Please read first

This operating manual provides important information on the handling of the unit. It is an integral part of the product and must be stored so that it is accessible in the immediate vicinity of the unit. It must remain available throughout the entire service life of the unit. It must be handed over to subsequent owners or users of the unit.

In addition to this operating manual, you must also have the operating manual for the heating and heat pump regulator and the operating manual for your heat pump.

Read the operating manual before working on or operating the unit. This applies in particular to the chapter on safety. Always follow all instructions completely and without restrictions.

It is possible that this operating manual may contain instructions that seem incomprehensible or unclear. In the event of any questions or if any details are unclear, contact the factory customer service department or the manufacturer's local partner.

Since this operating manual was written for several different models of the unit, always comply with the parameters for the respective model.

This operating manual is intended only for persons assigned to work on or operate the unit. Treat all constituent parts confidentially. The information contained herein is protected by copyright. No part of this manual may be reproduced, transmitted, copied, stored in electronic data systems or translated into another language, either wholly or in part, without the express written permission of the manufacturer.

Symbols

The following symbols are used in the operating manual. They have the following meaning:

- Information for operators.
- Information or instructions for qualified personnel.

DANGER!
Indicates a direct impending danger resulting in severe injuries or death.

WARNING!
Indicates a potentially dangerous situation that could result in serious injuries or death.

CAUTION!
Indicates a potentially dangerous situation that could result in medium or slight injuries.

ATTENTION.
Indicates a potentially dangerous situation, which could result in property damage.

NOTE.
Emphasized information.

ENERGY SAVING TIP
Indicates suggestions that help to save energy, raw materials and costs.

Reference to other sections of the operating manual.

Reference to other documents of the manufacturer.
Contents

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INSTALLATION PLAN FOR ALL STORAGE TANKS

HYDRAULIC CONNECTIONS

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Intended use

The multi-functional storage tank may be used only for the intended purpose.
This is as a stratified storage tank used in conjunction with heat pumps.
- with buffer area for heating system water
- domestic water heating using the continuous flow principle
- for air/water heat pumps
- brine/water heat pumps
- water/water heat pumps

Can be connected to solar systems and solid fuel boilers. The unit may be operated only within its technical parameters.

“Technical data” overview and “Technical data/Scope of delivery” overview of the operating manual for the heat pump to which the multi-functional storage tank is connected.

Disclaimer

The manufacturer is not liable for losses resulting from any use of the unit which is not its intended use.

The manufacturer’s liability also expires:

• if work is carried out on the unit and its components contrary to the instructions in this operating manual.
• if work is improperly carried out on the unit and its components.
• if work is carried out on the unit which is not described in this operating manual, and this work has not been explicitly approved by the manufacturer in writing.
• if the unit or components in the unit have been altered, modified or removed without the explicit written consent of the manufacturer.

Safety

The unit is safe to operate for its intended use. The construction and design of the unit conform to current state of the art standards, all relevant DIN/VDE regulations and all relevant safety regulations.

Every person who performs work on the unit must have read and understood the operating manual prior to starting any work. This also applies if the respective person has already worked with such a unit or a similar unit or has been trained by the manufacturer.

WARNING!
Only qualified technicians (trained heating, cooling, refrigerant and electrical technicians) may perform work on the unit and its components.
Customer service

For technical information please contact a qualified technician or the manufacturer’s local partner.

“Customer service” overview in the heat pump operating manual.

Warranty / Guarantee

For warranty and guarantee conditions, please refer to the purchase documents.

NOTICE
Please contact your dealer about all matters concerning warranties and guarantees.

Disposal

When decommissioning the unit, always comply with applicable laws, directives and standards concerning recovery, recycling and disposal.

Maintenance of the unit

The components of the heating circuit and the heat source (valves, expansion vessels, circulating pumps, filters, dirt traps) should be inspected as well as cleaned as needed - at the very least annually - by a qualified heating or cooling system technician.

Check the safety valve (provided by customer) for the hot water tank at regular intervals.

It is a good idea to have a maintenance contract with a heating installation company. The company will carry out the required maintenance at regular intervals.

