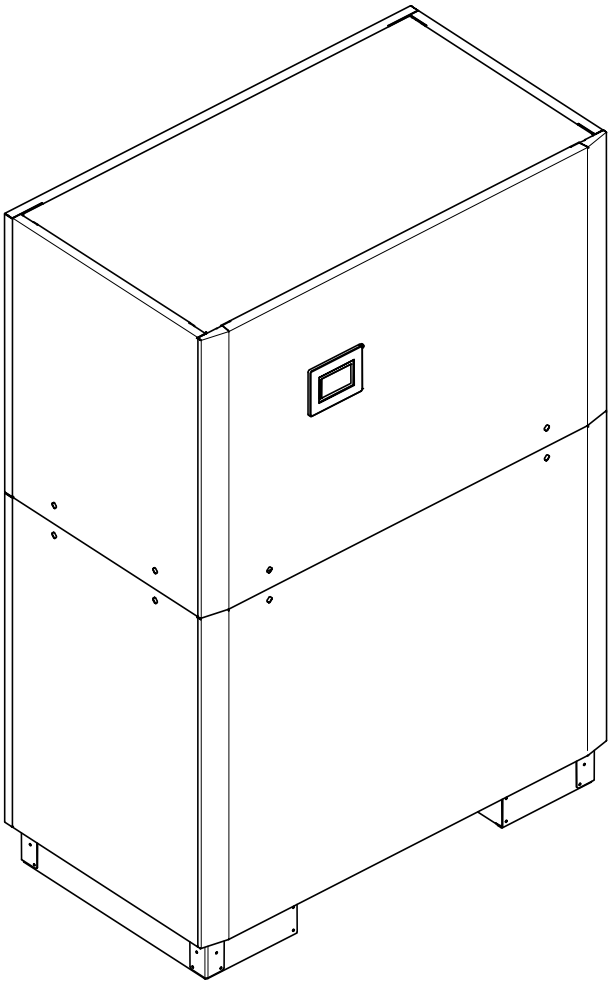
Glen Dimplex Deutschland

Dimplex

# SI 130TU



**Montage- und Gebrauchsanweisung**

Sole/Wasser-Wärmepumpe für Innenaufstellung

**Installation and Operating Instruction**

Brine-to-Water Heat Pump for Indoor Installation

**Instuctions d'installation et d'utilisation**

Pompe à chaleur eau glycolée-eau pour installation intérieure

Bestell-Nr. | Order no. | No de commande: 452237.66.81

DE | EN | FR · FD 0509

# Table of contents

**1 Safety notes ..... EN-2**
1.1 Symbols and markings ..... EN-2
1.2 Intended use ..... EN-2
1.3 Legal regulations and directives ..... EN-2
1.4 Energy-efficient use of the heat pump ..... EN-2
**2 Intended use of the heat pump ..... EN-3**
2.1 Intended purpose ..... EN-3
2.2 Operating principle ..... EN-3
**3 Basic device ..... EN-3**
**4 Accessories ..... EN-4**
4.1 Connection flange ..... EN-4
4.2 Remote control ..... EN-4
4.3 Building management system ..... EN-4
**5 Transport ..... EN-4**
**6 Installation ..... EN-5**
6.1 General Information ..... EN-5
6.2 Acoustic Emissions ..... EN-5
**7 Installation ..... EN-5**
7.1 General ..... EN-5
7.2 Connection on the heating side ..... EN-5
7.3 Water quality in heating systems ..... EN-6
7.4 Heat source connection ..... EN-6
7.5 Temperature sensor ..... EN-7
7.6 Electrical connection ..... EN-8
**8 Commissioning ..... EN-10**
8.1 General Information ..... EN-10
8.2 Preparation ..... EN-10
8.3 Commissioning procedure ..... EN-10
**9 Cleaning / maintenance ..... EN-11**
9.1 Maintenance ..... EN-11
9.2 Cleaning the heating system ..... EN-11
9.3 Cleaning the heat source system ..... EN-11
**10 Faults / troubleshooting ..... EN-11**
**11 Decommissioning / disposal ..... EN-11**
**12 Device information ..... EN-12**
**13 Product information as per Regulation (EU) No 813/2013, Annex II, Table 2 ..... EN-14**

**Anhang / Appendix / Annexes ..... A-I**
**Maßbilder / Dimension Drawings / Schémas cotés ..... A-II**
**Diagramme / Diagrams / Diagrammes ..... A-III**
**Stromlaufpläne / Circuit Diagrams / Schémas électriques ..... A-V**
**Hydraulische Einbindungsschemen / Hydraulic integration diagrams / Schémas d'intégration hydraulique ..... A-XII**
**Konformitätserklärung / Declaration of Conformity / Déclaration de conformité ..... A-XV**

# 1 Safety notes

## 1.1 Symbols and markings

Particularly important information in these instructions is marked with CAUTION! and NOTE.

**⚠ CAUTION!**

**Immediate danger to life or danger of severe personal injury or significant damage to property.**

**i NOTE**

**Risk of damage to property or minor personal injury or important information with no further risk of personal injury or damage to property.**

## 1.2 Intended use

This device is only intended for use as specified by the manufacturer. Any other use beyond that intended by the manufacturer is prohibited. This requires the user to abide by the relevant project planning documents. Please refrain from tampering with or altering the device.

## 1.3 Legal regulations and directives

This heat pump is designed for use in a domestic environment according to Article 1, Paragraph 2 k) of EU directive 2006/42/EC (machinery directive) and is thus subject to the requirements of EU directive 2014/35/EU (low-voltage directive). It is thus also intended for use by non-professionals for heating shops, offices and other similar working environments, agricultural establishments and hotels, guesthouses and other residential buildings.

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.

This unit can be used by children aged 8 and over and by persons with limited physical, sensory or mental aptitude or lack of experience and/or knowledge, providing they are supervised or have been instructed in the safe use of the unit and understand the associated potential dangers.

Children must not play with the device. Cleaning and user maintenance must not be carried out by children without supervision

**⚠ CAUTION!**

**Work on the heat pump must only be performed by authorised and qualified after-sales service technicians!**

**⚠ CAUTION!**

**When operating or maintaining a heat pump, the legal requirements of the country where the heat pump is operated apply. Depending on the refrigerant fill quantity, the heat pump must be inspected for leaks at regular intervals by a certified technician, and these inspections must be recorded.**

More information can be found in the accompanying log book.

## 1.4 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 heat consumers should therefore be suitable for low flow temperatures. Raising the heating water temperature by 1 K corresponds to an increase in electricity 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 Intended use of the heat pump

## 2.1 Intended purpose

The brine-to-water heat pump is to be used exclusively for the heating of heating water. It can be used in new or existing heating systems. A mixture of water and frost protection (brine) is used as a heat transfer medium in the heat source system. Borehole heat exchangers, ground heat collectors or similar systems can be used as the heat source system.

The circulating pump(s) must be controlled using the heat pump manager.

If function-relevant or safety-relevant pump functions, such as integration of the heat pump into the building management system, are not supported, then this can result in loss of warranty and cause a write-off of the heat pump.

The circulating pump(s) and the heat pump controller must always be ready for operation.

The specifications in the technical documents must be followed, particularly limit values for the minimum and – if available – maximum warm/cold water volume flow.

## 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 heat collector, the borehole heat exchanger or a similar system. 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 refrigeration circuit. 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.

The refrigerant subsequently passes through the liquifier where it transfers its thermal energy to the heating water. Depending on the set operating point, the heating water can thus be heated up to a max. of 62 °C.

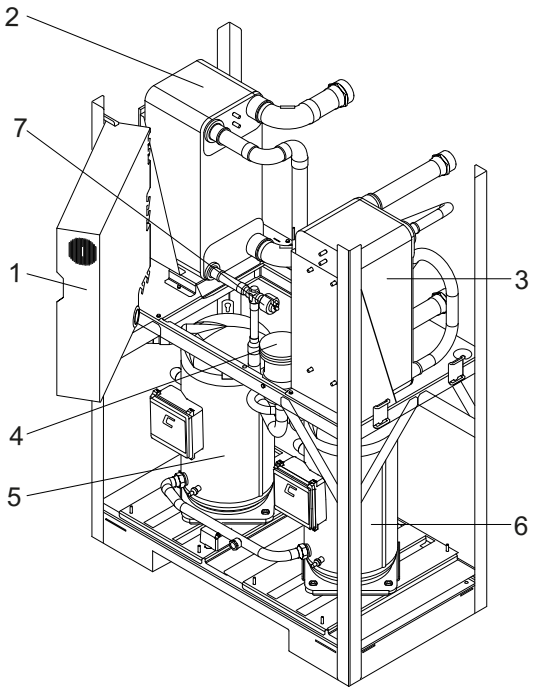
# 3 Basic device

The basic device consists of a heat pump for indoor installation wired ready for use with metal casing, switch box and integrated heat pump manager. The refrigeration circuit is "hermetically sealed" and contains the fluorinated refrigerant R410A included in the Kyoto protocol. Information on the GWP value and $CO_2$ equivalent of the refrigerant can be found in the chapter Device information. The refrigerant is CFC-free, non-ozone depleting and non-combustible.

All components required for the operation of the heat pump are located in the switch box. An outside temperature sensor including fixing accessories and a dirt trap are supplied with the heat pump. The supply for the supply voltage and the control voltage must be installed by the customer.

The circulating pumps (brine and heating water side) included in the scope of supply must be installed in accordance with the hydraulic diagrams (see Cap. 4 on pag. XII) or the development documents. The electrical connection of the circulating pumps must be established in accordance with Cap. 7.6.3 on pag. 9.

The customer must provide both the heat source system and the brine circuit manifold.




1) Switch box
2) Evaporator
3) Liquefier
4) Filter dryer
5) Compressor 1
6) Compressor 2
7) Expansion valve
8) Economiser

# 4 Accessories

## 4.1 Connection flange

The device can optionally be switched to flange connection using the flat-sealing connection flange.

## 4.2 Remote control

A remote display adds convenience and is available as a special accessory. Operation and menu navigation are identical to those of the heat pump manager. Connection takes place via an interface (special accessories) with RJ 12 Western plug.

**NOTE**

**In the case of heating controllers with a removable control panel, this can also be used directly as a remote display.**

## 4.3 Building management system

The heat pump manager can be connected to a building management system network via supplementation of the relevant interface plug-in card. The supplementary installation instructions of the interface card must be consulted regarding the exact connection and parameterisation of the interface.

The following network connections can be made on the heat pump manager:

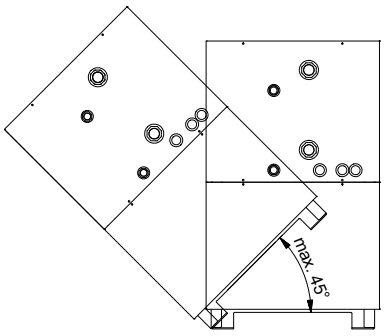
- Modbus
- EIB, KNX
- Ethernet

**⚠ CAUTION!**

**If the heat pump or circulating pumps are controlled externally, a flow rate switch is required to prevent the compressor from being switched on when there is no volume flow.**

# 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 trans-ported on an uneven surface or carried up or down stairs. These straps can be passed directly underneath the pallet.

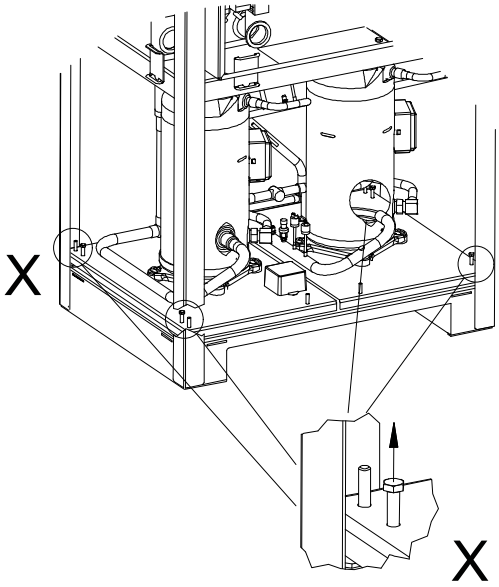



**⚠ CAUTION!**

**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.

After transportation, the transport fastening in the device is to be removed from both sides of the base.




**⚠ CAUTION!**

**Before commissioning, the transport fastening must be removed.**

All panelling can be removed to allow accessing the inside of the device.

To remove the panelling, open the individual covers by un-screw-ing the respective turn-lock fasteners and then gently tilting the covers away from the device. Then lift them up out of the mount-ings.

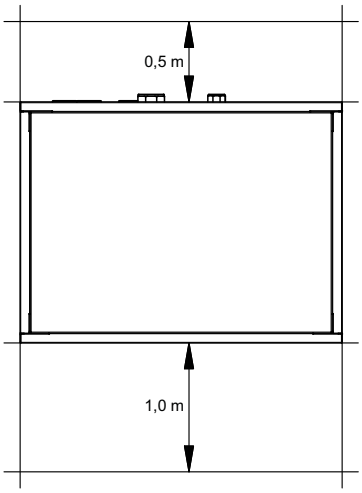
# 6 Installation

## 6.1 General Information

The heat pump has been designed for areas that are accessible to the general public, as well as for areas that are not accessible to the general public.

The brine-to-water heat pump must be installed in a frost-free, dry room on an even, smooth and horizontal surface. The entire base of the frame should lie directly on the floor to ensure an adequate 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 the heat pump.




