Sole/Wasser-Wärmepumpe für Innenaufstellung

Brine-to-Water Heat Pump for Indoor Installation

Pompe à chaleur eau glycolée-eau pour installation intérieure

Montage- und Gebrauchsanweisung

Installation and Operating Instructions

Instructions d’installation et d’utilisation
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1 Please Read Immediately

1.1 Important Information

⚠️ ATTENTION!
The heat pump is not secured to the wooden pallet.

⚠️ ATTENTION!
The heat pump must not be tilted more than 45° (in any direction).

⚠️ ATTENTION!
Do not use the holes in the panel assemblies for lifting the device!

⚠️ ATTENTION!
Flush the heating system prior to connecting the heat pump.

⚠️ ATTENTION!
The supplied dirt trap must be inserted in the heat source inlet of the heat pump to protect the evaporator against the ingress of impurities.

⚠️ ATTENTION!
The brine solution must contain at least a 25 % concentration of a monoethylene glycol or propylene glycol-based antifreeze, which must be mixed before filling.

⚠️ ATTENTION!
The heat pump must be started up in accordance with the installation and operating instructions of the heat pump controller.

⚠️ ATTENTION!
We recommend the installation of a suitable corrosion protection system to prevent the formation of deposits (e.g. rust) in the condenser of the heat pump.

⚠️ ATTENTION!
Any work on the heat pump may only be performed by authorised and qualified after-sales service technicians.

⚠️ ATTENTION!
Disconnect all electrical circuits from the power source prior to opening the device.

1.2 Legal Regulations and Directives

This heat pump conforms to all relevant DIN/VDE regulations and EU directives. Refer to the EC Declaration of Conformity in the appendix for details.

The heat pump must be connected to the power supply in compliance with all relevant VDE, EN and IEC standards. Any further connection requirements stipulated by local utility companies must also be observed.

The heat pump is to be connected to the heat source system and the heating system in accordance with all applicable regulations.

Persons, especially children, who are not capable of operating the device safely due to their physical, sensory or mental abilities or their inexperience or lack of knowledge, must not operate this device without supervision or instruction by the person in charge. Children must be supervised to ensure that they do not play with the device.

1.3 Energy-Efficient Use of the Heat Pump

By operating this heat pump you are helping to protect our environment. Both the heating system and the heat source must be properly designed and dimensioned to ensure efficient operation. It is particularly important to keep water flow temperatures as low as possible. All connected energy consumers should therefore be suitable for low flow temperatures. Raising the heating water temperature by 1 K corresponds to an increase in energy consumption of approx. 2.5 %. Low-temperature heating systems with flow temperatures between 30 °C and 50 °C are particularly well-suited for energy-efficient operation.
2 Purpose of the Heat Pump

2.1 Application
The brine-to-water heat pump is designed for use in existing or newly built heating systems. Brine is used as the heat carrier in the heat source system. Borehole heat exchangers, ground heat collectors or similar systems can be used as the heat source.

2.2 Operating Principle
The heat generated by the sun, wind and rain is stored in the ground. This heat stored in the ground is collected at a low temperature by the brine circulating in the ground collector, ground coil or similar device. A circulating pump then conveys the "heated" brine to the evaporator of the heat pump. There the heat is given off to the refrigerant in the refrigerating cycle. This cools the brine so that it can once again absorb thermal energy in the brine circuit.

The refrigerant is drawn in by the electrically driven compressor, compressed and "pumped" to a higher temperature level. The electrical power needed to run the compressor is not lost in this process. Most of it is absorbed by the refrigerant.

Subsequently, the refrigerant is passed through the condenser where it transfers its heat energy to the heating water. Depending on the set operating point (thermostat setting), the heating water is thus heated up to a max. of 60 °C.

3 Basic Device
The basic device consists of a ready-to-use heat pump for indoor installation, complete with sheet metal casing, control panel and integrated controller. The refrigerating cycle contains the refrigerant R407C. R407C refrigerant is CFC-free, non-ozone depleting and non-combustible.

All components required for the operation of the heat pump are located on the control panel. An external wall temperature sensor including fixing accessories and a dirt trap are supplied with the heat pump. The power feed for the load current and the control current must be installed by the customer.

The supply lead of the brine circulating pump (to be provided by the customer) must be connected to the control panel. If required, the supply lead of the brine pump is be equipped with a motor protection device.

The customer must provide both the collector and the brine circuit manifold.

1) Liquifier
2) Control panel
3) Evaporator
4) Compressor
4 Accessories

4.1 Brine Circuit Manifold

The brine circuit manifold merges the individual collector loops of the heat source system into a single main pipe which is connected to the heat pump. Integrated ball valves allow the individual brine circuits to be shut off for de-aeration purposes.

5 Transport

A lift truck is suited for transporting the unit on a level surface. Carrying straps may be used if the heat pump needs to be transported on an uneven surface or carried up or down stairs. These straps can be passed directly underneath the wooden pallet.