Scope of delivery

Multi-functional domestic hot water storage tank:

2 insulation shells, Sky jacket, rosettes for connections, circulation connection kit

In extra box:

Circulation connection kit and insulation, 2 hot gas sensors, 4 cable ties

1. Check the delivery for outwardly visible signs of damage...

2. Check to make sure that the delivery is complete. Any defects or incorrect deliveries must be claimed immediately.

ACCESSORIES

CAUTION.
Use only original accessories from the manufacturer of the unit.

Select heating elements, between 4.5 to 9 kW depending on the specific system and order as additional items.

<table>
<thead>
<tr>
<th>Heating element type</th>
<th>AP-WH 7060-3FS</th>
<th>AP-WH 7083-3FS</th>
<th>AP-WH 7100-3FS</th>
</tr>
</thead>
<tbody>
<tr>
<td>EHZI 45</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>EHZ 60</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>EHZ 75</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>EHZ 90</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

* : suitable combination, n.g. : not suitable

For details of the quantity and positioning of the heating element sockets, refer to the dimensioned drawing of the respective tank.
Installation and assembly

The following applies to all work to be done:

⚠️ **NOTICE**
Always comply with the applicable local accident prevention regulations, statutory regulations, ordinances, guidelines and directives.

⚠️ **WARNING!**
The storage tank may only be installed and assembled by qualified technicians!

⚠️ **NOTICE**
It must be installed in a frost-free room with short pipe lengths to the load. Please also ensure that it is installed on a dry, firm surface able to safely support its weight.

⚠️ **WARNING!**
The unit can tip over when being removed from the wooden pallet and during transport with a hand truck or lift truck. This can result in personal injuries and damage.
- Take suitable precautions, which prevent the tipping hazard.

Proceed as follows if transport with a lifting truck is not possible:
Remove packaging and insulating material. Remove storage tank from the wooden pallet and bring it to the installation location.
Dispose of the transport and packaging materials properly and under ecological aspects.

⚠️ **WARNING!**
Several people are required to transport the unit. Do not underestimate the weight of the tank.

⚠️ **CAUTION!**
Wear safety gloves.

⚠️ **NOTICE**
The multi-functional domestic hot water storage tank is delivered with full insulation. If necessary, the insulation (Sky jacket and the 4 insulation shells) can be removed to transport the tank into the basement.

⚠️ **CAUTION!**
All parts of the insulation must be carefully removed and put aside so that they are not damaged!

Remove the protective transport sheeting...
2. Remove the grommets from the connections…

3. Lift off the tank cover…

4. Undo the Sky jacket zip and remove the jacket…

5. Remove both insulation shells and put them in a safe place.

NOTICE
Please note that all components must be reassembled in the reverse order!

WARNING!
Make sure you secure the tank against slipping during transport. Always secure the tank on the hand truck with a ratchet strap!

INSTALLATION

NOTICE
Ensure that the foam insulation is still in the bottom of the storage tank.

WARNING!
The storage tank must always be tilted by at least 2 people to prevent the risk of it tipping over. Do not tilt the storage tank by more than 20° during this step. Hands and fingers can be crushed when the tank is righted!
– Do not grip the bottom of the tank!
– Wear protective gloves!

1. Before you re-attach the insulation half-shells, check whether a) the grommets are placed over the pipe sockets and b) the soft foam sleeve is positioned over the top connection…

   a) Grommets

   b) Sleeve
Re-attach the insulation half-shells to the storage tank…

Use adhesive tape to fix the insulation half-shells at the top, bottom and in the middle part of the tank…

Place the Sky jacket around the storage tank so that the punched out holes fit over the sockets. Then close the zip…

CAUTION.
The zip must be closed by two people to relieve the strain!

Screw the tee onto thread 1 and move into the correct position (connection part facing downwards)…

Replace the tank cover and push the grommets over the corresponding pipe connections.

NOTICE
The connection between the top and bottom heat exchanger must always be installed, even if there is no circulation pipe!
③ Seal the thread of the flexible corrugated pipe and screw into the tee...

④ Screw the 90° elbow onto thread 2 and move into the correct position (elbow must face upwards)...

⑤ Stretch the flexible corrugated pipe and insert the seal between the elbow and the flexible corrugated pipe...

⑥ Use the union nut to screw together the flexible corrugated pipe and the elbow.

