Operating and installation manual

OCHSNER AIR EAGLE 717
OCHSNER AIR EAGLE 414
OCHSNER AIR EAGLE 717 with MULTI TOWER (T200)
OCHSNER AIR EAGLE 414 with MULTI TOWER (T200)

Air/water heat pump
for Heating and DHW

Contents

1 General

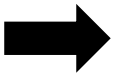
1.1 Information on documentation

The following information is a guideline for the complete documentation.

Please read your heat pump's operating manual carefully from beginning to end. This will help you to operate your heat pump better. This manual is to be kept readily accessible near the heat pump. The precautionary information provided below is used in this document.

WARNING
Failure to observe this information poses a risk of injury or death and may lead to material damage. This information must be observed without fail.

CAUTION
Failure to observe this information may lead to an appliance fault or material damage. This information should be observed.



PLEASE NOTE

CAUTION
Information for work on electrical systems. This information must be observed without fail. Caution - risk to life!

1.2 Safety regulations

Read this manual thoroughly before commissioning the heat pump or making settings!

The appliance must not be converted or modified in any way. Work on the appliance (repairs, modifications) may only be carried out by the manufacturer or bodies authorised by them.

Turn off all mains fuses of the system before carrying out any work on plug-in strips or electrical connections (wires).

Commissioning and servicing of the appliances may only be carried out by specialist personnel authorised by OCHSNER.

Installation of the appliances and their wiring may only be carried out by a specialist in accordance with local regulations.

The controller can be used to enable functions to protect the heat pump. However, since the controller is not certified as a safety device, safety measures in case of failure of or damage to the heat pump (e.g. additional external switching of the safety devices in use) must comply with local regulations.

In order to avoid malfunctions, fitting the snow cover on the EAGLE outdoor unit is mandatory. In the event of heavy snowfall and after longer idle periods, it may be necessary to remove the snow.

WARNING
Do not use the appliance as a step or platform. Do not climb on the appliance or place any loads on it.

2 Appliance description

2.1 Heat pump

OCHSNER AIR EAGLE 717 and OCHSNER AIR EAGLE 414 are air/water heat pumps configured as split appliances.

The appliance extracts heat at a low temperature from the outdoor air and releases it to the heating water at a higher temperature. Heating water can be heated to a flow temperature of up to 65°C. The appliance is equipped with an electric booster heater (DHC). In monovalent mode, the electric booster heater is switched on when the bivalent point is not reached to ensure heating mode or the provision of high DHW temperatures.

Special features of this heat pump:

- Output-dependent refrigerant circuit
- Variable speed compressor
- Refrigerant circuit controller
- OTE heat manager
- Split outdoor unit with compressor

Additional properties:

- Suitable for underfloor and radiator heating systems
- Low temperature heating systems are preferred
- Heat can still be extracted from the outdoor air at temperatures as low as -20°C
- Corrosion protected - external cladding components are made of powder coated stainless steel
- Includes all components and safety-relevant devices required for operation
- Contains non-flammable safety refrigerant

Two different indoor units are available for the air/water heat pump:

- Golf-Midi indoor unit
- T200 (MULTI TOWER) indoor unit

2.2 CE designation

The product you have purchased conforms to the technical regulations valid at the time and is compliant with CE standards.

2.3 Scope of delivery

The OCHSNER AIR EAGLE heat pump is delivered in 2 sections.

Golf-Midi indoor unit:
The indoor unit is delivered without its casing installed. The casing sections are in a separate package on the same pallet.

Contents of packages:

- Name plate
- Cowl for outdoor installation
- Front panel
- Rear panel
- Side panels, left/right
- OTE controller sensor set
- Operating manual

Optional accessories:

- OTE sensor set for buffer

T200 (MULTI TOWER) indoor unit:
The following components are packed inside the MULTI TOWER, next to the two pumps:

- Outside temperature sensor
- Adjustable feet
- Drain hose
- Operating manual

Gaskets for the hydraulic connection (heating circuit flow/return, cold water, DHW) are attached directly at the connections.

Outdoor unit:
The outdoor unit is shipped fully assembled. It is transported on a pallet.

2.4 Function

Heat is extracted from the outdoor air via the heat exchanger (evaporator) on the air side. The refrigerant is evaporated and compressed by a compressor. This requires electrical energy. The refrigerant is now at a higher temperature level and releases the heat from the air to the heating system via another heat exchanger (condenser). During this, the refrigerant expands and the process begins again. At air temperatures below approx. + 7 °C air humidity condenses as ice on the evaporator fins. This ice is automatically removed (defrosting). In the defrost phase, the fan shuts down and the heat pump circuit is reversed. The heat required for defrosting is drawn from the buffer tank or the heating circuit. At the end of the defrost phase the heat pump automatically returns to heating mode.

2.5 System overview

The heat pump consists of a split outdoor unit and an indoor unit which is installed in the boiler room. The connection to the heating system is made via the flow and return of the heat sink side of the heat pump.

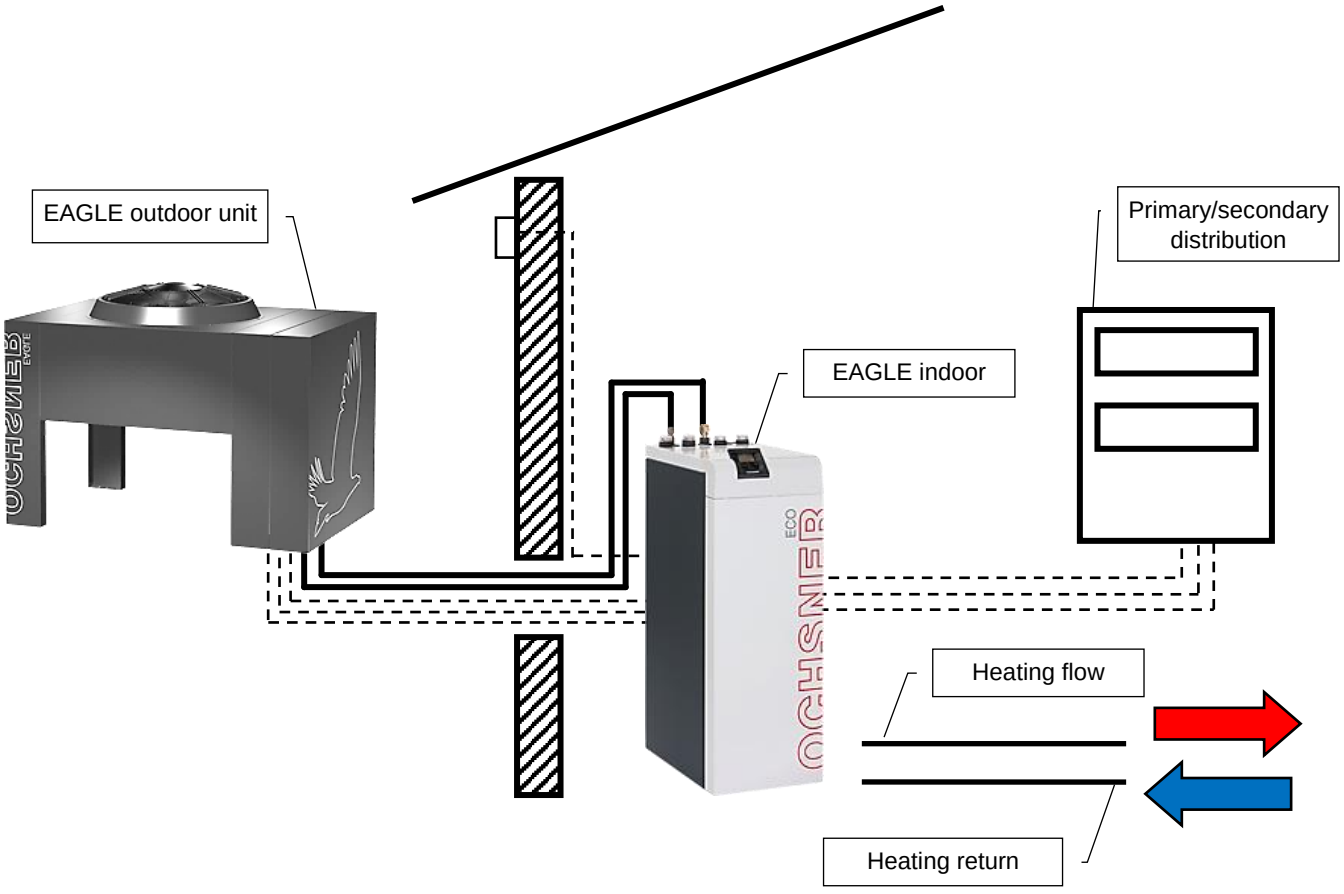


Figure 1: System overview

3 Outdoor unit

Figure 2: EAGLE outdoor unit

The EAGLE outdoor unit is installed outdoors on a plinth provided on site. The outdoor unit consists of a sound-insulated casing for the horizontal fan and refrigerant circuit components, such as the evaporator, compressor, expansion valves and others. It should be installed as closely as possible to the indoor unit. The minimum clearances to walls and recesses should be observed for installation.

CAUTION Risk of injury!
Never remove the grille from the fan.

3.1 Choosing the installation location

The heat pump can be installed at altitudes of up to 1000 m above sea level.

High wind loads on the outdoor unit can cause problems with defrosting in defrosting mode. Avoid installation in an open and exposed location with high expected wind loads (e.g. flat roof of a house in a raised location).

Select an installation location where the appliance is on the side of the building facing away from the wind (leeward side).

Avoid acoustic reflections when installing the EAGLE outdoor unit:

- Avoid installation on reverberant floors.
- Installation between two walls can lead to increased sound levels.
- Avoid installation next to bedrooms.
- Plants and planted areas can reduce sound levels.

Provide a frost-free drain for any condensate to drain away. A gravel bed with drainage connection underneath the evaporator is sufficient. In winter, ice may form around the drain.

Please note the following with regard to installation in coastal areas:

- The outdoor unit must be installed at least 1 km away from the sea.
- The installation location selected should always be on the leeward side of the building (the side facing away from the sea).

3.1.1 Minimum wall clearances

Do not place the outdoor unit in a recess. The diagram shows the minimum wall clearances.

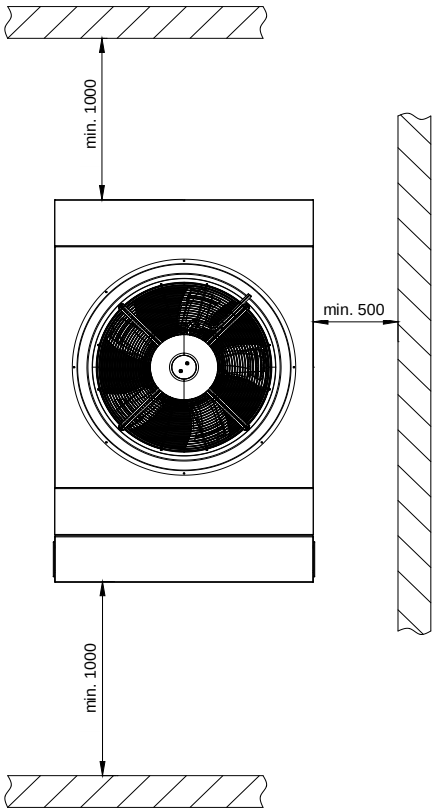


Figure 3: Outdoor unit minimum clearances (in mm)

