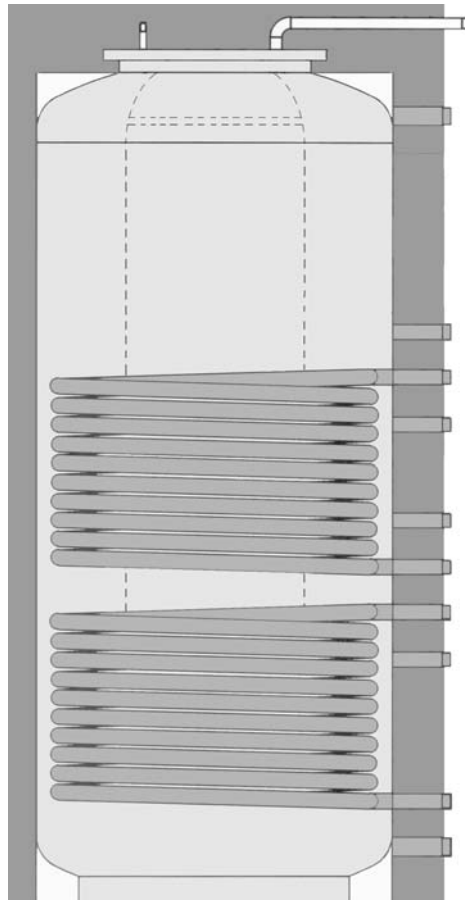


Universal Buffer Storage Tank Type UPK

with stainless steel insert (combination
storage tank) for domestic water heating
and solar heating

INSTALLATION AND OPERATION GUIDE



Contents

Universal buffer storage tank (type UPK) with stainless steel insert (combination storage tank)

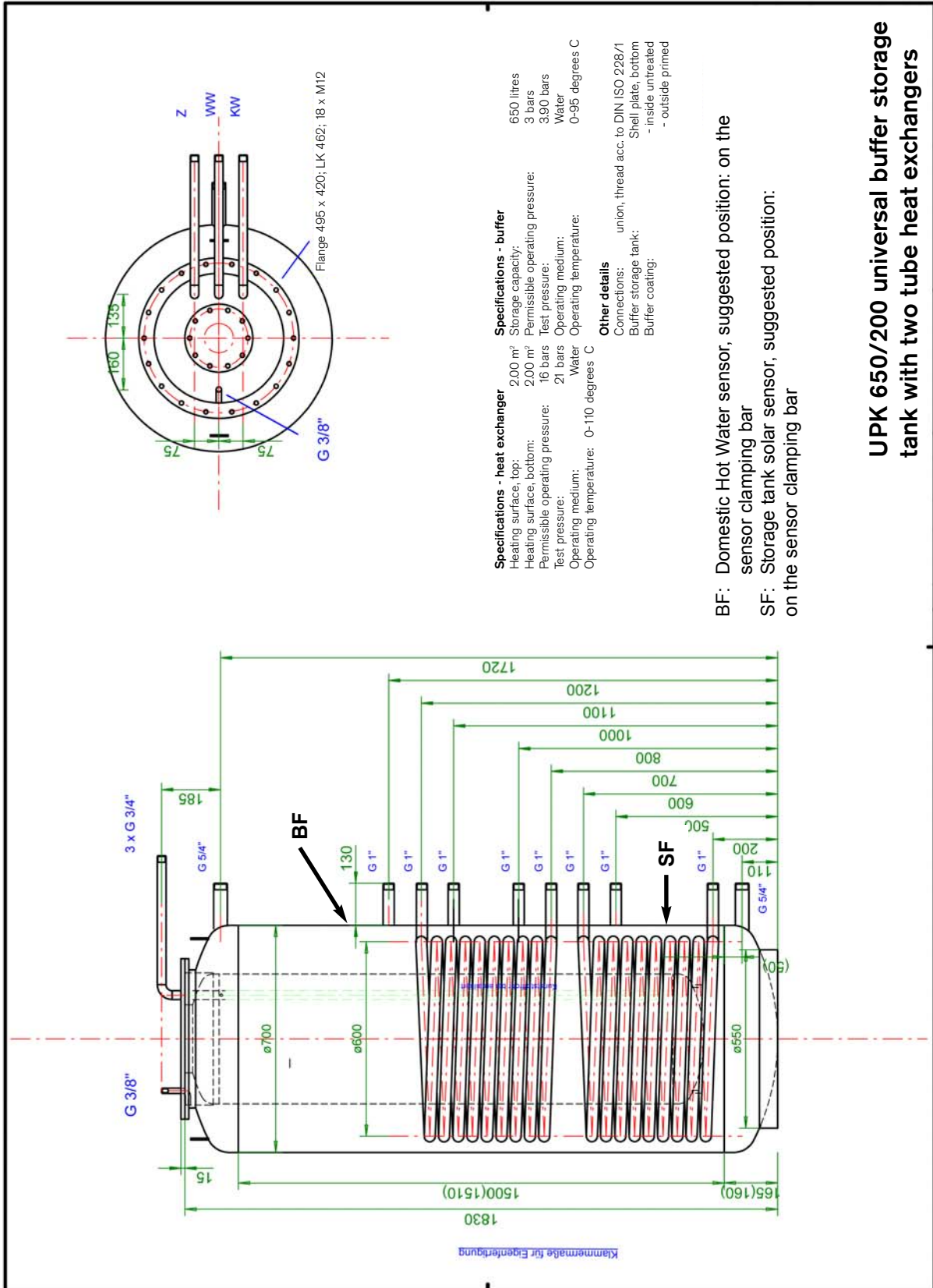
1. UPK 650/200 universal buffer storage tank	4
2. UPK 800/200 universal buffer storage tank	6
3. UPK 1050/200 universal buffer storage tank	8
4. How to mount and transport the storage tank	10
5. How to install the water mixing valve	10
6. How to connect the universal buffer storage tank	11
7. How to connect the hot water circulation	12
8. How to install an electrical immersion heater	13
9. Universal buffer storage tank (type UPK) (combination storage tank)	14
10. Security instructions	17
11. How to proceed for a standard buffer connection (e.g., for old vessels)	18
12. How to proceed for a thermostatic control	20
13. How to protect the universal buffer storage tank against corrosion	22
14. Maintenance	23

The Universal Buffer Storage Tank

1. UPK 650/200 universal buffer storage tank (combination storage tank)

Type:	UPK 650/200 V4A
Storage tank capacity:	650 litres, 450 litres heating buffer and 200 litres domestic water
Buffer storage tank material:	Steel, primed on the outside
Domestic water storage tank material:	Stainless steel (corresponds to V4A extra)
Buffer, max. operating pressure:	3 bars
Domestic water storage tank, max. operating pressure:	10 bars
Domestic water storage tank surface:	2.5 m ²
Performance figure NL:	up to 2.3 depending on the position of the temperature sensor on the clamping bar. If more than five people live in the household, the performance figure must be calculated based on the requirements for hot water.
Heat exchangers:	2 tube heat exchangers, each with a surface area of 2.00 m ²
Corrosion protection:	In some geographical areas, an anode is required to protect the inside of the stainless steel container against corrosion. Please check with your local water works and your professional plumber.
Connections:	Heating: 1" and 5/4" external thread, flat gasket; hot and cold water and circulation: 3/4" external thread, flat gasket; solar supply and return: 1" external thread, flat gasket; vent: 3/8" external thread
Circulation:	Connection through 3/4 " external thread, flat gasket is possible (only recommended for a time- or thermostat-controlled circulation pump)
Insulation:	Polyurethane foam, 100 mm, replaceable. Top (130 mm) removable, inspection tap via flange cover, $\lambda = 0,037 \text{ W/mK}$
External dimensions with insulation:	1.98 m x 0.90 m
Diameter without insulation:	0.70 m
Tilt height:	2.01 m
Total weight (with/without stainless steel insert):	235/185 kg
Warranty:	2 years (according to the Terms and Conditions of PHÖNIX SonnenWärme AG)

(subject to technical modifications)



Specifications - heat exchanger
 Heating surface, top: 2,00 m²
 Heating surface, bottom: 2,00 m²
 Permissible operating pressure: 16 bars
 Test pressure: 21 bars
 Operating medium: Water
 Operating temperature: 0-110 degrees C

Specifications - buffer
 Storage capacity: 650 litres
 3 bars
 Permissible operating pressure: 3,90 bars
 Test pressure: 5,90 bars
 Operating medium: Water
 Operating temperature: 0-95 degrees C

