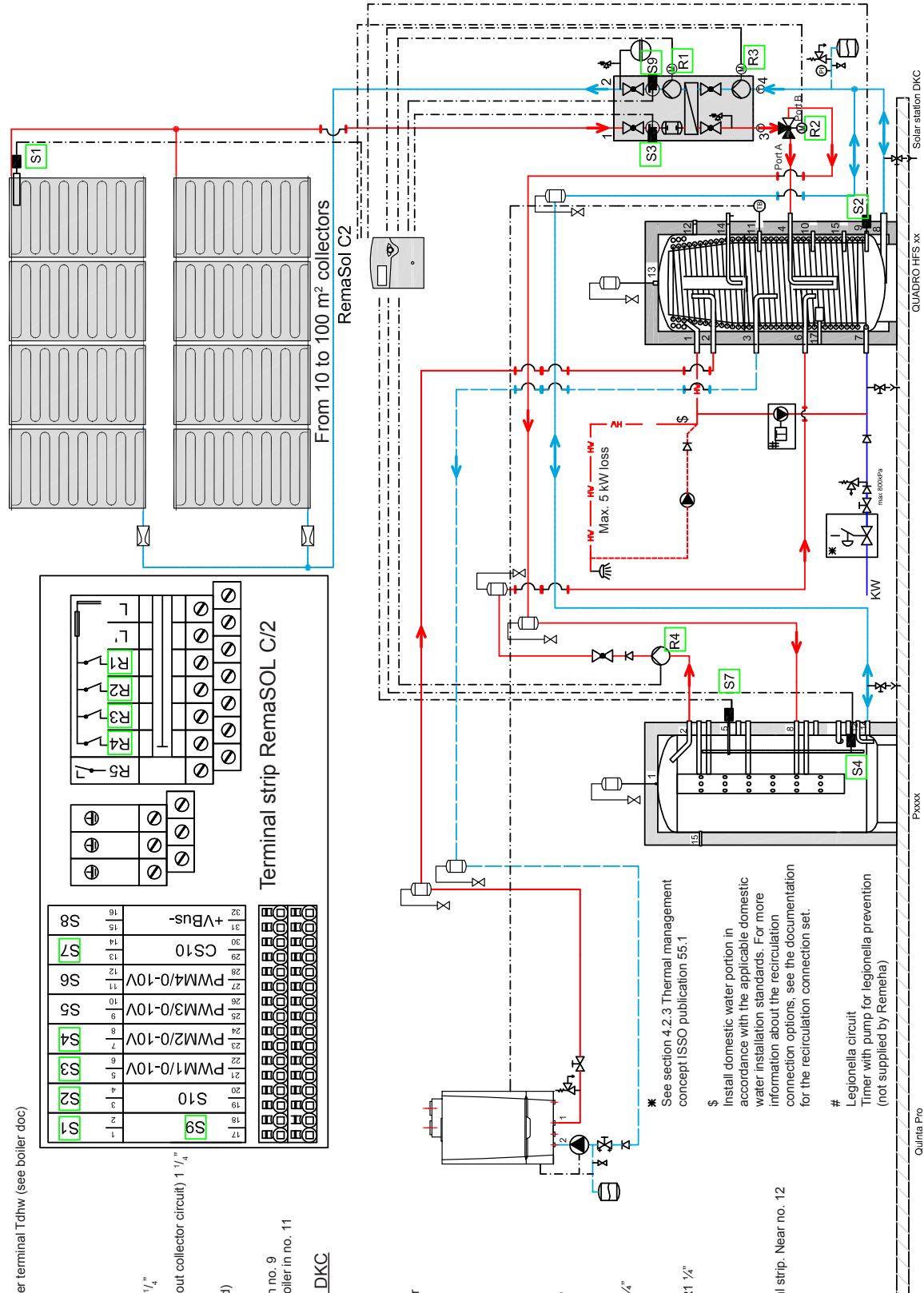
- 1 Domestic hot water out R1 1/4"
- 2 Supply - CH boiler connection R1 1/4"
- 3 Return - CH boiler connection R1 1/4"
- 4 Supply - solar R3/4"
- 5 Fill R3/4"
- 6 2nd return - CH boiler connection R1 1/4"
- 7 Domestic cold water in R1 1/4"
- 8 Solar return/CH boiler return line (without collector circuit) 1 1/4"
- 9, 10, 11 immersion sleeve Ø16 mm
- 12 Thermometer R1/2"
- 13 Manual air bleed Rp 1/2" (not included)
- 14 2nd supply - solar connection R 3/4"
- 15 Immersion sleeve Ø 7 mm
- S2 Boiler sensor bottom - HFS vessel in no. 9
- TB boiler sensor part no. S43.946 CH boiler in no. 11

