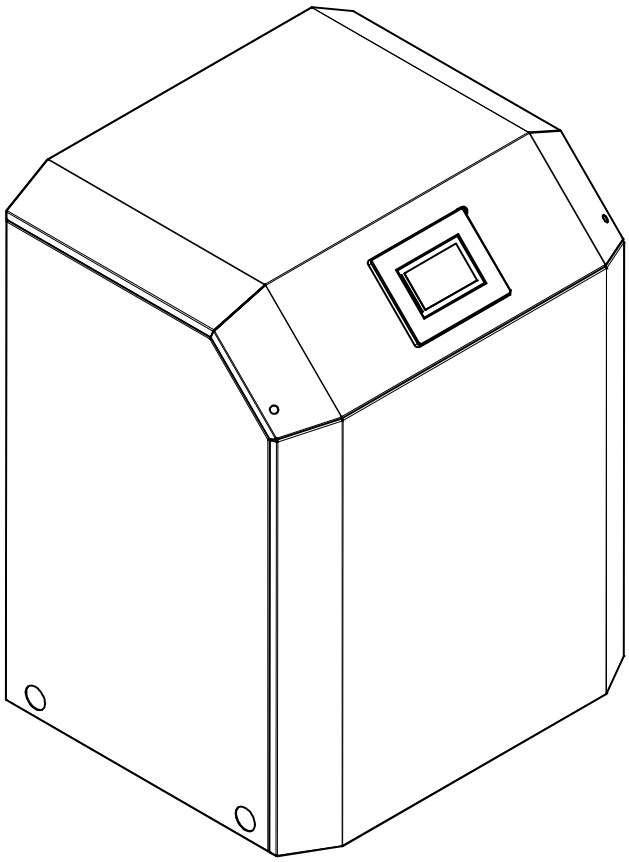
Glen Dimplex Deutschland

Dimplex

# WI 10TU
# WI 14TU
# WI 18TU
# WI 22TU



**Montage- und Gebrauchsanweisung**

Wasser/Wasser-Wärmepumpe für Innenaufstellung

**Installation and Operating Instruction**

Water-to-Water Heat Pump for Indoor Installation

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

Pompe à chaleur eau-eau pour installation intérieure

Bestell-Nr. | Order no. | No de commande: 452235.66.21b

DE | EN | FR · FD 0509

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# 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.**

**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, in agricultural establishments and in hotels, guest houses and similar / 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!**

**When operating or maintaining a heat pump, the legal requirements of the country where the heat pump is operated apply. Depending on the refrigerant 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 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 water-to-water heat pump is to be used exclusively for the heating of heating water. It can be used in newly built or previously existing heating systems. Water is used as the heat carrier. It can be supplied by wells or other water systems.

In order to eliminate the risk of corrosion at the evaporator, the well water must be evaluated regarding the corrosion behaviour of metallic materials according to DIN 50930.

Details can be found in the project planning and installation manual for heat pumps for heating purposes.

**⚠ CAUTION!**

**The well water must comply with the required water quality standards. (see Cap. 9.4 on pag. 11)**

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

A well pump conveys the water to the evaporator of the heat pump. There the heat is transferred to the refrigerant in the refrigerating 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 as well.

Subsequently, the refrigerant is passed through the condenser where it transfers its heat energy to the heating water.

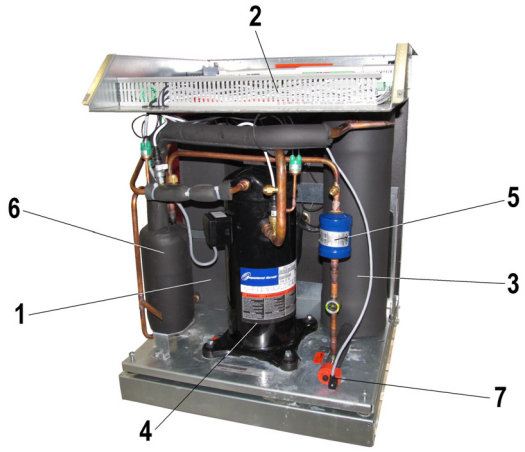
Depending on the set operating point (thermostat setting), the heating water is thus heated up to a max. of 62 °C.

# 3 Basic Device

The basic device consists of a ready-to-use heat pump for indoor installation, complete with 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 external wall temperature sensor including fixing accessories and a dirt trap are supplied with the heat pump. The supply for the load current and the control voltage must be installed at the building site.

The supply lead of the well pump (to be provided by the customer) must be connected to the switch box. It is important to ensure that the integrated motor protection is sufficient for the pump provided by the customer.




1) Liquifier
2) Control panel
3) Evaporator
4) Compressor
5) Filter dryer
6) Economizer
7) Expansion valve

# 4 Accessories

## 4.1 Remote control

A remote control 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 operating element, this can also be used directly as a remote control.**

## 4.2 Building management technology

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!**

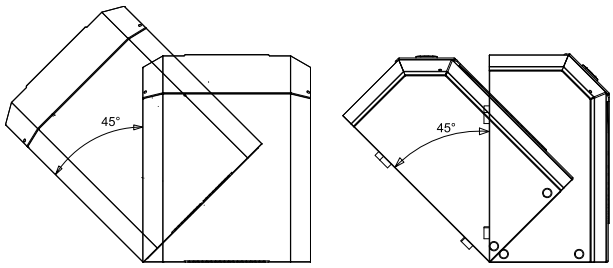
**If the heat pump or circulating pumps are controlled externally, an flow rate switch is required to prevent the compressor from being switched on when there is no volume flow.**

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

**⚠ CAUTION!**

**The heat pump is not fixed to the pallet.**




**⚠ CAUTION!**

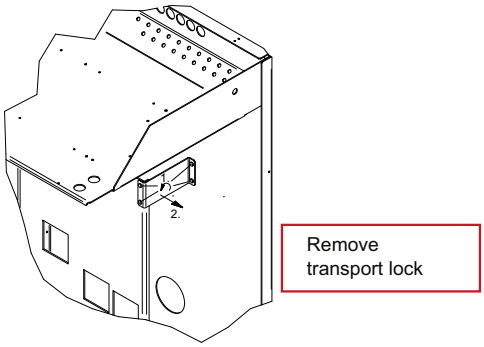
**The heat pump must not be tilted more than 45° (in any direction).**

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.

**⚠ CAUTION!**

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

After the transport, the transport securing device is to be removed.




**⚠ CAUTION!**

**The transport securing device is to be removed prior to commissioning.**

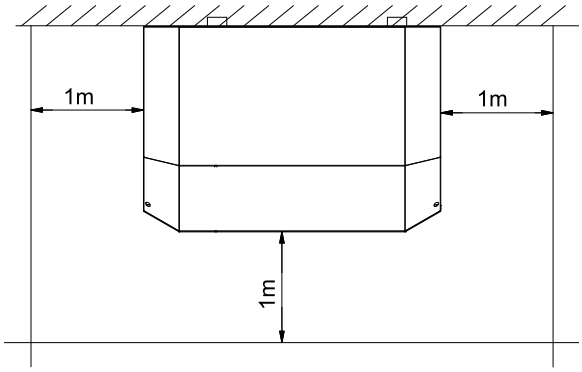
# 6 Set-up

## 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 compact water-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 supporting feet are used, the heat pump must be installed horizontally. In this case, the specified sound level can be up to 3 dB(A) higher, and 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.




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 above 2000 metres (mean 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 Information

The following connections need to be established on the heat pump:

- Flow and return flow of the well system
- Flow and return flow of the heating system
- Temperature sensor
- Voltage supply

## 7.2 Heating System Connection

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

**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 either a dual differential pressureless manifold or an overflow valve. The procedure for adjusting an overflow valve is described in the Chapter Start-Up.

**NOTE**

**The use of an overflow valve is only recommended for panel heating and a max. heating water flow of 1.3 m³/h. System faults may result if this is not observed.**

The antifreeze function of the heat pump manager is active whenever the heat pump manager 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).

## 7.4 Heat Source Connection

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

Connect the well pipes to the heat pump's flow and return.

**CAUTION!**

**The well water must comply with the required water quality standards. (see Cap. 9.4 on pag. 11)**

The hydraulic integration diagram must be adhered to.

## 7.5 Temperature sensor

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

- External temperature sensor (R1) supplied (NTC-2)
- Return temperature heating circuit (R2) installed (NTC-10)
- Return temperature primary circuit (R24) installed (NTC-10)
- Flow temperature heating 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 on pag. 7. The only exception is the external temperature sensor included in the scope of supply of the heat pump (see Fig.7.2 on pag. 7)

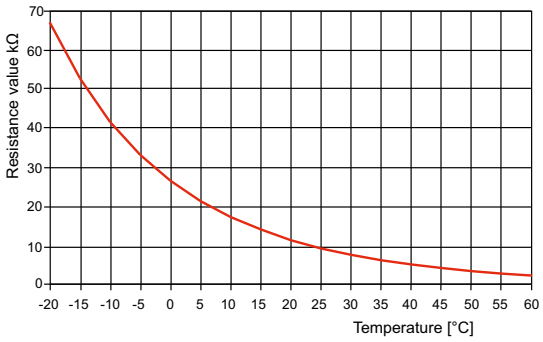



Fig. 7.1: Sensor characteristic curve NTC 10

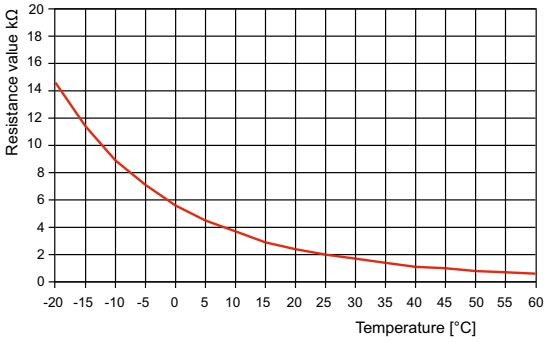



Fig. 7.2: Sensor characteristic curve, NTC-2 according to DIN 44574 External temperature sensor

### 7.5.2 Mounting the external 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.

- Mount on the external wall on the north or north-west side where possible
- 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 |

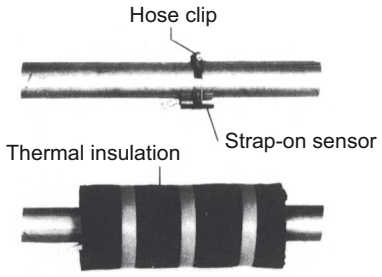
### 7.5.3 Installing the strap-on sensor

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 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 connection work may only be carried out by a trained electrician or a person qualified for the tasks in hand in accordance with the

- installation and operating instructions,
- country-specific installation requirements (e.g. VDE 0100)
- technical connection requirements of the energy suppliers and supply grid operators (e.g. TAB) and
- the 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; N1-J20; N1-J23 to N1-J26 and the terminal strips X3; X5.1. If, due to a wiring error, the line voltage is mistakenly connected to these terminals, the heat pump manager will be destroyed

### 7.6.2 Electrical installation

1) The supply cable (with up to 5 cores) for the power element of the heat pump or the primary pump is routed from the heat pump's electricity meter to the heat pump. The cable for the heat pump is routed via the utility contactor (if required). Connection of the mains cable is at the control panel of the heat pump via the terminals: X1: L1/L2/L3/N/PE or X1: L10/L20/L30/N0/PE. If no utility contactor is used, the electrical loads are supplied via a shared feed cable (bridge feeds using bridges supplied). The power supplies are fitted with an all-phase disconnection with at least 3 mm contact opening distance (e.g. utility protection contactor, power contactor), as well as an all-phase cutout switch, with shared activation of all external conductors (release currents and characteristics in accordance with device information; see circuit diagram for further details).

**⚠ 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).**

2) The three-core electric supply cable for the heat pump manager (heating controller N1) is fed into the heat pump. Connection of the control line to the control panel of the heat pump via terminal X2: L/N/PE.
   Details on the power consumption of the heat pump are listed on both the product information sheet and the type plate.
   The (L/N/PE ~230 V, 50 Hz) supply cable for the heat pump manager must have a constant voltage. For this reason, it should be tapped upstream from the utility blocking contactor or be connected to the household current, as important protection functions could otherwise be lost during a utility block.
3) The utility blocking contactor(K22) with 3 main contacts (1/3/5 // 2/4/6) and an auxiliary contact (NO contact 13/14) should be dimensioned according to the heat pump output and must be supplied by the customer. The NO contact of the utility blocking contactor (13/14) is looped from terminal strip X3/G to connector terminal X3/A1. **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 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. Mains cables for the installed heaters must be laid and secured in accordance with the valid standards and regulations.
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. When using pumps where the switching capacity exceeds the output, a coupling relay must be interposed.
10) The domestic hot water circulating pump (M18) is activated via the contact N1-J13/NO6. 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.
11) The brine or well pump (M11) is activated via the contact N1-J12/NO3. The connection points for the pump are on contactor K5:2/4/6. A coupling relay is already integrated in this output.
12) A return sensor is integrated into the heat pump. The return flow sensor must be installed in the immersion sleeve in the manifold when a dual differential pressureless manifold is used. The single-core wires are then connected to terminals X3/GND and X3/ R2.1. Bridge A-R2 (situated between X3/B2 and X3/1 when delivered) must then be moved to terminals X3/1 and X3/2.
13) The external sensor (R1) is connected to terminals X3/GND and X3/R1.
14) The domestic hot water sensor (R3) is included with the domestic hot water cylinder and is connected to terminals X3/GND and X3/R3.