3.1.2 Dimensions

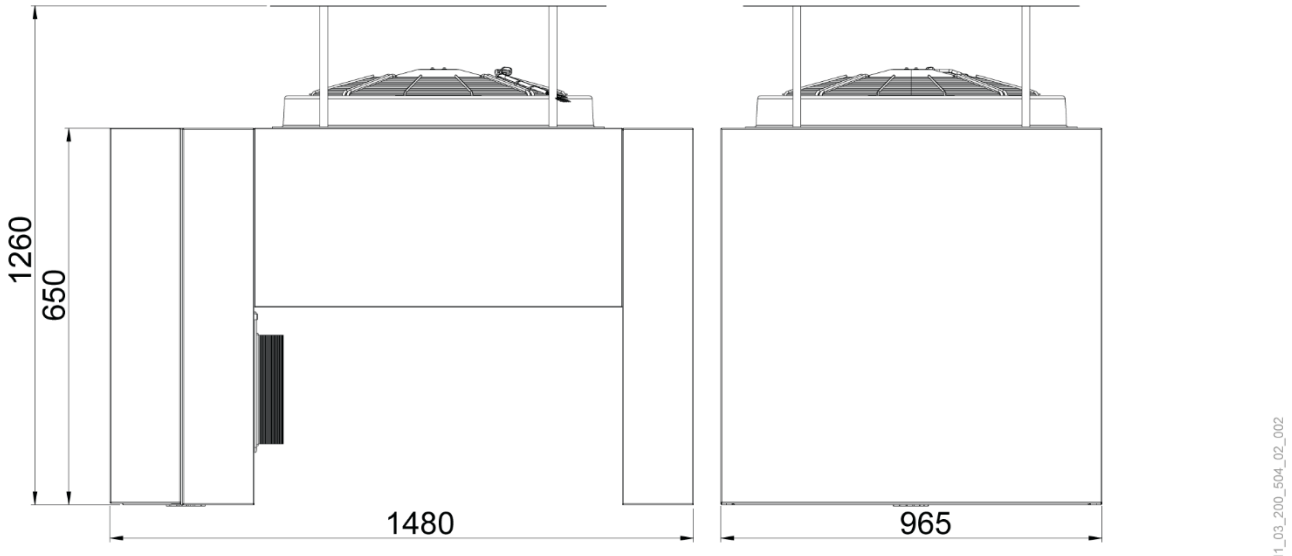


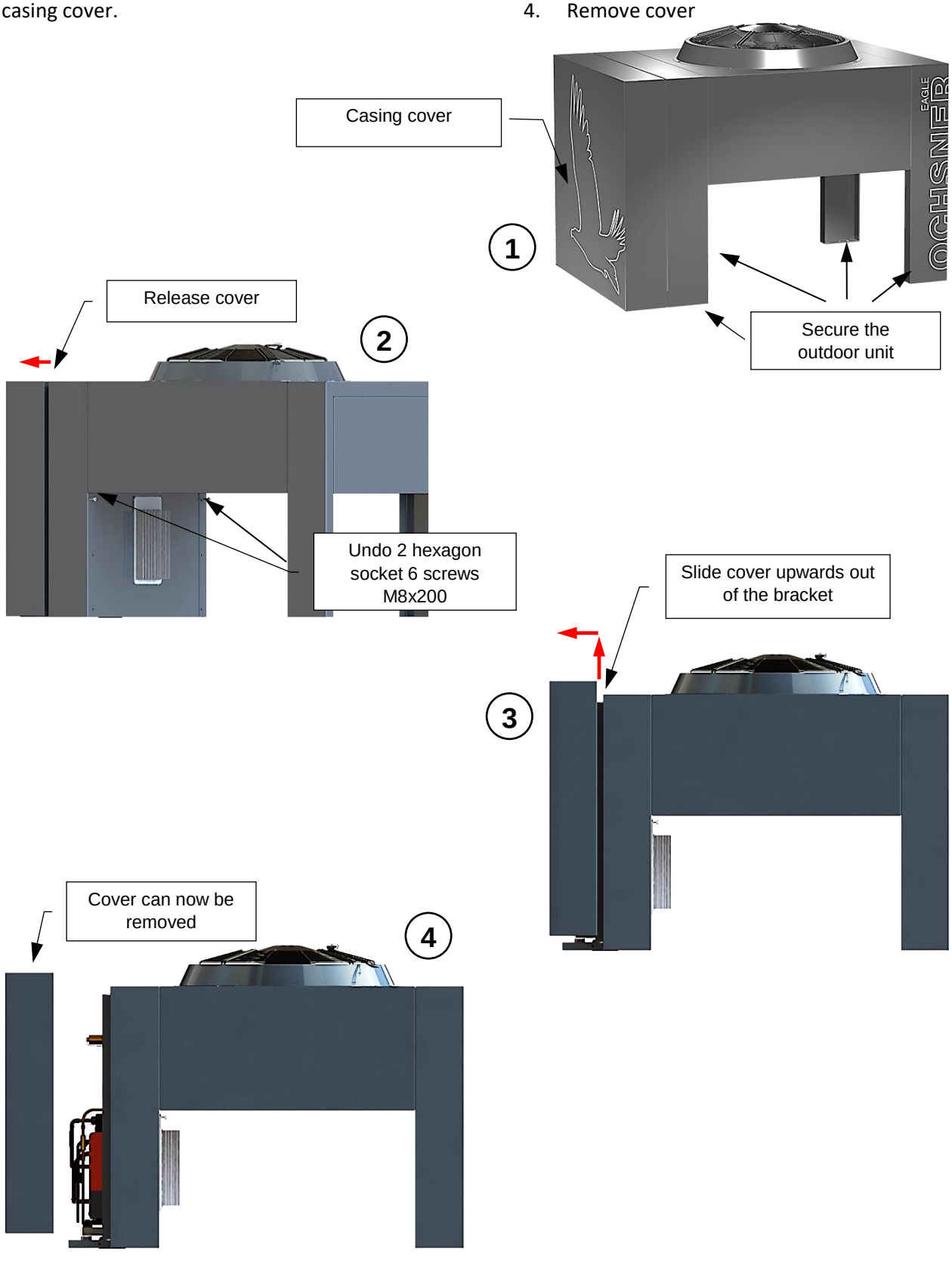
Figure 4: Outdoor unit dimensions (in mm)

3.2 Opening the outdoor unit

The EAGLE outdoor unit is delivered as a closed unit. It has to be opened for the connection of the refrigeration and electric system. We recommend securing the outdoor unit before removing the casing cover.

Procedure:

1. Secure the outdoor unit
2. Undo screws on the cover
3. Lift cover out
4. Remove cover



3.3 Main components

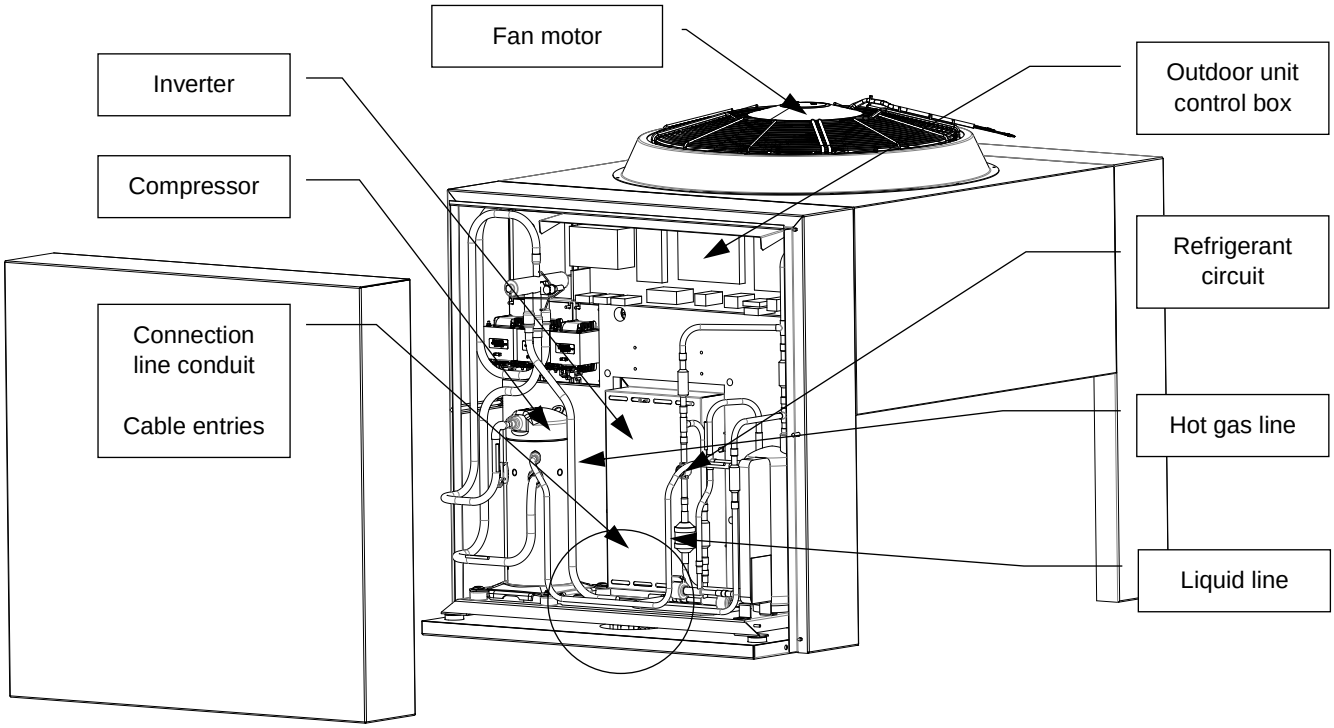


Figure 5: Outdoor unit main components

3.4 Cable entries

Remove the mounting plate to pass through the hot gas and liquid pipes as well as the 3 supply cables. After the outdoor unit has been positioned, the pipes can be aligned and cables passed through. When everything is ready, re-align the mounting plate and tighten the cable entries.

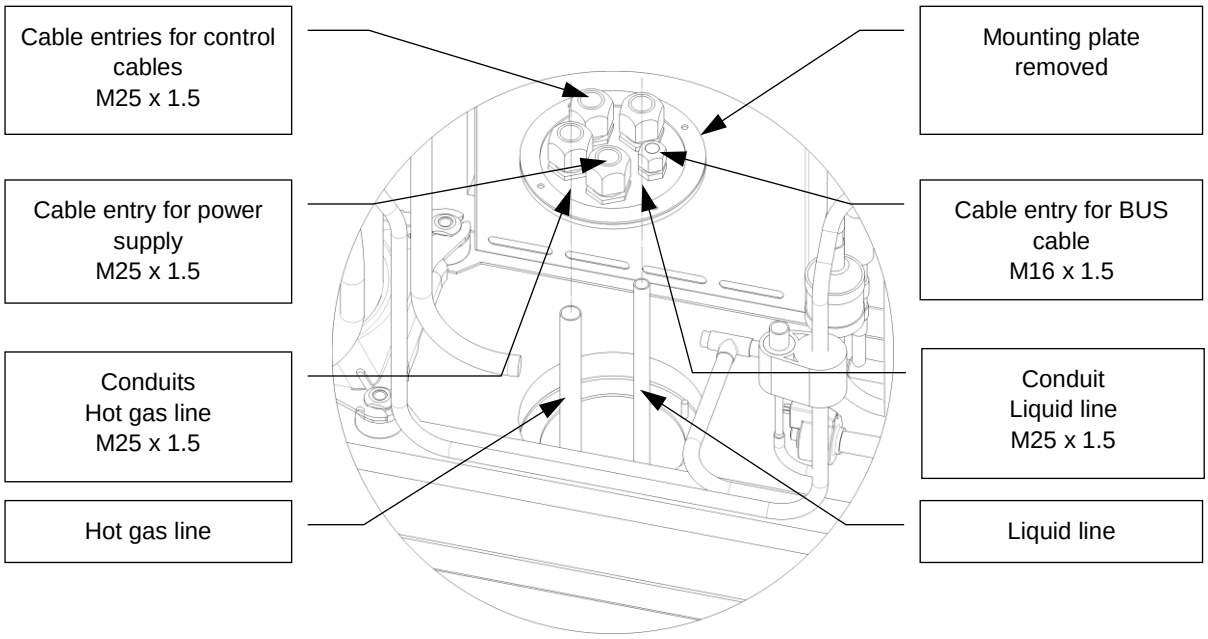


Figure 6: Outdoor unit conduits

3.5 Foundation for the outdoor unit

A permanent foundation is required beneath the outdoor unit. The foundation must meet the load bearing requirements of the outdoor unit (see section 13, Specification).

- Provide for frost-free drainage (e.g. a gravel bed with a frost-free connection to a drain) for condensation that forms on the outdoor unit.
- Where refrigerant lines are to be laid in the ground, ensure correct positioning of the pipe liner when laying the foundations.
- Use rigid underground sewage pipes or flexible, double-skinned cable ducts (smooth on the inside) for the pipe liner.
- This must be done in accordance with the relevant Building Codes of Practice and regulations.

Take the expected wind loads at the installation site into consideration. Ensure that the outdoor unit is adequately secured to the foundation to prevent it from tipping over due to wind loads.

CAUTION: Slipping hazard

If drainage for condensation is inadequate, ice can build up in winter in the area around the outdoor unit.

- Ensure drainage for condensation is sufficient even at low temperatures.
- Ensure that no ice is formed, especially around walking surfaces and entrances around the outdoor unit.

NOTE

Insulation used beneath the soil must be made of a closed-cell material. Otherwise, the thermal insulation of the material will be impaired.