Legend Solar station/collector DKC

- 1 Supply - solar collector
- 2 Return - solar collector
- 3 Supply to boiler
- 4 Return to boiler
- S1 Collector sensor
- S9 Primary sensor plate heat exchanger
- R1 Primary solar return
- R3 Secondary solar pump

Legend P vessel

- 1 Air bleed (not included) Rp 1/2"
- 2 Supply - CH installation 1/drain R1 1/4"
- 3 Supply - CH installation 2, R1 1/4"
- 4 Supply - boiler R1 1/4"
- 5 Immersion sleeve Ø16 mm
- 6 Return/supply - CH installation 3, R1 1/4"
- 7 Supply - boiler / buffer / heat pump
- 8 Supply line - collector G1"
- 9 Return - CH installation-2 R1 1/4"
- 10 Return - boiler / buffer / heat pump R1 1/4"
- 11 Return - low temp. system R1 1/4"
- 12 Return - boiler / draining
- 13 Return - CH system-1 / draining
- 14 Return line - collector
- 15 Thermometer connection Rp 1/2"
- S4 Slide boiler sensor on vessel terminal strip. Near no. 12
- S7 Boiler sensor top in no. 5
- R4 Drain pump



* See section 4.2.3 Thermal management concept ISSO publication 55.1

\$ Install domestic water portion in accordance with the applicable domestic water installation standards. For more information about the recirculation connection options, see the documentation for the recirculation connection set.

Legionella circuit
Timer with pump for legionella prevention (not supplied by Remeha)

3. CWH + HFS + DKC + collector field

Select diagram SC514000.SET from the SD card (see control station doc section 2.4)
The components enclosed in a green rectangle are used.

Legend CH boiler

- 1 Domestic cold water in
- 2 Domestic water recirculation return
- 3 Domestic supply/recirculation