### 7.6.3 Connecting an electronically regulated circulating pump

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 start-up is performed correctly, it should only be carried out by an after-sales service technician authorised by the manufacturer. These measures can also include an additional warranty under certain conditions (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 6.
- The heat source system and the heating circuit must have been filled and checked.
- All valves that could impair proper flow in the well 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 Start-up Procedure

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

**⚠ CAUTION!**

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

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 during start-up.

| Heat source temperature | | Max. temperature spread between heating flow and return flow |
|---|---|---|
| From | To | |
| 7 °C | 12 °C | 10 K |
| 13 °C | 18 °C | 11 K |
| 19 °C | 25 °C | 12 K |

# 9 Maintenance and Cleaning

## 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. 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.

**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. We recommend equipping diffusion-open heating systems with an electrophysical anti-corrosion system (e.g. ELYSATOR system).**

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.

The manufacturer's instructions regarding cleaning agent must be complied with at all times.

## 9.3 Cleaning the Heat Source System

A dirt trap is inserted in the heat source inlet of the heat pump to protect the evaporator against the ingress of impurities. When the system is first put into operation, the filter screen of the dirt trap should be cleaned in relatively short intervals. These intervals can be prolonged once the amount of impurities decreases.

## 9.4 Water Quality Requirements

The ground water should not contain any substances that could form deposits. The limit values for iron (< 0.2 mg/l) and manganese (< 0.1 mg/l) must be adhered to prevent iron ochre sedimentation in the heat pump system.

The use of surface water or water containing salt is not permissible. Your local water utility can provide you with general information regarding the possible use of ground water. Water analyses are carried out by specially-equipped laboratories.

It is not necessary to carry out a water analysis with regard to evaporator corrosion if the annual mean temperature of the ground water does not exceed

13 °C). In this case, the limit values for iron and manganese must be adhered to (iron ochre sedimentation).

# 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 shown on the heat pump manager display. Simply consult the Faults and Trouble-Shooting 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!**

**Any work on the heat pump may 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 installed by trained personnel. 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

| | | | WI 10TU | WI 14TU |
|---|---|---|---|---|
| **1** | **Type and order code** | | | |
| **2** | **Design** | | | |
| **2.1** | **Model** | | Universal | Universal |
| **2.2** | **Controller** | | internal | internal |
| **2.3** | **Thermal energy metering** | | Integrated | Integrated |
| **2.4** | **Installation location / degree of protection according to EN 60 529** | | Indoors / IP 21 | Indoors / IP 21 |
| **2.5** | **Performance levels** | | 1 | 1 |
| **3** | **Operating limits** | | | |
| **3.1** | **Heating water flow** | **°C** | 20 up to 62 ± 2 | 20 up to 62 ± 2 |
| **3.2** | **Cold water (heat source)** | **°C** | +7 to +25 | +7 to +25 |
| **4** | **Performance data / flow rate** | | | |
| **4.1** | **Heating water flow at internal pressure differential** | | | |
| | **maximum (EN14511)** | **m³/h/P** | 1.7 / 5000 | 2.3/ 8000 |
| | **minimum** | **m³/h/P** | 0.9 / 1400 | 1.1 / 1900 |
| **4.2** | **Cold water flow at internal pressure differential minimum** | **m³/h/Pa** | 2.2 / 6200 | 3.1 / 9200 |
| **4.3** | **Heat output / COP [1]** | | EN14511 | EN14511 |
| | **at W10/W55** | **kW/---** | 8.4 / 3.2 | 11.5 / 3.3 |
| | **at W10/W45** | **kW/---** | 9.1 / 4.3 | 12.2 / 4.4 |
| | **at W10/W35** | **kW/---** | 9.6 / 5.9 | 13.3 / 6.1 |
| **4.4** | **Sound power level[2]** | **dB(A)** | 41 | 43 |
| **4.5** | **Sound pressure level at a distance of 1 m[3] [2]** | **dB(A)** | 30 | 31 |
| **5** | **Dimensions / weight and filling quantities** | | | |
| **5.1** | **Device dimensions without connections [4]** | **H x W x L mm** | 840 x 650 x 655 | 840 x 650 x 655 |
| **5.2** | **Device connections for heating system** | **Inch** | G 1 1/4“ external thread[5] | G 1 1/4“ external thread[5] |
| **5.3** | **Device connections for heat source** | **Inches** | G 1 1/4“ external thread[5] | G 1 1/4“ external thread[5] |
| **5.4** | **Weight of the transportable unit(s) incl. packaging** | **kg** | 142 | 151 |
| **5.5** | **Refrigerant / total filling weight** | **type/kg** | R410A / 2.7 | R410A / 3.3 |
| **5.6** | **GWP value / $CO_2$ equivalent** | **--- / t** | 2088 / 6 | 2088 / 7 |
| **5.7** | **Refrigeration circuit hermetically sealed** | | yes | yes |
| **5.8** | **Lubricant / total filling quantity** | **type/litres** | Polyolester (POE) / 1.2 | Polyolester (POE)/1.2 |
| **6** | **Electrical connection** | | | |
| **6.1** | **Supply voltage / fuse protection** | | | |
| | **Compressor** | | 3~/PE 400 V (50Hz) ; C10 A | 3~/PE 400 V (50Hz) ; C10 A |
| | **Primary circulating pump** | | 3~/PE 400 V (50Hz) ; C10 A | 3~/PE 400 V (50Hz) ; C10 A |
| | **shared feed compressor + primary circulating pump** | | 3~/PE 400 V (50Hz) ; C10 A | 3~/PE 400 V (50Hz) ; C10 A |
| **6.2** | **Control voltage / fuse protection** | | 1~/N/PE 230 V (50Hz) ; C13 A | 1~/N/PE 230 V (50Hz) ; C13 A |
| **6.3** | **Starting current with soft starter** | **A** | 17 | 20 |
| **6.4** | **Nominal power consumption W10/W35/max. consumption[1]** | **kW** | 1.63 / 3.2 | 2.18 / 4.3 |
| **6.5** | **Nominal current W10/W35/cos φ** | **A/---** | 2.94 / 0.8 | 3.93 / 0.8 |
| **7** | **Complies with the European safety regulations** | | 6 | 6 |
| **8** | **Additional model features** | | | |
| **8.1** | **Water in device is protected against freezing [7]** | | yes | yes |
| **8.2** | **Max. operating overpressure (heat source/heat sink)** | **bar** | 3.0 | 3.0 |

1. These data indicate the size and capacity of the system according to EN14511. For an analysis of the economic and energy efficiency of the system, both the bivalence point and the regulation should be taken into consideration. The specified values, e.g. W10 / W55, have the following meaning: Heat source temperature 10 °C and heating water flow temperature 55 °C. 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.
2. The specified sound levels apply if the supporting feet (available as an option) are not used. If the supporting feet are used, the level can increase by up to 3db (A).
3. The specified sound pressure level corresponds to the operating noise of the heat pump in heating operation with a flow temperature of 35 °C. 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. flat-sealing
6. See CE declaration of conformity
7. The heat circulating pump and the heat pump manager must always be ready for operation.

| Type and order code | | | | WI 18TU | | WI 22TU | |
|---|---|---|---|---|---|---|---|
| **1** | **Design** | | | | | | |
| | Heat source | | | Water | | Water | |
| 1.1 | model | | | Universal | | Universal | |
| 1.2 | Contr. | | | Integrated | | Integrated | |
| 1.3 | Thermal energy metering | | | Integrated | | Integrated | |
| 1.4 | Installation location | | | Indoors | | Indoors | |
| 1.5 | Performance levels | | | 1 | | 1 | |
| **2** | **Operating limits** | | | | | | |
| 2.1 | Heating water flow | | °C | 20 to 62 ± 2 | | 20 to 62 ± 2 | |
| 2.2 | Cold water (heat source) | | °C | +7 to +25 | | +7 to +25 | |
| **3** | **Flow / sound** | | | | | | |
| 3.1 | Heating water flow at internal pressure differential | | | | | | |
| | Nominal flow according to EN14511 | at W10-7 / W35-30 | m³/h / Pa | 2.8 / 10500 | | 3.7 / 16300 | |
| | | at W10-7 / W45-40 | m³/h / Pa | 2.6 / 9300 | | 3.5 / 12900 | |
| | | at W10-7 / W55-47 | m³/h / Pa | 1.6 / 4700 | | 2.1 / 3200 | |
| | Minimum heating water flow | | m³/h / Pa | 1.6 / 4700 | | 2.1 / 3200 | |
| 3.2 | Cold water flow at internal pressure differential | | | | | | |
| | Nominal flow according to EN14511 | at W10-7 / W35-30 | m³/h / Pa | 3.8 / 21100 | | 5.1 / 23000 | |
| | | at W10-7 / W45-40 | m³/h / Pa | 3.4 / 18000 | | 4.5 / 19000 | |
| | | at W10-7 / W55-47 | m³/h / Pa | 2.9 / 15000 | | 4.1 / 17000 | |
| | Minimum cold water flow | | m³/h / Pa | 2.9 / 15000 | | 4.1 / 17000 | |
| 3.3 | Sound power level according to EN 12102[1] | | dB(A) | 53 | | 52 | |
| 3.4 | Sound pressure level at a distance of 1 m[2] [1] | | dB(A) | 45 | | 44 | |
| **4** | **Dimensions, connections and weight** | | | | | | |
| 4.1 | Device dimensions [3] | | H x W x D mm | 840 × 650 x 655 | | 840 x 650 x 655 | |
| 4.2 | Weight of the transportable unit(s) incl. Packaging/full | | kg | 160 | | 179 | |
| 4.3 | Device connections for heating system | | Inches [4] | Thread 1¼" external | | Thread 1¼" external | |
| 4.4 | Device connections for heat source | | Inches [4] | Thread 1¼" external | | Thread 1½" external | |
| 4.5 | Refrigeran / total filling weight | | type/kg | R410A/3.5 | | R410A / 4.0 | |
| 4.6 | GWP value / $CO_2$ equivalent | | --- / t | 2088 / 7 | | 2088 / 8 | |
| 4.7 | Refrigeration circuit hermetically sealed | | | yes | | yes | |
| 4.8 | Lubricant / total filling quantity | | type/litres | Polyolester (POE)/1.2 | | Polyolester (POE) / 1.9 | |
| 4.9 | Volume of heating water in device | | Litres | 4.5 | | 5.6 | |
| 4.10 | Volume of heat transfer medium in device | | Litres | 2.9 | | 3.3 | |
| **5** | **Electrical connection** | | | | | | |
| 5.1 | Supply voltage / fuse protection Compressor | | | 3~/PE 400 V (50 Hz) / C13 A | | 3~/PE 400 V (50 Hz) / C16 A | |
| | Primary circulating pump | | | 3~/PE 400 V (50 Hz) / C10 A | | 3~/PE 400 V (50 Hz) / C10 A | |
| | Joint supply Compressor and primary circulating pump | | | 3~/PE 400 V (50 Hz) / C13 A | | 3~/PE 400 V (50 Hz) / C16 A | |
| 5.2 | Control voltage / fuse protection | | | 1~/N/PE 230 V (50 Hz) / C13 A | | 1~/N/PE 230 V (50 Hz) / C13 A | |
| 5.3 | Degree of protection according to EN 60 529 | | | IP 21 | | IP 21 | |
| 5.4 | Starting current with soft starter | | A | 23 | | 28 | |
| 5.5 | Nominal power consumption W10/W35/max. consumption[5] | | kW | 2.95 / 5.4 | | 3.91/ 7.2 | |
| 5.6 | Nominal current W10/W35/cos | | A / -- | 5.32 / 0.8 | | 7.06 / 0.8 | |
| 5.7 | Power consumption of compressor protection (per compressor) | | W | thermostatically controlled | | thermostatically controlled | |
| **6** | **Complies with the European safety regulations** | | | [6] | | [6] | |
| **7** | **Additional model features** | | | | | | |
| 7.1 | Water in device is protected against freezing [7] | | | Yes | | Yes | |
| 7.2 | Max. operating overpressure (heat source/heat sink) | | bar | 3.0 | | 3.0 | |
| **8** | **Heat output / COP [5]** | | | | | | |
| | Heat output / COP | | | EN 14511 | | EN 14511 | |
| | | | Performance level | 1 | 2 | 1 | 2 |
| | | at W10 / W55 | kW / --- | 14.2 / 3.4 | -- | 19.4 / 3.5 | -- |
| | | at W10 / W45 | kW / --- | 15.2 / 4.4 | -- | 20.0 / 4.3 | -- |
| | | at W10 / W35 | kW / --- | 16.2 / 5.8 | -- | 21.3 / 5.6 | -- |

1. The specified sound levels apply if the supporting feet (available as an option) are not used. If the supporting feet are used, the level can deviate by up to 3dB(A).
2. The specified sound pressure level corresponds to the operating noise of the heat pump in heating operation with a flow temperature of 35 °C. 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.
3. Please note that additional space is required for pipe connections, operation and maintenance.
4. Flat-sealing
5. These data indicate the size and capacity of the system according to EN 14511. 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. W10 / W35, have the following meaning: Heat source temperature 10 °C and heating water flow temperature 35 °C.
6. See CE declaration of conformity
7. The heat circulating pump and the heat pump manager must always be ready for operation.