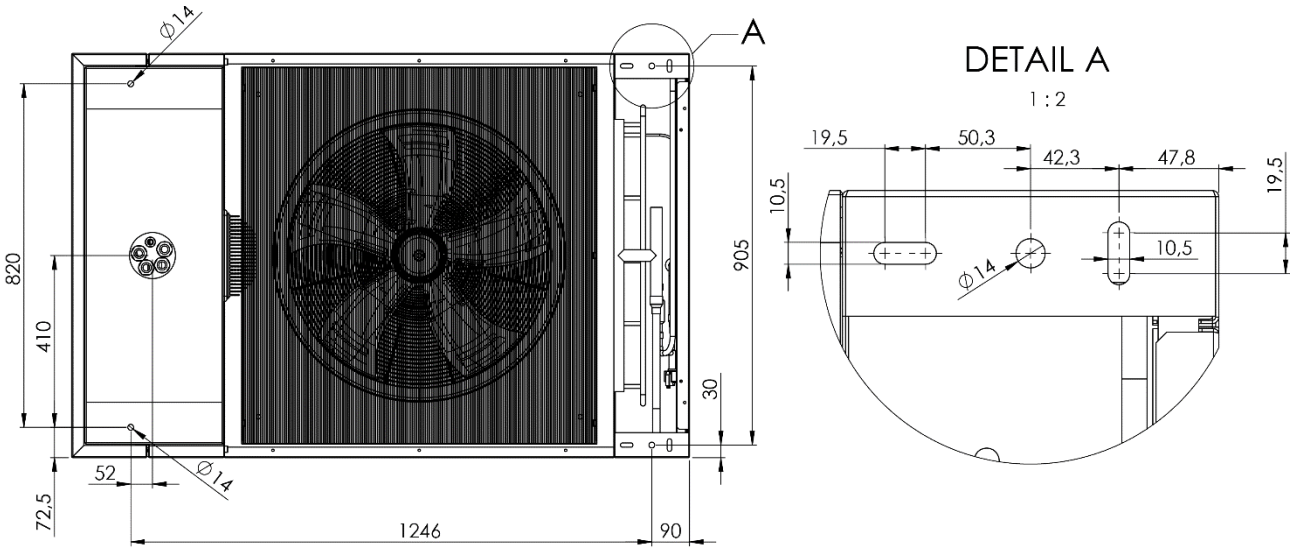
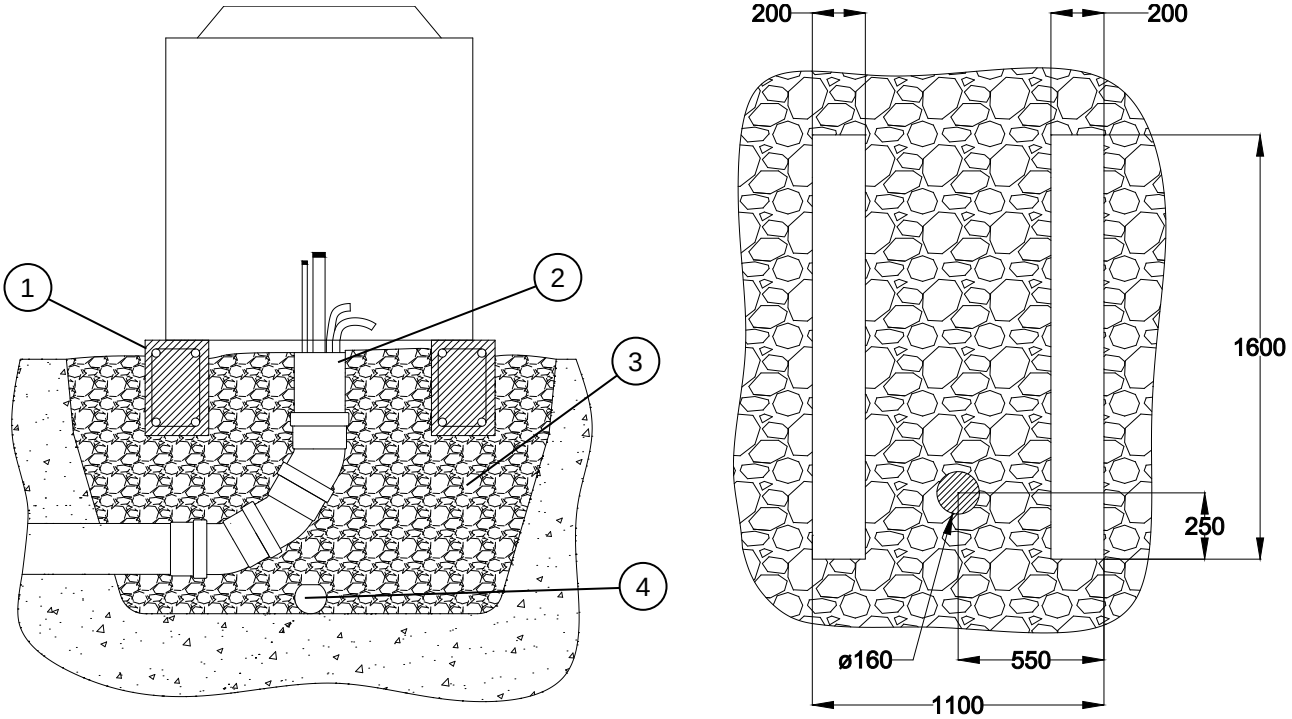


Figure 7: EAGLE outdoor unit (view from below), fixing holes in the outdoor unit legs (dimensions in mm)

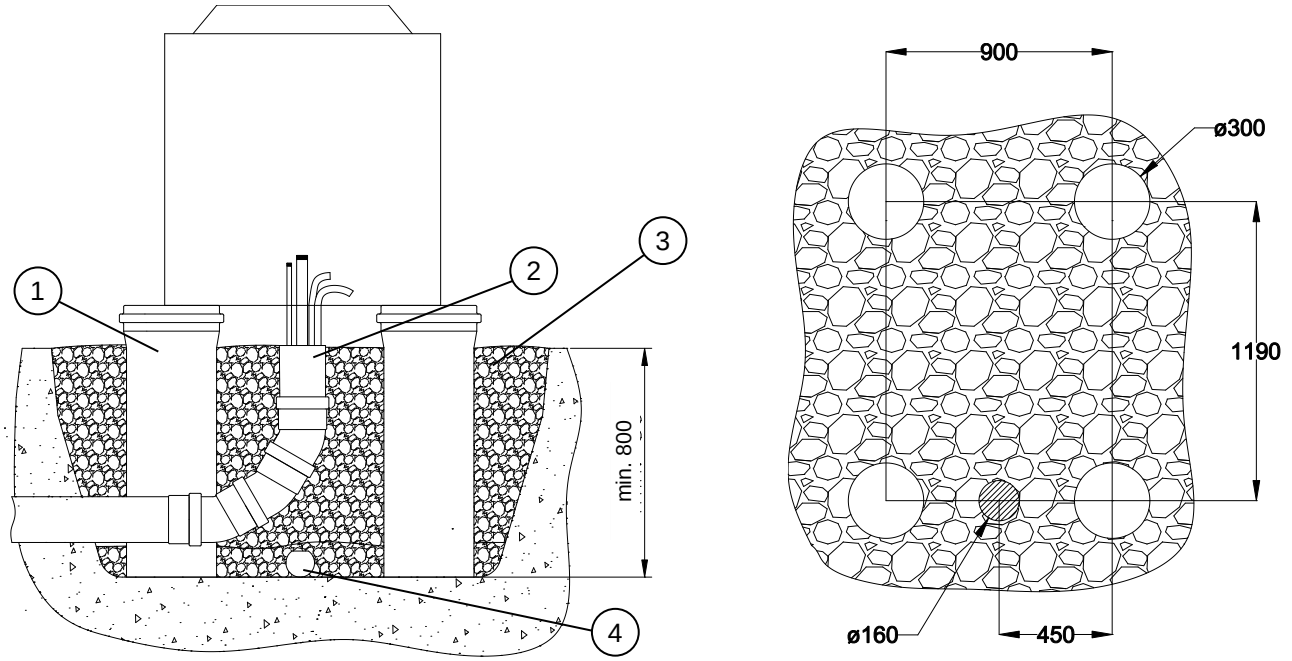
3.5.1 Strip foundation



1 Strip foundation
2 Pipe liner for the connecting lines (where installed underground)
3 Gravel bed
4 Drainage pipe (frostproof)

Figure 8: Strip foundation (dimensions in mm)

3.5.2 Spot foundation



1 Spot foundation
2 Pipe liner for the connecting lines (where installed underground)
3 Gravel bed
4 Drainage pipe (frostproof)

Figure 9: Spot foundation (dimensions in mm)

3.5.3 Concrete plinth

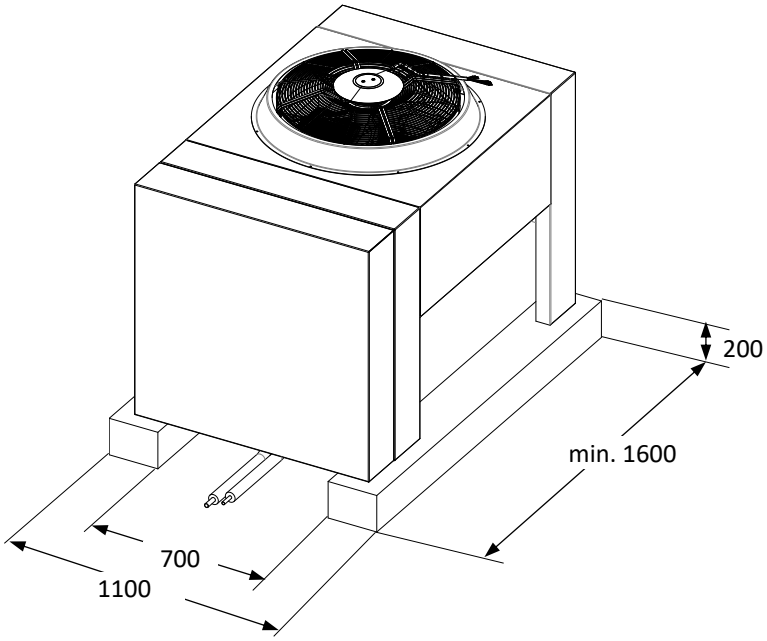


Figure 10: Installation on concrete plinth (dimensions in mm)

3.5.4 Installing on flat roofs

NOTE
Avoid installing the EAGLE outdoor unit on roofs over living spaces or car ports attached to living spaces due to the risk of structure-borne noise transmission.

WARNING Risk of falling
Working on a flat roof without fall protection constitutes a risk.

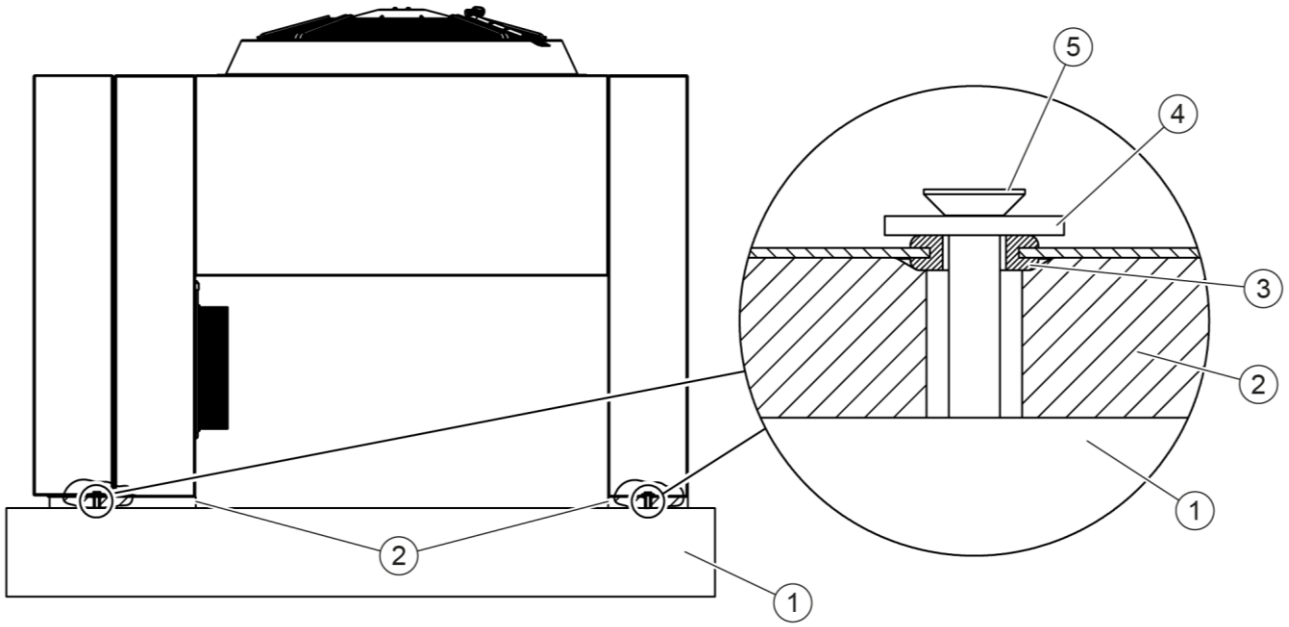
- When working on a flat roof, observe the laws relating to occupational safety in your region.
- Always be aware of the open edge.

Loads and stresses on roof structure
Note that when outside temperatures are very low, ice can form beneath the outdoor unit.

In terms of roof structure loads, allow for an **ice load of 400 kg/m²** in addition to the dead weight of the outdoor unit.