Neither frost nor temperatures higher than 35 °C must occur in the installation location at any time of the year.

**NOTE**

**The heat pump is not intended for use over 2000 metres above sea level.**

## 6.2 Acoustic Emissions

The heat pump operates silently due to efficient sound insulation. Internal insulation measures should be carried out to prevent vibrations from being transmitted to the foundation or to the heating system.

# 7 Installation

## 7.1 General

The following connections need to be established on the heat pump. The hydraulic integration diagram must be adhered to:

- Flow and return of the brine (heat source system)
- Flow and return of the heating system
- Temperature sensor
- Voltage supply

## 7.2 Connection on the heating side

**⚠ CAUTION!**

**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 heat pump has been connected to the heating system, it must be filled, de-aerated and pressure-tested.

**⚠ CAUTION!**

**The maximum test pressure in the heating circuit and the brine circuit is 6.0 bar.**
**This value must not be exceeded.**

**NOTE**

**Pump units with check valves maintain the specified flow directions. If there is incorrect distribution or breaking off of the volume flow, these units (and the check valves in particular) must be checked! The use of check valves are mandatory in the event of several heating circuits or parallel connections for heat pumps in order to avoid incorrect distribution.**

## 7.3 Water quality in heating systems

**NOTE**

**Damage due to unsuitable filling and additional water**
**Unsuitable filling and additional water can lead to deposits and corrosion. This can reduce the performance of the heat pump or cause damage to the system.**

**NOTE**

**The system installer is responsible for the water quality.**

Do not use antifreeze (e.g. water / glycol mixture) in the heating water.

Flush the heating system before filling.

The filling water must meet drinking water standards and must comply with VDI 2035. The following limit values must also be observed:

| Evaluation characteristic | | Concentration range |
|---|---|---|
| Electrical conductivity (saline operation) | µS/cm | 100 - 500 [1] |
| Electrical conductivity (low-salt operation) | µS/cm | < 100 [1] |
| pH value | | 8.2 - 9.5 [1 2 3] |
| Total hardness | °dH | 3.5 - 8.4 |
| Chloride ions ($Cl^-$) | mg/l or ppm | < 20 |
| Iron (Fe) | mg/l or ppm | < 0.2 [1] |
| Hydrogen carbonate/sulphate ($HCO_3^-$/$SO_4^{2-}$) | | > 1.0 |
| Filterable materials | mg/l | < 30 |

1. Values stipulated in VDI2035 are applicable
2. When using demineralised water, ensure that the pH value is above the minimum permissible value of 8.2. Failure to comply with this value can result in the heat pump being destroyed.
3. Check operation after 12 weeks at the latest.

Before filling the system, obtain information about the drinking water quality from the local water supply company. In many regions the local water supply company's website provide an insight into water hardness, pH value and a range of other constituent substances.

**NOTE**

**Check the water quality 10 to 12 weeks after filling / commissioning.**

Document the filling water conditioning, water quality and any actions taken in the system handbook.

### 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 a dual differential pressureless manifold.

The frost protection function of the heat pump manager is active whenever the heat pump manager and the heat circulating pumps are ready for operation. The system must be drained if the heat pump is taken out of service or in the event of a power failure. If heat pump systems are implemented in buildings where a power failure cannot be detected (holiday homes etc.), the heating circuit should be operated with suitable frost protection.

## 7.4 Heat source connection

The following procedure must be observed when making the connection:

Connect the brine pipe to the heat source flow and return of the heat pump.

The hydraulic integration diagram must be adhered to.

**⚠ CAUTION!**

**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.**

The brine must be produced prior to charging the system. The brine concentration must be at least 25 %. This guarantees frost protection up to approx. -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.

**⚠ CAUTION!**

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

**NOTE**

**If necessary, the operating range can be extended to a brine inlet temperature of -10 °C. In this case, the minimum brine concentration must be adjusted to 30 %. (Freezing temperature -17 C°).**

**⚠ CAUTION!**

**The maximum test pressure in the heating circuit and the brine circuit is 6.0 bar. This value must not be exceeded.**

**⚠ CAUTION!**

**A suitable de-aerator (micro bubble air separator) must be installed in the heat source circuit by the customer.**

## 7.5 Temperature sensor

The following temperature sensors are already installed or must be installed additionally:

- Outside temperature sensor (R1) supplied (NTC-2)
- Return temperature secondary circuit (R2) installed (NTC-10)
- Return temperature primary circuit (R24) installed (NTC-10)
- Flow temperature secondary circuit (R9) installed (NTC-10)
- Flow temperature primary circuit (R6) installed (NTC-10)

### 7.5.1 Sensor characteristic curves

| Temperature in °C | | | -20 | -15 | -10 | -5 | 0 | 5 | 10 |
|---|---|---|---|---|---|---|---|---|---|
| NTC-2 in kΩ | | | 14.6 | 11.4 | 8.9 | 7.1 | 5.6 | 4.5 | 3.7 |
| NTC-10 in kΩ | | | 67.7 | 53.4 | 42.3 | 33.9 | 27.3 | 22.1 | 18.0 |
| **15** | **20** | **25** | **30** | **35** | **40** | **45** | **50** | **55** | **60** |
| 2.9 | 2.4 | 2.0 | 1.7 | 1.4 | 1.1 | 1.0 | 0.8 | 0.7 | 0.6 |
| 14.9 | 12.1 | 10.0 | 8..4 | 7.0 | 5.9 | 5.0 | 4.2 | 3.6 | 3.1 |

The temperature sensors to be connected to the heat pump manager must correspond to the sensor characteristic curve illustrated in Fig. 7.1. The only exception is the outside temperature sensor included in the scope of supply of the heat pump (see Fig. 7.2)

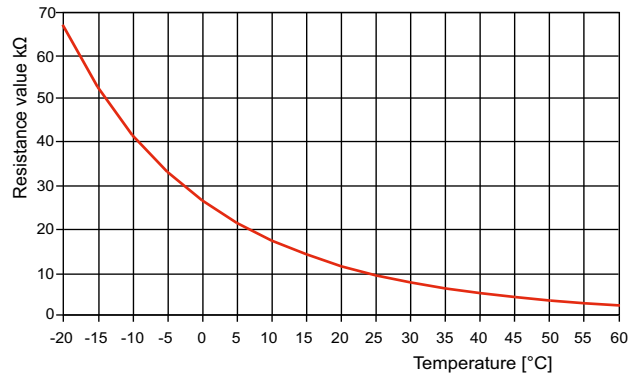



Fig. 7.1:Sensor characteristic curve NTC-10

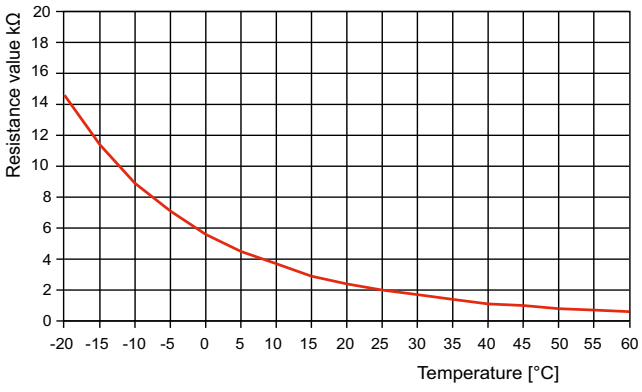



Fig. 7.2:Sensor characteristic curve NTC-2 according to DIN 44574 Outside temperature sensor

### 7.5.2 Mounting the outside temperature sensor

The temperature sensor must be mounted in such a way that all weather conditions are taken into consideration and the measured value is not falsified.

- On the external wall of a heated room used as living space, if possible on the north or north-west side of the building
- Do not install in a “sheltered position" (e.g. in a wall niche or under a balcony)
- Not in the vicinity of windows, doors, exhaust air vents, external lighting or heat pumps
- Not to be exposed to direct sunlight at any time of year

| Dimensioning parameter sensor lead | |
|---|---|
| Conductor material | Cu |
| Cable-length | 50 m |
| Ambient temperature | 35 °C |
| Laying system | B2 (DIN VDE 0298-4 / IEC 60364-5-52) |
| External diameter | 4-8 mm |

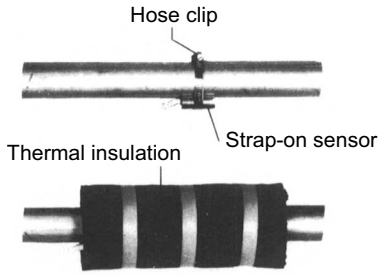
### 7.5.3 Installing the strap-on sensor

It is only necessary to mount the strap-on sensors if they are included in the scope of supply of the heat pump but have not yet been installed.

The strap-on sensors can be fitted as pipe-mounted sensors or installed in the immersion sleeve of the compact manifold.

Mounting as a pipe-mounted sensor

- Remove paint, rust and scale from heating pipe.
- Coat the cleaned surface with heat transfer compound (apply sparingly).
- Attach the sensor with a hose clip (tighten firmly, as loose sensors can cause malfunctions) and thermally insulate.



### 7.5.4 Hydraulic distribution system

The compact manifold and the dual differential pressureless manifold function as an interface between the heat pump, the heating distribution system, the buffer tank and, in some cases, even the domestic hot water cylinder. A compact system is used to simplify the installation process, so that a lot of different components do not have to be installed individually. Further information can be found in the relevant installation instructions.

#### Compact manifold

The return sensor can remain in the heat pump, or should be installed in the immersion sleeve. The remaining empty space between the sensor and the immersion sleeve must be filled completely with heat transfer compound.

#### Dual differential pressureless manifold

In order for the heating circuit pumps of the generator and consumer circuits to supply the flow to the return sensor, this must be installed in the immersion sleeve of the dual differential pressureless manifold.

## 7.6 Electrical connection

### 7.6.1 General

All electrical installation work must be carried out by a trained electrician or a specialist for the specified tasks in accordance with the

- installation and operating instructions,
- country-specific installation regulations (e.g. VDE 0100),
- technical connection conditions of the energy suppliers and supply grid operators (e.g. TAB) and
- local conditions.

To ensure that the frost protection function of the heat pump works properly, the heat pump manager must remain connected to the power supply and the flow must be maintained through the heat pump at all times.

The switching contacts of the output relay are interference-suppressed. Therefore, depending on the internal resistance of the measuring instrument, a voltage can also be measured when the contacts are open. However, this will be much lower than the line voltage.

Extra-low voltage is connected to controller terminals N1-J1 to N1-J11; N1-J19 to N1-J20; N1-J23 to N1-J26 and the terminal strips X3. If, due to a wiring error, the line voltage is mistakenly connected to these terminals, the heat pump manager will be destroyed.

**i NOTE**

**For installation work on the switch box, ensure that the mains cable and signal cables are inserted separately into the switch box. The specially arranged switch box inlets must be used for this purpose (see Fig.7.3 on pag. 8).**
**The mains cables and signal cables must also always be laid separately in the switch box during wiring work.**

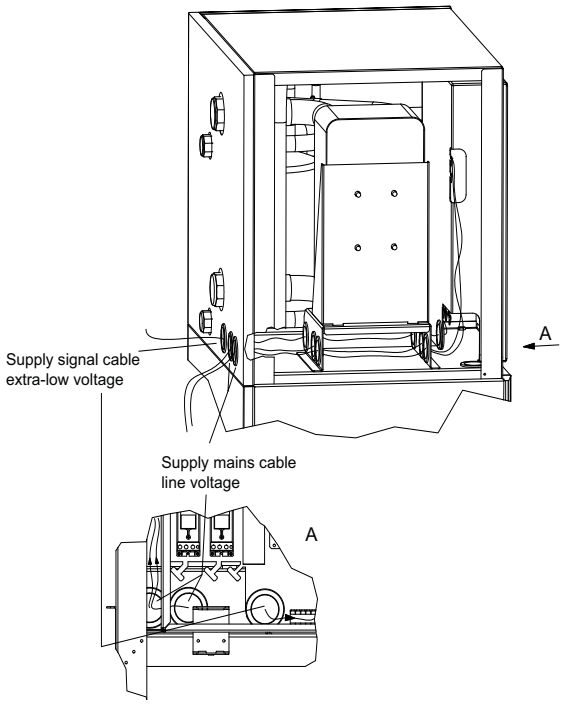



Fig. 7.3:Cable inlet switch box

### 7.6.2 Electrical installation work

1) The four-core electrical supply cable for the heat pump power part is fed from the heat pump electricity meter into the heat pump via the utility company blocking contactor (if required) (for supply voltage, see heat pump manual). The mains cable is connected to the heat pump contact plate via terminals X1: L1/L2/L3/PE.

**⚠ CAUTION!**

**Ensure that there is a clockwise rotating field: With incorrect wiring the starting of the heat pump is prevented. A corresponding warning is indicated on the display of the heat pump manager (adjust wiring).**

An all-pole disconnecting device with a contact gap of at least 3 mm (e.g. utility company blocking contactor or power contactor) and an all-pole circuit breaker with common tripping for all external conductors must be installed in the power supply for the heat pump (tripping current and characteristic in compliance with the device information).