# 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 | WI 10TU |
| Air-to-water heat pump | no |
| Water-to-water heat pump | yes |
| Brine-to-water heat pump | no |
| 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 | Item | Symbol | Value | Unit |
|---|---|---|---|---|---|---|---|
| **Rated heat output (*)** | Prated | 8 | kW | **Seasonal space heating energy efficiency** | $\eta_s$ | 163 | % |
| Declared capacity for heating foer part load at indoor temperature 20°C and outdoor temperature T*j* | | | | Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T*j* | | | |
| Tj = - 7°C | P*dh* | 8,5 | kW | Tj = - 7°C | COP*d* | 3,42 | - |
| Tj = + 2°C | P*dh* | 9,0 | kW | Tj = + 2°C | COP*d* | 4,29 | - |
| Tj = + 7°C | P*dh* | 9,3 | kW | Tj = + 7°C | COP*d* | 4,99 | - |
| Tj = + 12°C | P*dh* | 9,6 | kW | Tj = + 12°C | COP*d* | 5,90 | - |
| Tj = bivalent temperature | P*dh* | 8,4 | kW | Tj = bivalent temperature | COP*d* | 3,22 | - |
| Tj = operation limit temperature | P*dh* | 8,4 | kW | Tj = operation limit temperature | COP*d* | 3,22 | - |
| For air-to-water heat pumps | | | | For air-to-water heat pumps: | | | |
| Tj = -15°C (if TOL < -20°C) | P*dh* | 8,4 | kW | Tj = -15°C (if TOL < -20°C) | COP*d* | 3,22 | - |
| Bivalent temperature | $T_{biv}$ | -10 | °C | For air-to-water heat pumps: Operation limit temperature | TOL | -10 | °C |
| Cycling interval capacity for heating | P*cych* | - | kW | Cycling interval efficiency | COP*cyc* | - | - |
| Degradation co-efficient (**) | C*dh* | 0,90 | - | Heating water operating limit temperature | WTOL | 62 | °C |
| Power consumption in modes other than active mode | | | | Supplementary heater | | | |
| Off mode | $P_{OFF}$ | 0,015 | kW | Rated heat output (*) | P*sup* | 0 | kW |
| Thermostat-off mode | $P_{TO}$ | 0,020 | kW | Type of energy input | | eletrical | |
| Standby mode | $P_{SB}$ | 0,015 | kW | | | | |
| Crankcase heater mode | $P_{CK}$ | 0,000 | kW | | | | |
| Other items | | | | | | | |
| Capacity control | | fixed | | For air-to-water heat pumps: Rated air flow rate, outdoors | - | 0 | m³ /h |
| Sound power level, indoors/ outdoors | $L_{WA}$ | 41/- | dB | For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger | - | 2,2 | m³ /h |
| Emissions of nitrogen oxides | $NO_x$ | - | mg/kWh | | | | |
| 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

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

| | |
|---|---|
| Model | WI 14TU |
| Air-to-water heat pump | no |
| Water-to-water heat pump | yes |
| Brine-to-water heat pump | no |
| 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 | Item | Symbol | Value | Unit |
|---|---|---|---|---|---|---|---|
| **Rated heat output (*)** | Prated | 12 | kW | **Seasonal space heating energy efficiency** | $\eta_s$ | 170 | % |
| Declared capacity for heating foer part load at indoor temperature 20°C and outdoor temperature T*j* | | | | Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T*j* | | | |
| Tj = - 7°C | P*dh* | 11,7 | kW | Tj = - 7°C | COP*d* | 3,53 | - |
| Tj = + 2°C | P*dh* | 12,4 | kW | Tj = + 2°C | COP*d* | 4,43 | - |
| Tj = + 7°C | P*dh* | 12,9 | kW | Tj = + 7°C | COP*d* | 5,16 | - |
| Tj = + 12°C | P*dh* | 13,3 | kW | Tj = + 12°C | COP*d* | 6,10 | - |
| Tj = bivalent temperature | P*dh* | 11,5 | kW | Tj = bivalent temperature | COP*d* | 3,31 | - |
| Tj = operation limit temperature | P*dh* | 11,5 | kW | Tj = operation limit temperature | COP*d* | 3,31 | - |
| For air-to-water heat pumps | | | | For air-to-water heat pumps: | | | |
| Tj = -15°C (if TOL < -20°C) | P*dh* | 11,5 | kW | Tj = -15°C (if TOL < -20°C) | COP*d* | 3,31 | - |
| Bivalent temperature | $T_{biv}$ | -10 | °C | For air-to-water heat pumps: Operation limit temperature | TOL | -10 | °C |
| Cycling interval capacity for heating | P*cych* | - | kW | Cycling interval efficiency | COP*cyc* | - | - |
| Degradation co-efficient (**) | C*dh* | 0,90 | - | Heating water operating limit temperature | WTOL | 62 | °C |
| Power consumption in modes other than active mode | | | | Supplementary heater | | | |
| Off mode | $P_{OFF}$ | 0,015 | kW | Rated heat output (*) | P*sup* | 0 | kW |
| Thermostat-off mode | $P_{TO}$ | 0,020 | kW | Type of energy input | | eletrical | |
| Standby mode | $P_{SB}$ | 0,015 | kW | | | | |
| Crankcase heater mode | $P_{CK}$ | 0,000 | kW | | | | |
| Other items | | | | | | | |
| Capacity control | | fixed | | For air-to-water heat pumps: Rated air flow rate, outdoors | - | 0 | m³ /h |
| Sound power level, indoors/ outdoors | $L_{WA}$ | 43/- | dB | For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger | - | 3,1 | m³ /h |
| Emissions of nitrogen oxides | $NO_x$ | - | mg/kWh | | | | |
| 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

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

| | |
|---|---|
| Model | WI 18TU |
| Air-to-water heat pump | no |
| Water-to-water heat pump | yes |
| Brine-to-water heat pump | no |
| 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 | Item | Symbol | Value | Unit |
|---|---|---|---|---|---|---|---|
| **Rated heat output (*)** | Prated | 14 | kW | **Seasonal space heating energy efficiency** | $\eta_s$ | 167 | % |
| Declared capacity for heating foer part load at indoor temperature 20°C and outdoor temperature T*j* | | | | Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T*j* | | | |
| Tj = - 7°C | P*dh* | 14,5 | kW | Tj = - 7°C | COP*d* | 3,63 | - |
| Tj = + 2°C | P*dh* | 15,1 | kW | Tj = + 2°C | COP*d* | 4,36 | - |
| Tj = + 7°C | P*dh* | 15,5 | kW | Tj = + 7°C | COP*d* | 4,88 | - |
| Tj = + 12°C | P*dh* | 15,8 | kW | Tj = + 12°C | COP*d* | 5,45 | - |
| Tj = bivalent temperature | P*dh* | 14,2 | kW | Tj = bivalent temperature | COP*d* | 3,44 | - |
| Tj = operation limit temperature | P*dh* | 14,2 | kW | Tj = operation limit temperature | COP*d* | 3,44 | - |
| For air-to-water heat pumps | | | | For air-to-water heat pumps: | | | |
| Tj = -15°C (if TOL < -20°C) | P*dh* | - | kW | Tj = -15°C (if TOL < -20°C) | COP*d* | - | - |
| Bivalent temperature | $T_{biv}$ | -10 | °C | For air-to-water heat pumps: Operation limit temperature | TOL | -10 | °C |
| Cycling interval capacity for heating | P*cych* | - | kW | Cycling interval efficiency | COP*cyc* | - | - |
| Degradation co-efficient (**) | C*dh* | 0,90 | - | Heating water operating limit temperature | WTOL | 62 | °C |
| Power consumption in modes other than active mode | | | | Supplementary heater | | | |
| Off mode | $P_{OFF}$ | 0,014 | kW | Rated heat output (*) | P*sup* | 0 | kW |
| Thermostat-off mode | $P_{TO}$ | 0,014 | kW | Type of energy input | | eletrical | |
| Standby mode | $P_{SB}$ | 0,014 | kW | | | | |
| Crankcase heater mode | $P_{CK}$ | 0,000 | kW | | | | |
| Other items | | | | | | | |
| Capacity control | | fixed | | For air-to-water heat pumps: Rated air flow rate, outdoors | - | 0 | m³ /h |
| Sound power level, indoors/ outdoors | $L_{WA}$ | 53/- | dB | For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger | - | 2,9 | m³ /h |
| Emissions of nitrogen oxides | $NO_x$ | - | mg/kWh | | | | |
| 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

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

| | |
|---|---|
| Model | WI 22TU |
| Air-to-water heat pump | no |
| Water-to-water heat pump | yes |
| Brine-to-water heat pump | no |
| 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 | Item | Symbol | Value | Unit |
|---|---|---|---|---|---|---|---|
| **Rated heat output (*)** | Prated | 19 | kW | **Seasonal space heating energy efficiency** | $\eta_s$ | 169 | % |
| Declared capacity for heating foer part load at indoor temperature 20°C and outdoor temperature T*j* | | | | Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T*j* | | | |
| Tj = - 7°C | P*dh* | 19,5 | kW | Tj = - 7°C | COP*d* | 3,70 | - |
| Tj = + 2°C | P*dh* | 20,2 | kW | Tj = + 2°C | COP*d* | 4,38 | - |
| Tj = + 7°C | P*dh* | 20,6 | kW | Tj = + 7°C | COP*d* | 4,86 | - |
| Tj = + 12°C | P*dh* | 21,0 | kW | Tj = + 12°C | COP*d* | 5,44 | - |
| Tj = bivalent temperature | P*dh* | 19,4 | kW | Tj = bivalent temperature | COP*d* | 3,52 | - |
| Tj = operation limit temperature | P*dh* | 19,4 | kW | Tj = operation limit temperature | COP*d* | 3,52 | - |
| For air-to-water heat pumps | | | | For air-to-water heat pumps: | | | |
| Tj = -15°C (if TOL < -20°C) | P*dh* | - | kW | Tj = -15°C (if TOL < -20°C) | COP*d* | - | - |
| Bivalent temperature | $T_{biv}$ | -10 | °C | For air-to-water heat pumps: Operation limit temperature | TOL | -10 | °C |
| Cycling interval capacity for heating | P*cych* | - | kW | Cycling interval efficiency | COP*cyc* | - | - |
| Degradation co-efficient (**) | C*dh* | 0,90 | - | Heating water operating limit temperature | WTOL | 62 | °C |
| Power consumption in modes other than active mode | | | | Supplementary heater | | | |
| Off mode | $P_{OFF}$ | 0,014 | kW | Rated heat output (*) | P*sup* | 0 | kW |
| Thermostat-off mode | $P_{TO}$ | 0,014 | kW | Type of energy input | | eletrical | |
| Standby mode | $P_{SB}$ | 0,014 | kW | | | | |
| Crankcase heater mode | $P_{CK}$ | 0,000 | kW | | | | |
| Other items | | | | | | | |
| Capacity control | | fixed | | For air-to-water heat pumps: Rated air flow rate, outdoors | - | 0 | m³ /h |
| Sound power level, indoors/ outdoors | $L_{WA}$ | 52/- | dB | For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger | - | 4,1 | m³ /h |
| Emissions of nitrogen oxides | $NO_x$ | - | mg/kWh | | | | |
| 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

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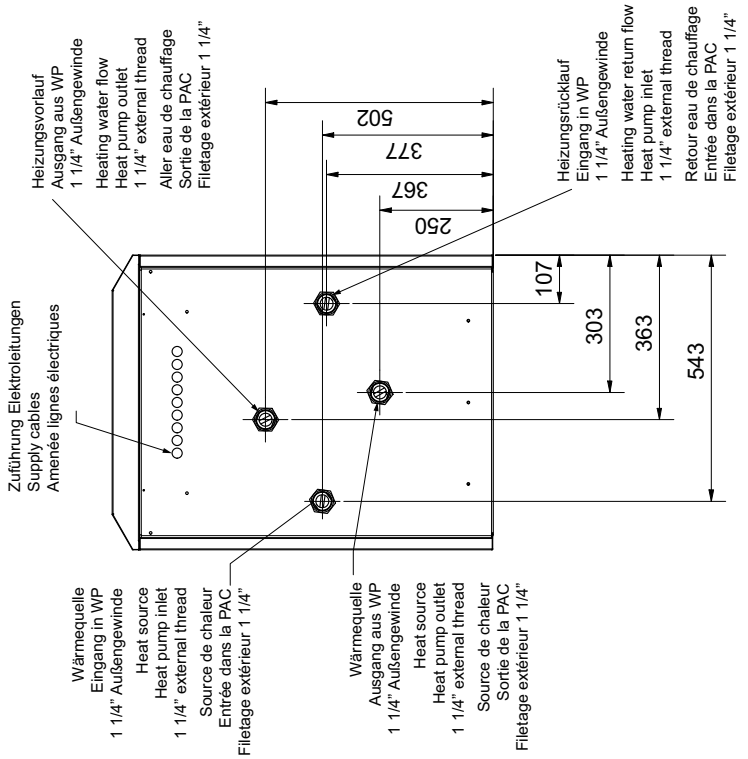
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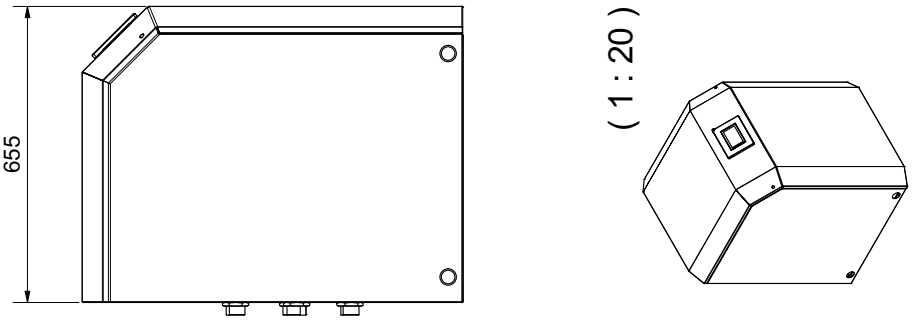
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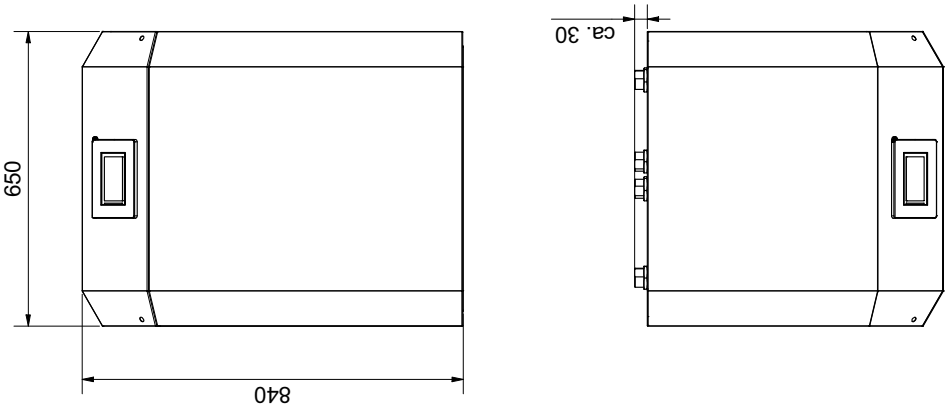
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# 1 Maßbild / Dimension Drawing / Schéma coté