Other details
 Connections: union, thread acc. to DIN ISO 228/1
 Buffer storage tank: Shell plate, bottom
 Buffer coating: - inside untreated
 - outside primed

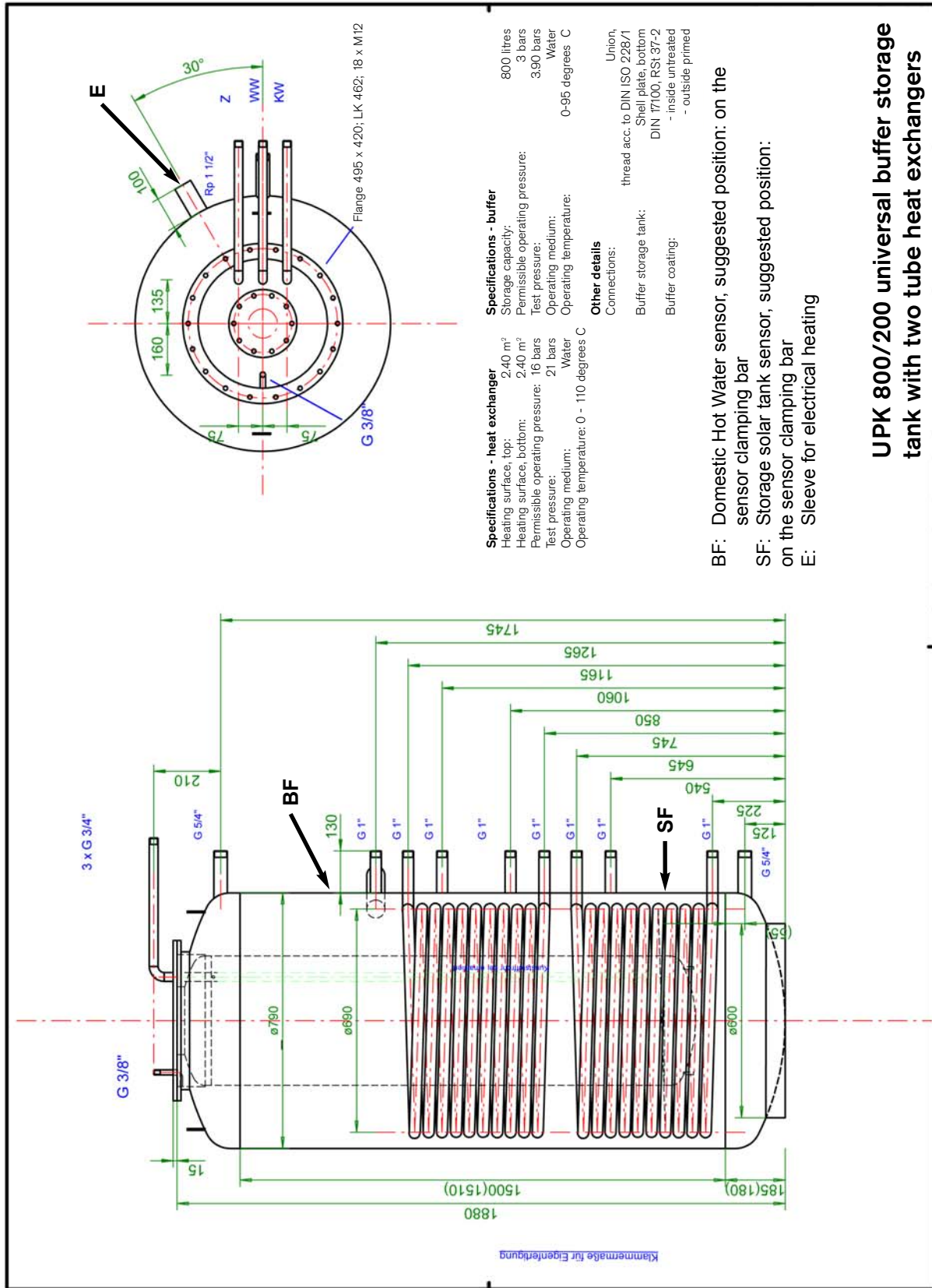
BF: Domestic Hot Water sensor, suggested position: on the sensor clamping bar
 SF: Storage tank solar sensor, suggested position: on the sensor clamping bar

UPK 650/200 universal buffer storage tank with two tube heat exchangers

2. UPK 800/200 universal buffer storage tank (combination storage tank)

Type:	UPK 800/200 V4A
Storage tank capacity:	800 litres, 600 litres heating buffer and 200 litres domestic water
Buffer storage tank material:	Steel, primed on the outside:
Domestic water storage tank material:	Stainless steel (corresponds to V4A extra)
Buffer, max. operating pressure:	3 bars
Domestic water storage tank, max. operating pressure:	10 bars
Domestic water storage tank surface:	2.50 m ²
Performance figure NL:	up to 2.30 depending on the position of the temperature sensor on the clamping bar. If more than five people live in the household, the performance figure must be calculated based on the requirements for hot water.
Heat exchangers:	2 tube heat exchangers, each with a surface area of 2.40 m ²
Corrosion protection:	In some geographical areas, an anode is required to protect the inside of the stainless steel container against corrosion. Please check with your local water works and your professional plumber.
Connections:	Heating: 1" and 5/4": external thread, flat gasket; hot and cold water and circulation: 3/4" external thread, flat gasket; solar supply and return: 1" external thread, flat gasket; vent: 3/8" external thread, electrical heating via sleeve: 1 1/2" internal thread
Circulation:	Connection through 3/4" external thread, flat gasket is possible (only recommended for a time- or thermostat-controlled circulation pump)
Insulation:	Polyurethane foam, 100 mm, replaceable. Top (130 mm) removable, inspection tap via flange cover, $\lambda = 0,037$ W/mK
External dimensions with insulation:	2.03 m x 0.99 m
Diameter without insulation:	0.79 m
Tilt height:	2.06 m
Total weight (with/without stainless steel insert):	280/230 kg
Warranty:	2 years (according to the Terms and Conditions of PHÖNIX SonnenWärme AG)

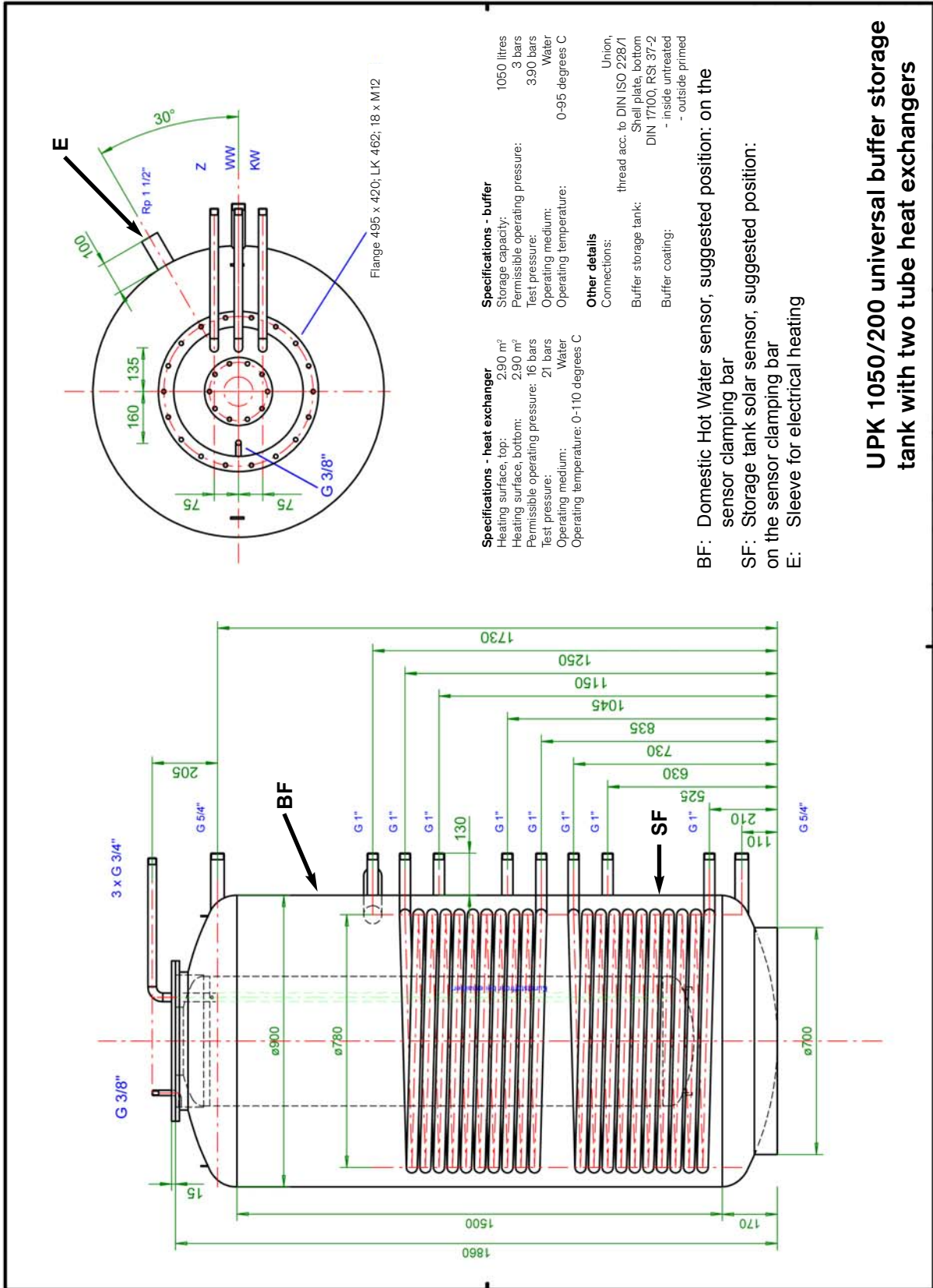
(subject to technical modifications)