**ATTENTION!**
The heat pump is not secured to the wooden pallet.

**ATTENTION!**
The heat pump must not be tilted more than 45° (in any direction).

Use the holes provided in the sides of the frame to lift the unit without the pallet. The side panel assemblies must be removed for this purpose. Any commercially available length of pipe can be used as a carrying aid.

**ATTENTION!**
Do not use the holes in the panel assemblies for lifting the device!

6 Set-up

6.1 General Information

The unit may only be installed indoors in rooms with low humidity on a level, smooth and horizontal surface. The entire base of the frame should lie directly on the floor to ensure a good soundproof seal. If this is not the case, additional sound insulation measures may be necessary.

The heat pump must be installed so that maintenance work can be carried out without hindrance. This can be ensured by maintaining a clearance of approx. 1 m in front of and on each side of the heat pump.

6.2 Acoustic Emissions

The heat pump operates silently due to efficient sound insulation. To prevent noise transmission to the foundation, a suitable, sound dampening rubber mat should be placed underneath the base frame of the heat pump.

To prevent any sound from being transmitted to the heating system, we recommend connecting the heat pump to the heating system by means of hose sections.
7 Installation

7.1 General Information

The following connections need to be established on the heat pump:
- Flow and return flow of the brine system
- Flow and return flow of the heating system
- Power supply

7.2 Heating System Connection

⚠️ ATTENTION!
Flush the heating system prior to connecting the heat pump.

Before connecting the heating water system to the heat pump, the heating system must be flushed to remove any impurities, residue from sealants, etc. Any accumulation of deposits in the liquifier could cause the heat pump to completely break down.

Once the heating system has been installed, it must be filled, de-aerated and pressure-tested.

The sensors which are delivered already connected and loosely placed in the switch box must be mounted and insulated according to the block diagram.

Minimum heating water flow rate

The minimum heating water flow rate through the heat pump must be assured in all operating states of the heating system. This can be accomplished, for example, by installing either a manifold without differential pressure or an overflow valve. The procedure for adjusting an overflow valve is described in the Chapter Start-Up.

Antifreeze protection for installation locations prone to frost

The antifreeze function of the heat pump controller is active whenever the controller and the heat circulating pumps are ready for operation. If the heat pump is taken out of service or in the event of a power failure, the system has to be drained. The heating circuit should be operated with a suitable antifreeze if heat pump systems are implemented in buildings where a power failure can not be detected (holiday home).

7.3 Heat Source Connection

The following procedure must be observed when connecting the heat source:

Connect the brine pipe to the heat pump flow and return. The hydraulic plumbing diagram must be adhered to.

⚠️ ATTENTION!
The supplied dirt trap must be inserted in the heat source inlet of the heat pump to protect the evaporator against the ingress of impurities.

In addition, a micro bubble air separator must be installed in the heat source system.

The brine liquid must be produced prior to charging the system. The liquid must have an antifreeze concentration of at least 25 % to ensure frost protection down to -14 °C.

Only monoethylene glycol or propylene glycol-based antifreeze may be used.

The heat source system must be de-aerated and checked for leaks.

⚠️ ATTENTION!
The brine solution must contain at least a 25 % concentration of a monoethylene glycol or propylene glycol-based antifreeze, which must be mixed before filling.

7.4 Electrical Connection

The following electrical connections must be established on the heat pump:
- Connection of the control line to the control panel of the heat pump via terminal X1: L/N/PE.
- Connection of the mains cable to the control panel of the heat pump via terminal X6: L/N/PE.
- Connection of the brine circulating pump (to be provided by the customer) to the control panel of the heat pump via terminal X1: PE and pump contactor K5: 2/4. As an option, the brine pump can also be directly connected (see terminal connection plan).

All electrical components required for the operation of the heat pump are located on the control panel.

For detailed instructions concerning the connection and functioning of the heat pump controller (e.g. external wall sensor included in the scope of supply) refer to the operating manual supplied with the controller.

An disconnecting device with a contact gap of at least 3 mm (e.g. utility blocking contactor or power contactor) as well as a 1-pole circuit breaker have to be provided by the customer. The required conductor cross section is to be selected according to the power consumption of the heat pump, the technical connection requirements of the respective utility company as well as all applicable regulations. Details on the power consumption of the heat pump are listed on both the product information sheet and the type plate. The connection terminals are designed for a max. conductor cross section of 10 mm².
8 Commissioning

8.1 General Information

To ensure that start-up is performed correctly, it should only be carried out by an after-sales service technician authorised by the manufacturer. This may be a condition for extending the guarantee (see Warranty).

8.2 Preparation

The following items need to be checked prior to start-up:
- The heat pump must be fully connected, as described in Chapter 7.
- The heat source system and the heating circuit must have been filled and checked.
- The dirt trap must be inserted in the brine inlet of the heat pump.
- All valves that could impair proper flow in the brine and heating circuits must be open.
- The heat pump controller must be adapted to the heating system in accordance with the controller’s operating instructions.

8.3 Start-up Procedure

The heat pump is started up via the heat pump controller.

⚠️ ATTENTION!

The heat pump must be started up in accordance with the installation and operating instructions of the heat pump controller.