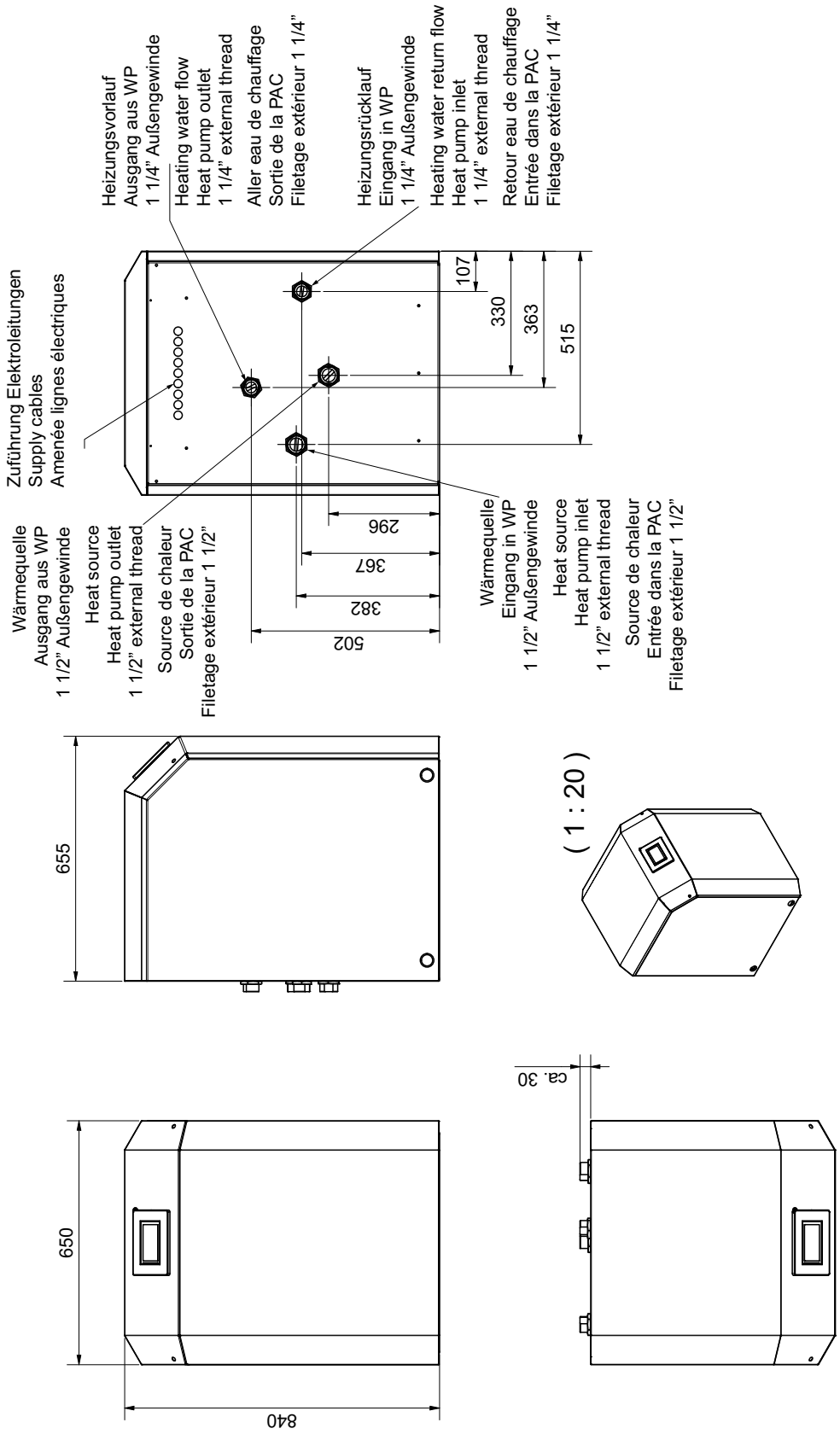
## 1.1 Maßbild / Dimension Drawing / Schéma coté WI 10TU - WI 18TU



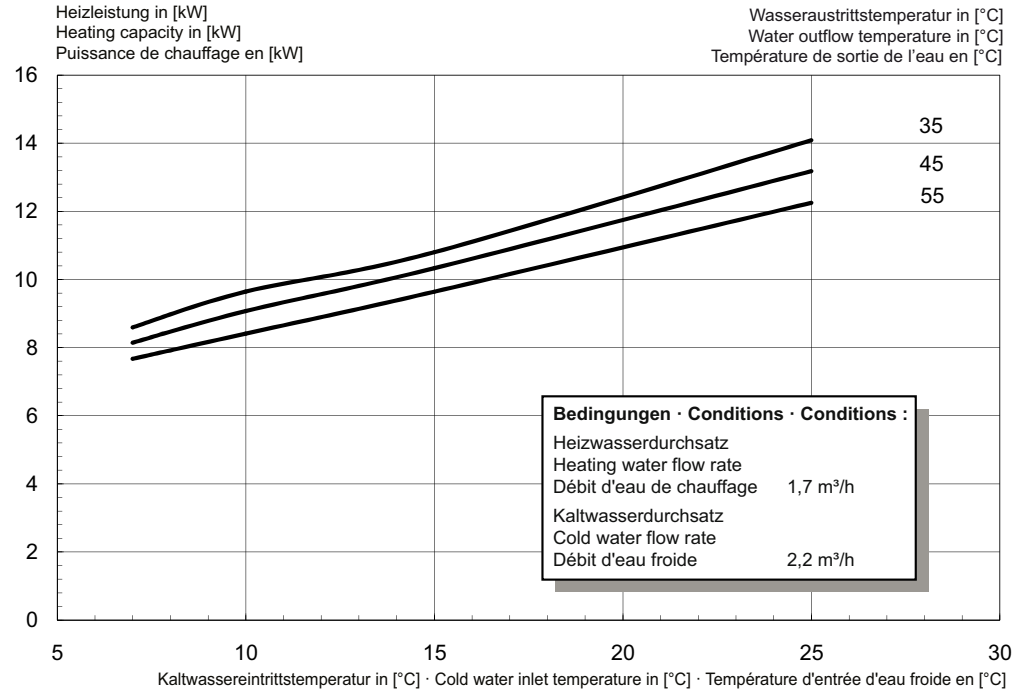



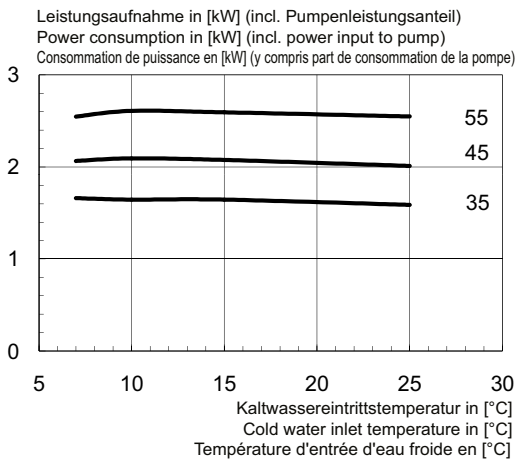
## 1.2 Maßbild / Dimension Drawing / Schéma coté WI 22TU

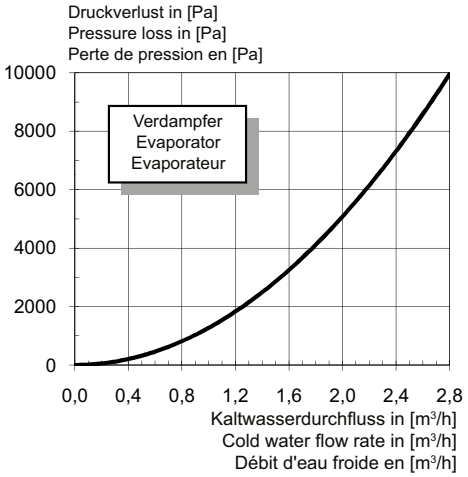


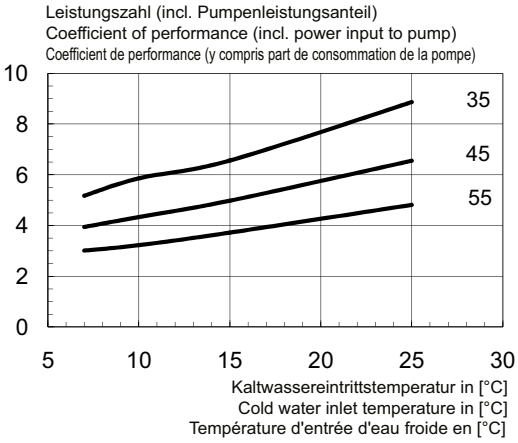
# 2 Diagramme / Diagrams / Diagrammes

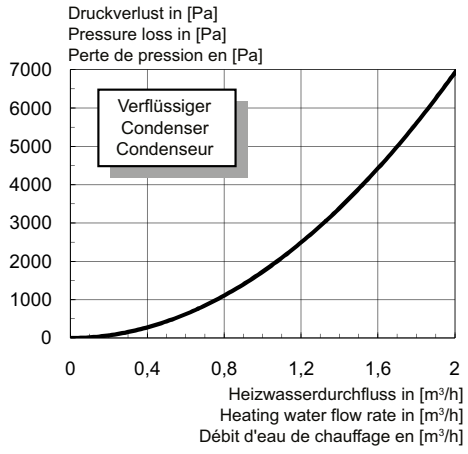
## 2.1 Kennlinien / Characteristic Curves / Courbes caractéristiques WI 10TU



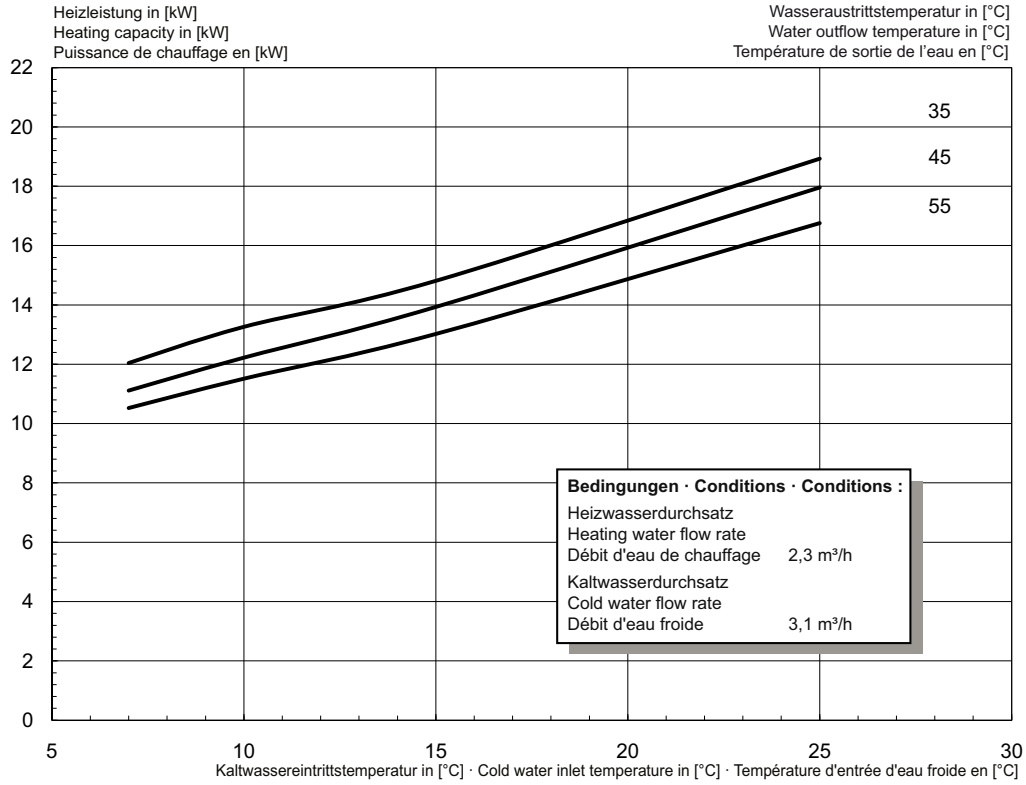



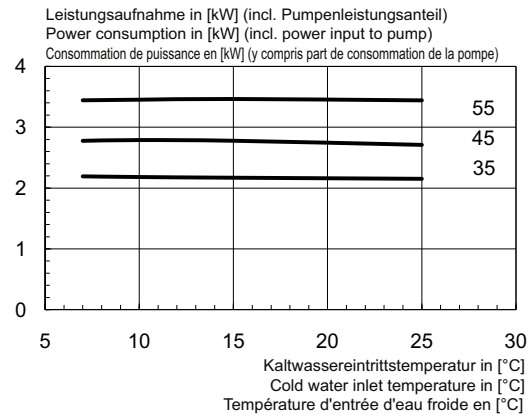



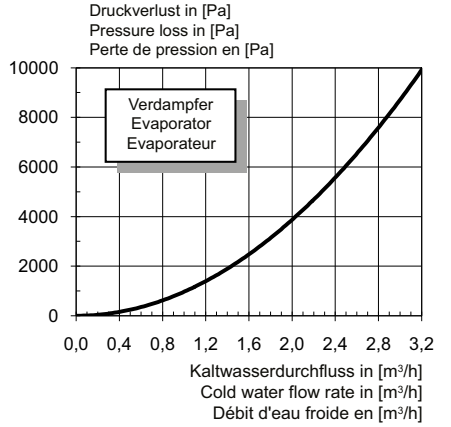



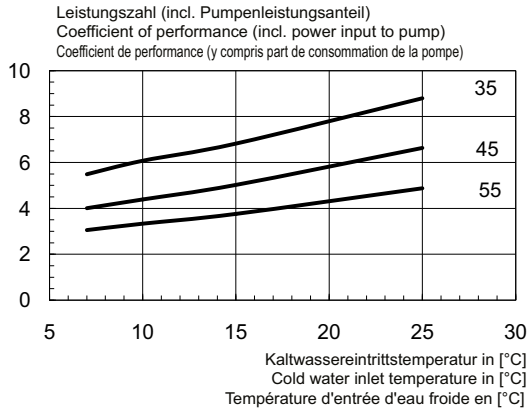



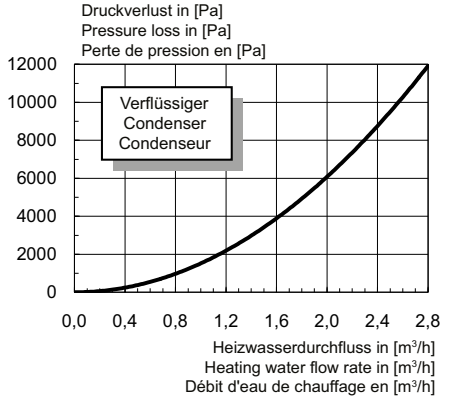
## 2.2 Kennlinien / Characteristic Curves / Courbes caractéristiques WI 14TU