Legend Quadro HFS vessel

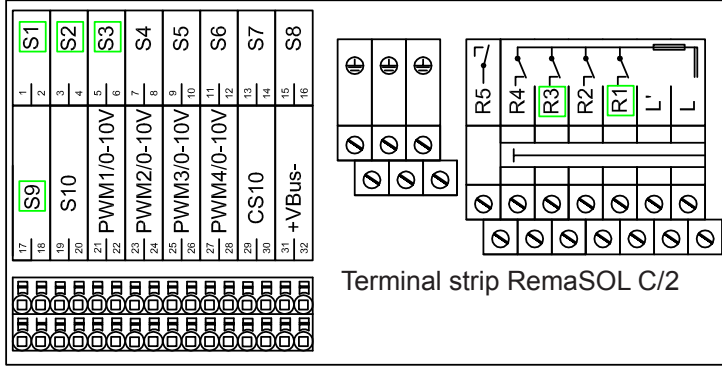
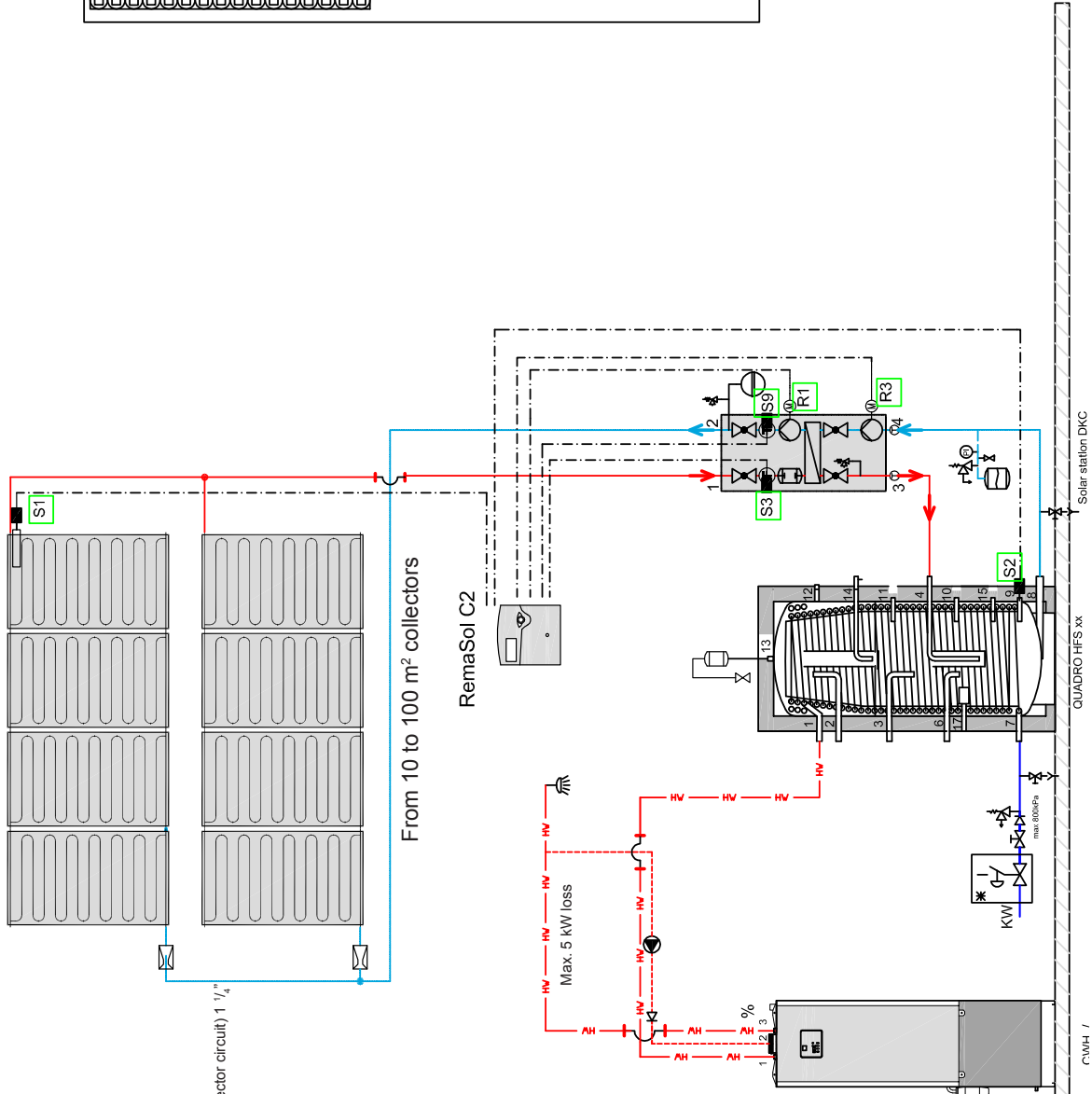
- 1 Domestic hot water out R1 1/4"
- 2 Supply – CH boiler connection R1 1/4"
- 3 Return – CH boiler connection R1 1/4"
- 4 Supply – solar R3/4"
- 5 Fill R3/4"
- 6 2nd return – CH boiler connection R1 1/4"
- 7 Domestic cold water in R1 1/4"
- 8 Solar return/CH boiler return line (without collector circuit) 1 1/4"
- 9, 10, 11 Immersion sleeve Ø16 mm
- 12 Thermometer R1/2"
- 13 Manual air bleed Rp 1/4" (not included)
- 14 2nd supply – solar connection R 3/4"
- 15 Immersion sleeve Ø 7 mm
- S2 Boiler sensor bottom – HFS vessel in no. 9

Legend Solar station/collector DKC

- 1 Supply – solar collector
- 2 Return – solar collector
- 3 Supply to boiler
- 4 Return to boiler
- S1 Collector sensor
- S3 Primary sensor plate heat exchanger
- S9 Primary sensor return
- R1 Primary solar pump
- R3 Secondary solar pump

* See section 4.2.3 Thermal management concept ISSO publication 55.1

% Install domestic water portion in accordance with the applicable domestic water installation standards.