If an overflow valve is fitted to assure the minimum heating water flow rate, the valve must be set in accordance with the requirements of the respective heating system. Incorrect adjustment can lead to faulty operation and increased energy consumption. We recommend carrying out the following procedure to correctly adjust the overflow valve:

Close all of the heating circuits that may also be closed during operation (depending on the type of heat pump usage) so that the most unfavourable operating state - with respect to the water flow rate - is achieved. This normally means the heating circuits of the rooms on the south and west sides of the building. At least one heating circuit must remain open (e.g. bathroom).

The overflow valve should be opened far enough to produce the maximum temperature spread between the heating flow and return flow listed in the table below for the current heat source temperature. The temperature spread should be measured as close as possible to the heat pump. The heating element of mono energy systems should be disconnected.

<table>
<thead>
<tr>
<th>Heat source temperature</th>
<th>Max. temperature spread between heating flow and return flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>From</td>
<td>To</td>
</tr>
<tr>
<td>-5°C</td>
<td>0°C</td>
</tr>
<tr>
<td>1°C</td>
<td>5°C</td>
</tr>
<tr>
<td>6°C</td>
<td>9°C</td>
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<tr>
<td>10°C</td>
<td>14°C</td>
</tr>
<tr>
<td>15°C</td>
<td>20°C</td>
</tr>
<tr>
<td>21°C</td>
<td>25°C</td>
</tr>
</tbody>
</table>

Any faults occurring during operation are displayed on the heat pump controller and can be corrected as described in the operating manual of the heat pump controller.
9 Maintenance and Cleaning

9.1 Maintenance
The heat pump is maintenance-free. To prevent faults due to sediment in the heat exchangers, care must be taken to ensure that no impurities can enter either the heat source system or the heating system. In the event that operating malfunctions due to contamination occur nevertheless, the system should be cleaned as described below.

9.2 Cleaning the Heating System
The ingress of oxygen into the heating water circuit may result in the formation of oxidation products (rust), particularly if steel components are used. This oxygen enters the heating system via the valves, the circulating pumps and/or plastic pipes. It is therefore essential - in particular with respect to the piping of underfloor heating systems - that only diffusion-proof materials are used.

⚠️ ATTENTION!
We recommend the installation of a suitable corrosion protection system to prevent the formation of deposits (e.g. rust) in the condenser of the heat pump.

Residue from lubricants and sealants may also contaminate the heating water.

In the case of severe contamination leading to a reduction in the performance of the liquifier in the heat pump, the system must be cleaned by a heating technician.

According to today’s state of knowledge, we recommend using a 5 % phosphoric acid solution for cleaning purposes. However, if cleaning needs to be performed more frequently, a 5 % formic acid solution should be used.

In either case, the cleaning fluid should be at room temperature. We recommend flushing the heat exchanger in the direction opposite to the normal flow direction.

To prevent acidic cleaning agents from entering the heating system circuit, we recommend connecting the flushing device directly to the flow and return flow of the liquifier. It is important that the system be thoroughly flushed using appropriate neutralising agents to prevent any damage from being caused by cleaning agent residue remaining in the system.

Acids must be used with great care and all relevant regulations of the employers’ liability insurance associations must be adhered to.

If in doubt, contact the manufacturer of the chemicals!

9.3 Cleaning the Heat Source System

⚠️ ATTENTION!
The supplied dirt trap must be inserted in the heat source inlet of the heat pump to protect the evaporator against the ingress of impurities.

Clean the dirt trap’s filter screen one day after start-up and subsequently in weekly intervals. If no more signs of contamination are evident, the filter can be removed to reduce pressure drops.

10 Faults / Trouble-Shooting
This heat pump is a quality product and is designed for trouble-free operation. In the event that a fault should occur, it will be indicated on the heat pump manager display. Simply consult the Faults and Trouble-Shooting page in the operating instructions of the heat pump controller.

If you cannot correct the fault yourself, please contact your after-sales service technician.

⚠️ ATTENTION!
Any work on the heat pump may only be performed by authorised and qualified after-sales service technicians.

⚠️ ATTENTION!
Disconnect all electrical circuits from the power source prior to opening the device.

11 Decommissioning / Disposal
Before removing the heat pump, disconnect it from the power source and close all valves. Observe all environmentally-relevant requirements regarding the recovery, recycling and disposal of materials and components in accordance with all applicable standards. Particular attention should be paid to the proper disposal of refrigerants and refrigeration oils.
# 12 Device Information