3. UPK 1050/200 universal buffer storage tank (combination storage tank)

Type:	UPK 1050/200 V4A
Storage tank capacity:	1050 litres, 850 litres heating buffer and 200 litres domestic water
Buffer storage tank material:	Steel, primed on the outside:
Domestic water storage tank material:	Stainless steel (corresponds to V4A extra)
Buffer, max. operating pressure:	3 bars
Domestic water storage tank, max. operating pressure:	10 bars
Domestic water storage tank surface:	2.50 m ²
Performance figure NL:	up to 2.30 depending on the position of the temperature sensor on the clamping bar. If more than five people live in the household, the performance figure must be calculated based on the requirements for hot water.
Heat exchangers:	2 tube heat exchangers, each with a surface area of 2.90 m ²
Corrosion protection:	In some geographical areas, an anode is required to protect the inside of the stainless steel container against corrosion. Please check with your local water works and your professional plumber.
Connections:	Heating: 1" and 5/4": external thread, flat gasket; hot and cold water and circulation: 3/4" external thread, flat gasket; solar supply and return: 1" external thread, flat gasket; vent: 3/8" external thread, electrical heating via sleeve: 1 1/2" internal thread
Circulation:	Connection through 3/4" external thread, flat gasket is possible (only for a time- or thermostat-controlled circulation pump)
Insulation:	Polyurethane foam, 100 mm, replaceable. Top (130 mm) removable, inspection tap via flange cover, $\lambda = 0,037 \text{ W/mK}$
External dimensions with insulation:	2.01 m x 1.10 m
Diameter without insulation:	0.90 m
Tilt height:	2.05 m
Total weight (with/without stainless steel insert):	340 / 285 kg
Warranty:	2 years (according to the Terms and Conditions of PHÖNIX SonnenWärme AG)

(subject to technical modifications)



Specifications - heat exchanger
 Heating surface, top: 2,90 m²
 Heating surface, bottom: 2,90 m²
 Permissible operating pressure: 16 bars
 Test pressure: 21 bars
 Operating medium: Water
 Operating temperature: 0-110 degrees C

Specifications - buffer
 Storage capacity: 1050 litres
 Permissible operating pressure: 3 bars
 Test pressure: 3,90 bars
 Operating medium: Water
 Operating temperature: 0-95 degrees C

Other details
 Connections: Union,
 thread acc. to DIN ISO 228/1
 Buffer storage tank: Shell plate, bottom
 DIN 17100, RSt 37-2
 Buffer coating: - inside untreated
 - outside primed

BF: Domestic Hot Water sensor, suggested position: on the sensor clamping bar
 SF: Storage tank solar sensor, suggested position: on the sensor clamping bar
 E: Sleeve for electrical heating

UPK 1050/200 universal buffer storage tank with two tube heat exchangers

4. How to mount and transport the storage tank



DO NOT transport the buffer storage tank horizontally.

When filling the storage tank, first fill the domestic water portion and then the buffer water portion. The pressure in the buffer storage tank should not exceed 3 bars.

Three to four people are required to transport the tank. Furthermore, you may need transport belts and a trolley. Prevent strong blows to the tank so that the internal stainless steel tank and the connections are not damaged. Make sure that the tank fits through doors and narrow spaces. Take into consideration the dimensions of the tank when it is tilted. To prevent damages on the insulation, remove the insulation before the transport. In this case, remove the storage tank lid and open the insulation on the lateral clamping rail. You can reinstall the insulation on the tank once it is in place or after having mounted the tubes. It is strongly recommended to transport the tank in the vertical position. Attach the tank securely with two belts (e.g. to the pallet).

Installation of the storage tank



The storage tank should only be installed in rooms that are protected from frost. Choose a location for the storage tank that is as close as possible to the hot water connections. Turn the connection bar in such a way that the tubes of the solar circuit and the other connections can be connected as easily as possible. If you install the tank under the roof, make sure that the load-carrying capacity of the ceiling, including

the weight of the filled tank, is not exceeded.

If required, distribute the weight over a larger area by putting timber beams under the tank. Consult a structural engineer for more information.

5. How to install the water mixing valve

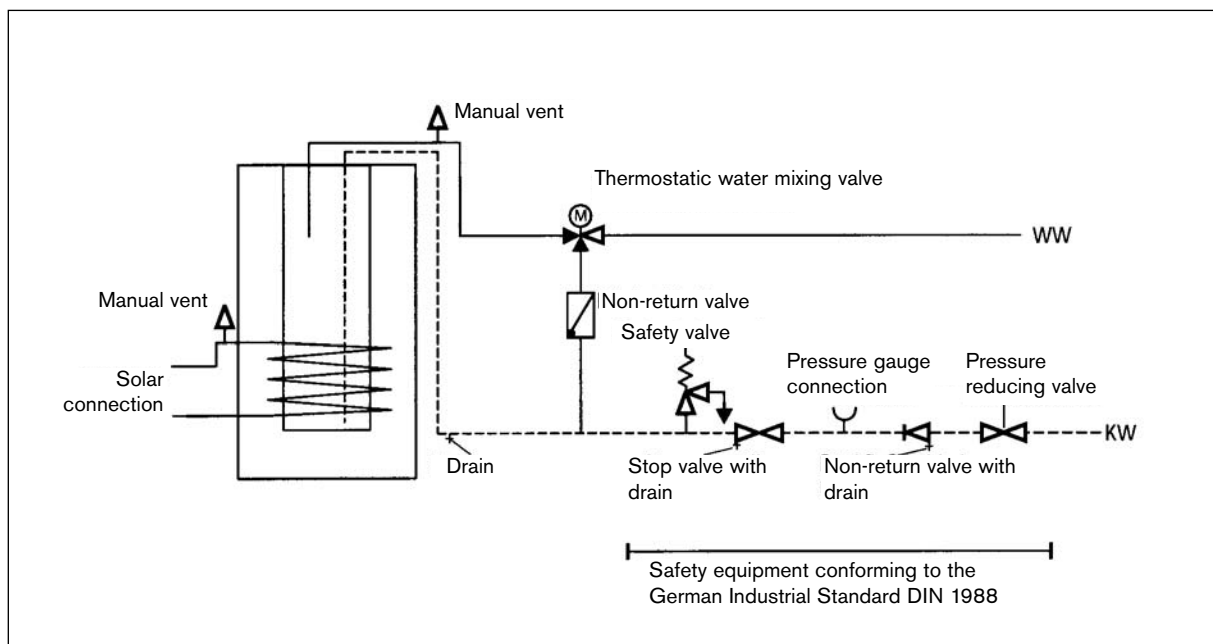
The water mixing valve is an important safety component in the hot water circuit. To prevent scald and overheating, install the mixing valve at the storage tank outlet. Set the valve in such a way that the water temperature at the water tap connection is about 45 degrees C. The temperature can be adjusted by turning the temperature adjustment screw on the valve cap.

Further tips:

To prevent heat loss due to gravity circulation, place the connections in a downward position on the storage tank. Furthermore, install a non-return valve in the cold water line that leads to the mixing valve.