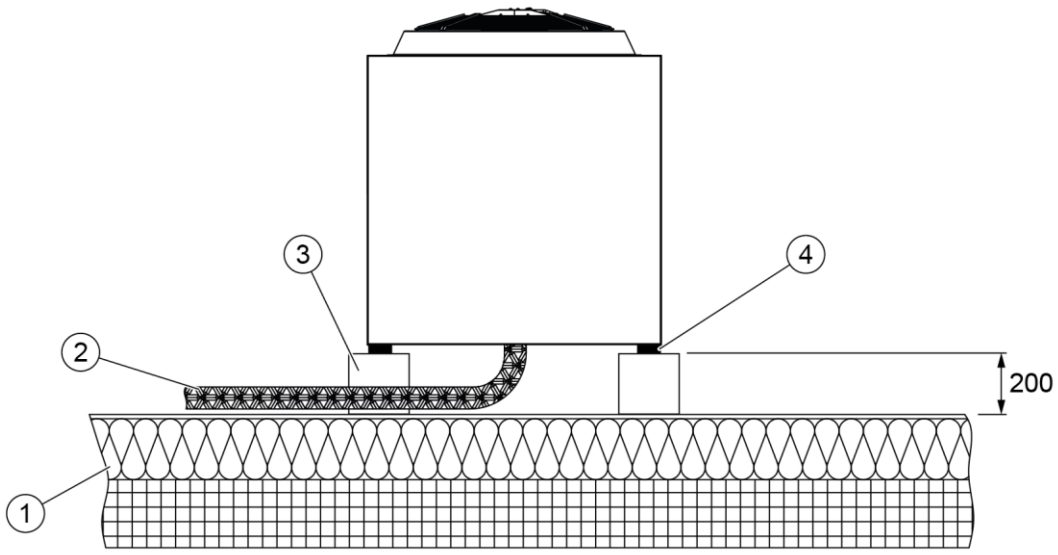
When installing the EAGLE outdoor unit on top of a freestanding car port, a garage or a storage space, please note the following:

- Provide a suitable plinth for roof installation.
- Take the concentrated load arising from the dead weight of the outdoor unit (subject to the type of plinth) and the surface load caused by possible build-up of ice into consideration.
- Ensure suitable sound insulation between the outdoor unit and the installation points on the plinth.
- Use suitable anti-vibration pads between the plinth and the outdoor unit legs (OCHSNER accessory no. 290698) – see Figure 11.
- Provide sound insulation between the outdoor unit legs and the plinth – see Figure 11.
- Use suitable sound-insulating pipe fixings to secure the refrigerant lines.



1 Base
2 Anti-vibration mount
3 Rubber grommet
4 Washer
5 Fixing screw

Figure 11: EAGLE outdoor unit secured with structure-borne noise attenuating fixings



1 Flat roof
2 Refrigerant lines in open air with thermal insulation and UV protection
3 Base
4 Anti-vibration mount

Figure 12: Flat roof installation of EAGLE outdoor unit (dimensions in mm)

4 Indoor unit

The indoor unit is installed in the heating distribution room or any other suitable room. The indoor unit contains the condenser and all hydraulic components required for operation with a water-filled heating system. Observe the minimum clearances to the wall and recesses when installing the unit and ensure the maximum room temperature does not exceed 30°C.