Terminal strip RemaSOL C/2

4. CWH + HFS + P-buffer + DKC + collector field

Select diagram SC514000.SET from the SD card (see control station doc section 2.4)
The components enclosed in a green rectangle are used.

Legend CWH

- 1 Domestic cold water in
- 2 Domestic water recirculation return
- 3 Domestic supply/recirculation

Legend Quadro HFS vessel

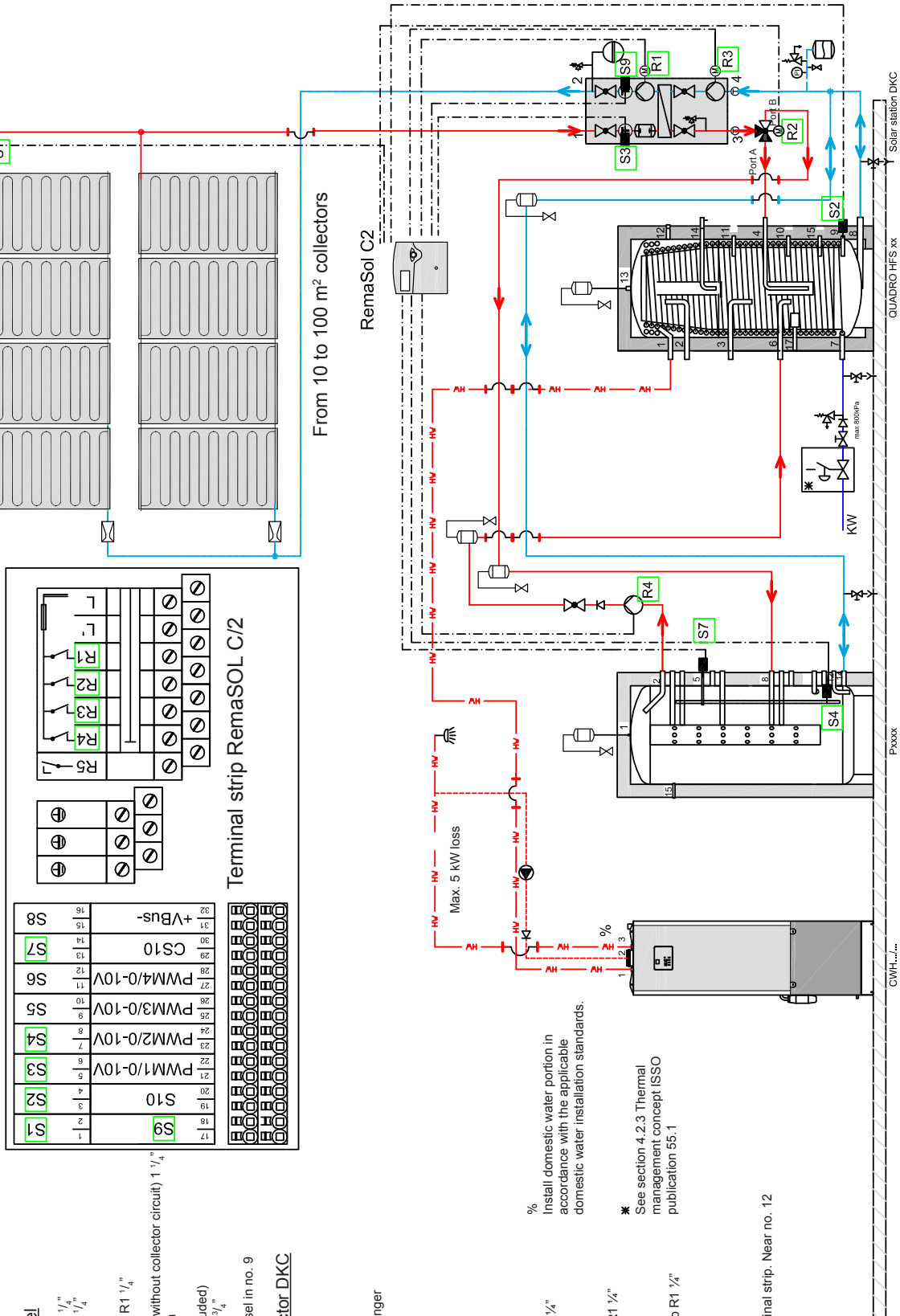
- 1 Domestic hot water out R1 1/4"
- 2 Supply - CH boiler connection R1 1/4"
- 3 Return - CH boiler connection R1 1/4"
- 4 Supply - solar R3/4"
- 5 Fill R3/4"
- 6 2nd return - CH boiler connection R1 1/4"
- 7 Domestic cold water in R1 1/4"
- 8 Solar return/CH boiler return line (without collector circuit) 1 1/4"
- 9, 10, 11 Immersion sleeve Ø16 mm
- 12 Thermometer R1/2"
- 13 Manual air bleed Rp 1/2" (not included)
- 14 2nd supply - solar connection R 7/8"
- 15 Immersion sleeve Ø 7 mm
- S2 Boiler sensor bottom - HFS vessel in no. 9