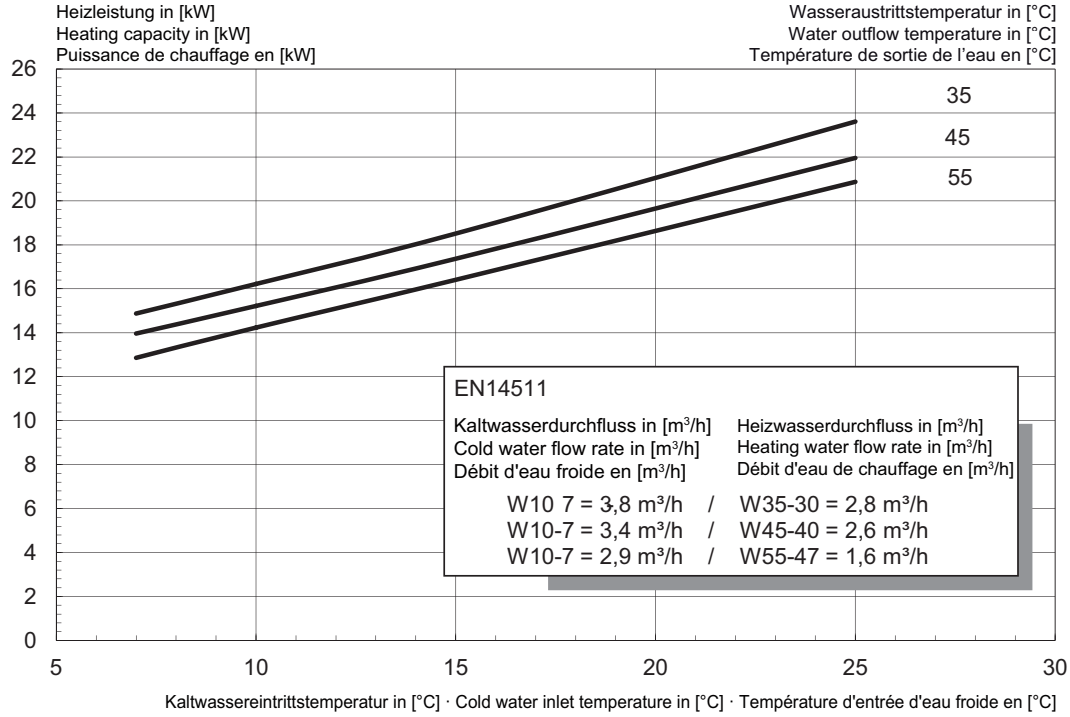



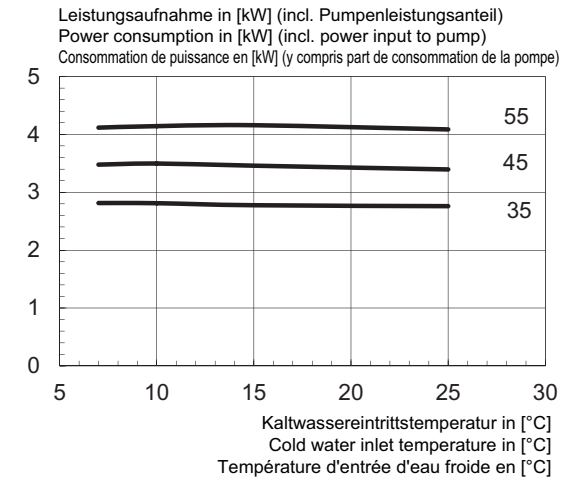



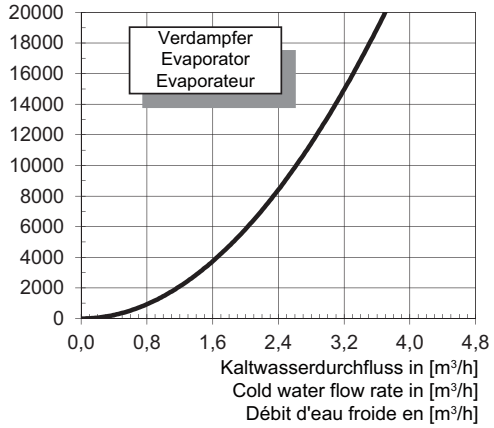



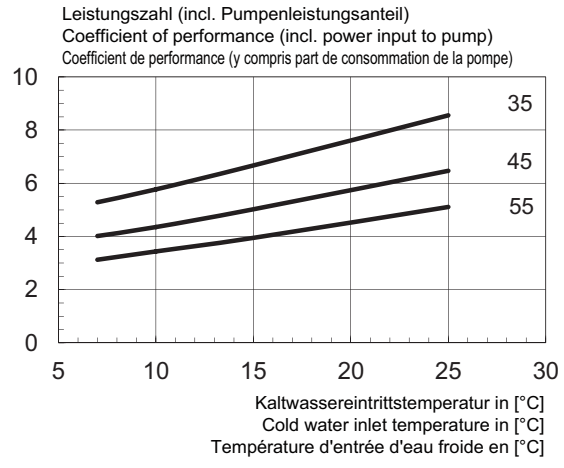



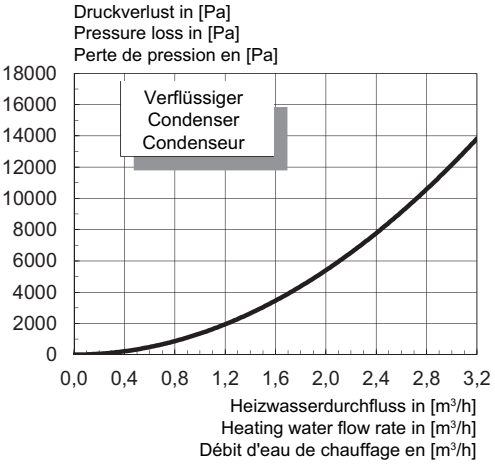
## 2.3 Kennlinien / Characteristic Curves / Courbes caractéristiques WI 18TU



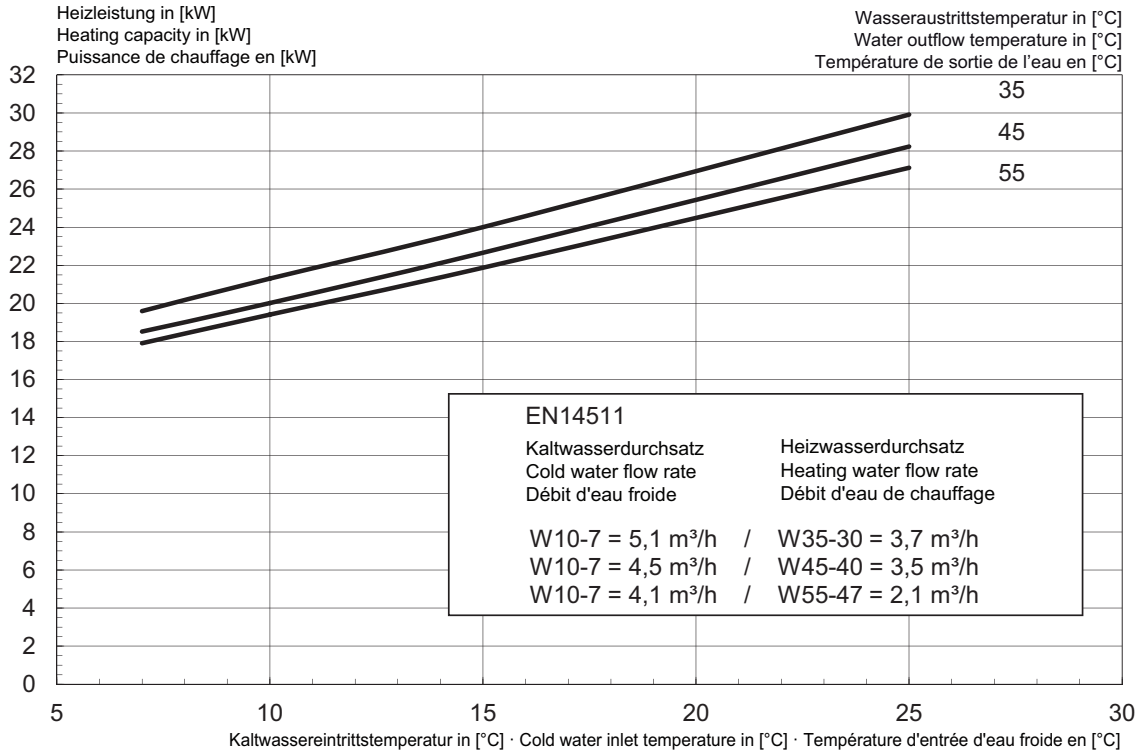



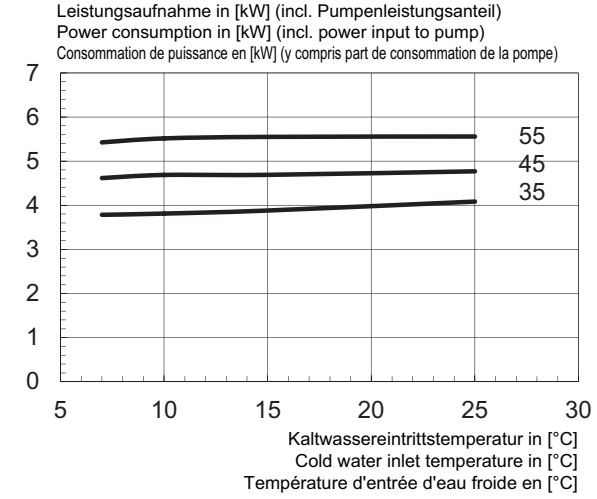



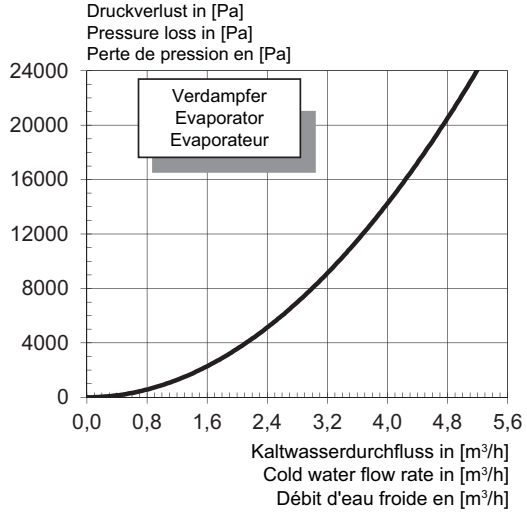



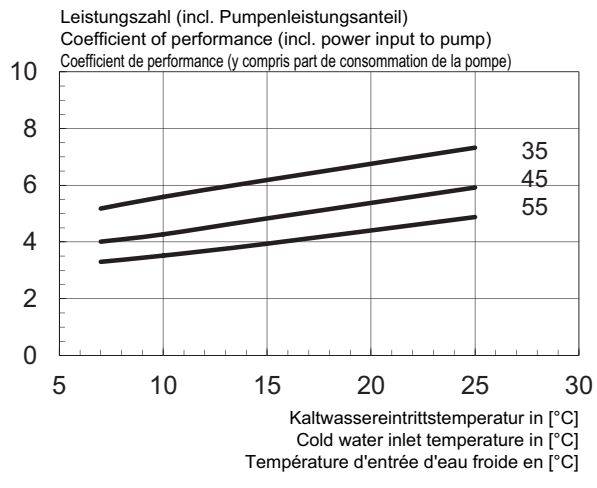



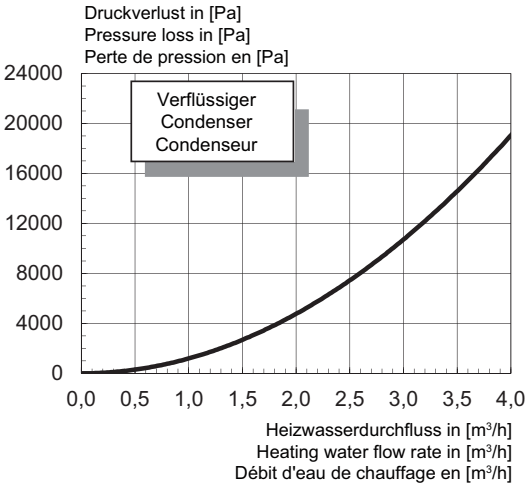
## 2.4 Kennlinien / Characteristic Curves / Courbes caractéristiques WI 22TU