4.1 Golf-Midi indoor unit

4.1.1 Main components

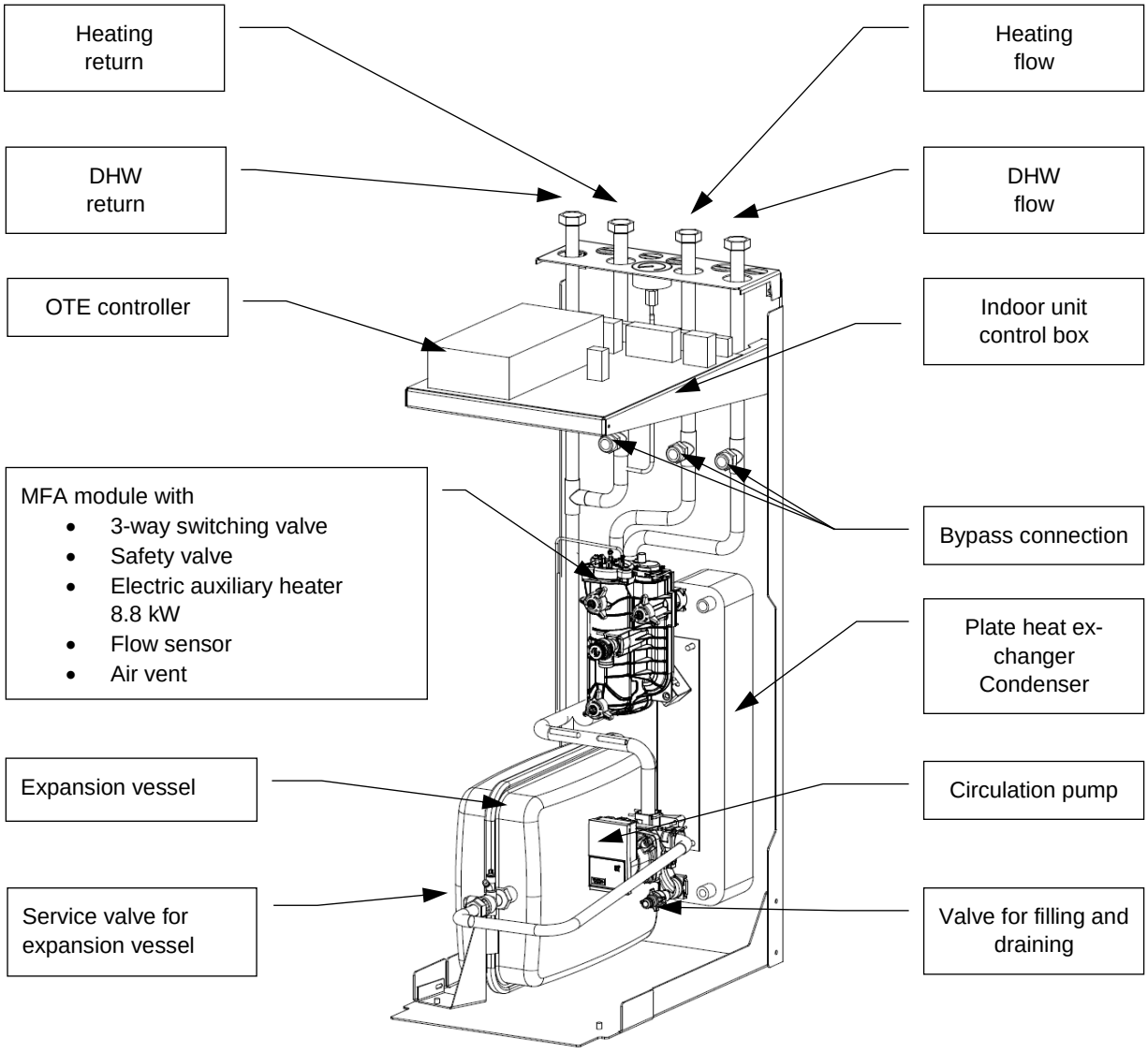


Figure 13: Indoor unit detailed view

4.1.2 Connections

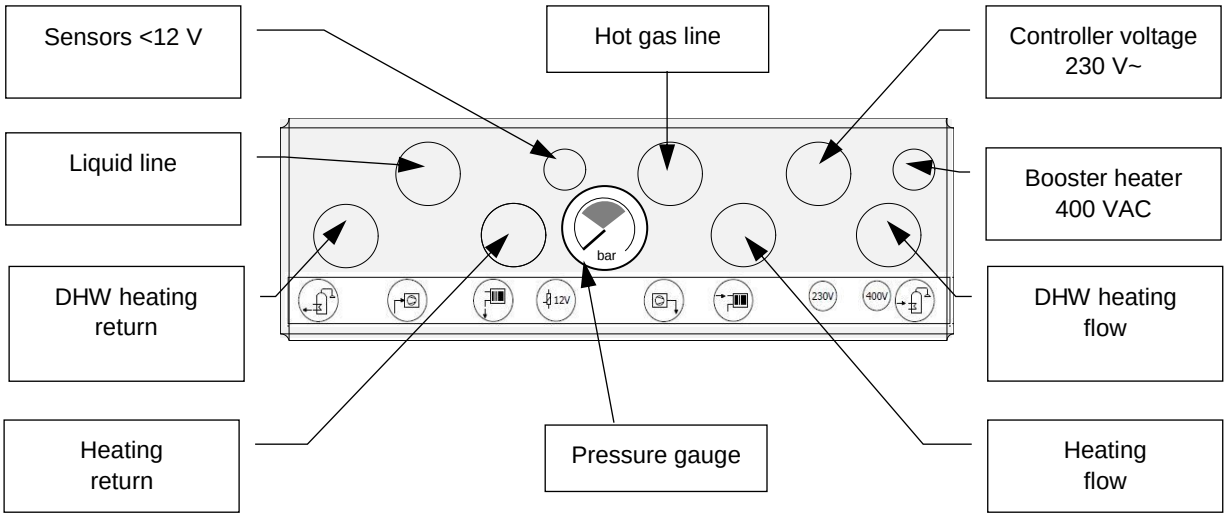


Figure 14: View from above

4.1.3 Choosing the installation location

4.1.3.1 Minimum wall clearances

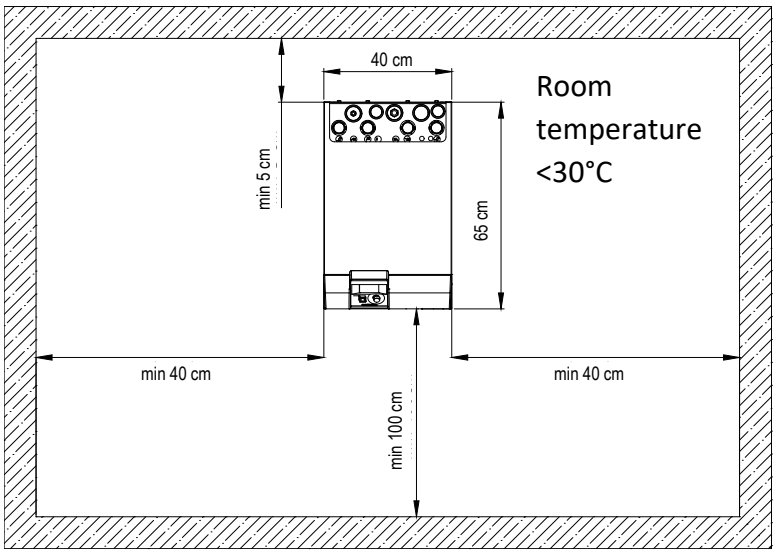


Figure 15: Minimum wall clearances

4.1.3.2 Dimensions

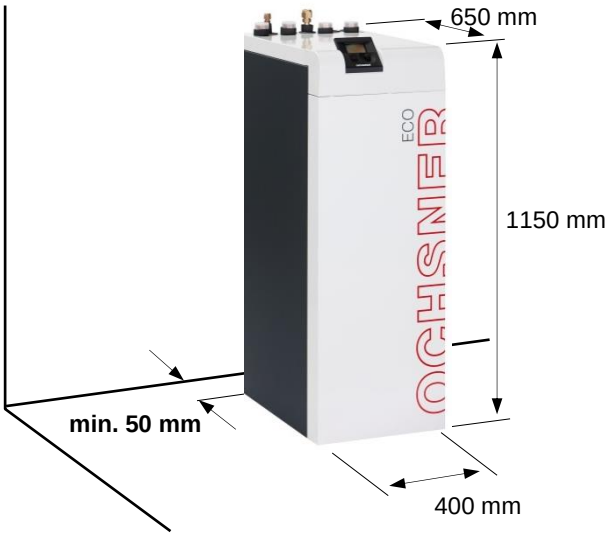


Figure 16: Indoor unit dimensions

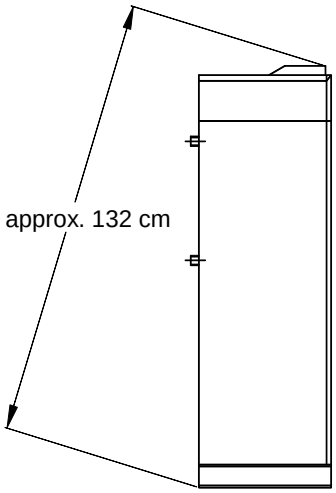


Figure 17: Indoor unit tilt height

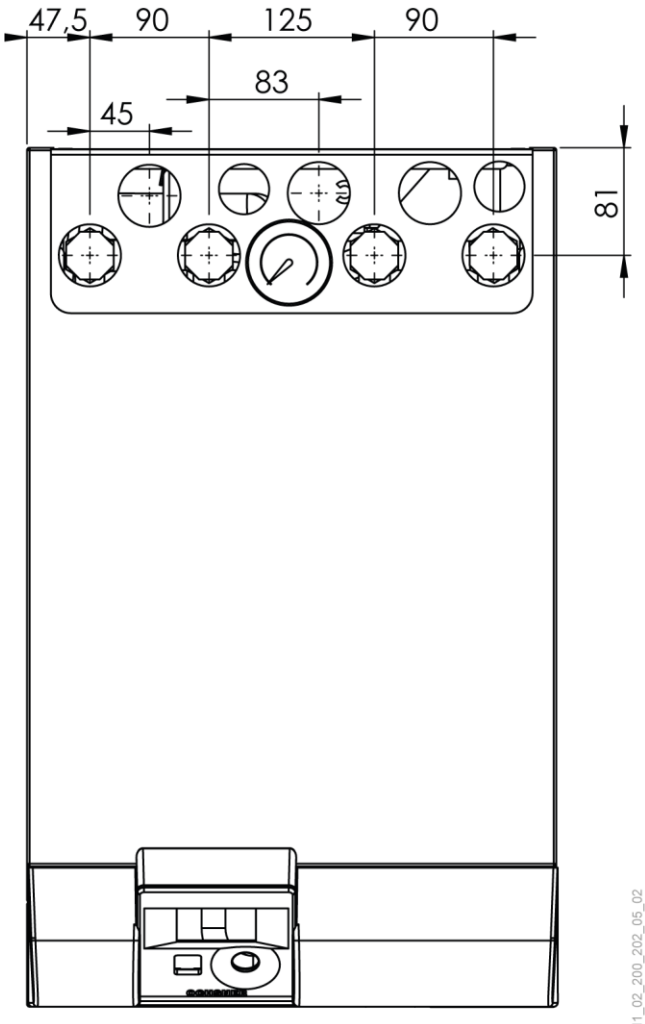


Figure 18: Indoor unit connection dimensions

4.1.4 Venting the system

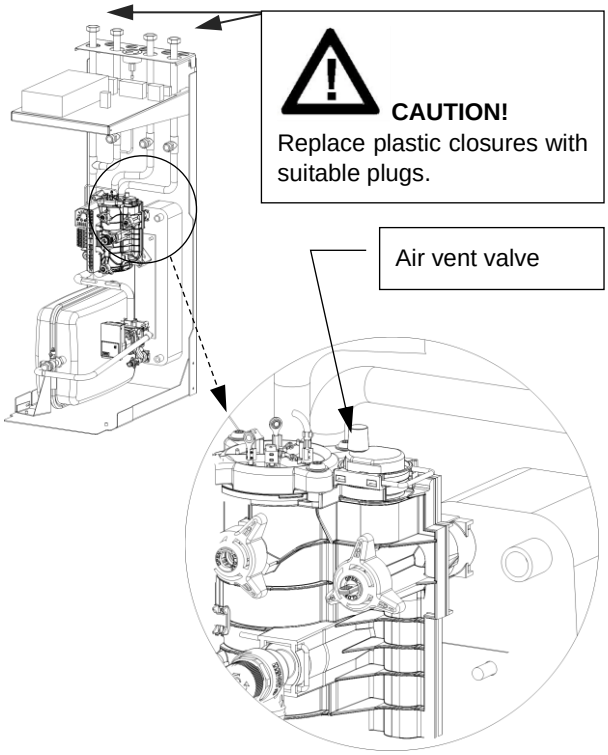


Figure 19: Indoor unit air vent valve

CAUTION
Close the valve cap after venting.

4.1.5 Safety valve

NOTE
Water will escape when the safety valve is opened. Route the drain hose into the sewage drain at the rear of the indoor unit. The drain must not be permanently connected to the sewage drain! A funnel with a siphon must be provided.

- Size the drain hose to ensure water can drain freely when the safety valve is fully open.
- Ensure that the safety valve drain hose is open to the atmosphere.
- Route the safety valve drain hose with a continuous slope to the drain.
- Secure the drain hose to prevent movement when water is running out.

4.1.6 Expansion vessel/system pressure

Preparation for filling:
A 24 l expansion vessel is installed in the heat pump Golf-Midi indoor unit. In buffer systems or systems with higher capacity, this expansion vessel should be checked. If required, install an additional expansion vessel in the system (externally, not inside the appliance).

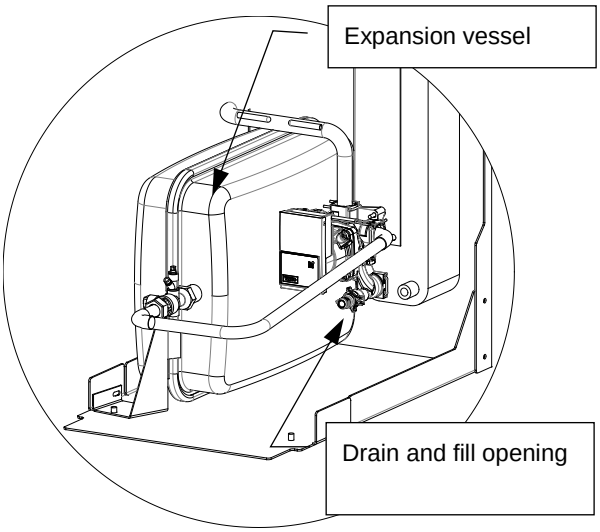


Figure 20: Draining and filling detailed view

Before filling the system, check the pre-charge pressure in the expansion vessel. This must be matched to the building height.

- Static head: Difference between highest and lowest points in the system.
- Pre-charge pressure = static head + 0.3 bar
- System charge pressure = pre-charge pressure +0.5 bar (when cold)
- Max. permissible operating pressure: 2.6 bar. Select a safety valve with 3.0 bar.

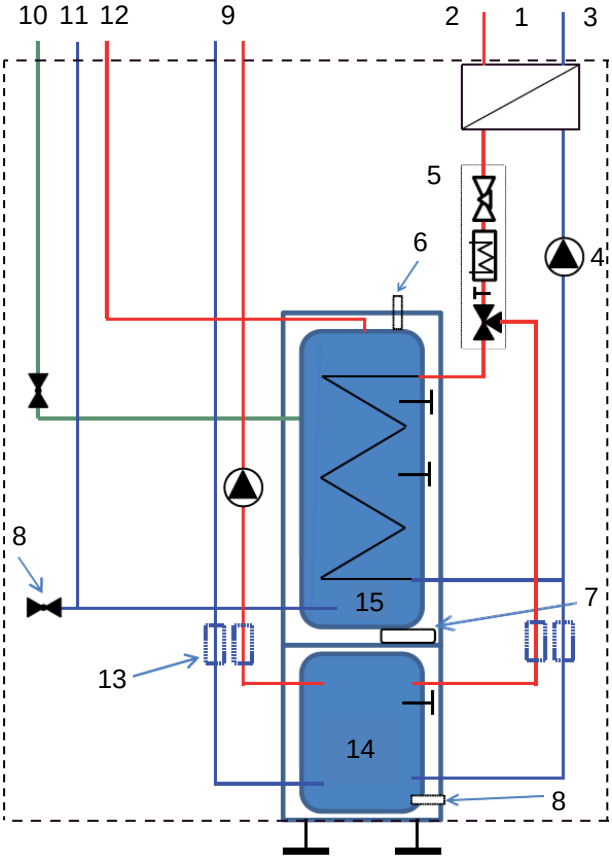
See EN ISO 4126-1:2013-10-15, part 1: Safety valves.

- Flush the heating system thoroughly before filling.
- Only fill with water of potable quality.

4.2 T200 (MULTI TOWER) indoor unit

4.2.1 Appliance description

The buffer tank and the DHW tank with heat exchanger are arranged on top of each other and can be separated for handling.



1 Heat pump
2 Hot gas
3 Liquid
4 Buffer charging pump
5 Multifunctional assembly (MFA)
6 Magnesium anode
7 Cable grommet
8 Drain stopcock
9 Heating circuit
10 DHW circulation
11 Cold water
12 DHW
13 Connecting hoses
14 Buffer tank
15 DHW tank

Figure 21: T200 hydraulic schematic

The appliance is fitted with a plastic foam outer casing and a removable front panel. The appliance is connected hydraulically and electrically to the heat pump. All hydraulic connections are at the top.

Further system components are integrated alongside the DHW tank and the buffer tank:
Heat pump manager, tank charging pump, high efficiency circulation pump for one direct heating circuit, multifunctional assembly with safety valve and 3-way switching valve, emergency/booster heater for mono energetic operation.

4.2.1.1 DHW tank

The steel tank is fitted internally with a special direct enamel and a sacrificial anode. The anode with wear indicator protects the inside of the tank against corrosion.

The heating water heated by the heat pump is pumped through an internal indirect coil in the DHW tank. The internal indirect coil transfers the absorbed heat to the DHW. The integral heat pump manager controls DHW heating to the required temperature.

4.2.1.2 Buffer tank

The steel tank serves to hydraulically separate the flow rates of the heat pump and the heating circuit. The heating water heated by the heat pump is transported to the buffer tank by the tank charging pump. When there is a demand, the heating water is supplied to the heating circuit by the integral heating circuit circulation pump.

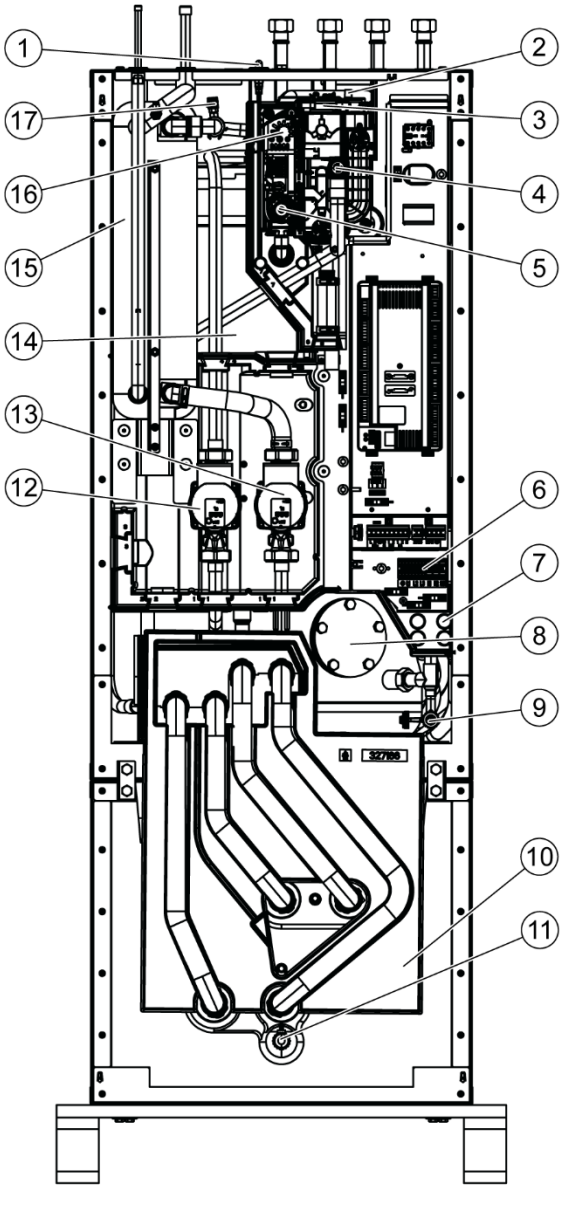
4.2.1.3 Heat pump manager (OTE)

The system is controlled via the integral OTE3 heat pump manager. For adjustment options, see the controller operating manual.

4.2.1.4 Multifunctional assembly (MFA)

The multifunctional assembly switches between heating circuit and DHW heating.

4.2.2 Main components



1 Magnesium anode
2 Air vent valve (MFA)
3 Electric booster heater 8.8 kW (MFA)
4 Safety valve (MFA)
5 3-way switching valve (MFA)
6 Electrical connection
7 Cable entries
8 Maintenance flange
9 Drain stopcock
10 Buffer tank (100 l)
11 Drain stopcock
12 Heating circuit pump
13 Buffer charging pump
14 DHW tank (168 l)
15 Condenser (plate heat exchanger)
16 High limit safety cut-out (MFA)
17 Air vent valve

Figure 22: Main components in T200 indoor unit

4.2.3 Choosing the installation location

CAUTION
Do not install the appliance in damp rooms!

Install the appliance in a frost free and dry room near the draw-off point. In order to reduce line losses, keep the distance between the indoor unit and the outdoor unit small.

Ensure that the floor has adequate load bearing capacity and is sufficiently level (for weight, see section 13, Specification). The room must not be endangered by explosive dust, gases or vapours.

If installing the appliance in a boiler room with other heating appliances, ensure that their operation is not affected.