The owner must ensure that the cold water connection is equipped with safety equipment conforming to the German Industrial Standard DIN 1988.



6. How to connect the universal buffer storage tank

The storage tank outlets are designed for flat gasket connections, which allow for the installation of a flat gasket connection with insert and cap nut (available as optional accessories). Alternatively, the connections can also be sealed with hemp packing material or Loctite. Caution: Since solar collectors can generate extremely high temperatures, you must not use teflon tape ! The hot and cold water pipes, and the circulation pipes are connected in the same way as for conventional hot water storage tanks.

For the filling and draining of the storage tank, a KFE valve (filling and emptying ball valve, not included in delivery) must be provided on the cold water supply, at the lowest point of the tank. This valve must be placed downstream from the safety equipment for your water supply.

Make sure to insulate all the storage tank connections to prevent major heat loss. The piping for the backup heater, the hot water connection and (if required) the forced circulation should be fully insulated (as required by law).



When connecting the drinking water side of the storage tank to the drinking water system, please follow the German Industrial Standard DIN 1988 and the required permissible material combinations. Failure to conform to DIN stan-

dards will void the warranty for damage to the storage tank and the drinking water system.

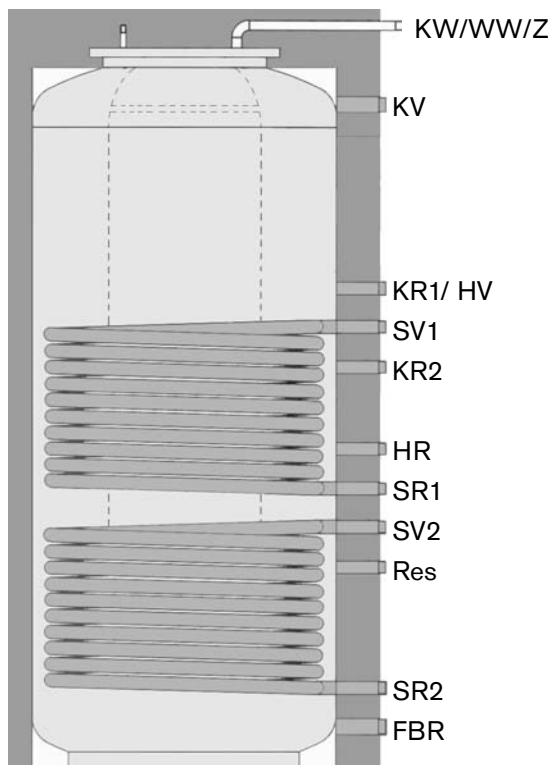


When filling the storage tank, first fill the domestic water portion and then the buffer water portion. The pressure in the buffer portion of the storage tank should not exceed 3 bars.

When repairs or maintenance work have to be done on the domestic water portion of the storage tank, first depressurize the heating portion. Then and only then, depressurize the stainless steel insert. Failure to proceed as described will void the warranty for any resulting damage.



Prior to filling the storage tank or putting it into operation, and after the first heating up of the storage tank, check the threaded connections on the flange cover and retighten, if necessary. The torque should be 20-30 Nm, otherwise the flange bolts might corrode due to a leaking seal, resulting in the premature destruction of the seal. The warranty will not cover any resulting damage.



Legende	
KW/WW/Z	Cold water/hot water/circulation
KV	Tank supply (5/4" external thread)
KR1	Tank return for the thermostatic control option (1" external thread)
HV	Heating supply (1" external thread)
SV1	Solar supply (1" external thread) upper heat exchanger
KR2	Vessel return for the standard option (buffer connection) (1" external thread)
HR	Heating return (1" external thread)
SR1	Solar return (1" external thread) upper heat exchanger
SV2	Solar supply (1" external thread) lower heat exchanger
Res	Reserve (1" external thread)
SR2	Solar return (1" external thread)
FBR	Vessel return, solid fuel

7. How to connect the hot water circulation

The main advantage offered by hot water circulation is a more even hot water supply. The downside lies in increased heat loss and higher energy demands. Moreover, the circulation might destroy the intended stratification in the solar storage tank. If possible, avoid circulation in solar installations. Consequently, ensure that the circulation connection sticking out of the cover is sealed tightly.

However, if circulation is nevertheless desired, make sure that the circulation pump is controlled in an intelligent way (a controller for circulation is available as an optional accessory). The aim of the circulation controller is to considerably reduce the running time of the pump, thus resulting in lower energy consumption by the pump, and lower heat loss in the pipes. Moreover, short running times limit the water back-flow into the tank, and this prevents potential turbulences in the tank.

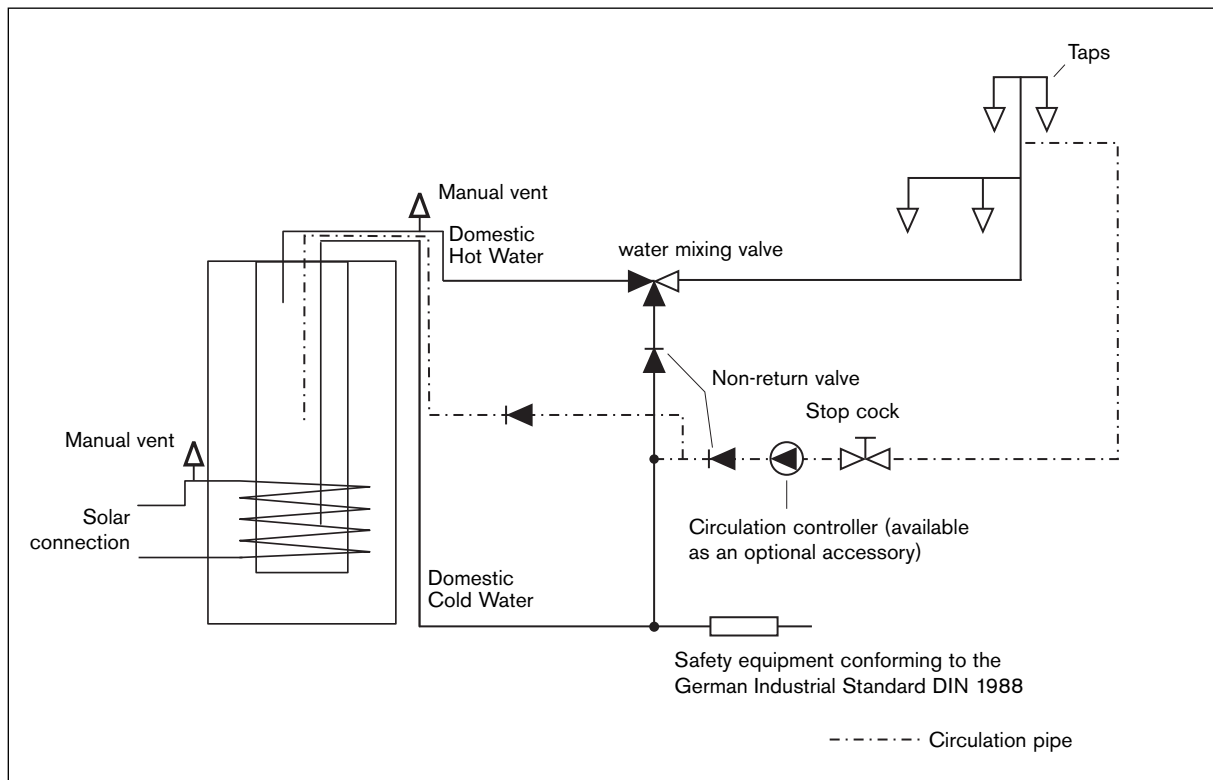


To ensure the proper functioning of a circulation controller, do not connect any taps between the cold water safety equipment and the water storage tank.

At the highest point on the universal buffer storage tanks, you will find three water connections provided to connect (from left to right): KW (cold water), WW (hot water), and Z (circulation).

If the circulation is not set correctly, the solar yield may be considerably reduced. Therefore it is strongly recommended to leave universal buffer storage tanks without forced circulation. As mentioned before, seal the circulation connection tightly in this case. Alternatively, your solar consultant can help you to choose an appropriate controller.

The following illustration shows a forced circulation connection scheme (using the supplied water mixing valve).