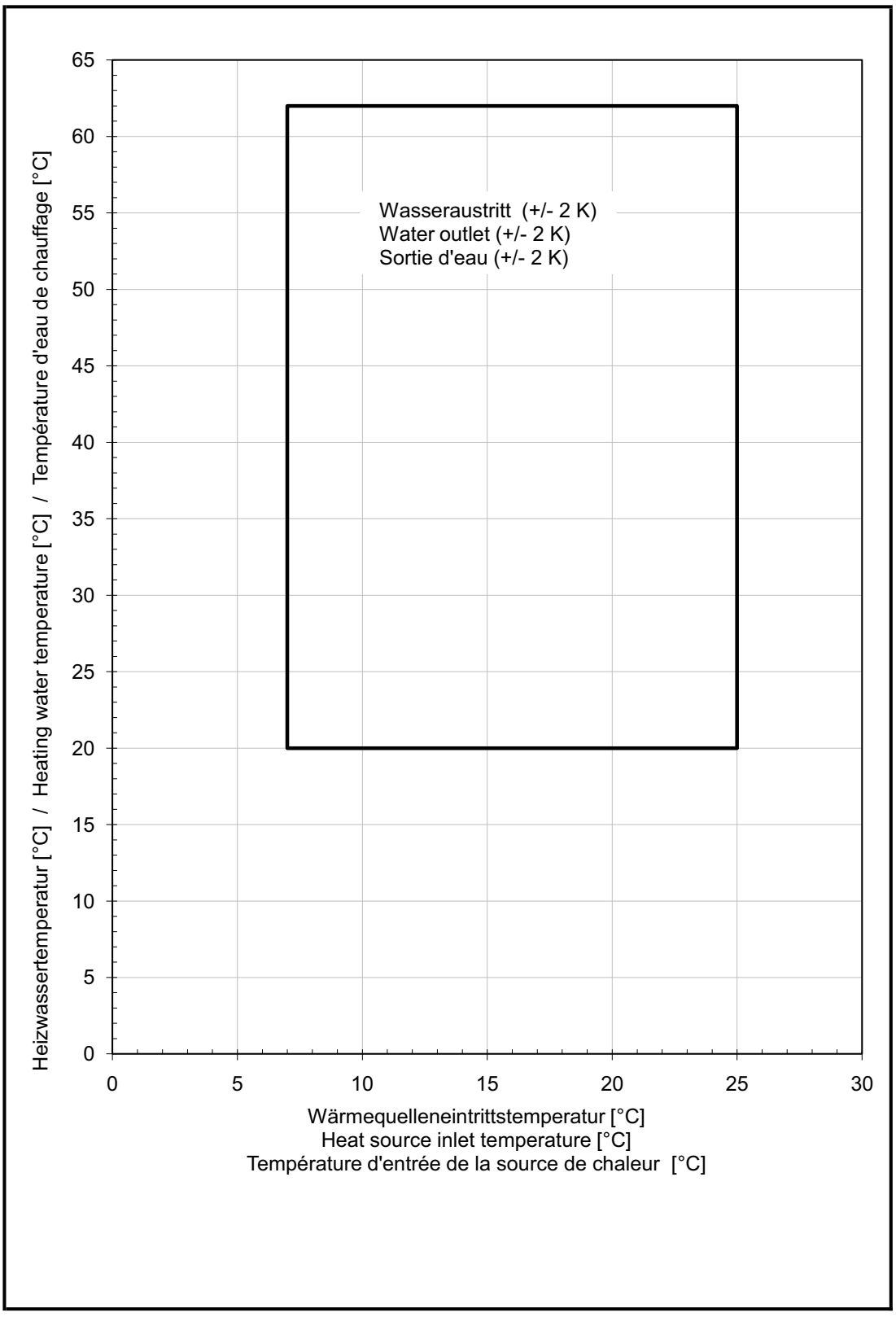



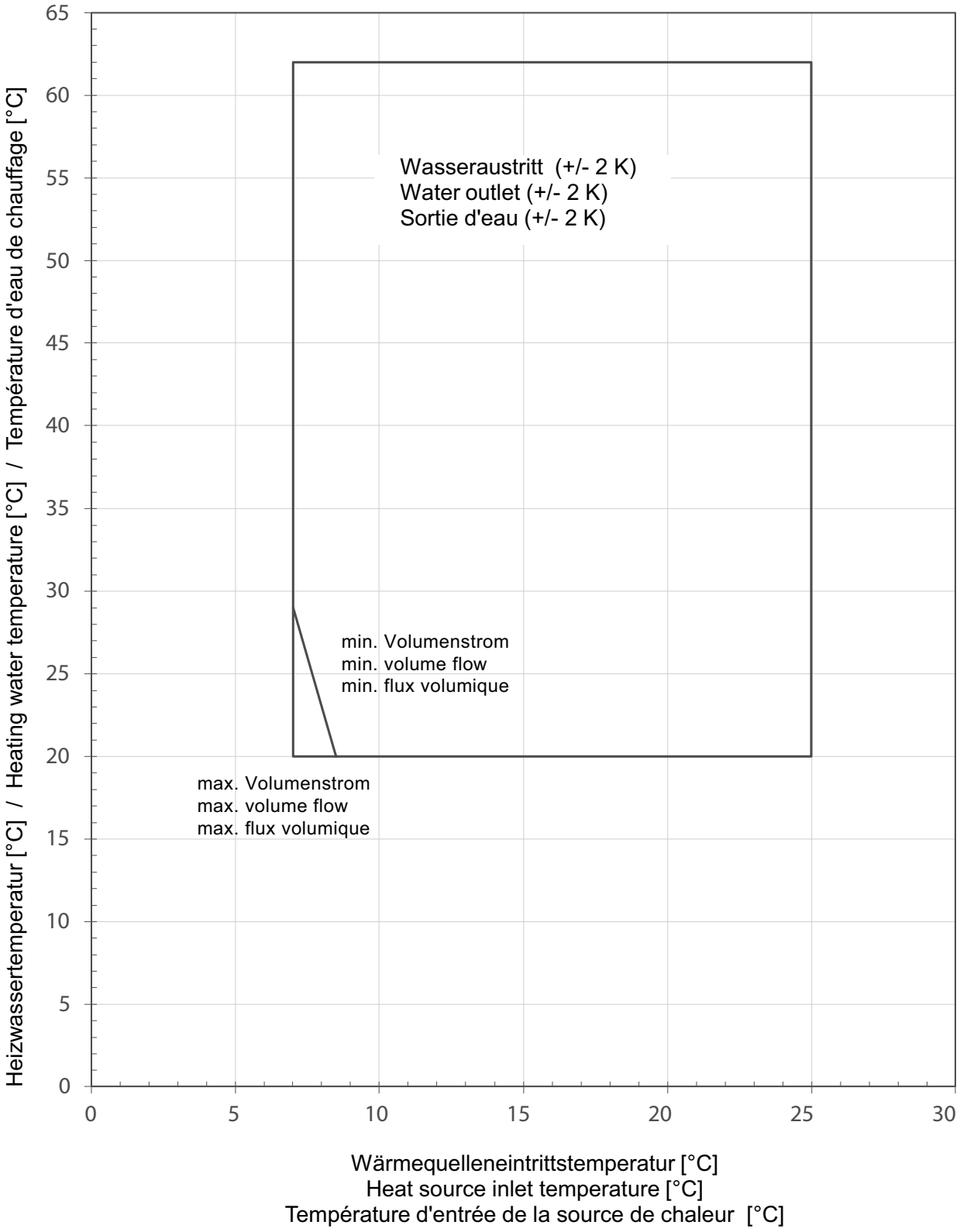



## 2.5 Einsatzgrenzendiagramm / Operating limits diagram / Diagramme des seuils d'utilisation WI 10TU - WI 14TU

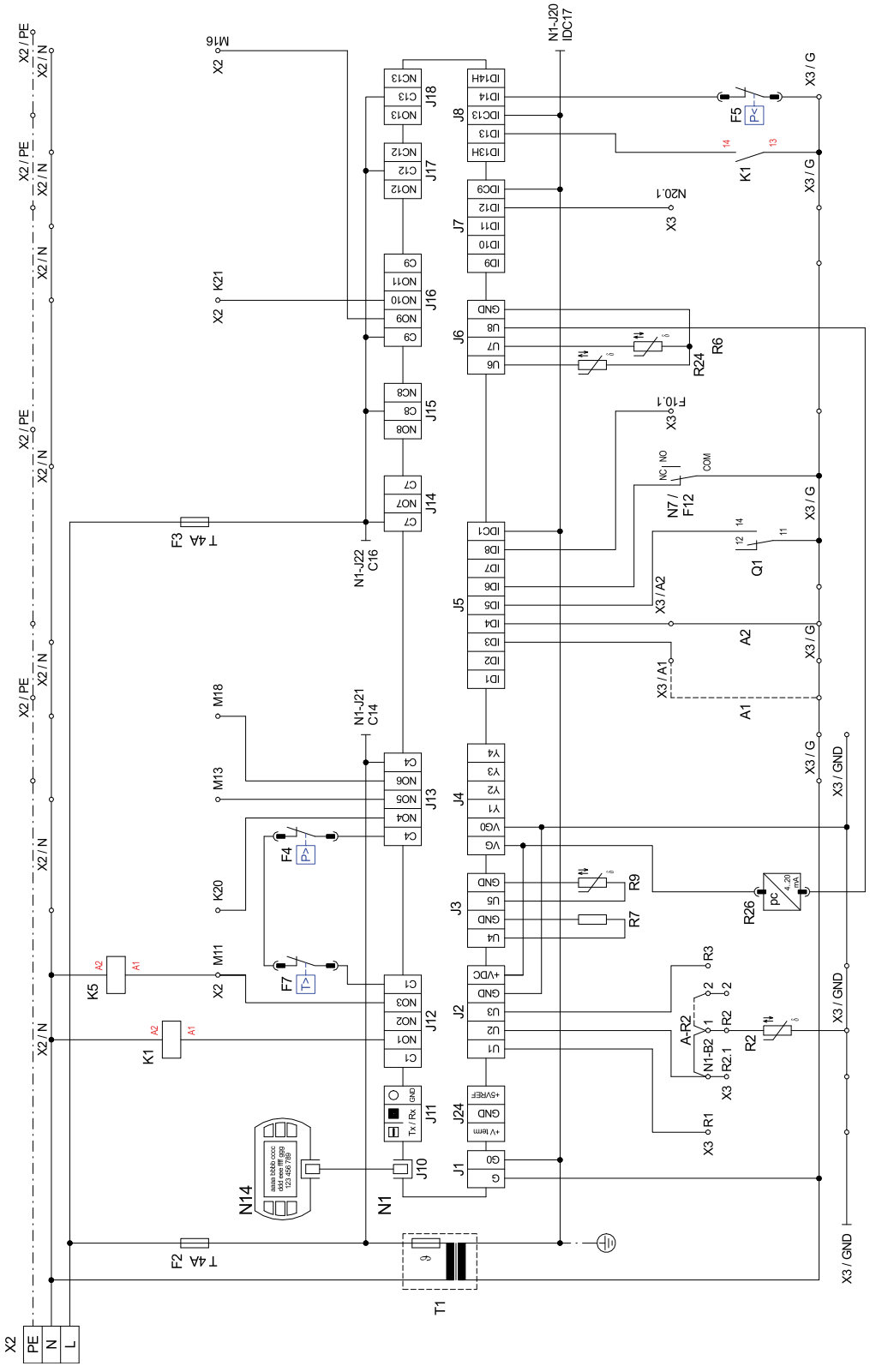


## 2.6 Einsatzgrenzendiagramm / Operating limits diagram / Diagramme des seuils d'utilisation WI 18TU - WI 22TU

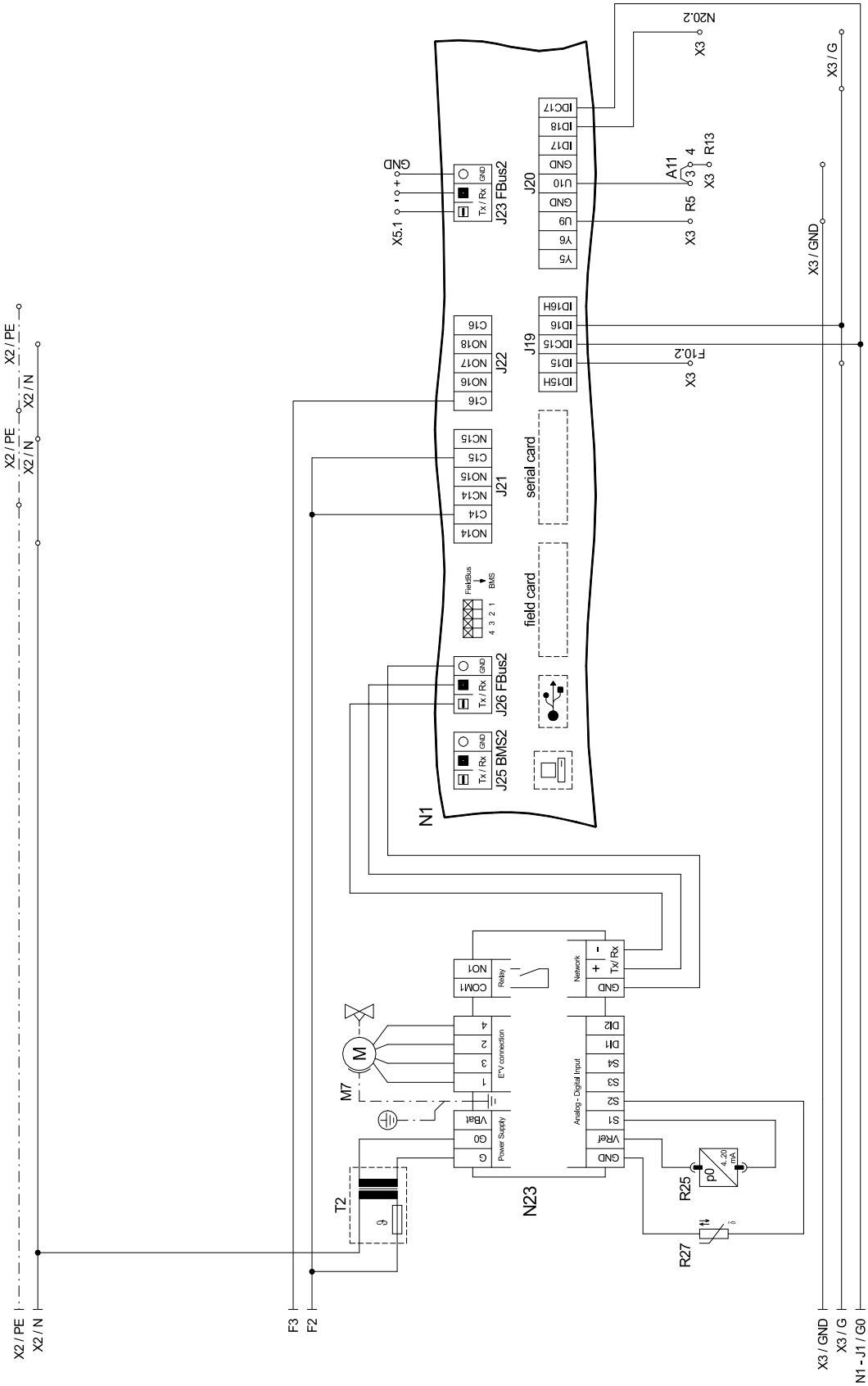


# 3 Stromlaufpläne / Circuit Diagrams / Schémas électriques

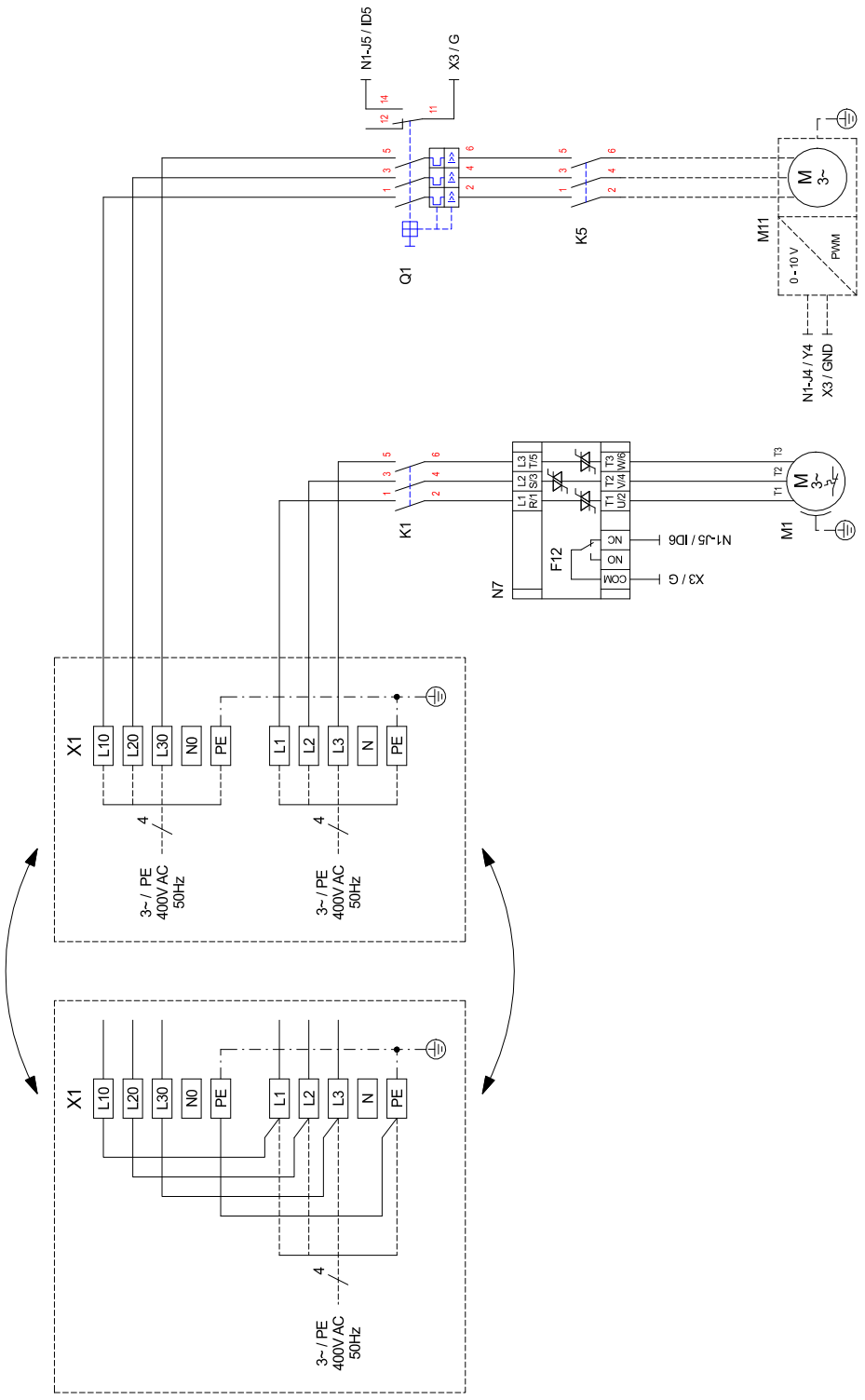
## 3.1 Steuerung / Control / Commande



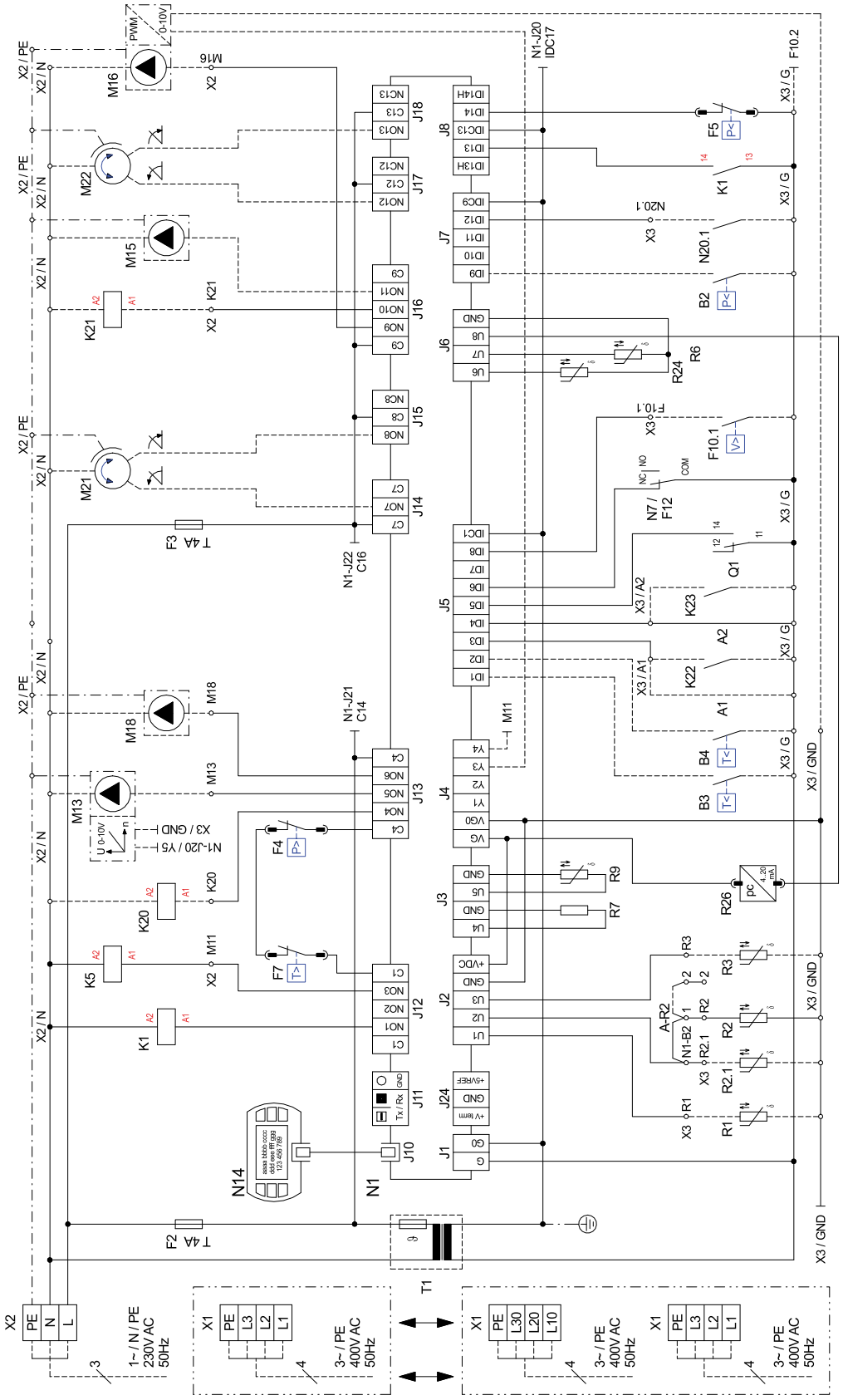
## 3.2 Steuerung / Control / Commande



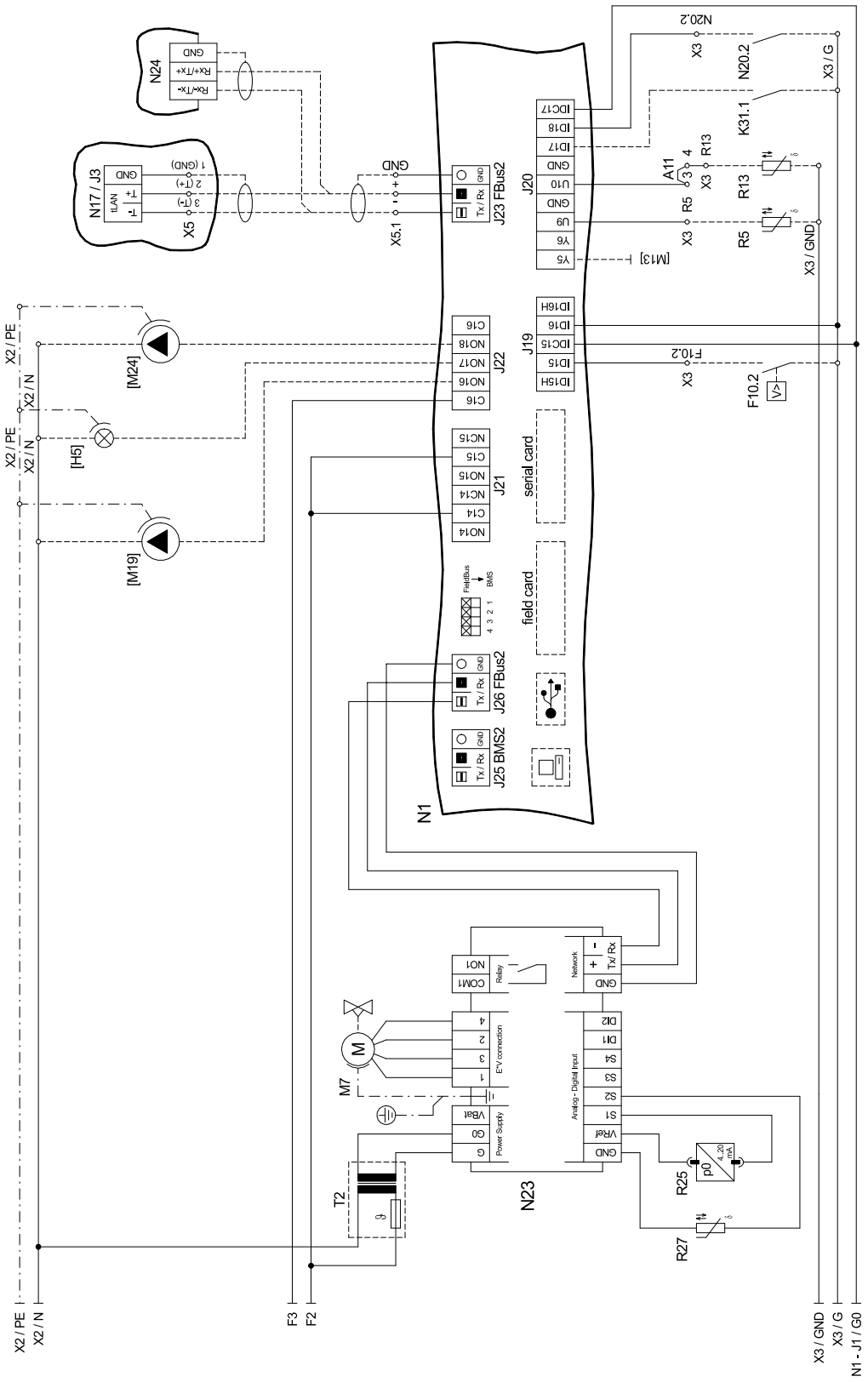
## 3.3 Last / Load / Charge



## 3.4 Anschlussplan / Circuit Diagram / Schéma électrique



## 3.5 Anschlussplan / Circuit Diagram / Schéma électrique



## 3.6 Legende / Legend / Légende

| | | | |
|---|---|---|---|
| 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) |
| A11 | Brücke Solar: bei Verwendung eines Solarmoduls muss die Brücke entfernt 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 Doppeldifferenzdruckloser-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* | Pressostat Niederdruck-Primärkreis | Low-pressure controller, 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 |
| E9* | Tauchheizkörper Warmwasser | Immersion heater hot water | Thermoplongeur eau chaude |
| E10* | 2. Wärmeerzeuger | 2nd heat generator | 2e générateur de chaleur |
| F2 | Sicherung für Steckklemmen J12; J13 und J21 5x20 / 4,0AT | Fuse for plug-in terminals J12; J13 and J21 5x20 / 4.0AT | Fusible pour bornes enfichables J12 ; J13 et J21 5x20 / 4,0AT |
| F3 | Sicherung für Steckklemmen J15 bis J18 und J22 5x20 / 4,0AT | Fuse for plug-in terminals J15 to J18 and J22 5x20 / 4.0AT | Fusible pour bornes enfichables J15 à J18 et J22 5x20 / 4,0AT |
| F4 | Hochdruckpressostat | High pressure switch | Pressostat haute pression |
| F5 | Niederdruckpressostat | Low pressure switch | Pressostat basse pression |
| 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 | | |
| F12 | Störmeldekontakt N7 | | |
| [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 | 230VAC-Ausgänge | 230V AC outputs 230V 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 zu Modulen | Bus connection to modules | Raccordement Bus aux modules |
| 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 |
| K5 | Schütz M11 | Contactor M11 | Contacteur M11 |
| 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 |