4.2.3.1 Minimum wall clearances

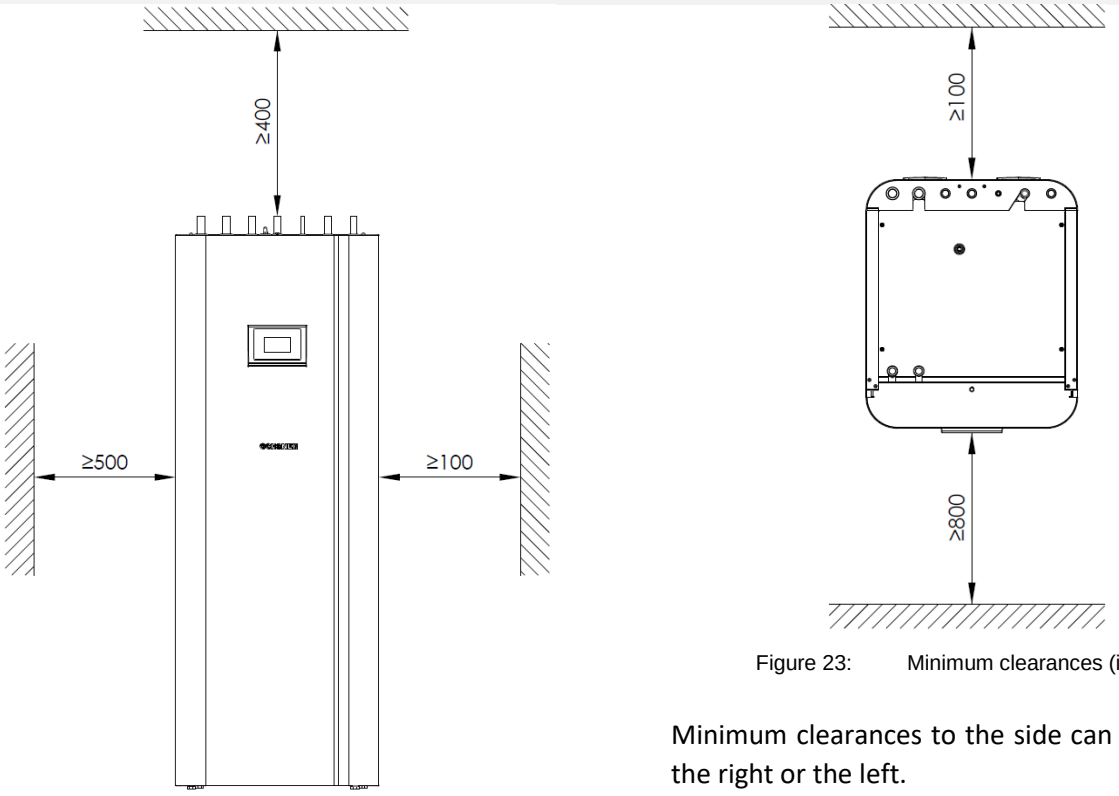


Figure 23: Minimum clearances (in mm)

Minimum clearances to the side can be either to the right or the left.

4.2.3.2 Dimensions

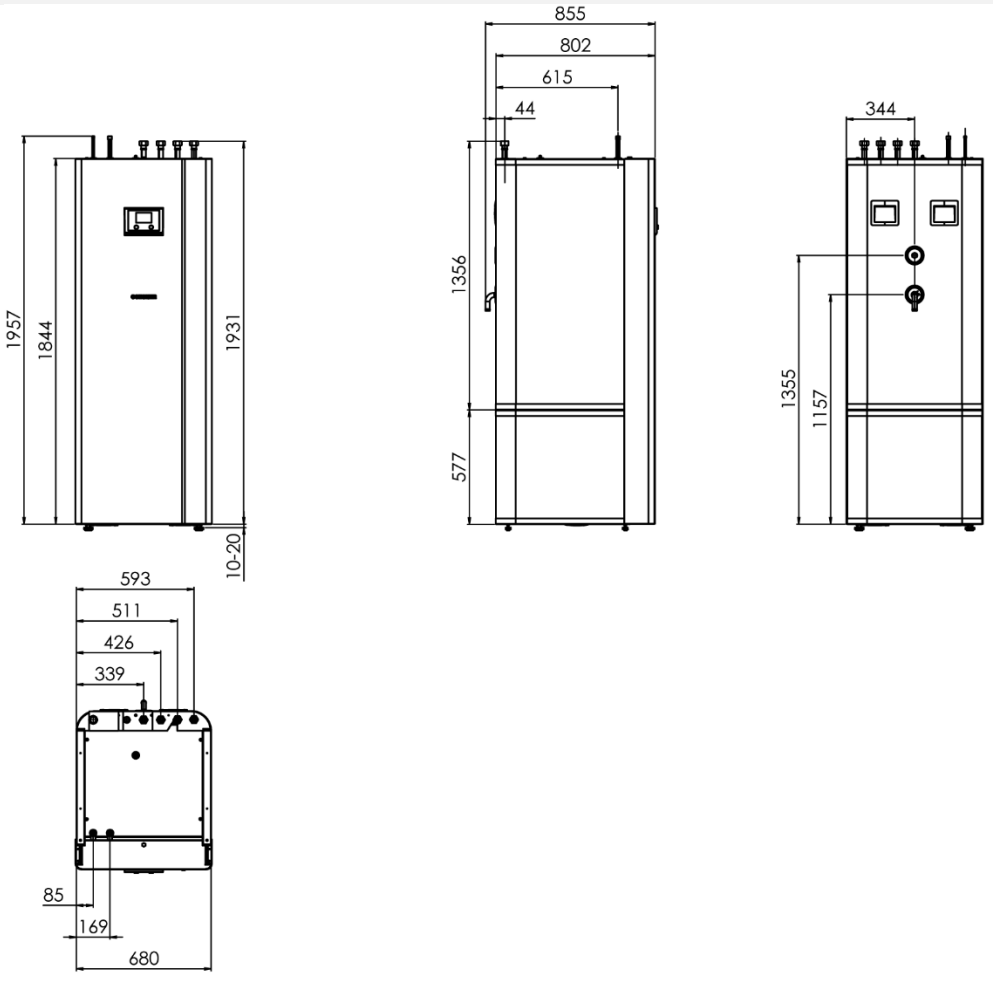


Figure 24: Dimensions (in mm)

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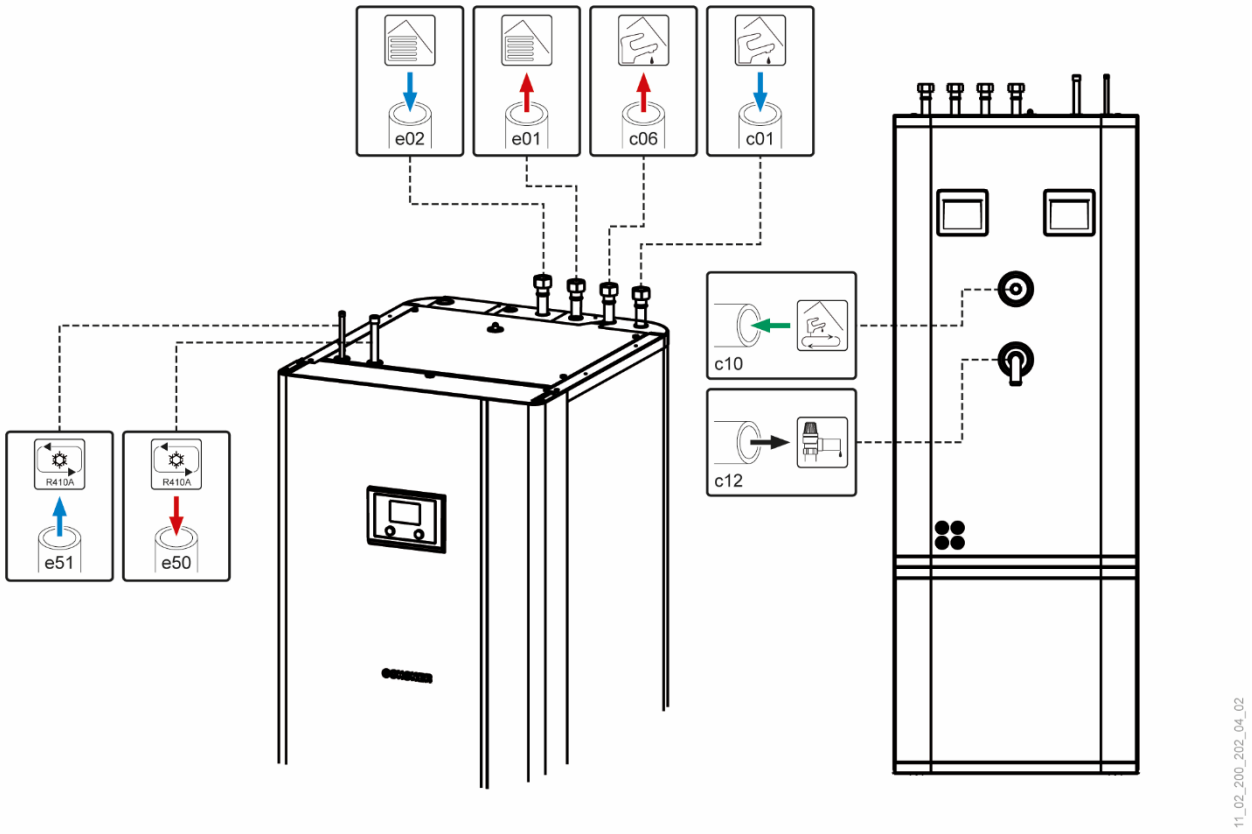
4.2.4 Hydraulic and refrigerant connections



e01 Heating circuit flow 1" union nut with flat gasket
e02 Heating return 1" union nut with flat gasket
e50 Hot gas line
e51 Liquid line
c01 Cold water inlet 1" union nut with flat gasket
c06 DHW outlet 1" union nut with flat gasket
c10 DHW circulation 12 mm copper
c12 Safety valve drain

Figure 25: Hydraulic connections and labels, T200 refrigeration

4.2.5 Transport and handling

- Remove the 4 screws from the non-returnable pallet.

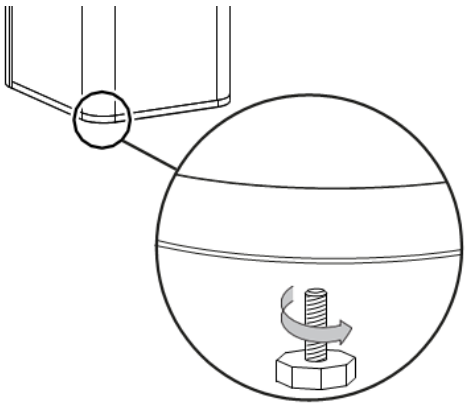
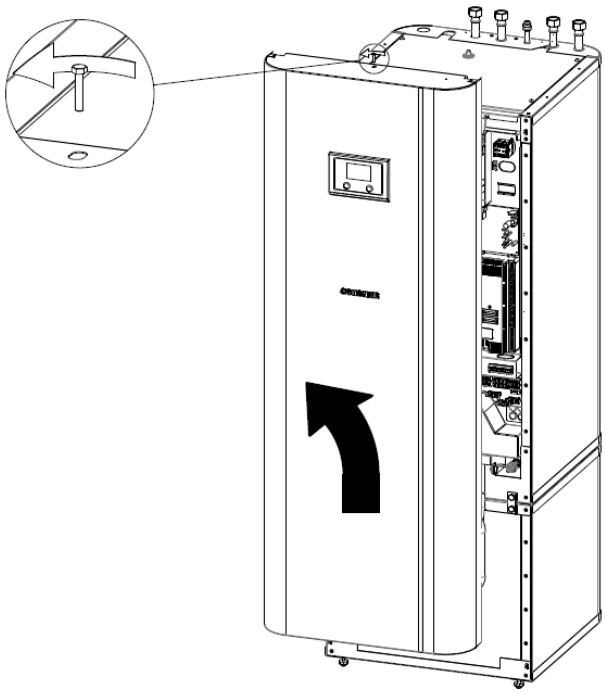


Figure 26: Removing the fixing screw

- Slightly tilt the appliance and screw in the 4 adjustable feet supplied.
- Lift the appliance from the pallet.

Should narrow doors or corridors impede handling, the top and bottom sections of the appliance can be separated as described in the following sections.

Removing the front cladding:



- Remove the screw from the top centre of the appliance.
- Unhook the front cladding towards the top.
- Disconnect the control panel plug and the front panel earth wire.

Installing the front cladding

Install the front cladding in reverse order.

Separating the appliance sections:

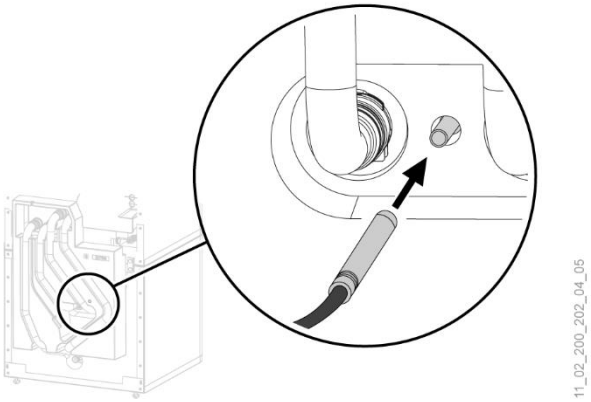


Figure 27: Pull the sensor from the buffer tank.