<table>
<thead>
<tr>
<th>1</th>
<th>Type and order code</th>
<th>SI 5ME</th>
<th>SI 7ME</th>
<th>SI 9ME</th>
<th>SI 11ME</th>
<th>SI 14ME</th>
</tr>
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<tbody>
<tr>
<td>2</td>
<td>Design</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1</td>
<td>Degree of protection according to EN 60 529</td>
<td>IP 20</td>
<td>IP 20</td>
<td>IP 20</td>
<td>IP 20</td>
<td>IP 20</td>
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<tr>
<td>2.2</td>
<td>Installation Location</td>
<td>Indoors</td>
<td>Indoors</td>
<td>Indoors</td>
<td>Indoors</td>
<td>Indoors</td>
</tr>
<tr>
<td>3</td>
<td>Performance data</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.1</td>
<td>Operating temperature limits:</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Heating water flow °C</td>
<td>Up to 58</td>
<td>Up to 58</td>
<td>Up to 58</td>
<td>Up to 58</td>
<td>Up to 58</td>
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<tr>
<td></td>
<td>Brine (heat source) °C</td>
<td>-5 to +25</td>
<td>-5 to +25</td>
<td>-5 to +25</td>
<td>-5 to +25</td>
<td>-5 to +25</td>
</tr>
<tr>
<td></td>
<td>Antifreeze</td>
<td>Mono-ethyl-ene glycol</td>
<td>Mono-ethyl-ene glycol</td>
<td>Mono-ethyl-ene glycol</td>
<td>Mono-ethyl-ene glycol</td>
<td>Mono-ethyl-ene glycol</td>
</tr>
<tr>
<td></td>
<td>Minimum brine concentration (-13 °C freezing temperature)</td>
<td>25%</td>
<td>25%</td>
<td>25%</td>
<td>25%</td>
<td>25%</td>
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<tr>
<td>3.2</td>
<td>Temperature spread of heating water (flow/return flow) at B0 / W35 K</td>
<td>9.6 / 5.0</td>
<td>9.1 / 5.0</td>
<td>10.5 / 5.0</td>
<td>9.5 / 5.0</td>
<td>9.6 / 5.0</td>
</tr>
<tr>
<td>3.3</td>
<td>Heat output / COP at B-5 / W55 kW / ---</td>
<td>4.0 / 2.0</td>
<td>5.4 / 2.1</td>
<td>7.6 / 2.1</td>
<td>9.4 / 2.0</td>
<td>12.3 / 2.1</td>
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<tr>
<td></td>
<td>at B0 / W45 kW / ---</td>
<td>4.6 / 2.7</td>
<td>5.7 / 2.7</td>
<td>8.8 / 2.6</td>
<td>10.5 / 2.9</td>
<td>14.7 / 2.9</td>
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<tr>
<td></td>
<td>at B0 / W50 kW / ---</td>
<td>4.0 / 2.7</td>
<td>5.6 / 2.7</td>
<td>8.9 / 2.6</td>
<td>11.0 / 2.9</td>
<td>14.0 / 2.9</td>
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<td>3.4</td>
<td>Sound power level dB(A)</td>
<td>54</td>
<td>55</td>
<td>56</td>
<td>56</td>
<td>56</td>
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<td>3.5</td>
<td>Heating water flow with an internal pressure differential of m³/h / Pa</td>
<td>0.45 / 1900</td>
<td>0.65 / 3300</td>
<td>0.75 / 4100</td>
<td>1.0 / 4600</td>
<td>1.3 / 5100</td>
</tr>
<tr>
<td>3.6</td>
<td>Brine throughput with an internal pressure differential (heat source) of m³/h / Pa</td>
<td>1.2 / 16000</td>
<td>1.2 / 16000</td>
<td>2.3 / 25000</td>
<td>2.0 / 26000</td>
<td>3.5 / 26000</td>
</tr>
<tr>
<td>3.7</td>
<td>Refrigerant; total filling weight type / kg</td>
<td>R407C / 1.2</td>
<td>R407C / 1.4</td>
<td>R407C / 1.7</td>
<td>R407C / 1.9</td>
<td>R407C / 2.2</td>
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<td>4</td>
<td>Dimensions, connections and weight</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>4.1</td>
<td>Device dimensions without connections ²</td>
<td>mm</td>
<td>H x W x L</td>
<td>805 x 650 x 462</td>
<td>805 x 650 x 462</td>
<td>805 x 650 x 462</td>
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<tr>
<td>4.2</td>
<td>Device connections to heating system Inch</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>G 1¼&quot; external</td>
<td>G 1¼&quot; external</td>
<td>G 1¼&quot; external</td>
<td>G 1¼&quot; external</td>
<td>G 1¼&quot; external</td>
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<tr>
<td>4.3</td>
<td>Device connections to heat source Inch</td>
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<td>G ¼&quot; external</td>
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<td>G ¼&quot; external</td>
<td>G ¼&quot; external</td>
</tr>
<tr>
<td>4.4</td>
<td>Weight of the transportable unit(s) incl. packing kg</td>
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<td></td>
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<td>5</td>
<td>Electrical Connection</td>
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<td></td>
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<td>5.1</td>
<td>Nominal voltage; fuse protection V / A</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>230 / 16</td>
<td>230 / 16</td>
<td>230 / 16</td>
<td>230 / 20</td>
<td>230 / 25</td>
</tr>
<tr>
<td>5.2</td>
<td>Nominal power consumption ¹ kW</td>
<td>B0 W35</td>
<td>1.26</td>
<td>1.30</td>
<td>1.68</td>
<td>1.70</td>
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<td>5.3</td>
<td>Starting current with soft starter A</td>
<td></td>
<td></td>
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<td>26</td>
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<td>5.4</td>
<td>Nominal current B0 W35 / cos ϕ A / ---</td>
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<tr>
<td></td>
<td></td>
<td>6.8 / 0.8</td>
<td>7.1 / 0.8</td>
<td>9.1 / 0.8</td>
<td>9.3 / 0.8</td>
<td>12.6 / 0.8</td>
</tr>
<tr>
<td>6</td>
<td>Complies with the European safety regulations</td>
<td></td>
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<td>7</td>
<td>Additional model features</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.1</td>
<td>Water in device protected against freezing ⁴</td>
<td>No</td>
<td>No</td>
<td>No</td>
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<td>No</td>
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<td>7.2</td>
<td>Performance levels</td>
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<td>1</td>
<td>1</td>
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<td>1</td>
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<td>7.3</td>
<td>Controller internal/external</td>
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<tr>
<td></td>
<td></td>
<td>Internal</td>
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</table>