| M1 | Verdichter | Compressor | Compresseur |
| 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* | Heizkreisumwälzpumpe 2. Heizkreis | Circulating pump 2nd heating circuit | Circuit de chauffage 2e circulateur |
| M16* | Zusatzumwälzpumpe | Auxiliary circulating pump | Circulateur supplémentaire |
| M18* | Warmwasserladepumpe | Hot water loading pump | Pompe de charge eau chaude sanitaire |
| [M19]* | Schwimmbadwasserumwälzpumpe | Swimming pool water circulating pump | Circulateur d'eau de 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 |
| 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 |
| Q1 | Motorschutzschalter M11 | Protective motor switch M11 | Disjoncteur de protection moteur M11 |
| R1* | Außenfühler | External sensor | Sonde extérieure |
| R2 | Rücklauffühler Heizkreis | Return flow sensor heating circuit | Sonde de retour circuit de chauffage |
| R2.1* | Rücklauffühler Heizkreis im Doppeldiffernzdrucklosen-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 für 2ten Heizkreis | Sensor for heating circuit 2 | Sonde pour 2e circuit de chauffage |
| R6 | Vorlauffühler Primärkreis | Flow sensor for primary circuit | Sonde aller circuit primaire |
| R7 | Kodierwiderstand | Coding resistor | Résistance de codage |
| R9 | Vorlauffühler Heizkreis | Flow sensor heating circuit | Sonde aller circuit de chauffage |
| R13* | Fühler regnerativ, 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 p0 | 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 - Regelung | Safety transformer 230 / 24 V AC | Transformateur de sécurité 230 / 24 V AC |
| T2 | Sicherheitstransformator 230 / 24 V AC - N23 | Safety transformer 230 / 24 V AC - N23 | Transformateur de sécurité 230 / 24 V AC - N23 |
| X1 | Klemmleiste Einspeisung Last | 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 |
| X5.1 | Busverteilerklemme u.a. für N24 | Bus distribution terminal for N24 etc. | Réglettes bus pour N24 entre autres |
| | | | |
| * | Bauteile sind bauseits anzuschließen / beizustellen | Components must be connected/supplied by the client | Les pièces sont à raccorder / à fournir par le client |
| [ ] | Flexible Beschaltung - siehe Vorkonifiguration (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 !) |
| _____ | werkseitig verdrahtet | Wired ready for use | câblé en usine |
| - - - - - | bauseits nach 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 -J24 und den Klemmleiste X3, X5.1 liegt Kleinspannung an. Auf keinen Fall darf hier eine höhere Spannung angelegt werden!