2) The three-core supply cable for the heat pump manager (heating controller N1) is fed into the heat pump. Connection of the control cable to the contact plate of the heat pump via terminal X2: L/N/PE.
   The (L/N/PE~230 V, 50 Hz) supply cable for the heat pump manager must have a continuous voltage. For this reason, it should be tapped upstream from the utility company blocking contactor or be connected to the household current, as important protection functions could otherwise be lost during a utility block.
3) The utility company blocking contactor (K22) with main contacts and an auxiliary contact must be designed and provided by the customer in accordance with the heat pump output.
   The NO contact of the utility company blocking contactor is looped from the terminal strip X3/G to the plug-in terminal X3/ID3. **CAUTION! Extra-low voltage**!
4) The contactor (K20) for the immersion heater (E10) of mono energy systems (HG2) should be dimensioned according to the radiator output and must be supplied by the customer. It is controlled (230 V AC) by the heat pump manager via terminals X2/N and X2/K20.
5) The contactor (K21) for the flange heater (E9) in the domestic hot water cylinder should be dimensioned according to the radiator output and must be supplied by the customer. It is controlled (230 V AC) by the heat pump manager via terminals X2/N and X2/K21.
6) The contactors mentioned above in points 3, 4 and 5 are installed in the electrical distribution system.
7) All installed electric cables must have permanent wiring.
8) The heat circulating pump (M13) is activated via the contact N1-J13/NO5. The connection points for the pump are X2/M13 and X2/N. When using pumps where the switching capacity exceeds the output, a coupling relay must be interposed.
9) The auxiliary circulating pump (M16) is activated via the contact N1-J16/NO9. The connection points for the pump are X2/M16 and X2/N. A coupling relay is already integrated in this output.
10) The domestic hot water circulating pump (M18) is activated via the contact N1-J13/NO6. The connection points for the pump are X2/M18 and X2/N. When using pumps where the switching capacity exceeds the output, a coupling relay must be interposed.
11) The brine or well pump (M11) is activated via the contact N1-J12/NO3. The connection points for the pump are X2/M11 and X2/N. A coupling relay is already integrated in this output.
12) The return sensor (R2) is integrated in the heat pumps for indoor installation
    The heat pump manager is connected via the following terminals: X3/GND and X3/U2.
13) The external sensor (R1) is connected to terminals X3/GND and X3/U1.
14) The domestic hot water sensor (R3) is included with the domestic hot water cylinder and is connected to terminals GND and X3/U3.

### 7.6.3 Connection of electronically regulated circulating pumps

Electronically regulated circulating pumps have high starting currents, which may shorten the service life of the heat pump manager. For this reason, a coupling relay is installed or must be installed between the output of the heat pump manager and the electronically regulated circulating pump. This is not necessary if the permissible operating current of 2 A and a maximum starting current of 12 A are not exceeded in the electronically regulated circulating pump or if express approval has been issued by the pump manufacturer.

**⚠ CAUTION!**

**It is not permitted to connect more than one electronically regulated circulating pump via a relay output.**

### 7.6.4 Circulating pump connection with high performance

In many cases, the supply voltage of the pump is stuck on continuous current when using larger electronically controlled circulating pumps (the manufacturer's information on the pump being used should be taken into consideration). The pump is then generally actuated using the Start/Stop input. This input is operated with extra low voltage from the pump (a link cable is usually inserted in the factory default of the pump). In order to be able to actuate the input, a coupling relay with a floating contact is required. This must be controlled with the pump function of a 230 V relay output of the controller. Due to the extra low voltage to be switched, a suitable relay with the appropriate contact material (gilded) must be selected and integrated on-site.

### 7.6.5 Frost protection

Regardless of the settings for the heat circulating pumps, they always run in heating and frost protection mode. In systems with multiple heating circuits, the 2nd and 3rd heat circulating pump has the same function.

**⚠ CAUTION!**

**To ensure that the frost protection function on the heat pump works properly, the heat pump manager must remain connected to the power supply and flow must be maintained through the heat pump at all times.**

**⚠ CAUTION!**

**The primary pump (M11 – responsible for the heat source flow rate) and the secondary pump (M16 – responsible for the warm/cold water flow rate) must always be clamped to the heat pump manager in all cases. This is the only way to ensure the pump flows and returns necessary for operation and to ensure that the necessary safety measures are in place.**

# 8 Commissioning

## 8.1 General Information

To ensure that commissioning 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 an additional guarantee (see "Warranty service").

## 8.2 Preparation

The following items must be checked prior to commissioning:

- All of the heat pump connections must be installed 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 manager must be adapted to the heating system in accordance with the controller's operating instructions.
- The hydraulic network must be flushed correctly before installing the heat pump. This includes the supply line to the heat pump. Only when flushing is complete can the heat pump be hydraulically integrated.
- The dirt traps present as standard or included for assembly must be inspected between 4 and 8 weeks after the heat pump is commissioned or changes made to the heating system and cleaned if necessary. Further maintenance intervals must be scheduled depending on the level of soiling, which must be defined and carried out by a suitably qualified person.

**Special notes for the integration of heat pumps in existing systems (renovations):**

The existing heat distribution network (pipe materials, connection types, etc.) and the existing heating systems (e.g. radiators, underfloor heating, etc.) can impact the quality of the water in existing systems. Particularly when welded steel pipes or pipes that are not oxygen diffusion-proof are used, deposits, scaling, silting or similar may be present that can cause damage in the heat pump system. This can result in a total failure of the heat pump The following measures must be observed to avoid this:

- Compliance with the water properties and water quality
- Flushing of the hydraulic system
- Maintenance interval of the dirt traps.

If silting or ferromagnetic particles are to be expected in the hydraulic network, dirt separators or magnetite separators must be installed on-site before the medium enters the heat pump. The maintenance intervals must be defined by a suitably qualified person.

## 8.3 Commissioning procedure

The heat pump is commissioned via the heat pump manager.

**⚠ CAUTION!**

**Start-up must be performed in accordance with the installation and operating instructions of the heat pump manager.**

# 9 Cleaning / maintenance

## 9.1 Maintenance

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. These enter the heating system via the valves, the circulating pumps and/or plastic pipes. A diffusion-resistant installation is therefore essential, especially with regard to the piping of underfloor heating systems.

**NOTE**

**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 event of severe contamination leading to a reduction in the performance of the liquefier in the heat pump, the system must be cleaned by a heating technician.

Based on current information, 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 both cases, 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 of the liquefier of the heat pump.

It is then 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 care and the regulations of the employers liability insurance associations must be adhered to.

The instructions of the cleaning agent manufacturer must always be observed.

## 9.3 Cleaning the heat source system

**⚠ CAUTION!**

**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.**

The filter sieve of the dirt trap should be cleaned one day after start-up. Further checks must be set according to the level of dirt. If no more signs of contamination are evident, the filter can be removed to reduce pressure drops.

# 10 Faults / troubleshooting

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. In this case, consult the "Faults and troubleshooting" page in the operating instructions of the heat pump manager.

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

**⚠ CAUTION!**

**Before opening the device, ensure that all circuits are disconnected from the power supply!**

After disconnecting the power supply, always wait for at least 5 minutes to allow stored electric charges to dissipate.

**⚠ CAUTION!**

**Work on the heat pump must only be performed by authorised and qualified after-sales service technicians!**

# 11 Decommissioning / disposal

Before removing the heat pump, disconnect it from the power source and close all valves. The heat pump must be dismantled by trained personnel.

All environmentally-relevant requirements regarding the recovery, recycling and disposal of materials and components should be observed in accordance with the applicable standards. Particular attention should be paid to the proper disposal of refrigerants and refrigerant oils.

# 12 Device information

| | | | | |
|---|---|---|---|---|
| **1** | **Type and order code** | | | SI 130TU |
| **2** | **Design** | | | |
| | **Heat source** | | | Brine |
| **2.1** | **Model** | | | Universal |
| **2.2** | **Controller** | | | integrated |
| **2.3** | **Thermal energy meter** | | | Integrated |
| **2.4** | **Installation location** | | | Indoors |
| **2.5** | **Performance levels** | | | 2 |
| **3** | **Operating limits** | | | |
| **3.1** | **Heating water flow** [1] [2] | | **°C** | 20 to 62 ± 2 |
| **3.2** | **Brine (heat source)** [1] [2] | | **°C** | -5 to +25 |
| **3.3** | **Antifreeze** | | | Monoethylene glycol |
| **3.4** | **Minimum brine concentration (-13 °C freezing temperature)** | | | 25 % |
| **4** | **Flow / sound** | | | |
| **4.1** | **Heating water flow / free compression (max).** | | | |
| | **Nominal flow in accordance** | **at B0...-3 / W35...28** | **m³/h / Pa** | 17.2 / 58000 |
| | | **at B0...-3 / W45...38** | **m³/h / Pa** | 16.5 / 60000 |
| | | **at B0...-3 / W55...45** | **m³/h / Pa** | 11.4 / 77000 |
| | **Minimum heating water flow** | | **m³/h / Pa** | 11.4 / 77000 |
| **4.2** | **Brine flow rate / free compression (max).** | | | |
| | **Nominal flow in accordance** | **at B0...-3 / W35...28** | **m³/h / Pa** | 33.1 / 63000 |
| | | **at B0...-3 / W45...38** | **m³/h / Pa** | 30.2 / 79000 |
| | | **at B0...-3 / W55...45** | **m³/h / Pa** | 27.3 / 91000 |
| | **Minimum brine flow rate** | | **m³/h / Pa** | 27.3 / 91000 |
| **4.3** | **Sound power level according to EN 12102** | | **dB(A)** | 70 |
| **4.4** | **Sound pressure level at a distance of 1m** [3] | | **dB(A)** | 55 |
| **5** | **Dimensions, weight and filling quantity** | | | |
| **5.1** | **Device dimensions** [4] | | **H x W x L mm** | 1890 x 1350 x 750 |
| **5.2** | **Weight of the transportable unit(s) incl. packaging** | | **kg** | 824 |
| **5.3** | **Device connections for heating** | | **inches** | Rp 2½“ |
| **5.4** | **Device connections for heat source** | | **Inches** | Rp 3“ |
| **5.5** | **Refrigerant / total filling weight** | | **type/kg** | R410A / 19.5 |
| **5.6** | **GWP value / $CO_2$ equivalent** | | **--- / t** | 2088 / 41 |
| **5.7** | **Refrigeration circuit hermetically sealed** | | | yes |
| **5.8** | **Lubricant / total filling quantity** | | **type/litres** | Polyolester (POE) / 14.6 |
| **5.9** | **Volume of heating water in device** | | **Litres** | 26 |
| **5.10** | **Volume of heat transfer medium in device** | | **Litres** | 26 |
| **6** | **Electrical connection** | | | |
| **6.1** | **Supply voltage / fuse protection / RCD-Type** | | | 3~/PE 400 V (50 Hz) / C 100A / A |
| **6.2** | **Control voltage / fuse protection / RCD-Type** | | | 1~/N/PE 230 V (50 Hz) / C 13A / A |
| **6.3** | **Degree of protection according to EN 60 529** | | | IP 21 |
| **6.4** | **Starting current with soft starter** | | **A** | 110 |
| **6.5** | **Nominal power consumption B0 W35 / max. power consumption** [5] | | **kW** | 30.0 / 57.5 |
| **6.6** | **Nominal current B0 W35 / cos φ** | | **A / ---** | 54.1 / 0.8 |
| **6.7** | **Power consumption of compressor protection (per compressor)** | | **W** | 150 / thermostatically controlled |
| **6.8** | **Power consumption of pumps** | | **kW** | up to 1.8 |

| | | | | |
|---|---|---|---|---|
| **7** | **Complies with the European safety regulations** | | [6] | |
| **8** | **Additional model features** | | | |
| **8.1** | **Water in device is protected against freezing** [7] | | Yes | |
| **8.2** | **Max. operating overpressure (heat source/heat sink)** | **bar** | 3.0 | |
| **9** | **Heat output / COP** | | | |
| **9.1** | **Heat output / coefficient of performance (COP)**[5] [8] | | | |
| | | **Performance level** | 1 | 2 |
| | **at B-5 / W45** | **kW / ---** | 58.3 / 3.2 | 117.0 / 3.3 |
| | **at B0 / W55** | **kW / ---** | 65.0 / 3.0 | 129.6 / 3.1 |
| | **at B0 / W45** | **kW / ---** | 67.2 / 3.7 | 132.1 / 3.7 |
| | **at B0 / W35** | **kW / ---** | 70.7 / 4.7 | 138.1 / 4.6 |

1. If necessary, the operating range can be extended to a brine inlet temperature of -10 °C. In this case, the minimum brine concentration must be adjusted to 30%. (Freezing temperature -17 °C). For brine inlet temperatures of -10 °C to -5 °C, flow temperature increasing from 50 °C to 60 °C.
   For brine inlet temperatures of -5 °C to 0°C, flow temperature increasing from 60 °C to 62 °C.
2. Operation is possible at brine inlet temperatures of up to +35 °C. For brine inlet temperatures of 25 °C to 35 °C, flow temperature decreasing from 62 °C to 58 °C.
3. The specified sound pressure level corresponds to the operating noise of the heat pump in heating operation at 55 °C flow temperature. The specified sound pressure level represents the free sound area level. The measured value can deviate by up to 16 dB(A), depending on the installation location.
4. Note that additional space is required for pipe connections, operation and maintenance.
5. These data indicate the size and capacity of the system. For an analysis of the economic and energy efficiency of the system, the bivalence point and regulation should be taken into consideration. These specifications can only be achieved with clean heat exchangers. Information on maintenance, commissioning and operation can be found in the respective sections of the installation and operating instructions. The specified values, e.g. B0 / W55, have the following meaning: Heat source temperature 0 °C and heating water flow temperature 55 °C.
6. See CE declaration of conformity
7. The heat circulating pump and the heat pump manager must always be ready for operation.
8. The coefficients of performance are valid with the circulating pumps included in the scope of supply.