**CAUTION!**
Tighten the union nut carefully to prevent damage to the seal!

---

**INSULATE THE CIRCULATION CONNECTION**

- **NOTICE**
The circulation connection is installed outside the shell insulation over the Sky jacket and is then insulated.

① Push the 110 mm long insulation hose (with pipe cut-out) over the thread of the circulation connection...

② Insulate the remaining piping of the circulation connection with 220 mm long insulation hose (1). Then fix the insulation hoses in 4 places using the cable ties (2).
HYDRAULIC CONNECTIONS

Note and follow all relevant regulations, standards, guidelines and directives when integrating the multi-functional storage tank in the drinking water and heating network.

Note and follow the relevant DVGW regulations and recommendations and the regulations of the water supply company when connecting to the drinking water. Integrate the multi-functional storage tank in the heating system and domestic hot water circuit as shown in the hydraulic diagram.

Do not exceed the operating pressures specified on the rating plate and in the technical data. Install a pressure reducer, if necessary.

CAUTION!
The electrical conductivity of the domestic hot water must be > 100 μS/cm and lie within the required drinking water quality. The sulphate and chlorine content must not exceed 300 mg/l in total!

We recommend installing a suitable expansion vessel (not included in delivery) in the hot water circuit. This equalises pressure fluctuations or water shocks in the cold water network and prevents unnecessary loss of water.

Use a safety valve according to the respective relevant standards, guidelines and directives and according to the maximum allowable operating pressures of the storage tank and components.

The safety drain of the safety valve must lead into the drain via a funnel siphon in accordance with the applicable standards and regulations!

Domestic hot water connection diagram to DIN 1988:

Sensor connection as shown in the “terminal diagram of the respective heat pump type”.

SENSOR INSTALLATION

Always use the sensor springs included in the scope of delivery when installing the sensors (domestic hot water sensor and return temperature sensor).

1. Position the sensor on the outside of the sensor spring

2. Push the sensor and sensor spring together into the respective sensor pocket

3. Push in the sensor up to the end of the sensor pocket

For position of the sensor pocket, see dimensioned drawing

NOTICE
Always install the sensor springs, to ensure optimum temperature transfer! Take care not to damage the insulation of the sensor cable!

NOTICE
Refer to the instruction manual for the heating and heat pump regulator for the regulator settings required for parallel tank. Refer to the terminal diagram of the respective heat pump type for details of the circulating pump connections and, if installed, the changeover valve!

Sensor connection as shown in the “terminal diagram of the respective heat pump type”.
<table>
<thead>
<tr>
<th>Type</th>
<th>AP-WH 7060-3FS</th>
<th>AP-WH 7083-3FS</th>
<th>AP-WH 7100-3FS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hot water tank</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nominal volume</td>
<td>l</td>
<td>600</td>
<td>830</td>
</tr>
<tr>
<td>Max. operating pressure</td>
<td>bar</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Test pressure</td>
<td>bar</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Max. operating temperature</td>
<td>°C</td>
<td>95</td>
<td>95</td>
</tr>
<tr>
<td>Corrosion protection</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surface</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protective anode</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Heating water tank</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nominal volume</td>
<td>l</td>
<td>600</td>
<td>830</td>
</tr>
<tr>
<td>Max. operating pressure</td>
<td>bar</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Test pressure</td>
<td>bar</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Max. operating temperature</td>
<td>°C</td>
<td>95</td>
<td>95</td>
</tr>
<tr>
<td><strong>Heat exchanger heat pump</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exchanger area</td>
<td>m²</td>
<td>1.5</td>
<td>2.2</td>
</tr>
<tr>
<td>Exchanger volume</td>
<td>l</td>
<td>8</td>
<td>11</td>
</tr>
<tr>
<td>Max. operating pressure</td>
<td>bar</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Test pressure</td>
<td>bar</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Max. operating temperature</td>
<td>°C</td>
<td>95</td>
<td>95</td>
</tr>
<tr>
<td><strong>Solar heat exchanger</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exchanger area</td>
<td>m²</td>
<td>1.5</td>
<td>2.2</td>
</tr>
<tr>
<td>Exchanger volume</td>
<td>l</td>
<td>8</td>
<td>11</td>
</tr>
<tr>
<td>Max. operating pressure</td>
<td>bar</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Test pressure</td>
<td>bar</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Max. operating temperature</td>
<td>°C</td>
<td>95</td>
<td>95</td>
</tr>
<tr>
<td>Material</td>
<td>1.4404 (V4A)</td>
<td>1.4404 (V4A)</td>
<td>1.4404 (V4A)</td>
</tr>
<tr>
<td>Insulation</td>
<td>to DIN 4753</td>
<td>to DIN 4753</td>
<td>to DIN 4753</td>
</tr>
<tr>
<td></td>
<td>PU half-shells</td>
<td>PU half-shells</td>
<td>PU half-shells</td>
</tr>
<tr>
<td>Sensor pocket with sensor</td>
<td>Sky jacket</td>
<td>Sky jacket</td>
<td>Sky jacket</td>
</tr>
<tr>
<td>Tests</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight and mass</td>
<td>see dimensional drawing</td>
<td>see dimensional drawing</td>
<td>see dimensional drawing</td>
</tr>
<tr>
<td>Cleaning flange available</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Maximum allowable heating output of the heat pump at heat source max.</td>
<td>kW</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Maximum allowable heating water flow rate</td>
<td>m³/h</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Achievable hot water temperature in the top part of the tank</td>
<td>°C</td>
<td>55</td>
<td>55</td>
</tr>
<tr>
<td>Minimum</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Available quantity of hot water</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Legend: GB819328