**⚠ ATTENTION !**

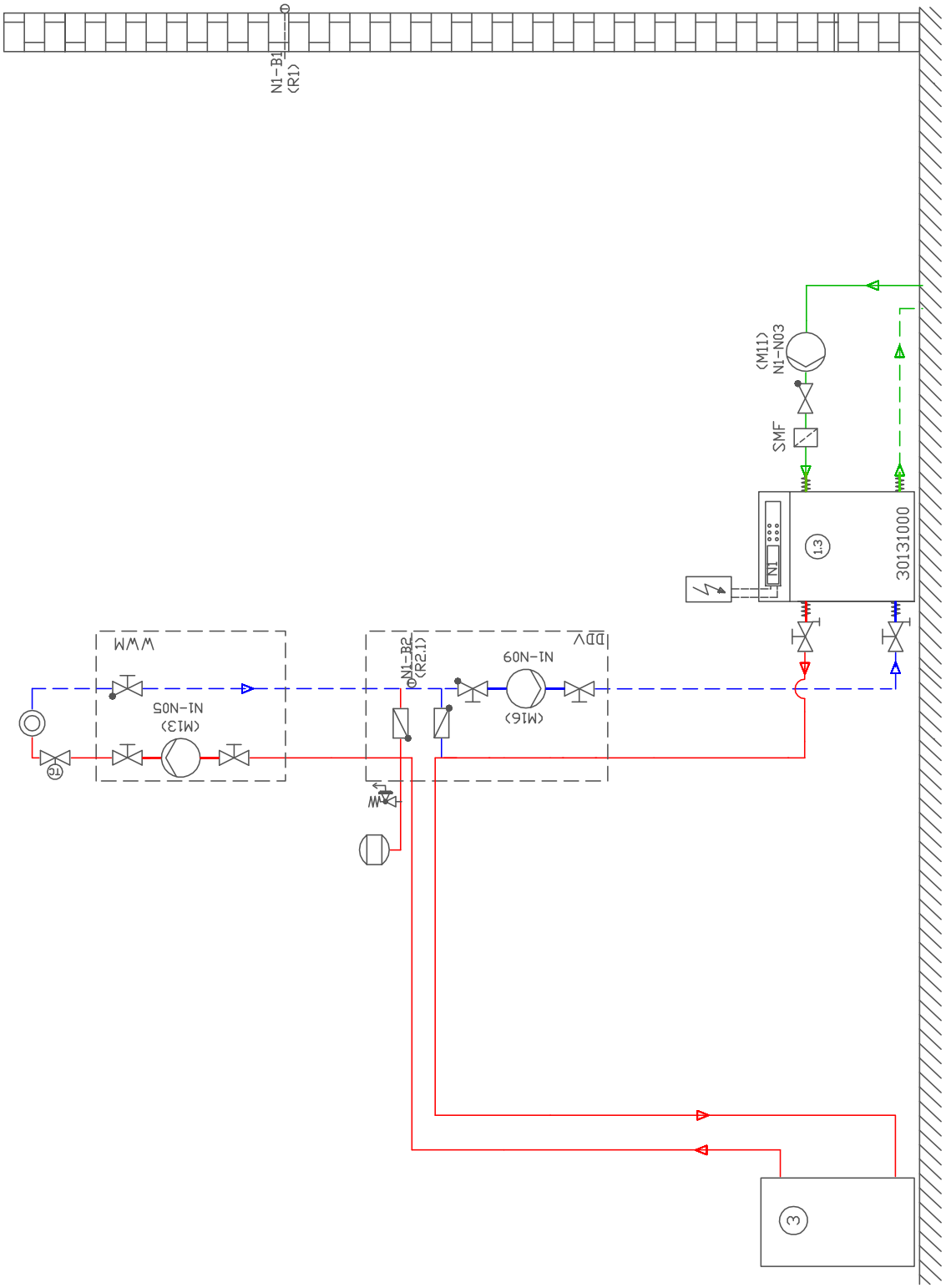
Plug-in terminals N1-J1 to J11, J19, J20, J23 to J24 and terminal strip X3, X5.1 are connected to extra-low voltage. A higher voltage must on no account be connected.

**⚠ ATTENTION !**

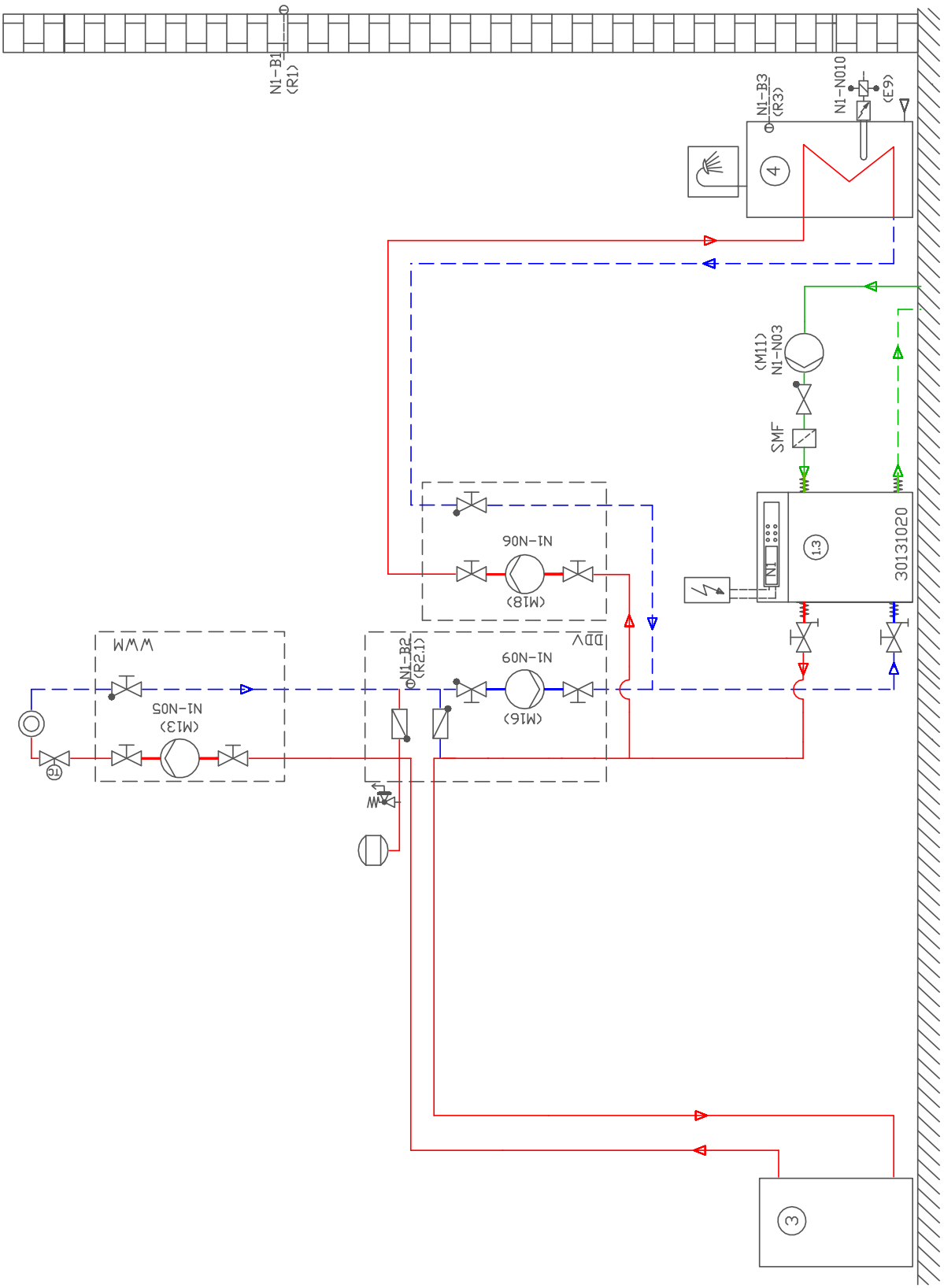
Une faible tension est appliquée aux bornes enfichables N1-J1 à J11, J19, J20, J23 à J24 et au bornier X3, X5.1. Ne jamais appliquer une tension plus élevée.

# 4 Hydraulisches Einbindungsschema / Hydraulic integration diagram / Schéma d'intégration hydraulique

## 4.1 Monovalente Wärmepumpenanlage mit einem Heizkreisen / Monovalent heat pump system with one heating circuits / Installation monovalente de pompe à chaleur avec une circuits de chauffage



## 4.2 Monovalente Wärmepumpenanlage mit einem Heizkreisen und Warmwasserbereitung / Monovalent heat pump system with one heating circuits and domestic hot water preparation / Installation monovalente de pompe à chaleur avec une 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 |
|  | 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 |
|  | Temperaturfühler | Temperature sensor | Sonde de température |
|  | Flexibler Anschlussschlauch | Flexible connection hose | Tuyau de raccord flexible |
|  | Rückschlagklappe | Check valve | Clapet anti-retour |
| | | | |
|  | Wasser/Wasser-Wärmepumpe | Water-to-water heat pump | Pompe à chaleur eau-eau |
|  | Reihen-Pufferspeicher | Buffer tank connected in series | Ballon tampon en série |
|  | Warmwasserspeicher | Hot water cylinder | Ballon d’eau chaude sanitaire |
| | | | |
| E9 | Flanschheizung Warmwasser | Flange heater, hot water | Cartouche chauffante ECS |
| M11 | Primärumwälzpumpe | Primary circulating pump | Circulateur primaire |
| M13 | Heizungsumwälzpumpe | Heat circulating pump | Circulateur de chauffage |
| M16 | Zusatzumwälzpumpe | Auxiliary circulation pump | Circulateur supplémentaire |
| M18 | Warmwasserladepumpe | Hot water loading pump | Pompe de charge eau chaude sanitaire |
| N1 | Wärmepumpenmanager | Heat pump manager | Gestionnaire de pompe à chaleur |
| R1 | Außenwandfühler | External wall sensor | Sonde sur mur extérieur |
| R2.1 | Zusatzrücklauffühler | Additional return flow sensor | Sonde supplémentaire sur circuit de retour |
| R3 | Warmwasserfühler | Hot water sensor | Sonde sur circuit d’eau chaude sanitaire |

# 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 :

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