# 13 Product information as per Regulation (EU) No 813/ 2013, Annex II, Table 2

**Information requirements for heat pump space heaters and heat pump combination heaters**

| | |
|---|---|
| Model | SI 130TU |
| Air-to-water heat pump | no |
| Water-to-water heat pump | no |
| Brine-to-water heat pump | yes |
| Low-temperature heat pump | no |
| Equipped with a supplementary heater | no |
| Heat pump combination heater | no |

Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low- temperature heat pumps, parameters shall be declared for low-temperature application.

Parameters shall be declared for average climate conditions:

| Item | Symbol | Value | Unit |
|---|---|---|---|
| **Rated heat output (*)** | Prated | 130 | kW |
| Declared capacity for heating foer part load at indoor temperature 20°C and outdoor temperature T*j* | | | |
| Tj = - 7°C | P*dh* | 130,5 | kW |
| Tj = + 2°C | P*dh* | 133,5 | kW |
| Tj = + 7°C | P*dh* | 135,3 | kW |
| Tj = + 12°C | P*dh* | 137,2 | kW |
| Tj = bivalent temperature | P*dh* | 129,6 | kW |
| Tj = operation limit temperature | P*dh* | 129,6 | kW |
| For air-to-water heat pumps | | | |
| Tj = -15°C (if TOL < -20°C) | P*dh* | 129,6 | kW |
| Bivalent temperature | $T_{biv}$ | -10 | °C |
| Cycling interval capacity for heating | P*cych* | - | kW |
| Degradation co-efficient (**) | C*dh* | 0,90 | - |
| Power consumption in modes other than active mode | | | |
| Off mode | $P_{OFF}$ | 0,015 | kW |
| Thermostat-off mode | $P_{TO}$ | 0,020 | kW |
| Standby mode | $P_{SB}$ | 0,015 | kW |
| Crankcase heater mode | $P_{CK}$ | 0,300 | kW |
| Other items | | | |
| Capacity control | | fixed | |
| Sound power level, indoors/ outdoors | $L_{WA}$ | 70/-- | dB |
| Emissions of nitrogen oxides | $NO_x$ | - | mg/kWh |

| Item | Symbol | Value | Unit |
|---|---|---|---|
| **Seasonal space heating energy efficiency** | $\eta_s$ | 138 | % |
| Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T*j* | | | |
| Tj = - 7°C | COP*d* | 3,21 | - |
| Tj = + 2°C | COP*d* | 3,66 | - |
| Tj = + 7°C | COP*d* | 3,99 | - |
| Tj = + 12°C | COP*d* | 4,38 | - |
| Tj = bivalent temperature | COP*d* | 3,10 | - |
| Tj = operation limit temperature | COP*d* | 3,10 | - |
| For air-to-water heat pumps: | | | |
| Tj = -15°C (if TOL < -20°C) | COP*d* | 3,10 | - |
| For air-to-water heat pumps: Operation limit temperature | TOL | -10 | °C |
| Cycling interval efficiency | COP*cyc* | - | - |
| Heating water operating limit temperature | WTOL | 62 | °C |
| Supplementary heater | | | |
| Rated heat output (*) | P*sup* | 0 | kW |
| Type of energy input | | eletrical | |
| For air-to-water heat pumps: Rated air flow rate, outdoors | - | -- | m³ /h |
| For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger | - | 11,4 | m³ /h |

For heat pump combination heater:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Declared load profile** | | -- | | **Water heating energy efficiency** | $\eta_{wh}$ | -- | % |
| Daily electricity consumption | $Q_{elec}$ | -- | kWh | Daily fuel consumption | $Q_{fuel}$ | -- | kWh |

Contact details: Glen Dimplex Deutschland GmbH, Am Goldenen Feld 18, 95326 Kulmbach

(*) For heat pump space heaters and heat pump combination heaters, the rated output P*rated* is equal to the design load for heating P*designh* , and the rated heat output of a supplementary capacity for heating sup(*Tj* ).

(**) If C*dh* is not determined by measurement nthen the default degradation is C*dh* = 0,9
(--) not applicable

# Anhang / Appendix / Annexes

**1 Maßbilder / Dimension Drawings / Schémas cotés ..... A-II**

1.1 Maßbild / Dimension Drawing / Schéma coté SI 130TU ..... A-II

**2 Diagramme / Diagrams / Diagrammes ..... A-III**

2.1 Kennlinien / Characteristic Curves / Courbes caractéristiques SI 130TU ..... A-III

2.2 Einsatzgrenzendiagramm / Operating limits diagram / Diagramme des seuils d'utilisation SI 130TU ..... A-IV

**3 Stromlaufpläne / Circuit Diagrams / Schémas électriques ..... A-V**

3.1 Steuerung / Control / Commande SI 130TU ..... A-V

3.2 Steuerung / Control / Commande SI 130TU ..... A-VI

3.3 Last / Load / Charge SI 130TU ..... A-VII

3.4 Anschlussplan / Connection Plan / Schéma de connexion SI 130TU ..... A-VIII

3.5 Anschlussplan / Connection Plan / Schéma de connexion SI 130TU ..... A-IX

3.6 Legende / Legend / Légende SI 130TU ..... A-X

**4 Hydraulische Einbindungsschemen / Hydraulic integration diagrams / Schémas d'intégration hydraulique ..... A-XII**

4.1 Monovalente Wärmepumpenanlage mit 3 Heizkreisen und Warmwasserbereitung / Monovalent heat pump system with three heating circuits and domestic hot water preparation / Installation monovalente de pompe à chaleur avec trois circuits de chauffage et production d'eau chaude sanitaire ..... A-XII

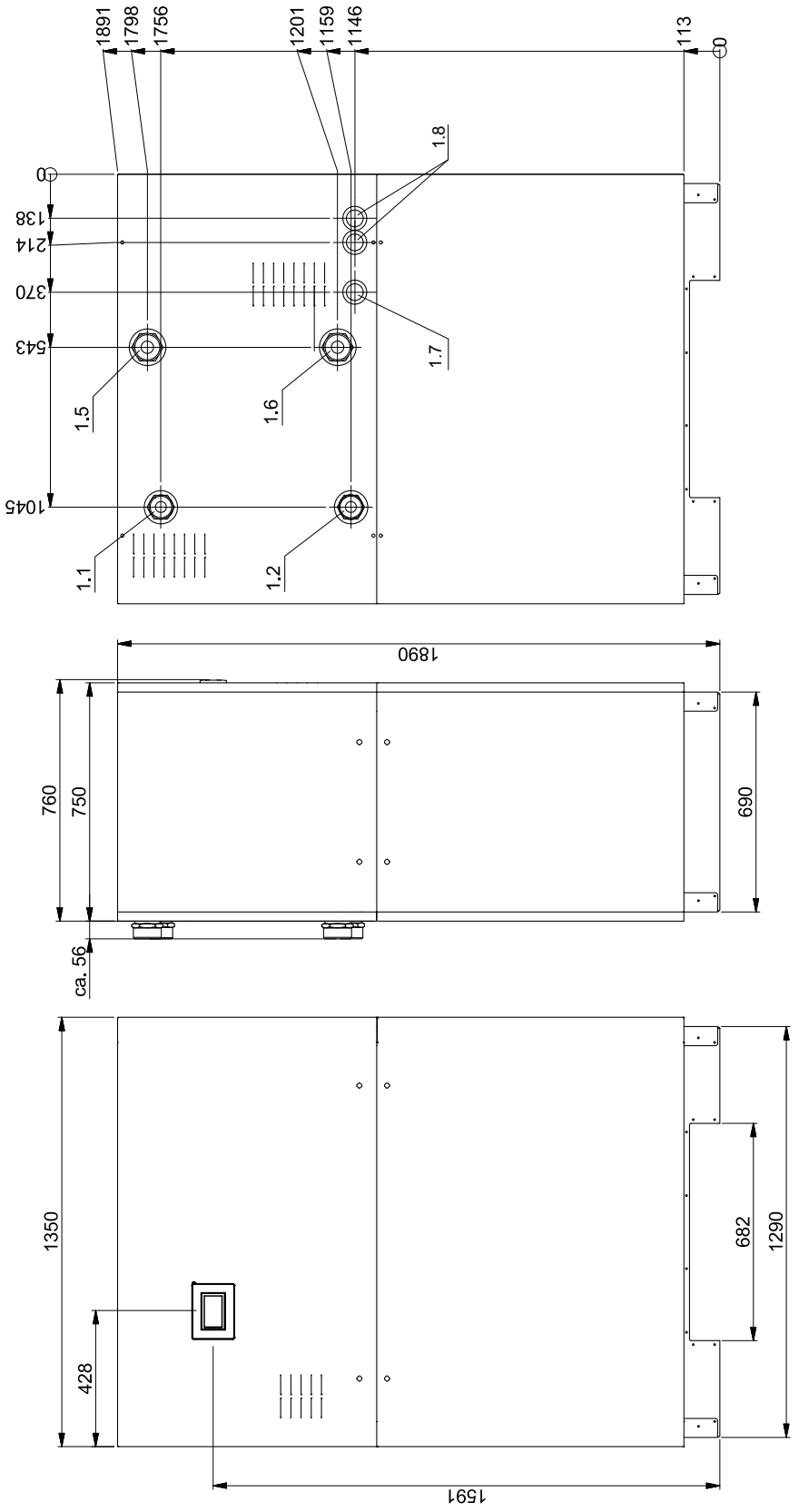
4.2 Bivalente Wärmepumpenanlage mit zwei Heizkreisen und Warmwasserbereitung / Bivalent system with two heating circuits and domestic hot water preparation / Installation bivalente avec deux circuits de chauffage et production d´eau chaude sanitaire ..... A-XIII

4.3 Legende / Legend / Légende ..... A-XIV

**5 Konformitätserklärung / Declaration of Conformity / Déclaration de conformité ..... A-XV**

# 1 Maßbilder / Dimension Drawings / Schémas cotés

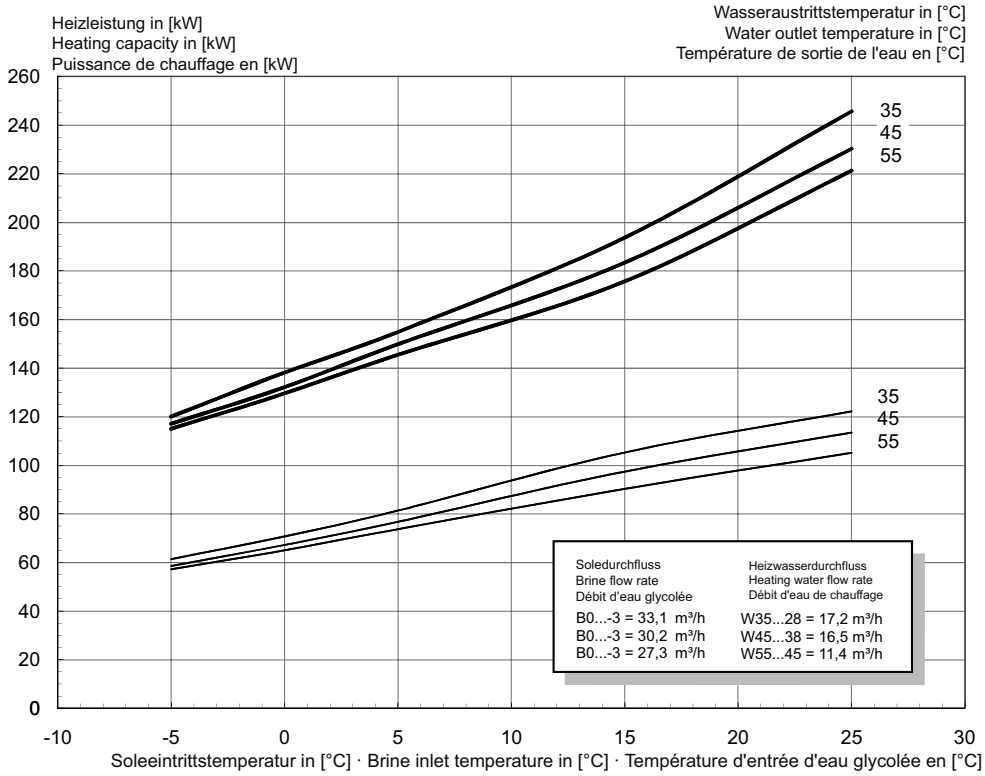
## 1.1 Maßbild / Dimension Drawing / Schéma coté SI 130TU