- Pull out the sensor on the buffer tank.
- Remove the sensor cable from the guiding groove in the insulation element.

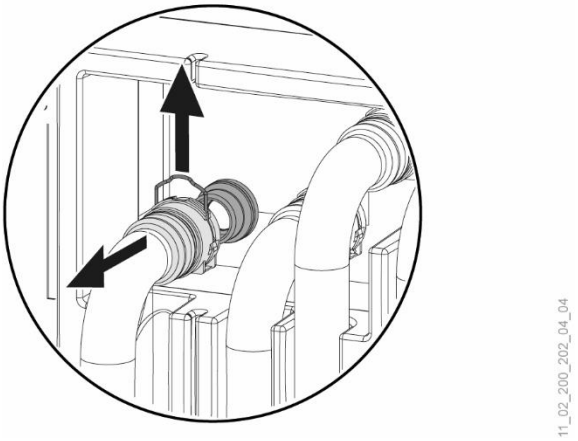


Figure 28: Undoing the plug-in connectors

- Undo the plug-in connectors of the 4 hydraulic connections. Pull out the spring clips fully using a screwdriver.
- Pull off the hydraulic connections towards the front.

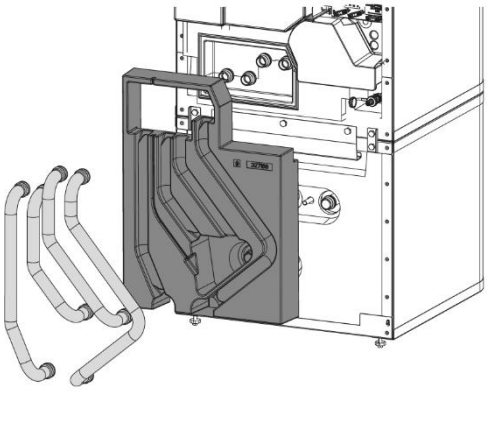


Figure 29: Removing the hydraulic hoses

- Remove the 4 hydraulic hoses and the thermal insulation element.

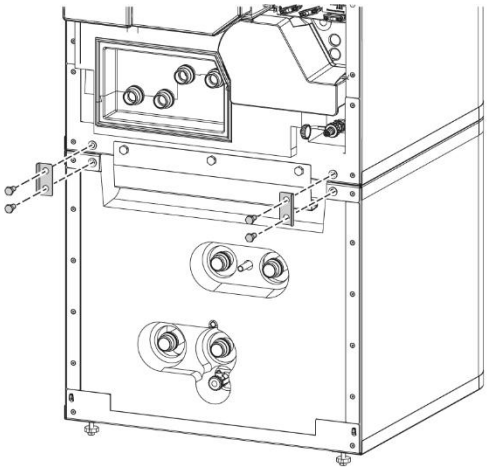


Figure 30: Undoing the connecting screws

- Undo the 4 screws on the tabs at the front of the appliance.

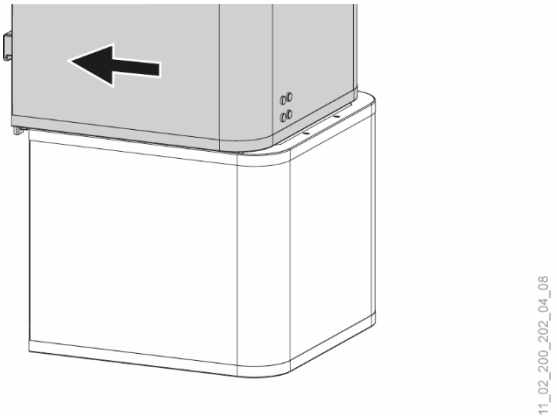


Figure 31: Separating the appliance sections 1

- Pull the top section towards the front.

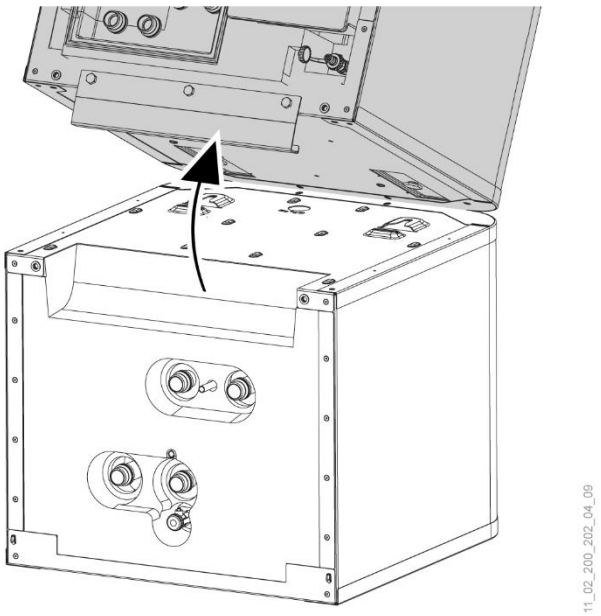


Figure 32: Separating the appliance sections 2

- Tilt the top section towards the back. Use the grip rail for better grip during transport.

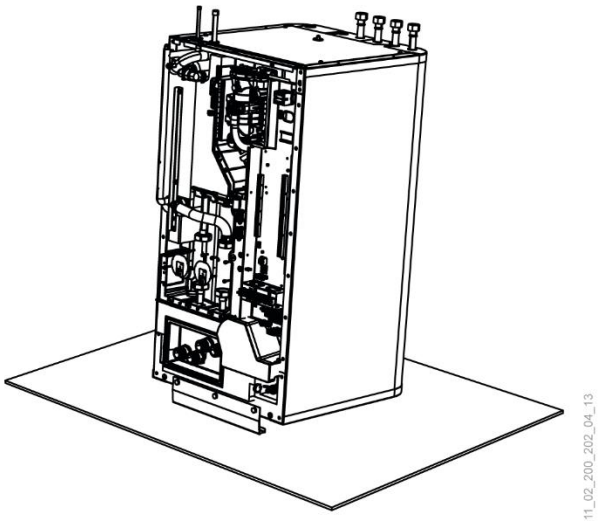


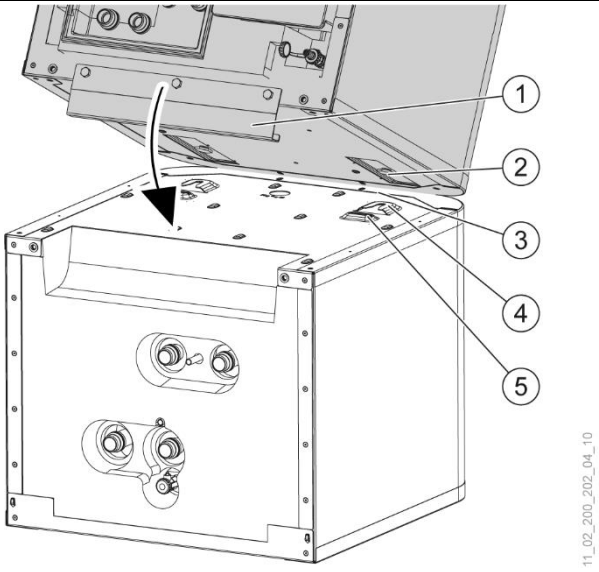
Figure 33: Setting down the T200 top section

- Set the top appliance section on a pad or mat to avoid damage.

Assembling the appliance sections:

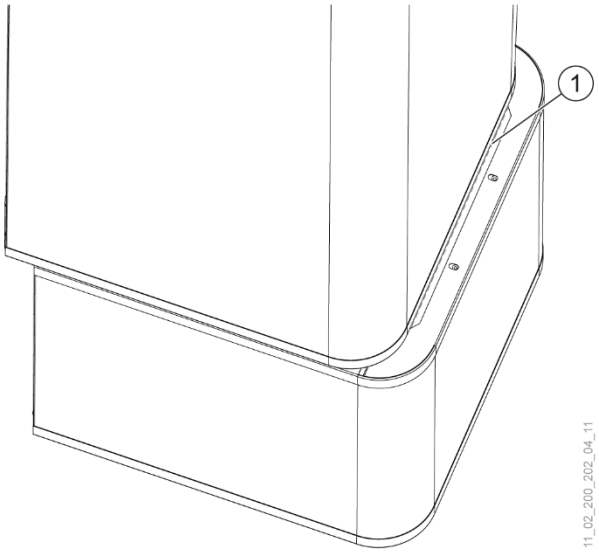
Assemble the appliance sections in reverse order.

The positioning aids and dotted line markings facilitate sliding the top appliance section into the guide on the lower section.



1 Grip rail
2 Guide pin
3 dotted line (perforation in the metal plate)
4 Guide groove
5 Positioning aid

Figure 34: Assembling the appliance sections 1



1 dotted line (perforation in the metal plate)

Figure 35: Positioning aid

- Place the top appliance section onto the bottom appliance section at the dotted line.

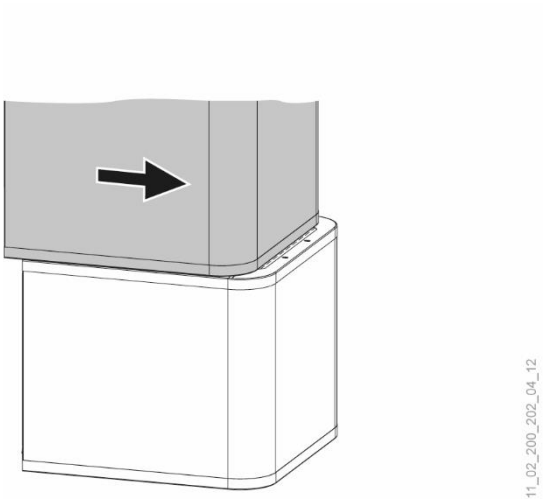
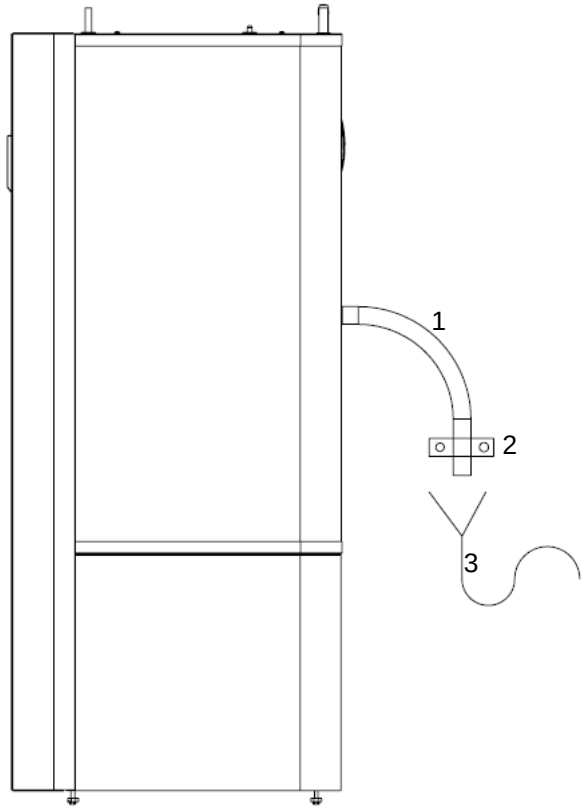


Figure 36: Assembling the appliance sections 2

- Slide the top appliance section towards the rear until it is flush with the bottom section. When the appliance sections are assembled correctly, the end position is given by the guide groove and the guide pin.
- Fasten the tabs at the front of the appliance.
- Fit the thermal insulation element and the 4 hydraulic hoses.
- Fit the plug-in connectors of the 4 hydraulic connections. Ensure that the spring clips engage.
- Plug in the sensor on the buffer tank.
- Route the sensor cable in the guiding groove in the thermal insulation element.

4.2.6 Safety valve



1 Drain pipe
2 Mounting
3 Drain

Figure 37: Drain hose, safety valve

- Size the drain hose to ensure water can drain freely when the safety valve is fully open.
- Ensure that the safety valve drain hose is open to the atmosphere.
- Route the safety valve drain hose with a continuous slope to the drain.
- Secure the drain hose to prevent movement when water is running out.

4.2.7 DHW connection and safety assembly

CAUTION
Do not exceed the maximum pressure (see section 13, Specification).

CAUTION
The appliance must be operated with pressure fittings.

Cold water pipe:
Permitted materials are galvanised steel, stainless steel, copper and plastic.

CAUTION
A safety valve is required.

DHW line:
Permitted materials are stainless steel, copper and plastic.

Installing the DHW circulation line
A DHW circulation line with an external DHW circulation pump can be connected at the "DHW circulation" connection.
- Remove the sealing flap from the "DHW circulation" connection.
- Connect the DHW circulation line.