8. How to install an electrical immersion heater (only possible on UPK 800 through UPK 1050 litres)



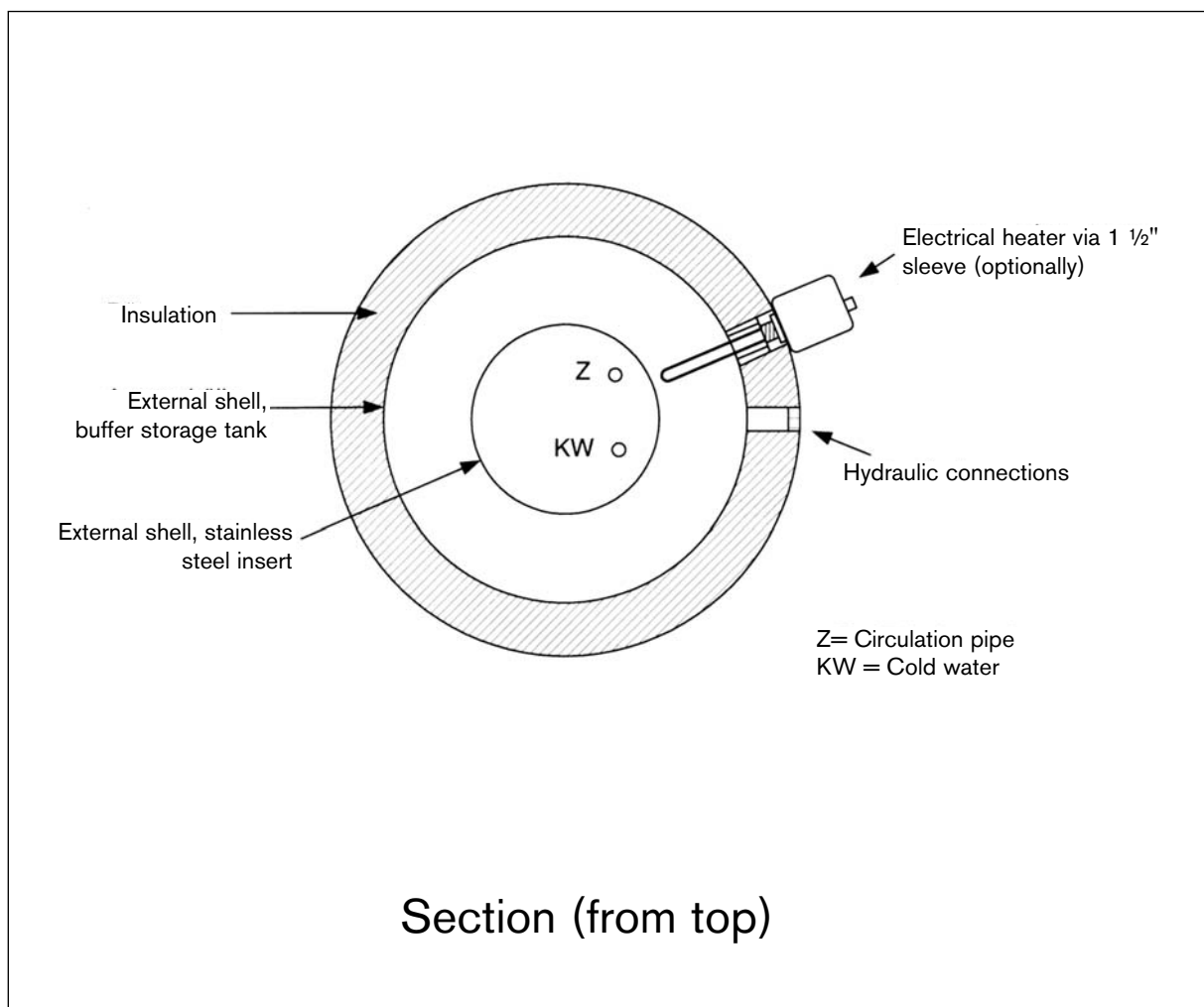
An electrical heater may be installed on storage tanks with a capacity of 800 or 1050 litres, but not on the 650/200 tank.

The sleeve for the electrical immersion heater is found on the right-hand side, beside the hydraulic connections (at an angle of 30 degrees). At delivery, the sleeve is closed by a plug. Do not put any water into the buffer before installing the immersion heater (which is optionally available as an accessory).

Depending on the warm water requirements, immersion heaters with different heating capacities can be installed. However, make sure that the heater is short enough so that it does not touch the domestic water tank. Ideally, the temperature controller and the temperature limiter should be integrated with the heater, however it is possible to install them separately.



When filling the storage tank, first fill the domestic water portion and then the buffer water portion. The pressure in the buffer storage tank should not exceed 3 bars.



9. Universal buffer storage tank (type UPK) (combination storage tank)

The universal buffer storage tank consists of the outer (buffer) and the inner storage tank (domestic water storage tank made of stainless steel). The heating water is kept in the outer buffer storage tank. The lower part of the tank is heated by solar energy and the upper part with a conventional energy source, such as oil, gas or solid fuel. The buffer storage tank transmits a portion of this heat to the inner storage tank filled with the domestic water. The rest of the heat will be used for heating. The solar input should be ideally provided by two tube heat exchangers in the lower half of the storage tank. This way, if the solar supply temperatures are very high, the upper half of the storage tank can be heated up very quickly thus preventing the backup heater from starting unnecessarily. There are several options available for how to connect the two solar heat exchangers, depending on your needs:

- use only the lower solar heat exchanger (standard option)
- upper and lower solar heat exchangers in series (also possible with standard option)
Advantage: two heat-transmitting surfaces, with optimal cooling of the solar medium to achieve high solar yields
- separate control of the upper and lower solar heat exchangers (not standard, optionally available at an extra charge: two-circuit controller instead of the solar controller and extra three-way valve in solar supply)
Advantage: faster heating up of the upper storage portion (on-demand portion) and earlier shut down of the conventional backup heating.

The long, narrow shape of the domestic water storage tank allows for the maintenance of an optimal thermal stratification in the tank, even when large water quantities are tapped from the tank.

To prevent heat loss, the storage tank is insulated with 100 mm PU foam on the sides, and on the top with PU foam having a thickness of 130 mm.

How to connect the temperature sensors via the clamping bar

The clamping bar for the temperature sensors allows for the user-defined regulation of the desired water quantity for the on-demand portion of the domestic water and buffer storage tanks, and for a controlled supply of solar energy to the two solar heat exchangers. The clamping bar is located on the storage tank, to the left of the hydraulic connections, and practically stretches over the height of the whole tank. Please refer to the technical drawings at the beginning of this brochure for the recommended position of the temperature sensor for the solar circuit and for the Domestic Hot Water sensor.

How to connect the universal buffer storage tank to the heater



When putting the universal buffer storage tank into operation, first make sure to fill and pressurize the inner domestic water storage tank, and only then pressurize the outer buffer storage tank (max. permissible pressure: 3 bars). Failure to follow these instructions may result in damage to the internal stainless steel container, which is excluded from the warranty.

Since various heating systems are available, the tank design allows for different connecting options.

Connection options

The existence of a wide variety of heating systems with various ways of connecting with universal buffer

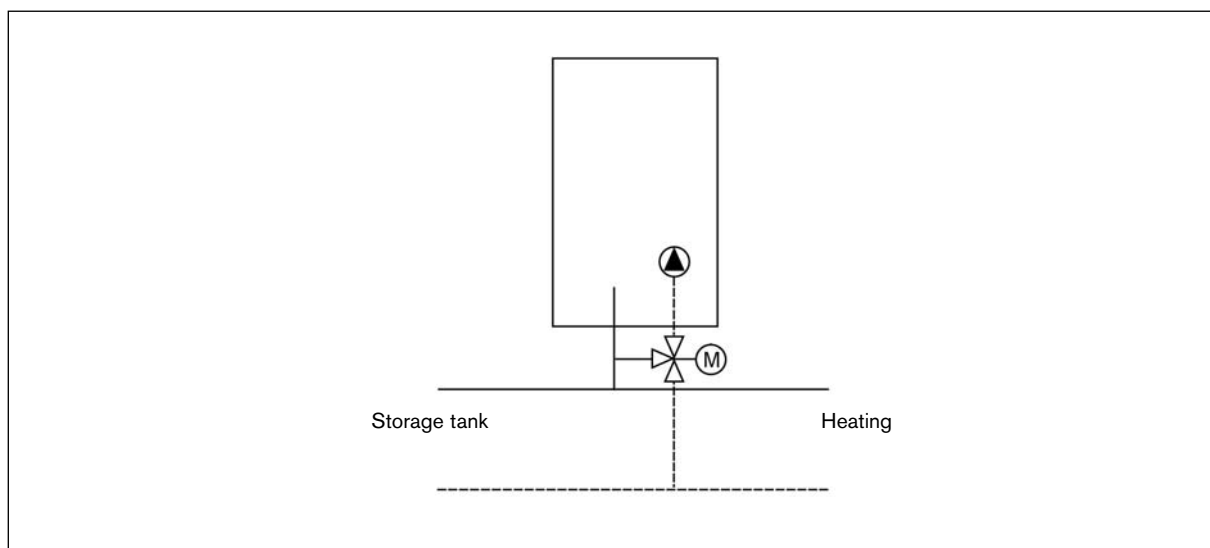
storage tanks, has called for the design of a tank that will accommodate these different connection options.