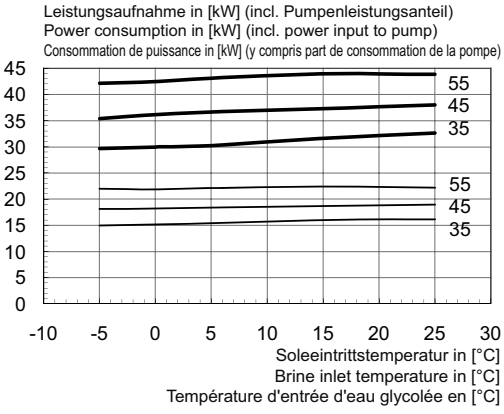


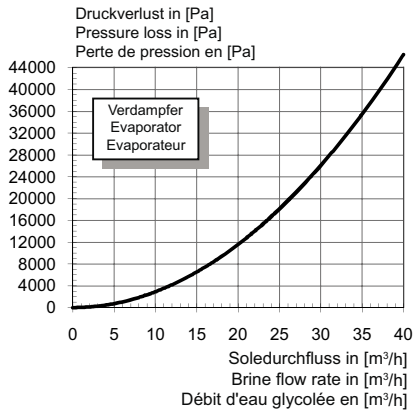

| | | | |
|---|---|---|---|
| 1.1 | Heizungsvorlauf<br>Ausgang aus Wärmepumpe<br>R 2 1/2 | Heating water flow<br>Heat pump outlet<br>R 2 1/2 | Aller eau de chauffage<br>Sortie de la PAC<br>R 2 1/2 |
| 1.2 | Heizungsrücklauf<br>Eingang in Wärmepumpe<br>R 2 1/2 | Heating water return flow<br>Heat pump inlet<br>R 2 1/2 | Retour eau de chauffage<br>Entrée dans la PAC<br>R 2 1/2 |
| 1.5 | Wärmequelle<br>Eingang in Wärmepumpe<br>R 3 | Heat source flow<br>Heat pump inlet<br>R 3 | Source de chaleur<br>Entrée dans la PAC<br>R 3 |
| 1.6 | Wärmequelle<br>Ausgang aus Wärmepumpe<br>R 3 | Heat source return flow<br>Heat pump outlet<br>R 3 | Source de chaleur<br>Sortie de la PAC<br>R 3 |
| 1.7 | Zuführung Signalleitung<br>Kleinspannung | Supply signal cable<br>extra-low voltage | Alimentation ligne de signalisation<br>Faible tension |
| 1.8 | Zuführung Lastleitung<br>Netzspannung | Supply mains cable<br>line voltage | Alementation ligne de charge<br>tenson de réseau |

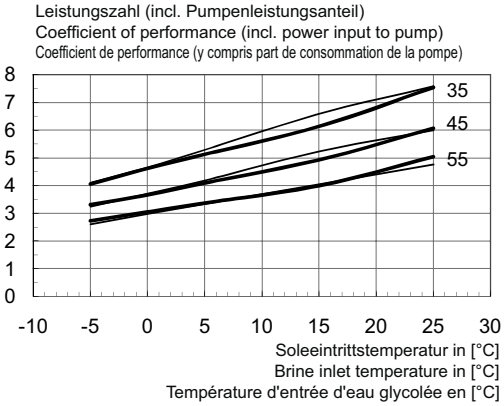
# 2 Diagramme / Diagrams / Diagrammes

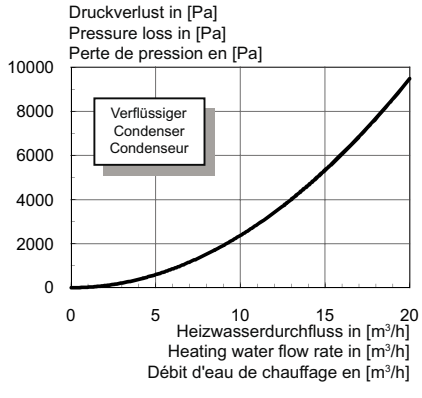
## 2.1 Kennlinien / Characteristic Curves / Courbes caractéristiques SI 130TU