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1. This data indicates the size and capacity of the system. For an analysis of the economic and energy efficiency of the system, both the bivalence point and the regulation should also be taken into consideration. The specified values, e.g. B10 / W55, have the following meaning: Heat source temperature 10 °C and heating water flow temperature 55 °C.

2. Note that additional space is required for pipe connections, operation and maintenance.

3. See CE declaration of conformity

4. The heat circulating pump and the heat pump controller must always be ready for operation.
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1 Maßbilder / Dimension Drawings / Schémas cotés

1.1 Maßbild / Dimension Drawing / Schéma coté

Wärmequelle
Eingang in WP
1 1/4“ Außengewinde
Heat source
Heat pump inlet
1 1/4“ external thread
Source de chaleur
Entrée dans la PAC
Filetage extérieur 1 1/4“

Zuführung Elektroleitungen
Supply cables
Amenée lignes électriques

Heizungsvorlauf
Ausgang aus WP
1 1/4“ Außengewinde
Heating water flow
Heat pump outlet
1 1/4“ external thread
Aller eau de chauffage
Sortie de la PAC
Filetage extérieur 1 1/4“

Heizungsrücklauf
Eingang in WP
1 1/4“ Außengewinde
Heating water return flow
Heat pump inlet
1 1/4“ external thread
Retour eau de chauffage
Entrée dans la PAC
Filetage extérieur 1 1/4“
2 Diagramme / Diagrams / Diagrammes

2.1 Kennlinien / Characteristic Curves / Courbes caractéristiques SI 5ME

![Graphs showing characteristic curves for heating and cooling systems.](image-url)
2.2 Kennlinien / Characteristic Curves / Courbes caractéristiques SI 7ME

![Graph showing characteristic curves for SI 7ME]

**Conditions:**
- Heating water flow rate: 0.6 m³/h
- Brine flow rate: 1.7 m³/h
- Temperature of brine inlet: -10°C to 30°C
- Temperature of water outlet: 0°C to 12°C

**AXIS:**
- Heating capacity [kW] vs. Brine inlet temperature [°C]
- Water outlet temperature [°C]

**Legend:**
- Bedingungen: Conditions
- Druckverlust: Pressure loss
- Leistungsaufnahme: Power consumption
- Druckverlust in [Pa]: Pressure loss in [Pa]
- Leistungszahl: Coefficient of performance
- Heizwasserdurchsatz: Heating water flow rate
2.3 Kennlinien / Characteristic Curves / Courbes caractéristiques SI 9ME

Heizleistung in [kW] 
Heating capacity in [kW]

Puisance de chauffage en [kW]

Wasseraustrittstemperatur in [°C] 
Water outlet temperature in [°C]

Température de sortie de l'eau en [°C]

Bedingungen · Conditions · Conditions:

Heizwasserdurchsatz
Heating water flow rate
Dèbit d'eau de chauffage 0,75 m³/h
Soleurdurchsatz
Brine flow rate
Dèbit d'eau glycolée 2,3 m³/h

Leistungsaufnahme (incl. Pumpenleistungsanteil)
Power consumption (incl. power input to pump)
Consommation de puissance (y compris part de consommation de la pompe)

Leistungszahl (incl. Pumpenleistungsanteil)
Coefficient of performance (incl. power input to pump)
Coefficient de performance (y compris part de consommation de la pompe)

Druckverlust in [Pa]
Pressure loss in [Pa]
Perte de pression en [Pa]
2.4 Kennlinien / Characteristic Curves / Courbes caractéristiques SI 11ME
2.5 Kennlinien / Characteristic Curves / Courbes caractéristiques SI 14ME

Heizleistung in [kW]
Heating capacity in [kW]
Puissance de chauffage en [kW]

Wasseraustrittstemperatur in [°C]
Water outlet temperature in [°C]
Température de sortie de l'eau en [°C]

Bedingungen · Conditions · Conditions:
Heizwasserdurchsatz
Heating water flow rate
Détroit d'eau de chauffage
1,3 m³/h
Soleldurchsatz
Brine flow rate
Détroit d'eau glycolée
3,5 m³/h

Leistungsaufnahme (incl. Pumpenleistungsanteil)
Power consumption (incl. power input to pump)
Consommation de puissance (y compris part de consommation de la pompe)