All dimensions in mm

1 Ventilation 1/2" IG
2 Flow of second heat generator 1 1/2" IG
3 Domestic hot water withdrawal 1" AG
4 Sensor pocket (domestic hot water sensor) Ø 13x75
5 Sensor pocket Ø 13x75
6 Heating element, hot water (max. 9kW) 1 1/2" IG
7 Domestic hot water return heat pump 1 1/4" IG
8 Circulation top connection kit 1" AG
9 Heating circuit flow / heat pump, heating and domestic hot water flow (both can be replaced) 1 1/4" IG
10 Circulation bottom connection kit 1" AG
11 Heating element, heating (max. 9kW) 1 1/2" IG
12 Solar exchanger flow 1" IG
13 Sensor pocket (return temperature sensor) Ø 13x75
14 Return heating circuit/return flow, heat pump (both can be replaced) 1 1/4" IG
15 Sensor pocket (Solar) Ø 13x75
16 Cold water inlet 1" AG
17 Sensor exchanger return 1" IG
18 Return of second heat generator (draining) 1 1/2" IG

Net weight incl. insulation: 140 kg
Tilting dimension without insulation: 1900
Domestic hot water exchanger: 7.5 m²
Solar heat exchanger: 1.5 m²
We reserve the right to make technical changes.

Net weight incl. insulation: 200 kg
Tilting dimension without insulation: 1990
Domestic hot water exchanger: 8.7 m²
Solar heat exchanger: 2.2 m²

Legend: GB819214c
All dimensions in mm

1. Ventilation 1/2" IG
2. Flow of second heat generator 1 1/2" IG
3. Domestic hot water withdrawal 1" AG
4. Sensor pocket (domestic hot water sensor) Ø 13x100
5. Sensor pocket Ø 13x100
6. Heating element, hot water (max. 9kW) 1 1/2" IG
7. Domestic hot water return heat pump 1 1/4" IG
8. Circulation bottom connection kit 1" AG
9. Heating circuit flow /
   heat pump, heating and domestic hot water flow
   (both can be replaced) 1 1/4" IG
10. Circulation bottom connection kit 1" AG
11. Heating element, heating (max. 9kW) 1 1/2" IG
12. Sensor pocket (return temperature sensor) Ø 13x100
13. Solar exchanger flow 1" IG
14. Return heating circuit/
    return flow, heat pump
    (both can be replaced) 1 1/4" IG
15. Sensor pocket (Solar) Ø 13x100
16. Sensor exchanger return 1" IG
17. Cold water inlet 1" AG
18. Return of second heat generator (draining) 1 1/2" IG
AP-WH 7100-3FS