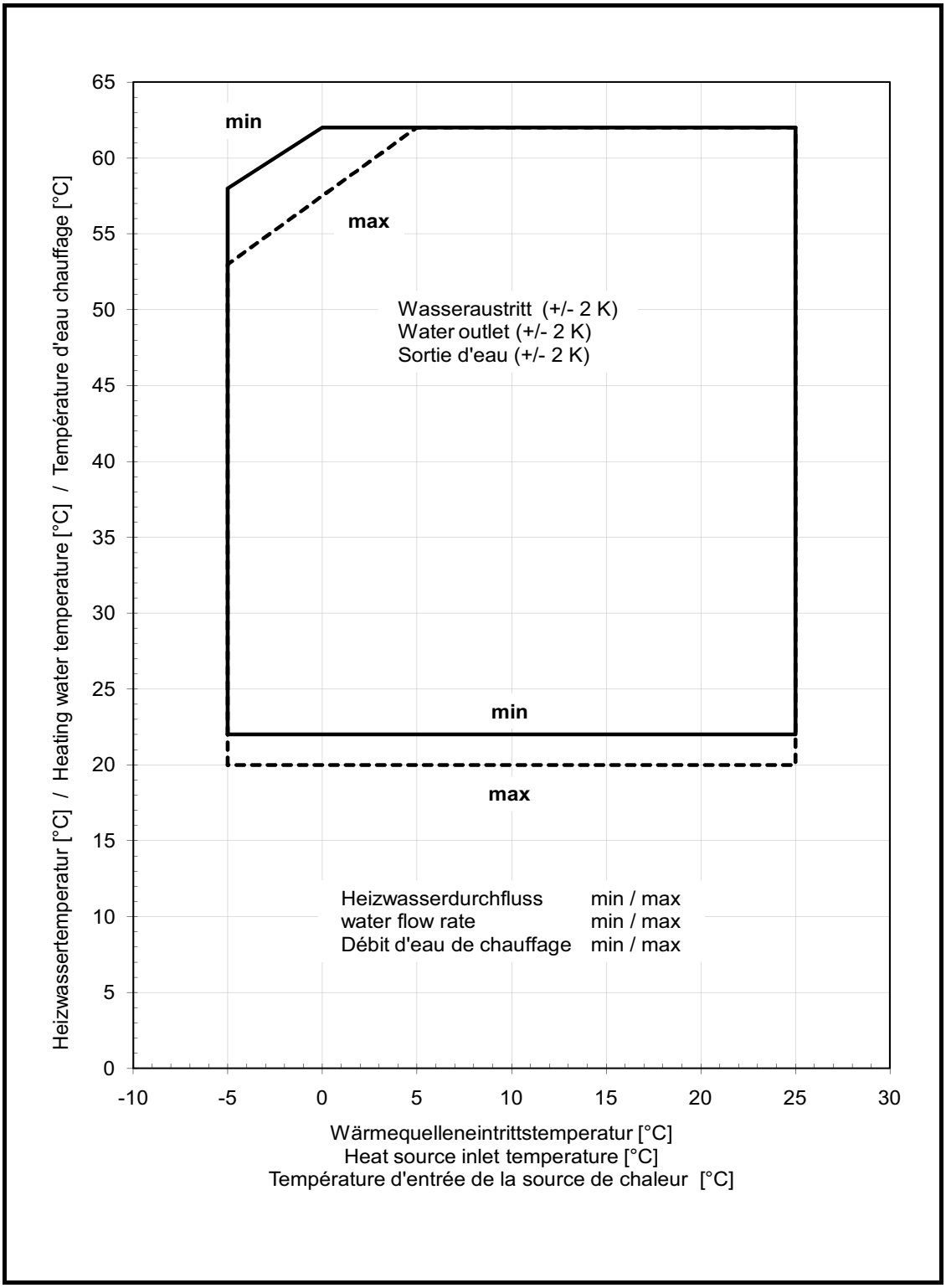



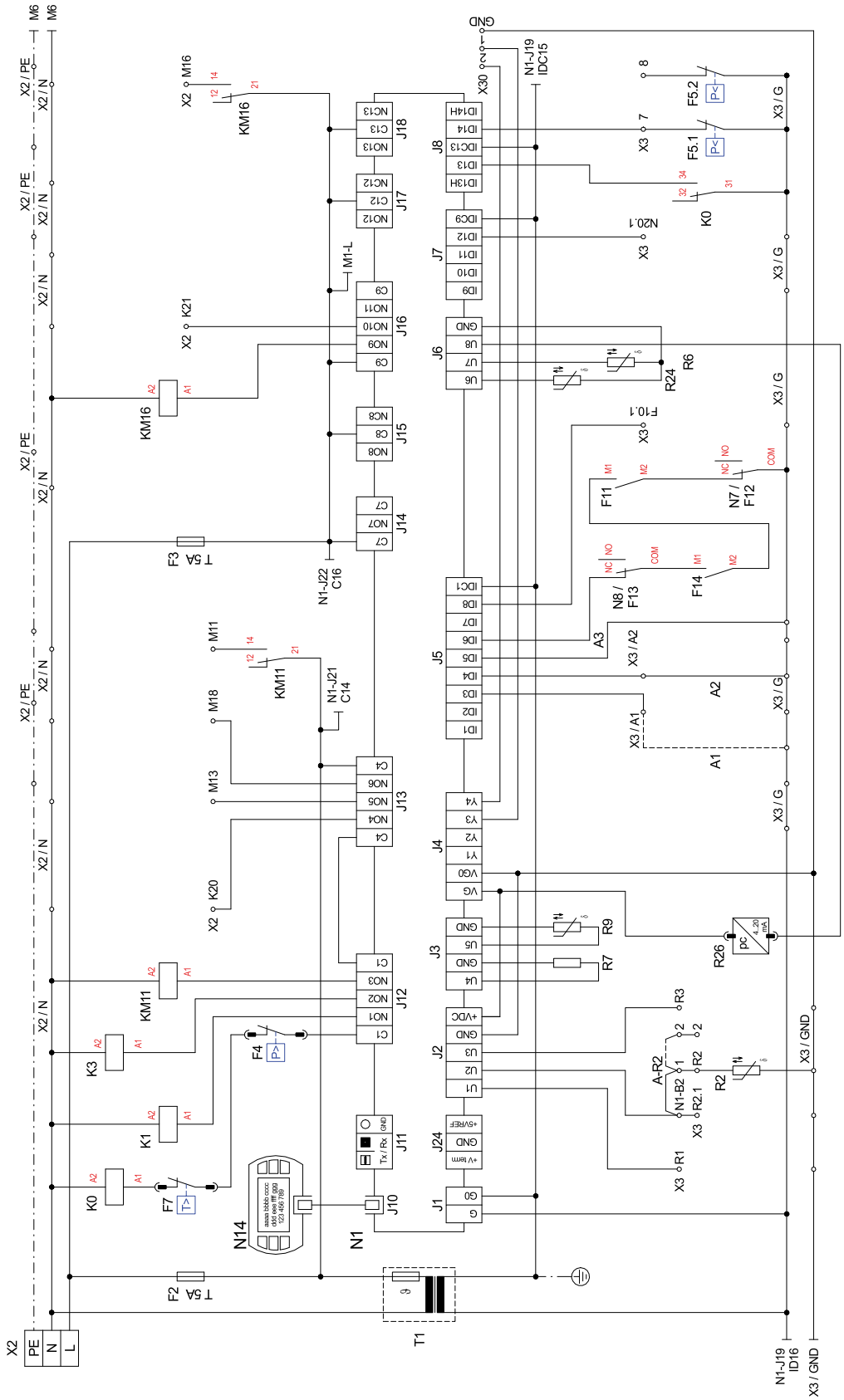



## 2.2 Einsatzgrenzendiagramm / Operating limits diagram / Diagramme des seuils d'utilisation SI 130TU

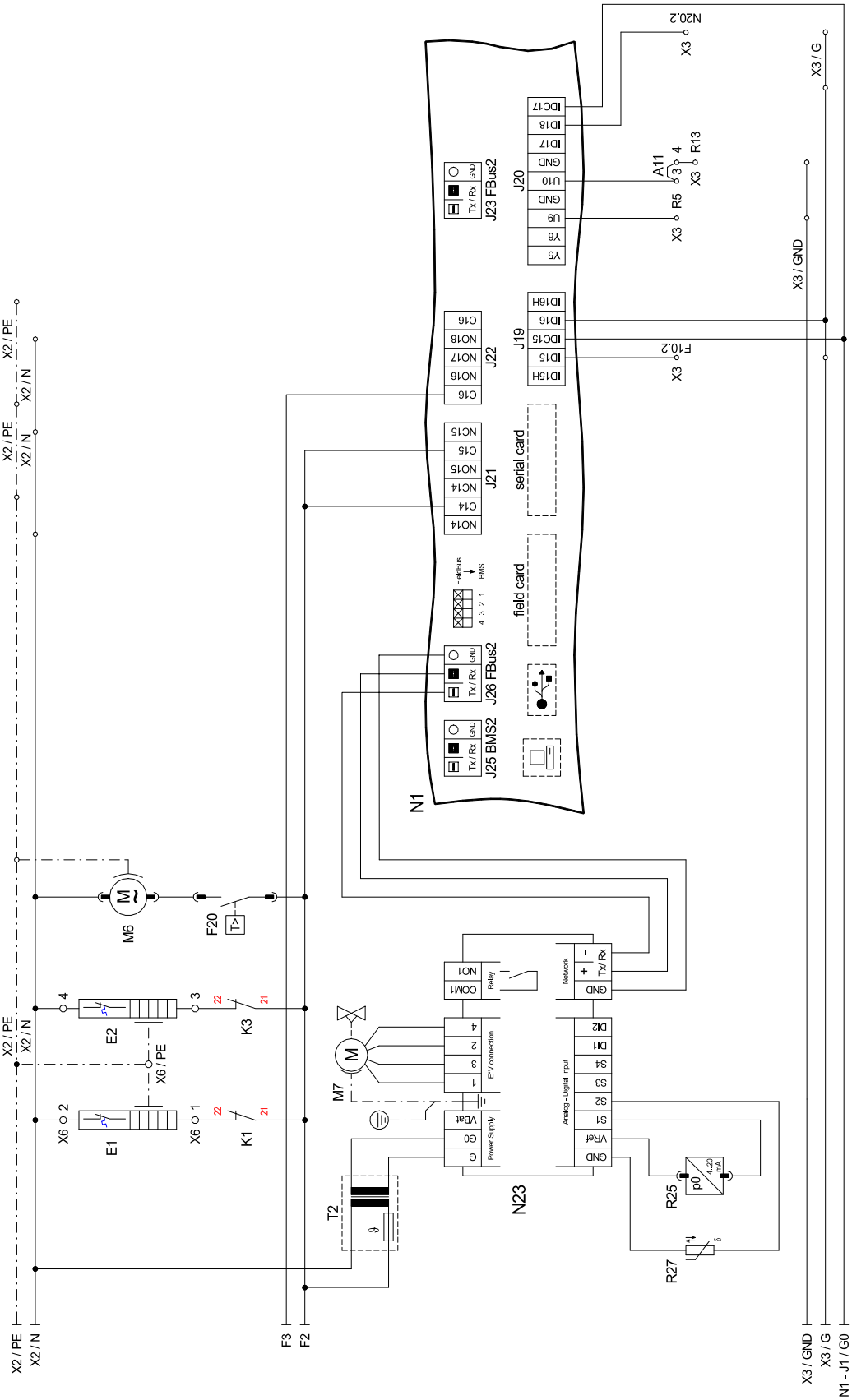


# 3 Stromlaufpläne / Circuit Diagrams / Schémas électriques

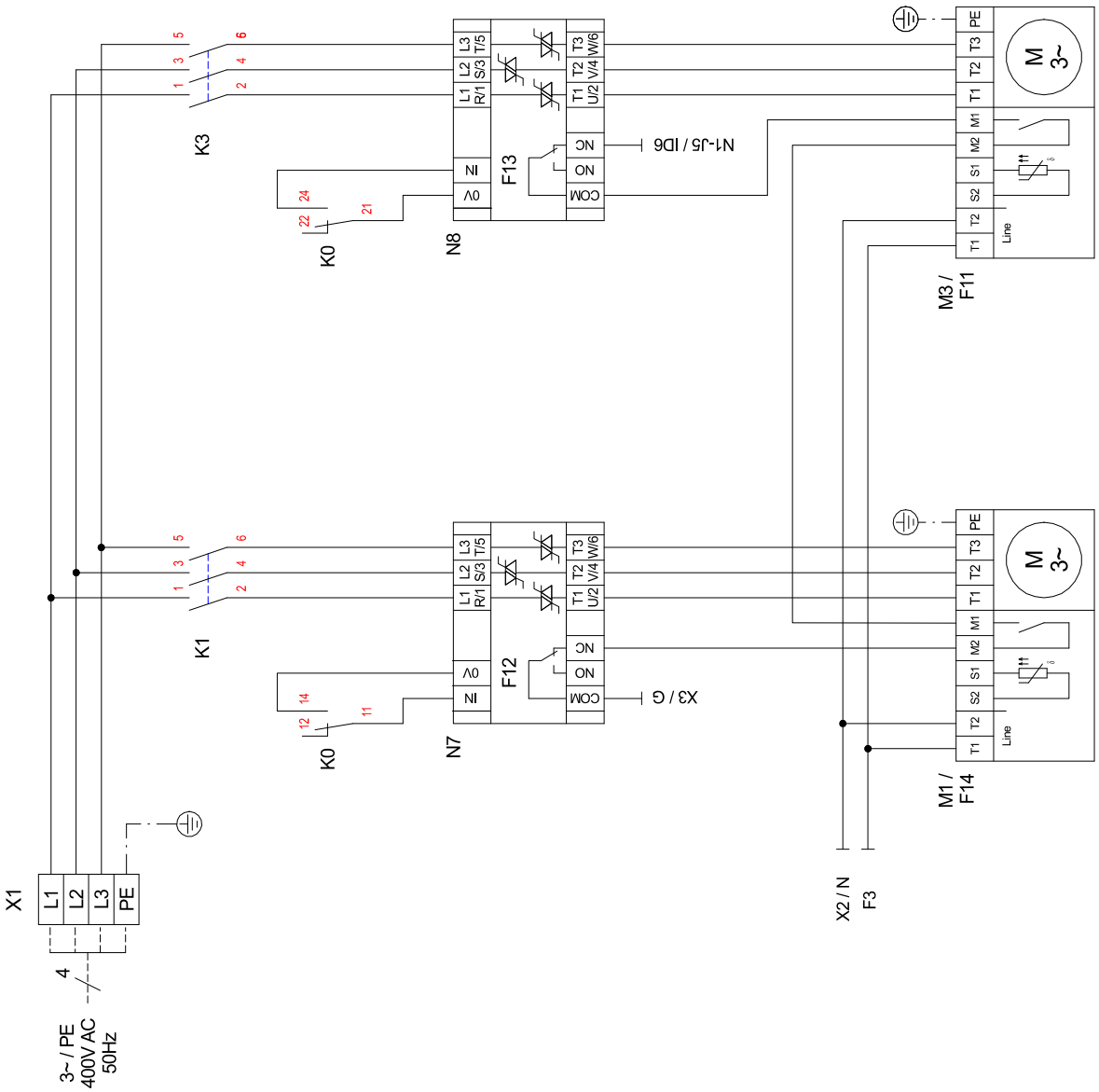
## 3.1 Steuerung / Control / Commande SI 130TU



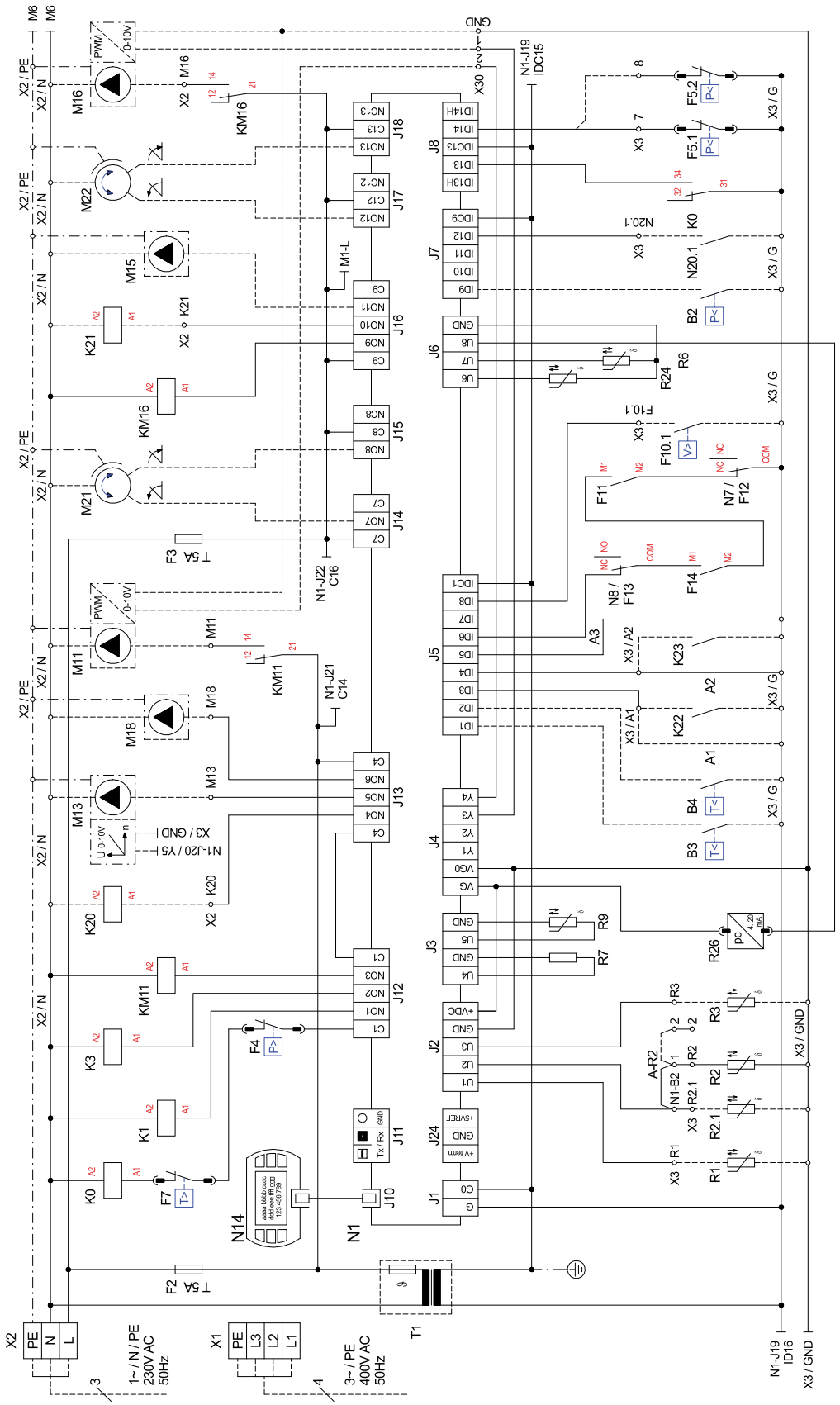
## 3.2 Steuerung / Control / Commande SI 130TU