The options suggested for the UPK universal buffer storage tank are:

Recommendations for the standard buffer connection (e.g., for old vessels):

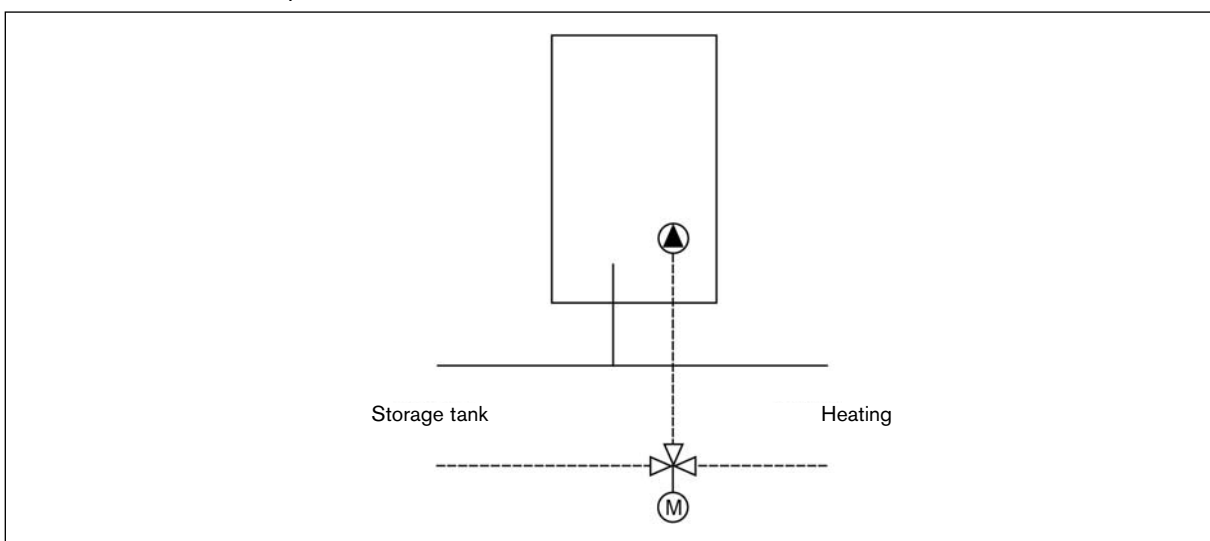
This option is suitable for older vessels, but also for large new vessels. These newer vessels have limited return temperatures that require the vessel to be run at a minimum temperature. There are also old vessels

which operate at a constant temperature, which corresponds to the maximum supply temperature. In some cases, the vessel return temperature is raised by a three-way mixing valve to avoid condensation in the vessel. For all of the above-mentioned cases, we recommend the standard buffer connection.



This option is also recommended for heaters with an integrated pump that is equipped with a reversing valve (in the **vessel return**) for heating and water needs (such as for example wall-mounted heaters).

The thermostatic control option (described in the following text) is not suitable for these types of heaters.



Recommendations for thermostatic control option

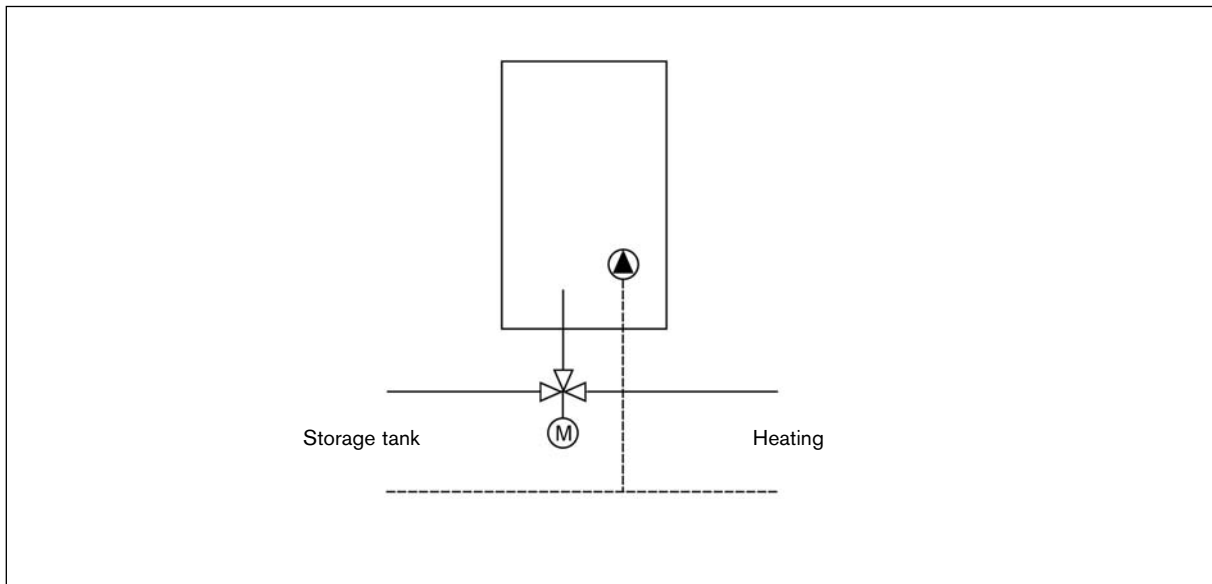
This option is recommended for state-of-the-art heating vessels. In these vessels, the supply temperature is regulated in accordance with the heating requirements and the ambient temperature (such as for variable temperature vessels, low-temperature vessels, and calorific value boilers).

Tip for calorific value boilers:

For calorific value boilers, we recommend as well the thermostatic control option since any potential efficiency loss due to an increased vessel return temperature will be compensated by the hydraulic benefits.

Tip for heating vessels with integrated pump (wall heaters):

We also recommend the thermostatic control option for heaters with an integrated pump that is equipped with a reversing valve in the **vessel supply** (for heating and water needs), and for vessels with a variable vessel temperature and an unmixed heating circuit.



10. Security instructions

The vessel control and the safety devices of the heating system must conform to the manufacturers' specifications or to German Industrial Standards (DIN).



The buffer portion that is heated by solar energy must be treated like a second heater (beside the vessel). It requires an extra safety valve, leading to the buffer, that cannot be shut off. The safety devices for the heating circuit must conform to German Industrial Standard DIN 4751/EN1151:1999.

Since the additional buffer portion increases the water volume in the universal buffer storage tank, an additional or larger expansion vessel is required. This vessel must be equipped with an extra safety device, leading to the buffer, that cannot be shut off. Ideally, a heating system should always be equipped with a single expansion vessel. However, if this is not possible, make sure that all of the expansion vessels are connected to a single point in the heating system, and

that they have the same preset and permissible pressures. Failure to do so may result in malfunctions and other technical problems.

To control the supply temperature in the heating circuit, a three-way mixing valve is required. If none is provided, it is recommended to include one. For floor or wall-mounted heaters, a mixing valve (or, if applicable, a safety temperature limiter) is an absolute must, in order to limit the inlet (supply) temperature.

The universal buffer storage tank is delivered with the following connections: external 3/4" thread (domestic water), 1" (heating and solar circuit), 5/4" (on the top and bottom of the buffer storage tank), and 3/8" for venting the buffer portion (for type UPK) or 1/2" (for type UP). All of the connections are designed for flat gaskets. Make sure to tightly seal off all of the connections that are not used for connecting the universal buffer storage tank !

Install a KFE valve on the lowest connection of the buffer storage tank so that the tank can be emptied as completely as possible, when required.