Dimensional drawing

Legend: GB819312b
All dimensions in mm

1 Ventilation
2 Flow of second heat generator
3 Domestic hot water withdrawal
4 Sensor pocket (domestic hot water sensor)
5 Sensor pocket
6 Heating element, hot water (max. 9kW)
7 Domestic hot water return heat pump
8 Circulation bottom connection kit
9 Heating circuit flow / heat pump, heating and domestic hot water flow
   (both can be replaced)
10 Circulation bottom connection kit
11 Heating element, heating (max. 9kW)
12 Sensor pocket (return temperature sensor)
13 Solar exchanger flow
14 Return heating circuit / return flow, heat pump
   (both can be replaced)
15 Sensor pocket (Solar)
16 Sensor exchanger return
17 Cold water inlet
18 Return of second heat generator (draining)

Net weight incl. insulation: 230 kg
Tilting dimension without insulation: 2090
Domestic hot water exchanger: 10.9 m²
Solar heat exchanger: 3.1 m²
Installation plan for all storage tanks

Legend: GB819397
All dimensions in mm.
We reserve the right to modify technical specifications without prior notice.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>Top view</td>
</tr>
<tr>
<td>MF</td>
<td>Minimum area to ensure ability to operate and service</td>
</tr>
<tr>
<td>1</td>
<td>Storage tank</td>
</tr>
</tbody>
</table>

>1000
>800
Hydraulic diagram legend

1) Heat pump
2) Underfloor heating / radiators
3) Vibration decoupler
4) Sylomer strips for under unit
5) Shut-off with emptying
6) Expansion vessel scope of supply
7) Safety valve
8) Shut-off
9) Heating circulating pump (HUP)
10) Check valve
11) Single room regulator
12) Overflow valve
13) Steam-proof insulation
14) Domestic hot water circulating pump (BUP)
15) Mixing circuit three-way mixer (discharge)
16) Expansion vessel, provided on site
17) Temperature difference regulator (SLP)
18) Heating element, heating (ZWE)
19) Mixing circuit four-way mixer (charge)
20) Heating element, domestic hot water (ZWE)
21) Mixing circuit circulating pump (FP 1-3)
22) Swimming pool circulating pump (SUP)
23) Booster circulating pump (ZUP) (reconnect circulating pump integrated in the heat pump)
24) Pressure gauge
25) Heating + domestic hot water circulating pump (HUP)
26) Domestic hot water switching valve (BUP) (B = open (break contact) when off circuit)
27) Heating element, heating and domestic hot water (ZWE)
28) Brine circulating pump (VBO)
29) Dirt trap, 1 mm screen size
30) Collecting tank for brine mixture
31) Wall penetration
32) Supply pipe
33) Brine distributor
34) Ground collector
35) Ground probe
36) Groundwater well pump
37) Thermostat 0°C - 16°C
38) Flow switch
39) Suction well
40) Recharging well
41) Heating circuit tap
42) Circulating pump (ZIP)
43) Brine/water heat exchanger (cooling function)
44) Three-way mixing valve (cooling function)
45) Cap valve
46) Filling and emptying valve
47) Swimming pool switching valve (SUP) (B = open (break contact) when off circuit)
48) Domestic hot water charge pump (BLP)
49) Groundwater flow direction
50) Buffer storage tank
51) Separating tank
52) Gas or oil-fired boiler
53) Wood-fired boiler
54) Domestic hot water tank
55) Brine pressure detector
56) Swimming pool heat exchanger
57) Geothermal heat exchanger
58) Ventilation in the house
59) Plate heat exchanger
60) Cooling mode switching valve (B = open (break contact) when off circuit)
61) Cooling tank
62) Optional heat meter
63) Solar circuit switching valve (B = open (break contact) when off circuit)
64) Cooling circulating pump
65) Compact distributor
66) Fan convectors
67) Solar domestic hot water tank
68) Solar separating tank
69) Multifunctional tank
70) Solar separating unit

Important notice!
These hydraulic diagrams are schematic representations and are only provided as an aid! They do not release you from the need to carry out your own planning! Shut-off and bleeding devices, and safety-related measures are not completely shown in them!
They must be installed for the specific system in accordance with relevant standards and regulations. The pipes must be dimensioned according to the normal volumetric flow rate of the heat pump or the free pressure of the integrated circulating pump!

DE100801
Hydraulic connection 2