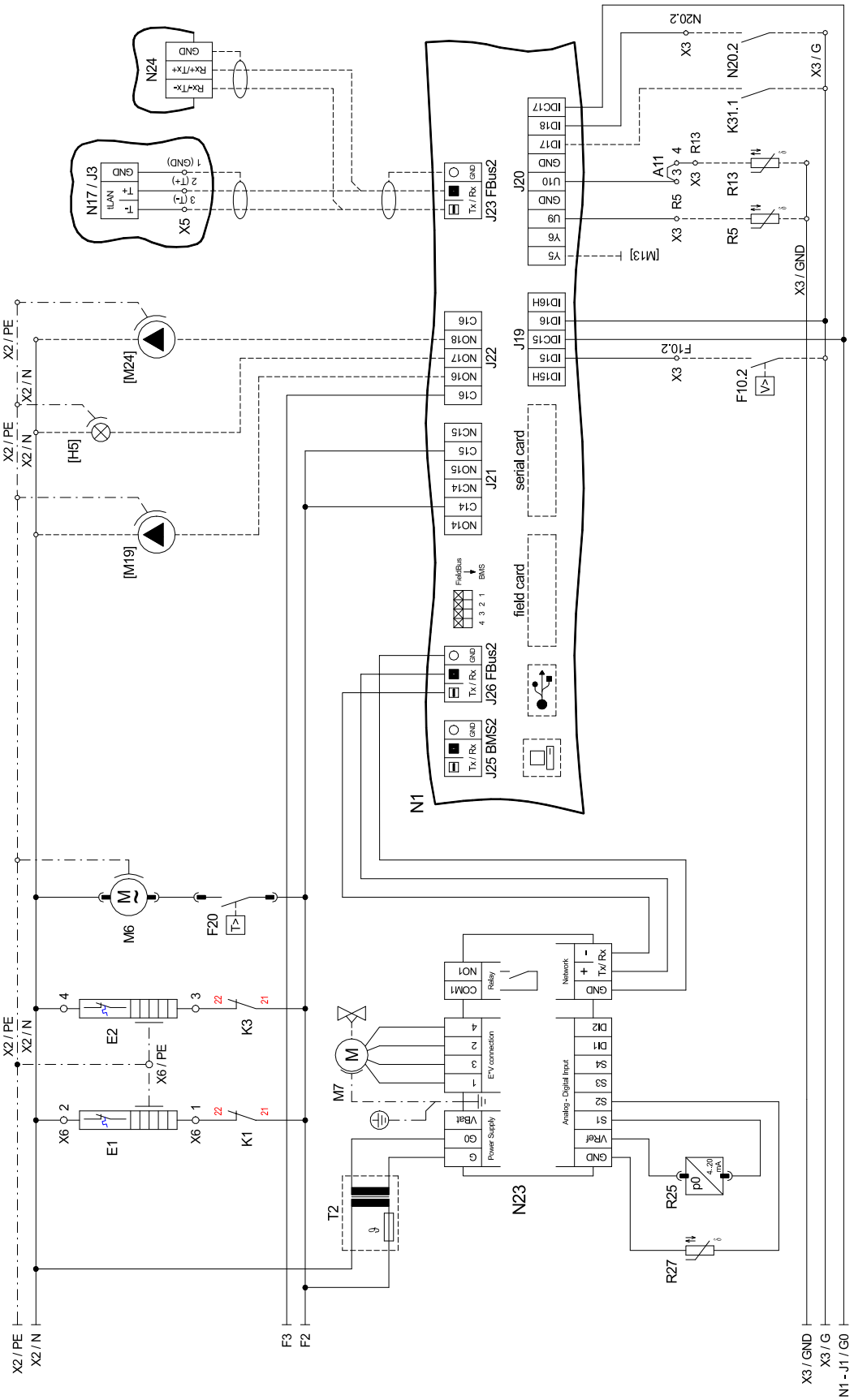
## 3.3 Last / Load / Charge SI 130TU



## 3.4 Anschlussplan / Connection Plan / Schéma de connexion SI 130TU



## 3.5 Anschlussplan / Connection Plan / Schéma de connexion SI 130TU



# 3.6 Legende / Legend / Légende SI 130TU

| | | | |
|---|---|---|---|
| A1 | Brücke EVU-Sperre, muss eingelegt werden, wenn kein EVU-Sperrschütz vorhanden ist (Kontakt offen = EVU-Sperre) | Utility block (EVU) bridge must be inserted if no utility blocking contactor is present (contact open = utility block). | Pont de blocage de la société d'électricité, à insérer en absence de contacteur de blocage de la société d'électricité (contact ouvert = blocage de la société d'électricité) |
| A2 | Brücke Sperre: muss entfernt werden, wenn der Eingang genutzt wird (Eingang offen = WP gesperrt) | Block bridge: Must be removed when the input is being used (input open = HP blocked). | Pont de blocage : à retirer si l'entrée est utilisée (entrée ouverte = pompe à chaleur bloquée) |
| A3 | Brücke Störung M11: muß entfernt werden, wenn der Eingang genutzt wird (Eingang offen = Störung M11) | M11 link cable fault: must be removed when the input is being used (input open = M11 fault) | Pont défaut M11 : à retirer si l'entrée est utilisée (entrée ouverte = défaut M11) |
| A11 | Brücke Solar:bei Verwendung eines Solarmoduls muss die Brücke entfernt werden und die Klemmstellen mit dem Solar-Modul verbunden werden. | Solar bridge: When a solar energy module is used, the bridge must be removed and the solar energy module connected to the terminal connections. | Pont solaire : en cas d'utilisation d'un module solaire, retirer le pont et connecter les bornes au module solaire. |
| A - R2 | Brücke Rücklauffühler: - muss versetzt werden, wenn doppelt differenzdruckloser Verteiler und „Heizkreisumkehrventil“ verwendet wird. Neue Klemmstellen: X3 / 1 und X3 / 2 | Return sensor bridge: - Must be moved when a dual differential pressureless manifold and a “heating circuit reversing valve” are used. New terminal connections: X3/1 and X3/2 | Pont sonde sur circuit de retour : - à déplacer si le distributeur double sans pression différentielle et la « vanne d'inversion du circuit de chauffage » sont utilisés. Nouveaux emplacements de borne : X3 / 1 et X3 / 2 |
| B2* | Niederdruckpressostat Primärkreis | Low-pressure switch, primary circuit | Pressostat basse pression circuit primaire |
| B3* | Thermostat Warmwasser | Hot water thermostat | Thermostat eau chaude |
| B4* | Thermostat Schwimmbadwasser | Swimming pool water thermostat | Thermostat eau de piscine |
| E1 | Ölsumpfheizung M1 | Oil sump heater M1 | Chauffage à carter d'huile M1 |
| E2 | Ölsumpfheizung M2 | Oil sump heater M2 | Chauffage à carter d'huile M2 |
| E9* | Tauchheizkörper Warmwasser | Immersion heater for hot water | Résistance immergée eau chaude sanitaire |
| E10* | 2. Wärmeerzeuger | 2ndheat generator | 2ème générateur de chaleur |
| F2 | Sicherung für Steckklemmen J12; J13 und J21 5x20 / 5,0AT | Fuse for plug-in terminals J12; J13 and J21 5x20 / 5.0AT | Fusible pour bornes enfichables J12 ; J13 et J21 5x20 / 5,0AT |
| F3 | Sicherung für Steckklemmen J14 bis J18 und J22 5x20 / 5,0AT | Fuse for plug-in terminals J14 to J18 and J22 5x20 / 5.0AT | Fusible pour bornes enfichables J14 à J18 et J22 5x20 / 5,0AT |
| F4 | Hochdruckpressostat | High-pressure switch | Pressostat haute pression |
| F5.1 | Niederdruckpressostat Sole/Wasser-Wärmepumpe | Low-pressure switch brin-to water heat pump | Pressostat basse pression pompe à chaleur eau glycolée/eau |
| F5.2 | Niederdruckpressostat Wasser/Wasser-Wärmepumpe | Low-pressure switch water-to water heat pump | Pressostat basse pression pompe à chaleur eau/eau |
| F7 | Heißgasthermostat | Hot gas thermostat | Thermostat gaz chaud |
| F10.1* | Durchflussschalter Primärkreis | Flow rate switch for primary circuit | Commutateur de débit circuit primaire |
| F10.2* | Durchflussschalter Sekundärkreis | Flow rate switch for secondary circuit | Commutateur de débit circuit secondaire |
| F12 | Störmeldekontakt N7 | Fault signaling contact N7 | Contact de signalisation de défauts N7 |
| F13 | Störmeldekontakt N8 | Fault signaling contact N8 | Contact de signalisation de défauts N8 |
| [H5]* | Leuchte Störfernanzeige | Remote fault indicator lamp | Témoin de télédétection de pannes |
| J1 | Spannungsversorgung | Voltage supply | Alimentation en tension |
| J2-3 | Analogeingänge | Analogue inputs | Entrées analogiques |
| J4 | Analogausgänge | Analogue outputs | Sorties analogiques |
| J5 | Digitaleingänge | Digital inputs | Entrées numériques |
| J6 | Analogausgänge | Analogue outputs | Sorties analogiques |
| J7-8 | Digitaleingänge | Digital inputs | Entrées numériques |
| J10 | Bedienteil | Control panel | Unité de commande |
| J11 | frei | free | libre |
| J12-J18 | 230 V AC - Ausgänge | 230 V AC outputs | Sorties 230 V AC |
| J19 | Digitaleingänge | Digital inputs | Entrées numériques |
| J20 | Analogausgänge; Analogeingänge, Digitaleingänge | Analogue outputs; Analogue inputs, Digital inputs | Sorties analogiques, entrées analogiques, entrées numériques |
| J21-22 | Digitalausgänge | Digital outputs | Sorties numériques |
| J23 | Bus-Verbindung extern | Bus connection external | Raccordement externe au bus |
| J24 | Spannungsversorgung für Komponenten | Power supply for components | Alimentation en tension des composants |
| J25 | Schnittstelle | Interface | Interface |
| J26 | Bus-Verbindung intern | Bus connection internal | Raccordement interne au bus |
| | | | |
| K1 | Schütz M1 | Contactor M1 | Contacteur M1 |
| K3 | Schütz M3 | Contactor M3 | Contacteur M3 |
| K20* | Schütz E10 | Contactor E10 | Contacteur E10 |
| K21* | Schütz E9 | Contactor E9 | Contacteur E9 |
| K22* | EVU-Sperrschütz | Utility blocking contactor | Contacteur de coupure du fournisseur d'énergie |
| K23* | Hilfsrelais für Sperreingang | Auxiliary relay for disable contactor | Relais auxiliaire pour entrée du contacteur de blocage |
| K31.1* | Anforderung Zirkulation Warmwasser | Domestic hot water circulation request | Demande circulation ECS |
| KM11 | Hilfsrelais M11 | Auxiliary relay M11 | Relais auxiliaire M11 |
| KM16 | Hilfsrelais M16 | Auxiliary relay M16 | Relais auxiliaire M16 |
| | | | |
| M1 | Verdichter 1 | Compressor 1 | Compresseur 1 |
| M3 | Verdichter 2 | Compressor 2 | Compresseur 2 |
| M7 | Stellmotor für Expansionsventil | Actuator for expansion valve | Servomoteur pour détendeur |
| M11* | Primärkreispumpe | Primary circuit pump | Pompe circuit 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* | Warmwasserladepumpe | Hot water loading pump | Pompe de charge eau chaude sanitaire |
| [M19]* | Schwimmbadwasserumwälzpumpe | Swimming pool circulating pump | Circulateur de la piscine |
| M21* | Mischer Hauptkreis oder 3. Heizkreis | Mixer for main circuit or heating circuit 3 | Mélangeur circuit principal ou 3ème circuit de chauffage |
| M22* | Mischer 2. Heizkreis | Mixer for heating circuit 2 | Mélangeur 2e circuit de chauffage |
| [M24]* | Zirkulationspumpe Warmwasser | Domestic hot water circulating pump | Pompe de circulation eau chaude sanitaire |
| N1 | Regeleinheit | Control unit | Unité de régulation |
| N7 | Sanftanlaufsteuerung M1 | Soft start control M1 | Commande de démarrage progressif M1 |
| N8 | Sanftanlaufsteuerung M3 | Soft start control M3 | Commande de démarrage progressif M3 |

| | | | |
|---|---|---|---|
| N14 | Bedienteil | Control panel | Unité de commande |
| N17* | pCOe-Modul | pCOe module | Module pCOe |
| N20* | Wärmemengenzähler | Thermal energy meter | Compteur de chaleur |
| N23 | Ansteuerung elektronisches Expansionsventil E*V connection (1 = grün; 2 = gelb; 3 = braun; 4 = weiß) | Control for electronic expansion valve E*V connection (1=green; 2=yellow; 3=brown; 4=white) | Commande détendeur électronique connexion E*V (1=vert ; 2=jaune ; 3=marron ; 4=blanc) |
| N24* | Smart RTC | Smart RTC | Smart RTC |
| R1* | Außenfühler | External sensor | Sonde extérieure |
| R2 | Rücklauffühler Heizkreis | Return sensor for heating circuit | Sonde de retour circuit de chauffage |
| R2.1* | Rücklauffühler Heizkreis im doppelt differenzdrucklosen Verteiler | Return sensor for heating circuit in dual differential pressureless manifold | Sonde de retour circuit de chauffage dans le distributeur double sans pression différentielle |
| R3* | Warmwasserfühler | Hot water sensor | Sonde d'eau chaude |
| R5* | Fühler 2. Heizkreis | Sensor heating circuit 2 | Sonde pour 2e circuit de chauffage |
| R6 | Vorlauffühler Primärkreis | Flow sensor for primary circuit | Sonde aller circuit primaire |
| R7 | Codierwiderstand | Coding resistor | Résistance de codage |
| R9 | Vorlauffühler Heizkreis | Flow sensor for heating circuit | Sonde aller circuit de chauffage |
| R13* | Fühler regenerativ, Raumfühler, Fühler 3. Heizkreis | Renewable sensor, room sensor, sensor for heating circuit 3 | Sonde mode régénératif, sonde d'ambiance, sonde 3ème circuit de chauffage |
| R24 | Rücklauffühler Primärkreis | Return sensor, primary circuit | Sonde retour circuit primaire |
| R25 | Drucksensor Kältekreis - Niederdruck pO | Pressure sensor for refrigerating circuit - low pressure pO | Capteur de pression circuit réfrigérant - basse pression pO |
| R26 | Drucksensor Kältekreis - Hochdruck pc | Pressure sensor for refrigerating circuit - high pressure pc | Capteur de pression circuit réfrigérant - haute pression pc |
| R27 | Sauggasfühler | Suction gas sensor | Sonde de gaz d'aspiration |
| T1 | Sicherheitstransformator 230 / 24 V AC | Safety transformer 230 / 24 V AC | Transformateur de sécurité 230 / 24 V AC |
| T2 | Sicherheitstransformator 230 / 24 V AC | Safety transformer 230 / 24 V AC | Transformateur de sécurité 230 / 24 V AC |
| | | | |
| X1 | Klemmleiste Einspeisung | Terminal strip, infeed | Alimentation bornier |
| X2 | Klemmleiste Spannung = 230 V AC | Terminal strip voltage = 230 V AC | Tension bornier = 230 V AC |
| X3 | Klemmleiste Kleinspannung < 25 V AC | Terminal strip, extra-low voltage < 25 V AC | Faible tension bornier < 25 V AC |
| X6 | Klemmleiste Ölsumpfheizung | Oil sump heater terminal strip | Bornier chauffage à carter d'huile |
| | | | |
| * | Bauteile sind bauseits anzuschließen / beizustellen | Components must be connected / supplied by the customer | Les pièces sont à raccorder / à fournir par le client |
| [ ] | Flexible Beschaltung - siehe Vorkonfiguration (Änderung nur durch Kundendienst!) | Flexible switching - see pre-configuration (changes by after-sales service only!) | Commande flexible - voir pré-configuration (modification uniquement par le SAV !) |
| ------ | werksseitig verdrahtet | Wired ready for use | câblé en usine |
| - - - - - - | bauseits bei Bedarf anzuschließen | To be connected by the customer as required | À raccorder par le client au besoin |

**⚠ ACHTUNG!**

An den Steckklemmen N1-J1 bis J11, J19, J20; J23 bis J26 und der Klemmleisten X3 und X30 liegt Kleinspannung an. Auf keinen Fall darf hier eine höhere Spannung angelegt werden.