Legend Solar station/collector DKC

- 1 Supply - solar collector
- 2 Return - solar collector
- 3 Supply to boiler
- 4 Return to boiler
- S1 Collector sensor
- S3 Primary sensor plate heat exchanger
- S9 Primary sensor return
- R1 Primary solar pump
- R3 Secondary solar pump

Legend P vessel

- 1 Air bleed (not included) Rp 1/2"
- 2 Supply - CH installation 1/drain R1 1/4"
- 3 Supply - CH installation 2, R1 1/4"
- 4 Supply - boiler R1 1/4"
- 5 Immersion sleeve Ø16 mm
- 6 Return/supply - CH installation 3, R1 1/4"
- 7 Supply - boiler / buffer / heat pump
- 8 Supply line - collector G1"
- 9 Return - CH installation-2 R1 1/4"
- 10 Return - boiler / buffer / heat pump R1 1/4"
- 11 Return - low temp. system R1 1/2"
- 12 Return - boiler / draining
- 13 Return - CH system-1 / draining
- 14 Return line - collector
- 15 Thermometer connection Rp 1/2"
- S4 Slide boiler sensor on vessel terminal strip. Near no. 12
- S7 Boiler sensor top in no. 5
- R4 Drain pump



% Install domestic water portion in accordance with the applicable domestic water installation standards.

* See section 4.2.3 Thermal management concept ISSO publication 55.1

Near no. 12

5. Quinta Pro + HFS

Legend CH boiler

- 1 CH supply
- 2 CH return
- TB Mount boiler sensor S43.946 on boiler terminal Tdhw (see boiler doc)