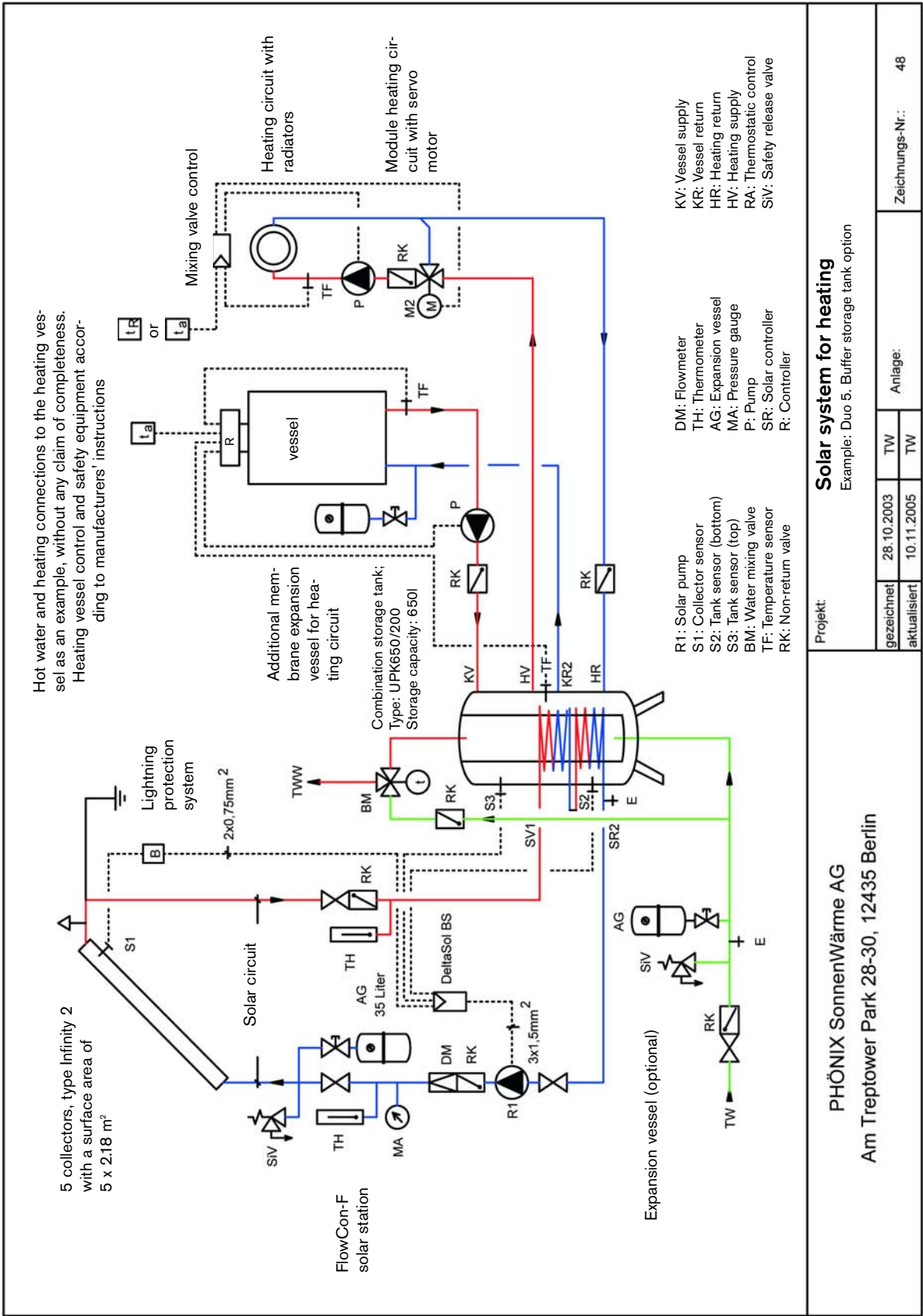
11. How to proceed for a standard buffer connection (e.g., for old vessels)

For this option, the heating supply and return are always put through the buffer storage tank. When the solar energy supply is sufficient, heating can be provided exclusively by solar energy via the separate controller (R), and the heating vessel can be turned off. With this connection, a larger portion of the buffer storage tank will be heated.

If the existing heating vessel control is equipped with a temperature sensor, this sensor can be installed above the sensor clamping bar, at the desired height below the heating supply outlet.

If the vessel is equipped with a three-way mixing valve to raise the return temperature (to prevent condensa-

tion), continue to use this valve. If the vessel is not equipped with such a valve, it is not necessary to install one. Please follow the vessel manufacturer's instructions. The following scheme shows how to connect the tank according to the standard option (buffer connection). If you use a solid fuel vessel as a third heat source, make sure that the largest possible portion of the buffer tank is available for the heat supply from the solid fuel vessel. Make sure that the vessel supply is connected to the uppermost fitting (KV) and that the solid fuel vessel return is connected to the lowest fitting (FBR). Please provide at least 50 litres of buffer volume per kilowatt vessel output.



Solar system for heating

Example: Duo 5. Buffer storage tank option

Projekt:

gezeichnet	28.10.2003	TW	Anlage:	Zeichnungs-Nr.: 48
aktualisiert	10.11.2005	TW		

PHÖNIX SonnenWärme AG

Am Treptower Park 28-30, 12435 Berlin

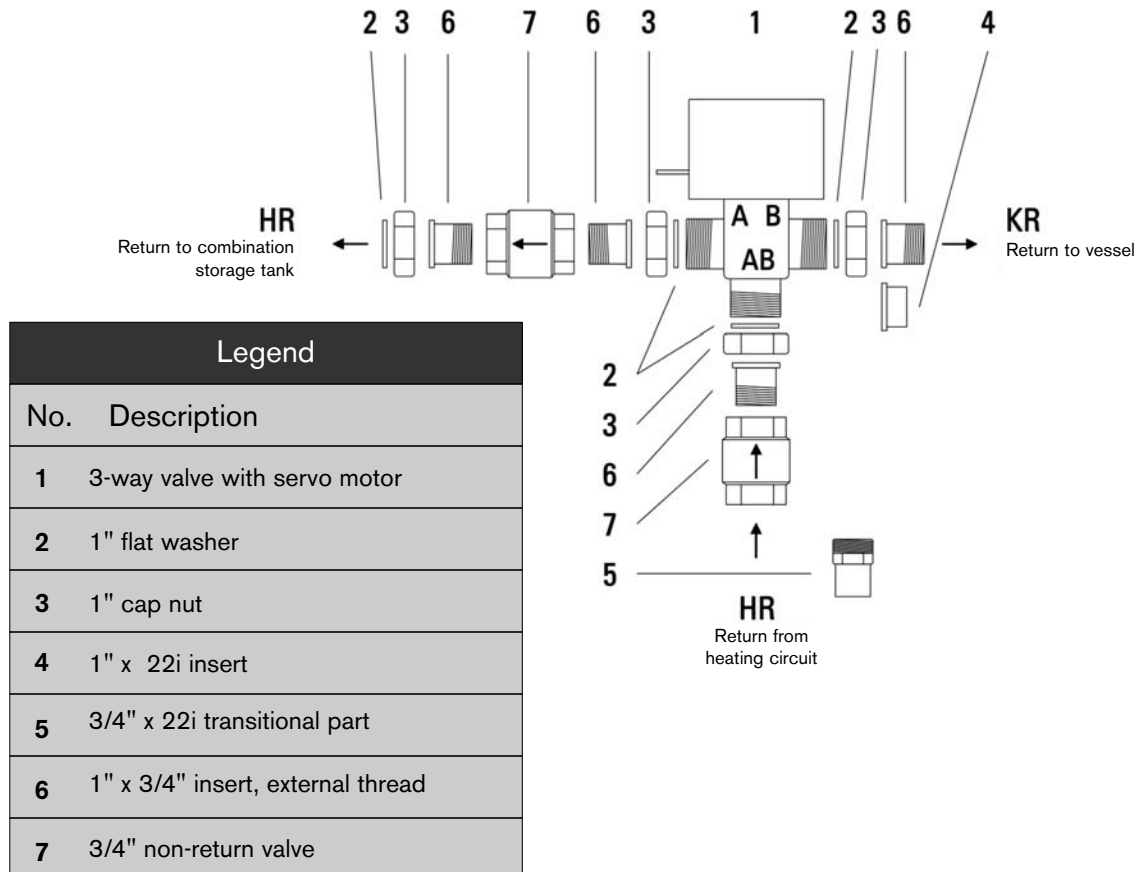
12. How to proceed for a thermostatic control