Druckverlust in [Pa]
Pressure loss in [Pa]
Perte de pression en [Pa]

Leistungszahl (incl. Pumpenleistungsanteil)
Coefficient of performance (incl. power input to pump)
Coefficient de performance (y compris part de consommation de la pompe)
3 Stromlaufpläne / Circuit Diagrams / Schémas électriques

3.1 Steuerung / Control / Commande
3.2 Last / Load / Charge
3.3 Klemmenanschlussplan / Terminal Connection Plan / Schéma de connexion des bornes
3.4 Legende / Legend / Légende

| A1 | Drahtbrücke, muss eingelegt werden, wenn kein Sperrschütz vorhanden ist | Wire jumper, must be inserted if no blocking contactor is fitted | Le cavalier à fil doit être inséré en absence de disjoncteur de blocage du fournisseur d’énergie. |
| A2 | Drahtbrücke, muss bei Verwendung des 2ten Sperreinganges entfernt werden | Wire jumper, must be removed if the 2nd disable contactor is used | Retirer le cavalier à fil si l’utilisation d’un contact de disjoncteur de moteur, pour la pompe primaire |
| A3 | Drahtbrücke, muss bei Einsatz eines Motorschutzkontaktes, für die Primärpumpe, entfernt werden | Wire jumper, must be removed when a motor protection contact is used for the primary pump | Retirer le câble à fil si l’utilisation d’un contact de disjoncteur de moteur, pour le compresseur |
| A4 | Drahtbrücke, muss bei Einsatz eines Motorschutzkontaktes, für den Verdichter, entfernt werden | Open wire jumpers or contacts mean: block or fault | Cavaliers à fils ou contacts ouverts signifient coupure ou panne |

**B2** Pressostat Niederdruck Sole | Low-pressure brine controller | Pressostat eau glycolée basse pression |

**B3** Thermostat Warmwasser | Hot water thermostat | Thermostat eau chaude |

**B4** Thermostat Schwimmbadwasser | Swimming pool water thermostat | Thermostat eau de piscine |

**C1** Betriebskondensator Verdichter | Running capacitor, compressor | Condensateur de service - compresseur |

**E10** 2. Wärmeerzeuger - Funktion ist über Regler wählbar | 2nd heat generator (function selectable via controller) | 2ème générateur de chaleur (fonction réglable par le régulateur) |

**F2** Lastsicherung für N1-Relaisausgänge an J12 und J13 4,0 Atr | Load fuse for N1 relay outputs at J12 and J13 4,0 slow-acting | Coupe-circuit de charge pour sorties de relais en J12 et J13 4,0 ATr |

**F3** Lastsicherung für N1-Relaisausgänge an J15 bis J18 4,0 Atr | Load fuse for N1 relay outputs at J15 to J18 4,0 slow-acting | Coupe-circuit de charge pour sorties de relais en J15 jusqu’à J18 4,0 ATr |

**F4** Pressostat Hochdruck | High-pressure switch | Pressostat haute pression |

**F5** Pressostat Niederdruck | Low-pressure switch | Pressostat basse pression |

**J1...J18** Klemmensteckverbinder an N1 | Terminal connector at N1 | Connecteur à bornes sur N1 |

**K5** Schütz Primärpumpe (PUP) | Contactor for primary pump (PUP) | Contacteur pompe primaire (PUP) |

**K11** Elektron. Relais für Störerranzeige | Electronic relay for Störerranzeige | Relais pour télédétection de pannes |

**K12** Elektron. Relais f. Schwimmbadwasserumwälzpumpe | Electron. relay for swimming pool circulation pump | Relais pour circulateur d’eau de piscine |

**K20** Schütz 2. Wärmeerzeuger (Heizkessel od. elekt. Heizstab) | Contactor for 2nd heat generator (boiler or electric heating element) | Contacteur 2e générateur de chaleur (chaudière ou cartouche chauffante électr.) |

**K21** Schütz elekt. Tauchheizkörper Warmwasser | Contactor, electric immersion heater, hot water (thermostat) | Contacteur thermoplongeur élect. eau chaude (thermostat) |

**K22** EYU-Schutz | Utility blocking contactor | Contacteur de coupure du fournisseur d’énergie |

**K23** SPR-Hilfsrelay | SPR auxiliary relay | Relais auxiliaire SPR |

**K25** Startrelais für N7 | Starting relay for N7 | Relais de démarrage pour N7 |

**M1** Verdichter | Compressor | Compresseur |

**M11** Primärpumpe | Primary pump | Pompe primaire |

**M13** Heizungsumwälzpumpe | Heat circulating pump | Circulateur de chauffage |

**M15** Heizungsumwälzpumpe 2. Heizkreis | Heat circulating pump for heating circuit 2 | Circulateur de chauffage pour le 2e circuit de chauffage |