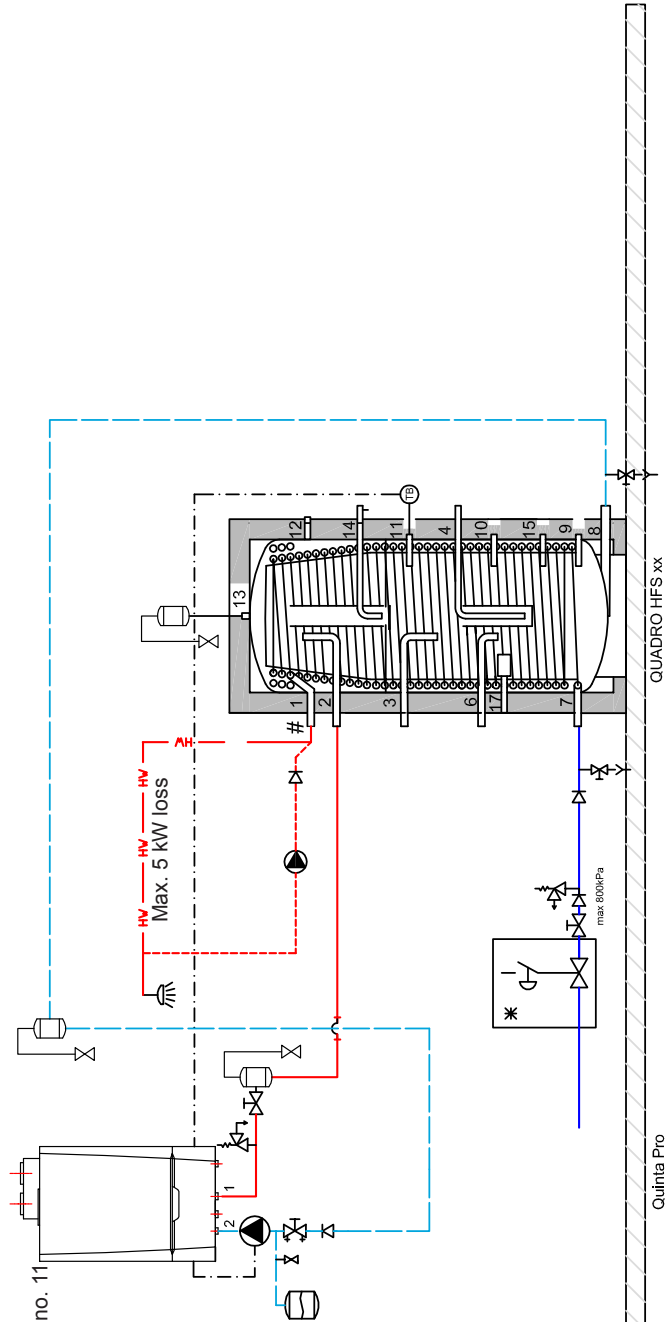
Legend Quadro HFS vessel

- 1 Domestic hot water out R1 1/4"
- 2 Supply – CH boiler connection R1 1/4"
- 3 Return – CH boiler connection R1 1/4"
- 4 Supply – solar R3/4"
- 5 Fill R3/4"
- 6 2nd return – CH boiler connection R1 1/4"
- 7 Domestic cold water in R1 1/4"
- 8 Solar return/CH boiler return line (without collector circuit) 1 1/4"
- 9, 10, 11 immersion sleeve Ø16 mm
- 12 Thermometer R1/2"
- 13 Manual air bleed Rp 1/2" (not included)
- 14 2nd supply – solar connection R 3/4"
- 15 Immersion sleeve Ø 7 mm
- S2 Boiler sensor bottom – HFS vessel in no. 9
- TB boiler sensor part no. S43.946 CH boiler in no. 11

* See section 4.2.3 Thermal management concept ISSO publication 55.1

Legionella circuit via boiler controller (see boiler doc.)

Install domestic water portion in accordance with the applicable domestic water installation standards. For more information about the recirculation connection options, see the documentation for the recirculation connection set.



4.7 Connections on the domestic water side

This must be done in accordance with the current standards and local regulations.

The maximum operating pressure of the heat exchanger in the hot water boiler is 8 bar.

4.7.1 Special precautions

For the hydraulic connection it is absolutely essential that the supply lines be flushed to prevent metal filings or other particles from entering the boiler.

4.7.2 Combination inlet group



Attention

According to the safety regulations, a combination inlet group must be installed on the cold water inlet of the domestic water heating circuit.

Maximum pressure of the combination inlet group: 8 bar

Include the combination inlet group in the cold water circuit.

4.7.3 Shut-off valves

The primary and secondary circuits must include shut-off valves so they can be isolated for convenient maintenance of the domestic water heating circuit. Through use of these shut-off valves it is possible to perform maintenance on the boiler and the components without having to empty the entire system. Moreover, these shut-off valves make it possible to isolate the domestic water heating circuit in the installation to perform pressure testing at pressures higher than the permitted operating pressure.



Attention

When connecting to copper pipes, a coupling made of steel, cast metal or an insulating material must be used between the hot water outlet of the boiler and this pipe to fully eliminate the possibility of corrosion of the connection.