**⚠ ATTENTION !**

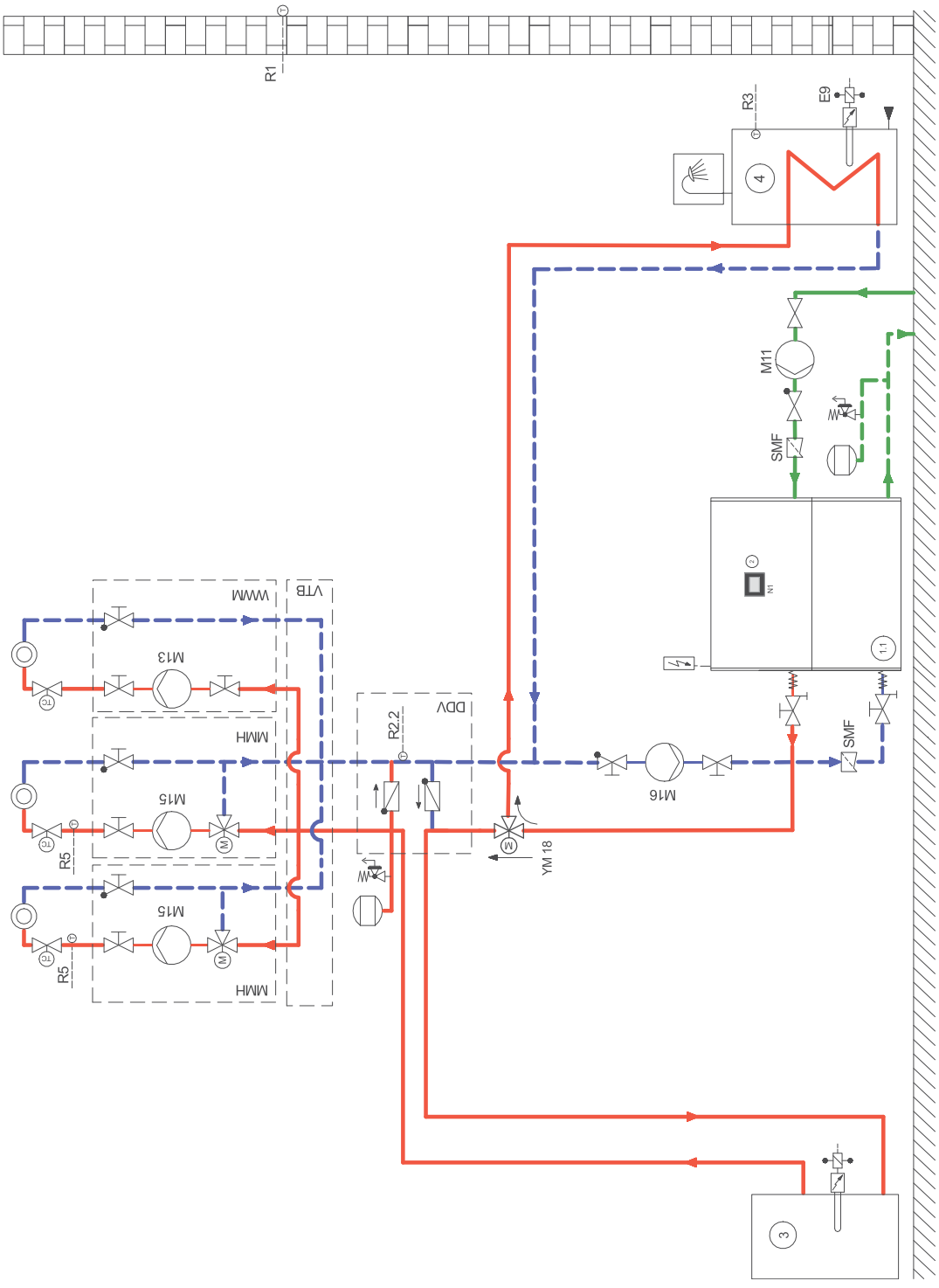
Plug-in terminals N1-J1 to J11, J19, J20, J23 to J26 and terminal strip X3 and X30 are connected to extra-low voltage. A higher voltage must on no account be connected.

**⚠ ATTENTION !**

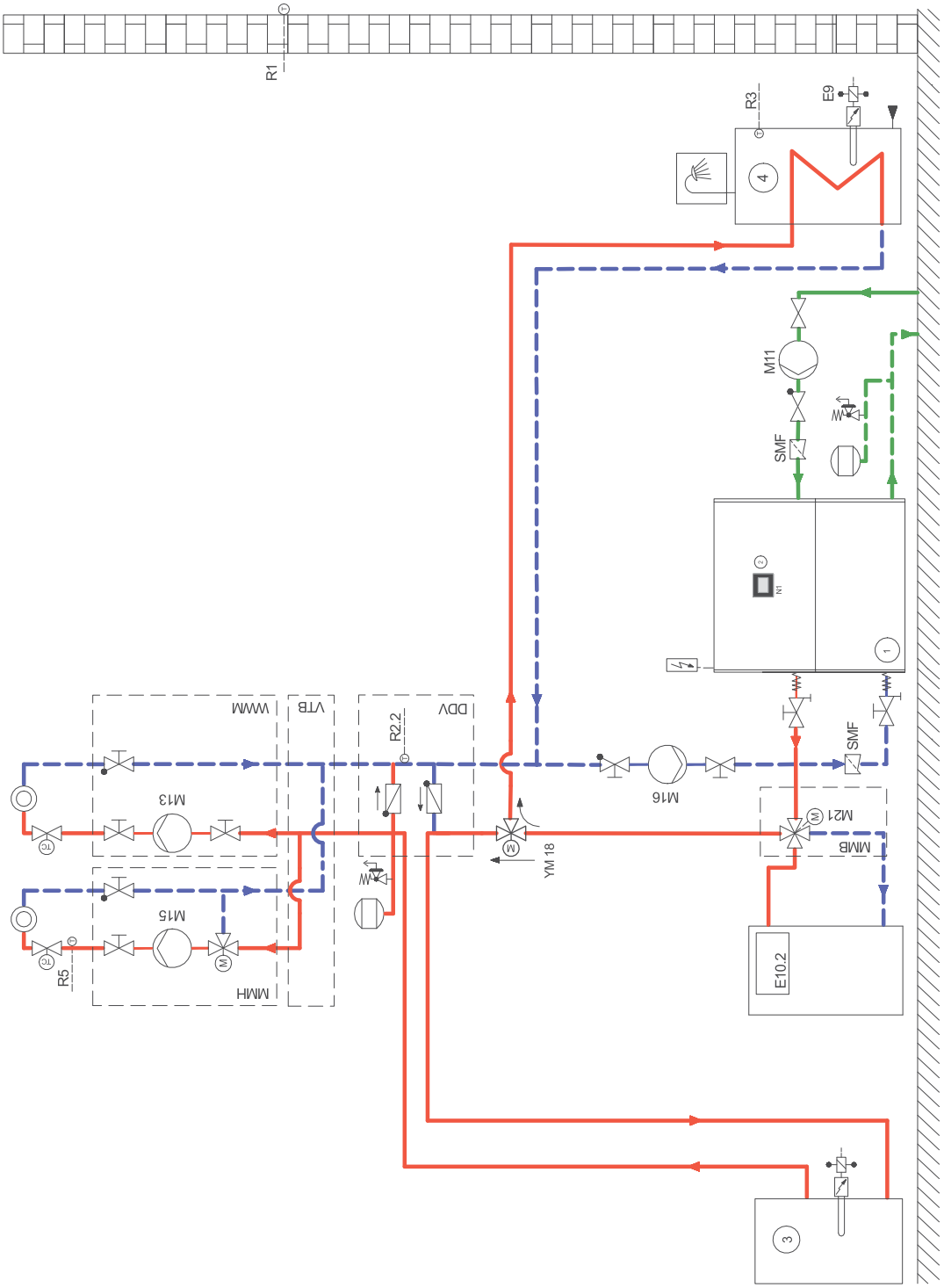
Une faible tension est appliquée aux bornes enfichables N1-J1 à J11, J19, J20, J23 à J26 et au bornier X3 à X30. Ne jamais appliquer une tension plus élevée.

# 4 Hydraulische Einbindungsschemen / Hydraulic integration diagrams / Schémas d'intégration hydraulique

## 4.1 Monovalente Wärmepumpenanlage mit 3 Heizkreisen und Warmwasserbereitung / Monovalent heat pump system with three heating circuits and domestic hot water preparation / Installation monovalente de pompe à chaleur avec trois circuits de chauffage et production d'eau chaude sanitaire



## 4.2 Bivalente Wärmepumpenanlage mit zwei Heizkreisen und Warmwasserbereitung / Bivalent system with two heating circuits and domestic hot water preparation / Installation bivalente avec deux circuits de chauffage et production d´eau chaude sanitaire



## 4.3 Legende / Legend / Légende

| | | | |
|---|---|---|---|
|  | Rückschlagventil | Check valve | Clapet anti-retour |
|  | Absperrventil | Shutoff valve | Robinet d’arrêt |
|  | Schmutzfänger | Dirt trap | Filtre |
|  | Dreiwegemischer | Three-way mixer | Mélangeur 3 voies |
|  | Umwälzpumpe | Circulating pump | Circulateur |
|  | Ausdehnungsgefäß | Expansion vessel | Vase d´expansion |
|  | Raumtemperaturgesteuertes Ventil | Room temperature-controlled valve | Vanne commandée par température ambiante |
|  | Absperrventil mit Rückschlagventil | Shutoff valve with check valve | Robinet d’arrêt avec clapet anti-retour |
|  | Absperrventil mit Entwässerung | Shutoff valve with drainage | Robinet d'arrêt avec écoulement |
|  | Sicherheitsventilkombination | Safety valve combination | Groupe de valves de sécurité |
|  | Wärmeverbraucher | Heat consumer | Consommateur de chaleur |
|  | Vierwegeumschaltventil | Four-way reversing valve | Vanne d'inversion 4 voies |
|  | Temperaturfühler | Temperature sensor | Sonde de température |
|  | Flexibler Anschlussschlauch | Flexible connection hose | Tuyau de raccord flexible |
|  | Rückschlagklappe | Check valve | Clapet anti-retour |
| | | | |
| ⑫ | Sole/Wasser-Wärmepumpe | Brine-to-water heat pump | Pompe à chaleur eau glycolée-eau |
| ③ | Reihen-Pufferspeicher | Buffer tank connected in series | Ballon tampon en série |
| ④ | Warmwasserspeicher | Hot water cylinder | Ballon d’eau chaude sanitaire |
| | | | |
| E9 | Flanschheizung Warmwasser | Flange heater, hot water | Cartouche chauffante ECS |
| E10.2 | Öl / Gaskessel | Oil / gas boiler | Chaudière fuel / gaz |
| M11 | Primärumwälzpumpe | Primary circulating pump | Circulateur primaire |
| M13 | Heizungsumwälzpumpe | Heat circulating pump | Circulateur de chauffage |
| M15 | Heizungsumwälzpumpe 2. Heizkreis | Heat circulating pump for heating circuit 2 | Circulateur de chauffage 2ème circuit de chauffage |
| M16 | Zusatzumwälzpumpe | Auxiliary circulationpump | Circulateur supplémentaire |
| M18 | Warmwasserladepumpe | Hot water loading pump | Pompe de charge eau chaude sanitaire |
| M21 | Mischer Hauptkreis od. 3. Heizkreis | Mixer for main circuit or heating circuit 3 | Mélangeur circuit principal ou 3ème circuit de chauffage |
| M22 | Mischer 2. Heizkreis | Mixer for heating circuit 2 | Mélangeur 2ème circuit de chauffage |
| N1 | Wärmepumpenmanager | Heat pump manager | Gestionnaire de pompe à chaleur |
| R1 | Außenwandfühler | External wall sensor | Sonde sur mur extérieur |
| R2 | Rücklauffühler | Return flow sensor | Sonde de retour |
| R3 | Warmwasserfühler | Hot water sensor | Sonde sur circuit d’eau chaude sanitaire |
| R5 | Temperaturfühler 2. Heizkreis | Temperature sensor for heating circuit 2 | Sonde de température 2ème circuit de chauffage |
| R13 | Fühler 3. Heizkreis / Fühler regenerativ | Sensor for heating circuit 3 / renewable sensor | Sonde 3ème circuit de chauffage / sonde mode régénératif |

# 5 Konformitätserklärung / Declaration of Conformity / Déclaration de conformité

Die aktuelle CE-Konformitätserklärung finden sie als Download unter:
You can find and download the current CE conformity declaration at:
Vous pouvez télécharger la déclaration de conformité CE actuelle sous :

**https://dimplex.de/si130tu**



**Glen Dimplex Deutschland**

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

T +49 9221 709-101
F +49 9221 709-339
info@dimplex.de
www.dimplex.de

**Geschäftsstelle Österreich**
Glen Dimplex Austria GmbH
Hauptstraße 71
A-5302 Henndorf am Wallersee

T +43 6214 20330
F +43 6214 203304
info@dimplex.at
www.dimplex.at

**Dimplex Schweiz**
Glen Dimplex Swiss AG
Seestrasse 110a
CH-8610 Uster

**Projektierung- und Angebotswesen**

Projektierung Ihrer Projekte und Planungsunterstützung.

T +49 9221 709-616
F +49 9221 709-924616
projektierung@dimplex.de

**Vertriebsinnendienst**
Bestellungen und Liefertermine

T +49 9221 709-200
F +49 9221 709-924200
Mo - Do: 7:30 bis 16:30 Uhr
Fr: 7:30 bis 15:00 Uhr
orders@dimplex.de

**Produkt- und Anwendungsinformation**

Wärmepumpen, Speicherheizgeräte, elektrische Raumheizgeräte, Lüftungsgeräte, elektrische Warmwasserbereiter.

T +49 9221 709-606
F +49 9221 709-924606

**Service vor Ort**
Kundendienst, Technische Unterstützung und Ersatzteile. Hilfestellung vor und nach Installation Ihrer Geräte.

T +49 9221 709-545
F +49 9221 709-924545
Mo - Do: 7:00 bis 17:00 Uhr
Fr: 7:00 bis 15:00 Uhr
service@dimplex.de

Kundendienst im Internet beauftragen:
www.dimplex.de/dimplex-service