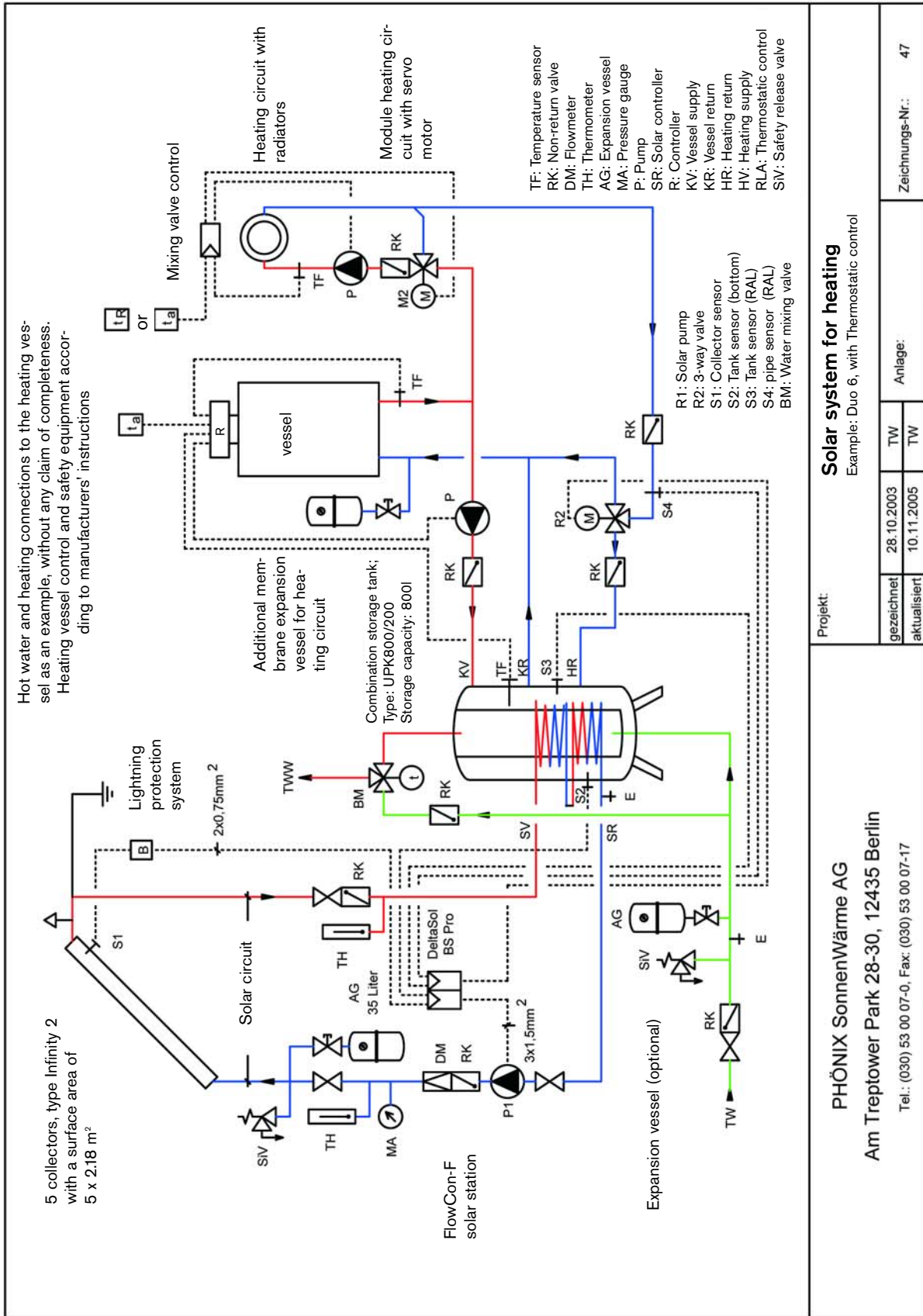
For this option with a variable vessel temperature, the vessel supplies heat to both the combination storage tank and the heating circuit. The heating return is either led directly back to the vessel via a three-way valve or the return temperature is raised via the combination storage tank (see drawing). The three-way valve may be controlled by a two-circuit solar controller (optional accessory used instead of the one-circuit controller) that controls the valve setting by comparing the temperature in the heating return with the temperature in the combination storage tank. When the temperature in the solar-heated buffer portion (S3) exceeds the temperature in the heating return (S4) by a certain value, the fluid is directed through the buffer (HR). Otherwise, the heating fluid is directly returned to the vessel. Thanks to the thermostatic control, the vessel has to provide little or no power at all, thus reducing heating requirements. The charge pump installed between the heating vessel supply and the buffer connection (KV) ensures

that only the upper buffer portion (for heating water) will be heated up. Therefore the buffer portion below the heating vessel connection (KR1) will be exclusively heated by solar energy. The heating circuit will be regulated either by the vessel controller or by a separate outside- or ambient temperature-dependent controller (R). The advantage of a separate controller (R) is that during spring or autumn, solar energy may well be sufficient for your heating needs, thus allowing the heating vessel to be turned off.

The following scheme shows the thermostatic control option. If you use a solid fuel vessel as a third heat source, make sure that the largest possible portion of the buffer tank is available for the heat supply from the solid fuel vessel. Make sure that the vessel supply is connected to the uppermost fitting (KV) and that the solid fuel vessel return is connected to the lowest fitting (FBR). The components required for the thermostatic control (two-circuit controller instead of the one-circuit controller, three-way valve, and pipe sensor) are available as optional accessories.

3-way valve for thermostatic control - thermostatic control option





Projekt: **Solar system for heating**
Example: Duo 6, with Thermostatic control

gezeichnet	28.10.2003	TW	Anlage:
aktualisiert	10.11.2005	TW	Zeichnungs-Nr.: 47

PHÖNIX SonnenWärme AG
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Tel.: (030) 53 00 07-0, Fax: (030) 53 00 07-17

13. How to protect the universal buffer storage tank against corrosion

The warranty is only valid for storage tanks that are adequately protected against corrosion.

UPK 650/200, UPK 800/200, UPK 1050/200 universal buffer storage tanks

Depending on the geographical area, additional corrosion protection may be required for the universal buffer storage tank. Similar to domestic water storage tanks, universal buffer storage tanks are primed on the surface. The buffer portion needs no extra corrosion protection since the circuit is closed.

Usually the inner stainless steel insert does not require any additional corrosion protection either, unless it is used in regions having high chloride or bromide ion concentrations in the water. In these regions even stainless steel may corrode, so you MUST install an impressed current anode. Please check with your local water works to determine if an impressed current anode is required.



The warranty does not cover any damage caused by high chloride and/or bromide concentrations.

If you have ordered the system with an impressed current anode, bore a hole in the cover of the inner stainless steel domestic water tank for the installation of the anode (please see instructions for how to install the impressed current anode).

To install the impressed current anode, the flange cover of the storage tank must be opened. After you have installed the anode in the flange cover, retighten the cover bolts. First tighten the bolts diagonally lightly, then retighten them (diagonally as well) with a maximum torque of 20 Nm. After the first heating up of the storage tank, check the bolts again and retighten, if necessary.



Prior to emptying the inner domestic water storage tank, you must first depressurize the buffer portion.

14. Maintenance

The solar system must be regularly serviced. This will ensure smooth operation of the system over its entire lifetime. The warranty will become void if the system is not regularly serviced.

We recommend that you have your system serviced annually by an authorized PHÖNIX partner.

Fill in the enclosed owner's record. This record is the key to warranty services.

The storage tank should be visually inspected every 12 months. Clean the outside of the tank with a damp cloth. Do not use abrasive or corrosive cleaning agents.



Prior to servicing the (inner) domestic water portion of the storage tank, the buffer portion must be depressurized. Only then can the domestic water portion be depressurized. After servicing the tank, first pressurize the domestic water portion, and then pressurize the buffer por-

tion (also see the guidelines in section 5 and 7 of this brochure). Failure to follow these instructions may result in damage to the inner storage tank. Any resulting damage will not be covered by our warranty.

For security reasons, water must be allowed to drain through the vent during heating. Therefore, the vent must never be blocked or restricted in any way.

A built-in impressed current anode has a practically unlimited life. Make sure the pilot light is working. When the green LED is on, corrosion protection is ensured by the anode. If the red LED is on, there is a problem which must be investigated. Consult the operation guide for the impressed current anode ! The anode will only function correctly when the storage tank is filled.

If there is a risk of freezing in the room where the storage tank is located, operate in frost protection mode or completely empty the storage tank. Vent the safety valve regularly (once or twice a month) in compliance with German Industrial Standard DIN 4753.