4.7.4 Cold water/domestic water connection

The connection to the cold water supply must be made as shown in the diagram on page 11. A drain and a funnel for the safety fittings must be present in the boiler room. The parts used for connection to the cold water supply must comply with the local standards and regulations. A combination inlet group must be installed in the cold water supply.

4.7.5 Tap water mixing valve

In combination with solar collectors, we recommend the installation of a thermostatic tap water mixing valve.

4.7.6 Hot water recirculation line



See

Page 13.

4.7.7 Measures to prevent backflow of heated water

A non-return valve must be installed in the cold water supply.

4.8 Connection of the expansion vessels to the collector and heating circuit

4.8.1 Boiler circuit

The expansion vessel must be connected directly to the boiler.

The installation must be carried out in accordance with the applicable technical guidelines.

4.8.2 Collector circuit (on the boiler side)



See

Manual accompanying the solar energy station

4.9 Electrical connection



See

- Manual accompanying the control station for the solar energy system
- Technical manual accompanying the heating boiler.

4.10 Commissioning



See

- Manual accompanying the solar energy stations (DKC).
- Manual accompanying the control station for the solar energy system
- Technical manual accompanying the heating boiler.

5 Inspection and maintenance

5.1 Switching off during the summer: Safety through Steam Back

Remeha solar installations with RemaSOL control stations include three-way protection that prevents damage to the solar energy system itself and that potentially caused by the system (particularly when it is switched off).



See

The manual accompanying the control station.



Explanation

The installation has been designed so that no special safety measures are required in the summer when the user will be away for a longer period of time.



Attention

The control station may not be switched off and the heat conducting liquid may not be drained.

The control station for the solar energy system keeps the system in operation as long as mains electricity is available and the circulation pump is working. With the functions for boiler protection, collector protection, night-time cooling and complete shutdown, the system is always kept within the desired parameters without the system entering the steam phase. In the event of a pump failure, Steam Back also ensures that no problems develop for the house owner when the steam temperature of > 140 °C is reached. When a temperature of 145 °C is reached and a pressure of approximately 2.5 bar is exceeded in the installation, one drop of collector liquid evaporates in the collector for every two litres of saturated vapour (steam). Within a tenth of a second the resulting pressure increase forces the liquid out of the collector and into the expansion vessel provided for this purpose. This all happens very quickly, without noise and without steam pressure. The solar energy system is now empty. There is no load on the system, because the collectors no longer contain any collector liquid.

The collector liquid is not affected, because it is not in the collector. When the temperature in the collector drops below 135 °C again, the two litres of steam in each condenser condenses to one drop of collector liquid. The collector liquid stored in the expansion vessel is released back to the collector. The installation is filled automatically. During the next start of the solar energy system the collector circuit is opened for three minutes. If micro-bubbles have formed, these are now separated via the Airstop in the station. At the end of the three minutes the installation starts completely again. Steam Back ensures safe operation of the installation, completely automatically, without the need for manual intervention. For a collector surface area of 10 m² or greater, in addition to a regular expansion vessel a buffer vessel must be installed to provide storage capacity for larger quantities of collector liquid. Steam Back protects all components of the solar energy system. The solar energy station with integrated Airstop, the special expansion vessel, the safety valve, the collectors with single pipe and the control station for the system.

5.2 Maintenance

We recommend entering a maintenance contract that includes annual or biannual inspection of the liquid level, anti-freezing protection and system pressure as well as a leak check and overall check for correct operation.