**M16** Zusatzumwälzpumpe | Auxiliary circulating pump | Circulateur supplémentaire |

**M18** Warmwasserumwälzpumpe | Hot water circulating pump | Circulateur d’eau chaude |

**M19** Schwimmbadwasserumwälzpumpe | Swimming pool circulating pump | Circulateur de la piscine |

**M21** Mischer Hauptkreis | Mixer, principal circuit | Mélangeur circuit principal |

**M22** Mischer 2. Heizkreis | Mixer for heating circuit 2 | Mélangeur 2e circuit de chauffage |

**N1** Wärmepumpenregler | Heat pump controller | Régulateur de pompe à chaleur |

**N7** Sanfanlaufsteuerung | Soft start control | Commande de démarrage progressif |

**N10** Relaisbaugruppe | Relay module | Module de relais |

**N14** Bedienteil | Operating element | Commande |

**R1** Außenfühler | External sensor | Sonde extérieure |

**R2** Rücklaufühler | Return flow sensor | Sonde de retour |

**R3** Warmwasserfühler (alternativ zum Warmwasserthermostat) | Hot water sensor (as an alternative to the hot water thermostat) | Sonde d’eau chaude (alternative au thermostat eau chaude) |

**R5** Fühler für 2ten Heizkreis | Sensor for heating circuit 2 | Sonde pour 2e circuit de chauffage |

**R6** Eingefrierschutzfühler | Flow temperature limit sensor | Sonde antigel |

**R7** Kodierwiderstand 40k2 | Coding resistor 40.2 kOhm | Résistance avec code des couleurs 40k2 |

**R8** Vorlaufühler | Flow sensor | Sonde d’alimentation |

**R9** Sicherheitstrenntransformator 230/24V AC-28 VA | Safety isolating transformer 230/24 V AC-28 VA | Transformateur sectionneur de sécurité 230/24 V AC-28 VA |

**X1** Klemmenleiste Netz-Steuering LNPE-230V AC-50 Hz/Sicherungen N- und PE-Verteiler | Terminal strip mains control LNPE-230V AC-50 Hz/fuses/N and PE terminal blocks | Bornier commande réseau LNPE-230 V AC-50 Hz/fusibles/N et PE terminal blocks |

**X2** Klemmenleiste 24V AC-Verteiler | Terminal strip 24V AC terminal block | Bornier distributeur N 24 V AC |

**X3** Klemmenleiste GND-Verteiler für Sensoren | Terminal strip GND terminal block for sensors | Bornier distributeur GND pour capteurs |

**X4** Klemmenleiste Verdichter | Terminal strip Compressor | Bornier distributeur Compresseur |

**X6** Klemmenleiste Leistungseinspeisung LNPE-230V AC-50 Hz | Terminal strip for power supply LNPE-230V AC-50 Hz | Bornier alimentation puissance LNPE-230 V AC-50 Hz |

**EVS** EVU-Sperreingang | Utility disable contactor | Entrée de « coupure fournisseur d’énergie |

**SPR** Zusätzlicher Sperreingang | Supplementary disable contactor | Entrée de « coupure courant » complémentaire |

**MA** Mischer AUF | Mixer OPEN | Mélangeur OUVERT |

**MZ** Mischer ZU | Mixer CLOSED | Mélangeur FERME |

**Abkürzungen**: | Abbreviations: | Abréviations : |

| EVS | EVU-Sperreingang | Utility disable contactor |
| SPR | Zusätzlicher Sperreingang | Supplementary disable contactor |
| MA | Mischer AUF | Mixer OPEN |
| MZ | Mischer ZU | Mixer CLOSED |

* Notes:
  - Elektroinstallation für Badräumeningänge (Scheintische, Farben) |
  - Gegenstände sind extern beizustellen |
  - werkseitig verdrahtet |
  -意义または意味 |

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4 Hydraulisches Prinzipschema / Hydraulic Plumbing Diagram / Schéma hydraulique