Commissioning

Pump primary circuit, speed-controlled	R1	<input type="checkbox"/> Yes <input type="checkbox"/> No	Heat capacity	=	kW
Three-way diverting valve	R2	<input type="checkbox"/> Yes <input type="checkbox"/> No	ΔT_{target}	=	K
Pump secondary circuit, speed-controlled	R3	<input type="checkbox"/> Yes <input type="checkbox"/> No	Min. switching point	=	°C
Pump biomass boiler	R4	<input type="checkbox"/> Yes <input type="checkbox"/> No	Collector temperature max.	=	°C
Switching valve filling and draining	R5	<input type="checkbox"/> Yes <input type="checkbox"/> No	Self-calibration phase tu	=	min.
Drain pump / swimming pool pump	R8	<input type="checkbox"/> Yes <input type="checkbox"/> No	Minimum speed R1	=	rpm
Filling pump for the boiler	R9	<input type="checkbox"/> Yes <input type="checkbox"/> No	Minimum speed R3	=	rpm
Legionella prevention pump	R10	<input type="checkbox"/> Yes <input type="checkbox"/> No	Domestic water heating, desired values of the supplemental heating:		
			- Boiler circuit	°C

6.4 System inspection

Components on the roof:

- All mounting screws tightened yes
- All plumbing connections checked, no leaks yes

Solar energy station:

- Correctly connected to the supply and return lines yes
- Thermometer supply and return temperature placed and checked yes

Boiler:

- Combination inlet group installed yes
- Pressure reducer set at bar yes
- Hot water mixer with thermosiphon U connected to the solar boiler yes
- Thermostatic mixer set to°C yes
- Insulation on the boiler checked yes
- All connections lines installed yes

Expansion vessel:

- Pre-charge pressure of the expansion vessel checked yes

6.5 Resetting

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- Installation manuals (solar collector, boiler, complete station, controller) given to the customer yes
- Operation of the solar energy system via the display on the control station explained to the customer yes

6.6 Remarks

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Place:

Date:

Customer's signature

Technician's signature

7 Maintenance report

Maintenance number:

Customer	Company name
Street	Street
Postal code/city	Postal code/city
Tel. Fax	Tel. Fax
Mobile	Mobile
Email	Email
	Technician

System description

Solar energy installation for: <input type="checkbox"/> Domestic hot water	<input type="checkbox"/> Supplemental heating	<input type="checkbox"/> Swimming pool heating
Solar collectors:	Surface aream ²	
Domestic water heating:	Solar energy station:	

Inspection

Installation pressure checked	bar	pH value
Pre-charge pressure of the collector expansion vessel	bar	
Freeze protection checked	°C	
	No leaks:	Visual inspection:
Collector	<input type="checkbox"/> OK	<input type="checkbox"/> OK
Pipe	<input type="checkbox"/> OK	<input type="checkbox"/> OK
Solar energy station	<input type="checkbox"/> OK	<input type="checkbox"/> OK
Domestic water heating	<input type="checkbox"/> OK	<input type="checkbox"/> OK
Control station	Verification of operation	<input type="checkbox"/> OK
Collector temperature (TC)	S1 =°C	Temporary inlet heat regulation S10 = °C
Temperature boiler 1 bottom (TS)	S2 =°C	Temporary outlet heat regulation S11 = °C
Exchanger supply temperature (TE)	S3 =°C	Pump primary circuit, speed-controlled R1 <input type="checkbox"/> Yes <input type="checkbox"/> No
Temperature boiler 1 top	S4 =°C	Three-way diverting valve R2 <input type="checkbox"/> Yes <input type="checkbox"/> No
Temperature buffer bottom	S4 =°C	Pump secondary circuit, speed-controlled R3 <input type="checkbox"/> Yes <input type="checkbox"/> No
Temperature buffer top	S5 =°C	Pump biomass boiler R4 <input type="checkbox"/> Yes <input type="checkbox"/> No
Temperature collector field 2	S6 =°C	Switching valve filling and draining R5 <input type="checkbox"/> Yes <input type="checkbox"/> No
Collector temperature return or temperature buffer	S9 =°C	Drain pump / swimming pool pump R8 <input type="checkbox"/> Yes <input type="checkbox"/> No
		Filling pump for the boiler R9 <input type="checkbox"/> Yes <input type="checkbox"/> No
		Legionella prevention pump R10 <input type="checkbox"/> Yes <input type="checkbox"/> No
Enamelled boiler:	Sacrificial anode checked	<input type="checkbox"/> is sufficient <input type="checkbox"/> must be replaced
Thermostatic tap water mixer	Setting°C	

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