4.1 Darstellung / Schematic View / Représentation
## 4.2 Legende / Legend / Légende

<table>
<thead>
<tr>
<th>Symbol</th>
<th>German</th>
<th>English</th>
<th>French</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absperrventil</td>
<td>Shutoff valve</td>
<td>Robinet d’arrêt</td>
<td></td>
</tr>
<tr>
<td>Absperrventil mit Entleerung</td>
<td>Shutoff valve with drainage</td>
<td>Robinet d’arrêt avec purge</td>
<td></td>
</tr>
<tr>
<td>Überstromventil</td>
<td>Overflow valve</td>
<td>Vanne de trop-plein</td>
<td></td>
</tr>
<tr>
<td>Sicherheitsventil</td>
<td>Safety valve</td>
<td>Vanne de sécurité</td>
<td></td>
</tr>
<tr>
<td>Umwälzpumpe</td>
<td>Circulating pump</td>
<td>Circulateur</td>
<td></td>
</tr>
<tr>
<td>Ausdehnungsgefäss</td>
<td>Expansion vessel</td>
<td>Vase d’expansion</td>
<td></td>
</tr>
<tr>
<td>Raumtemperaturgesteuertes Ventil</td>
<td>Room temperature-controlled valve</td>
<td>Vanne commandée par température</td>
<td></td>
</tr>
<tr>
<td>Absperrventil mit Rückschlagventil</td>
<td>Shutoff valve with check valve</td>
<td>Robinet d’arrêt avec clapet anti-retour</td>
<td></td>
</tr>
<tr>
<td>Wärmeverbraucher</td>
<td>Heat consumer</td>
<td>Consommateur de chaleur</td>
<td></td>
</tr>
<tr>
<td>Schmutzfänger</td>
<td>Dirt trap</td>
<td>Collecteur d’impuretés</td>
<td></td>
</tr>
<tr>
<td>Temperaturfühler</td>
<td>Temperature sensor</td>
<td>Sonde de température</td>
<td></td>
</tr>
<tr>
<td>Flexible Anschlussschlauch</td>
<td>Flexible connection hose</td>
<td>Tuyau de raccord flexible</td>
<td></td>
</tr>
<tr>
<td>Wärmepumpe</td>
<td>Heat pump</td>
<td>Pompe à chaleur</td>
<td></td>
</tr>
<tr>
<td>Pufferspeicher</td>
<td>Buffer tank</td>
<td>Réservoir tampon</td>
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</tr>
<tr>
<td>Wärmepumpenregler</td>
<td>Heat pump controller</td>
<td>Régulateur de pompe à chaleur</td>
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<tr>
<td>Elektroverteilung</td>
<td>Electrical distribution system</td>
<td>Distributeur courant électrique</td>
<td></td>
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<tr>
<td>Warmwasserspeicher</td>
<td>Hot water cylinder</td>
<td>Réserveur d’eau chaude</td>
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<tr>
<td>Erdreichkollektoren</td>
<td>Ground heat collectors</td>
<td>Collecteurs géothermiques</td>
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<tr>
<td>Erdwärmebringeinrichtungen</td>
<td>Borehole heat exchangers</td>
<td>Sondes géothermiques</td>
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<tr>
<td>Soleverteiler</td>
<td>Brine circuit manifold</td>
<td>Distributeur d’eau glycolée</td>
<td></td>
</tr>
<tr>
<td>Solesammler</td>
<td>Brine collector</td>
<td>Absorbeur à circulation d’eau glycolée</td>
<td></td>
</tr>
</tbody>
</table>

M11 Soleumwälzpumpe | Brine circulating pump | Circulateur d’eau glycolée |
M13 Heizungsumwälzpumpe | Heat circulating pump | Circulateur de chauffage |
M18 Warmwasserumwälzpumpe | Hot water circulating pump | Circulateur d’eau chaude |
R1 Außenwandfühler | External wall sensor | Sonde de paroi extérieure |
R2 Rücklauffühler | Return flow sensor | Sonde de retour |
R3 Warmwasserfühler | Hot water sensor | Sonde d’eau chaude |
R9 Vorlauffühler | Flow sensor | Sonde aller |
KW Kaltwasser | Cold water | Eau froide |
WW Warmwasser | Domestic hot water | Eau chaude |
Konformitätserklärung / Declaration of Conformity / Déclaration de conformité

EG - Konformitätserklärung
EC Declaration of Conformity
Déclaration de conformité CE

Glen Dimplex Deutschland GmbH
Geschäftsbereich Dimplex
Am Goldenen Feld 18
D - 95326 Kulmbach

Der Unterzeichnende: Glen Dimplex Deutschland GmbH
The undersigned: Glen Dimplex Deutschland GmbH
La société soussignée: Glen Dimplex Deutschland GmbH

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This declaration becomes invalid if any modifications are made to the product(s) without our prior authorisation.

certifie que l’appareil / les appareils ci-après, par leur conception et leur mode de construction ainsi que par la définition technique avec laquelle il(s) sont mis en circulation par notre société, en / sont conformés aux directives fondamentales CEE afférentes.
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Bezeichnung / Designation / Désignation

Solo/Wasser-Wärmepumpen
for Innenanlassung mit R407C
Brine-to-water heat pumps
for indoor installation, containing R407C
Pompes à chaleur eau glycolée/eau
pour installation intérieure avec R407C

EG - Richtlinien / EC Directives / Directives CEE

EG-EMV-Richtlinie / EC EMC Directive / Directive CEE relative à la compatibilité électromagnétique (89/336/EWG)
Druckgeräte-Richtlinie / Pressure Equipment Directive / Directive CEE relative aux appareils sous pression (97/23/EG)

Typ(e):          Harmonisierte EN / Harmonized EB Standards / Normes EN harmonisées:

| SI 5ME  | EN 255:1997 |
| SI 7ME  | EN 378:2000 |
| SI 9ME  | DIN 8901  |
| SI 11ME | DIN EN 60335-1 (VDE 0700 T1); 2006 |
| SI 14ME | DIN EN 60335-2-40 (VDE 6700 T40); 2006-11 |
| D     | EN 60335-1:2002+A11+A12+ |
| CH    | SVTI  |

Nationale Richtlinien / National Directives / Directives nationales

D     | BGR 500 |
A     | SVTI  |
CH    | SVTI  |

Kulmbach, 09.02.2007
Wolfgang Weinhold
Geschäftsführer / Managing Director

Andreas Thiel
Spartenleiter / Head of business unit

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