Connection:
- Thoroughly flush the pipes.
- Install the DHW outlet pipe and the cold water inlet pipe (see section 4.2.4 Hydraulic and refrigerant connections).
- Install a type-tested safety valve in the cold water inlet pipe. Note that, depending on the supply pressure, a pressure reducing valve may be additionally required.

- Size the drain pipe to ensure water can drain freely when the safety valve is fully open.
- The safety valve drain opening must remain open to the atmosphere.
- Route the safety valve drain pipe with a continuous slope.

4.2.8 Filling the system

Filling the heating system:

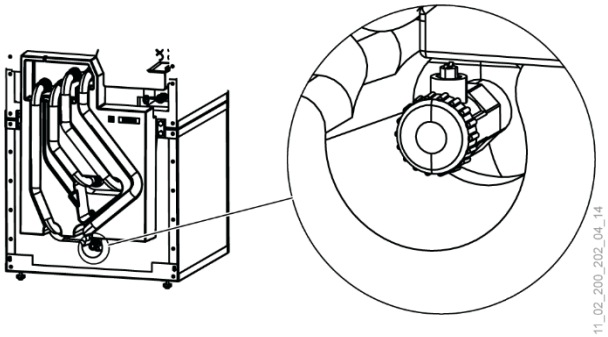


Figure 38: Filling the heating system

- Fill the heating system via the drain valve.
- Vent the pipework.

NOTE

For easier filling, the 3-way switching valve (multifunctional assembly) is set to a position suitable for filling at the factory. The cable from the switching valve to the OTE controller has been disconnected at the factory.

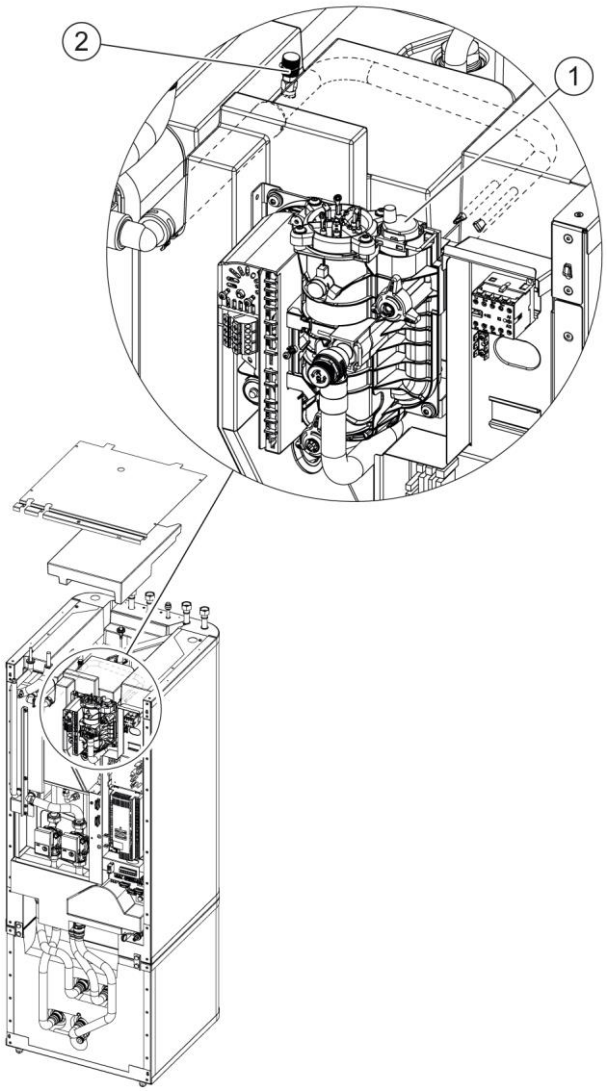
➔ Once the system is successfully filled, connect the plugs **PIN3/N/PE** and **PIN4/N/PE** on the OTE controller.

Filling the DHW tank:

- Fill the DHW tank via the cold water connection.
- Open all downstream draw-off valves until the appliance is filled and the pipework is free from air.
- Adjust the flow rate. Observe the maximum permissible flow rate with fully opened valve (see Specification). If necessary, reduce the flow rate at the throttle on the safety assembly.
- Carry out a leakage test.
- Test the safety valve.

4.2.9 Venting the system

- To vent the system, temporarily open the air vent valve (1) on the multifunctional assembly.



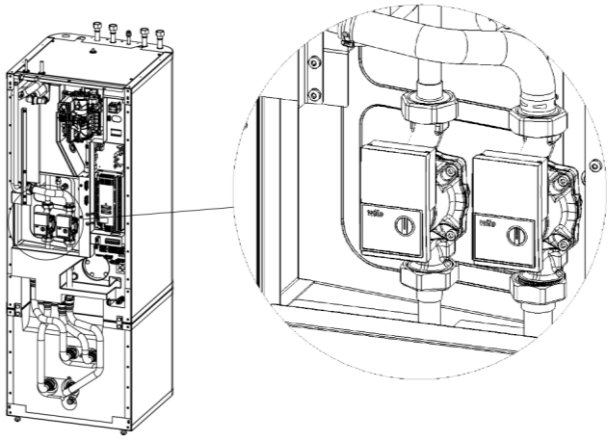
There is another air vent valve underneath the top appliance cladding.
- Remove the top appliance cladding.
- Remove the thermal insulation material underneath.
- To vent the system, temporarily open the air vent valve (2).

CAUTION
Close the air vent valves after venting.

4.2.10 Using T200 with a heating circuit with mixing valve

To use the T200 (MULTI TOWER) indoor unit with a heating circuit with mixing valve, the internal heat circuit pump must be replaced with an adaptor.

The heating circuit pump is the left-hand pump in the upper section of the T200.



Adaptor:
The adaptor needs to have the following dimensions:
- Connections 2 x 1½" MT, with flat gasket
- Length 180 mm
- Nominal diameter DN 25 (1")

The adaptor is available from OCHSNER as an accessory with the item number 914383. Subsequently, the heating circuit (or several) can be set up externally.

Connect the components of the mixed circuit to the following connections on the OTE controller:
- Mixer: **PIN 15/16/N/PE**
- Mixed circuit sensor: **PIN 43/GND**
- Mixed circuit pump: **PIN 8/N/PE**

Recommission the controller with heating circuit 2 in mixed configuration. In case of more than one mixed circuit, an auxiliary module (order no. 290197) is required.

4.2.11 Cooling with T200

NOTE
Only gentle cooling down to a flow temperature of 18°C is permitted with the T200 indoor unit!

4.2.12 T200 maintenance

CAUTION
Before any work is carried out, all electrical connections to the appliance must be isolated from the mains across all poles.

Draining the buffer tank:

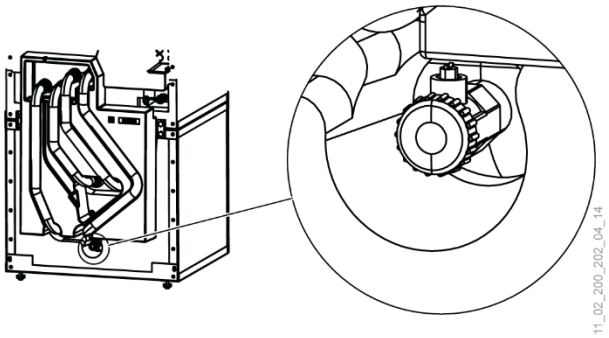


Figure 39: Draining the buffer tank

- Drain the buffer tank via the drain valve.

Draining the DHW tank:

CAUTION Risk of scalding
Hot water can escape when draining the DHW tank.

- Close the shut-off valve in the cold water inlet pipe.
- Open the DHW valves on all draw-off points.

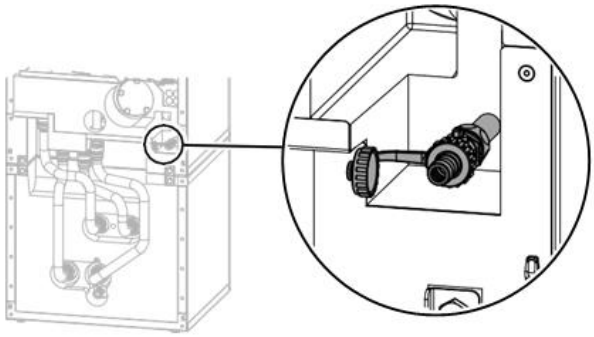


Figure 40: Draining the DHW tank

- Drain the DHW tank via the drain valve.

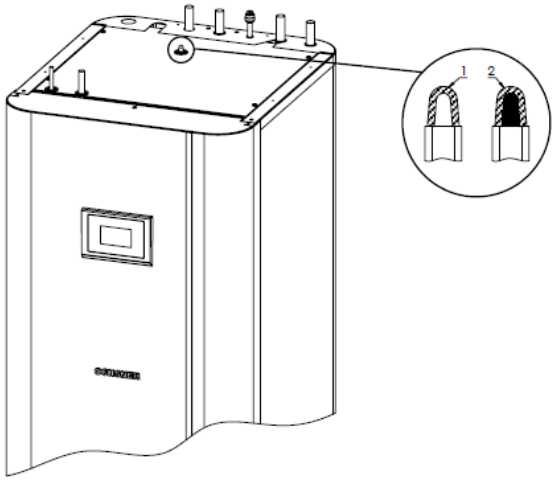
Cleaning and descaling the DHW tank:

CAUTION
Do not use a descaling pump or descaling agent to clean the tank.

- Clean the appliance via the inspection flange.
- For tightening torques and flange bolts, see Specification.

Sacrificial anode:

CAUTION
If the wear indicator has changed from a white to red colour, let a qualified contractor check the sacrificial anode and replace it if necessary.



1 white = anode OK
2 red = requires checking by qualified contractor

Figure 41: T200 DHW tank sacrificial anode

- Replace the sacrificial anode when it has been used up.

5 Connection lines

5.1 Refrigerant lines

NOTE
If the appliance, the refrigerant lines, the fixing points and the wall conduits are not properly installed, structure-borne sound may be transmitted to the building.

➔ Ensure the refrigerant lines are secured in a way to minimise structure-borne sound. The system installer carrying out the work is responsible for this.

WARNING
Work on the refrigerant circuit may be carried out only by an authorised and suitably qualified contractor.

- When handling refrigerant, wear appropriate gloves, protective clothing and protective glasses.

Always position the outdoor unit as closely to the indoor unit as possible. The maximum length of the connection line must not exceed a total length of 25.0 m! Do not exceed a maximum difference in height of 15.0 m.

	Unit	OCHSNER AIR EAGLE 414	OCHSNER AIR EAGLE 717
max. length	m	< 25	< 25
max. height differential	m	15	15
Refrigerant		R410A	R410A
max. operating pressure	bar	45	45
Hot gas line	mm	12	16
Liquid line	mm	10	12

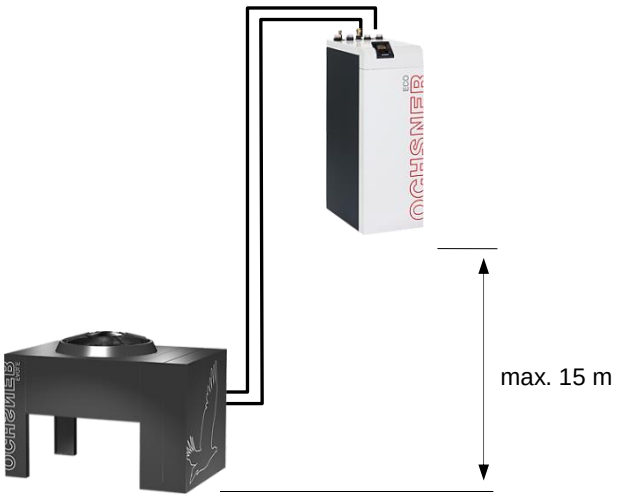


Figure 42: Max. height difference

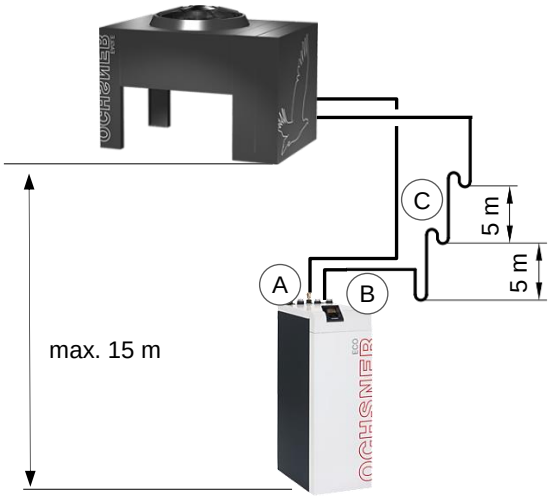


Figure 43: Oil lift bends

A Liquid line

B Hot gas line (thicker copper pipe)

C Oil lift bend in the hot gas line (min. bending radius 5x diameter)

5.2 Conduit to house

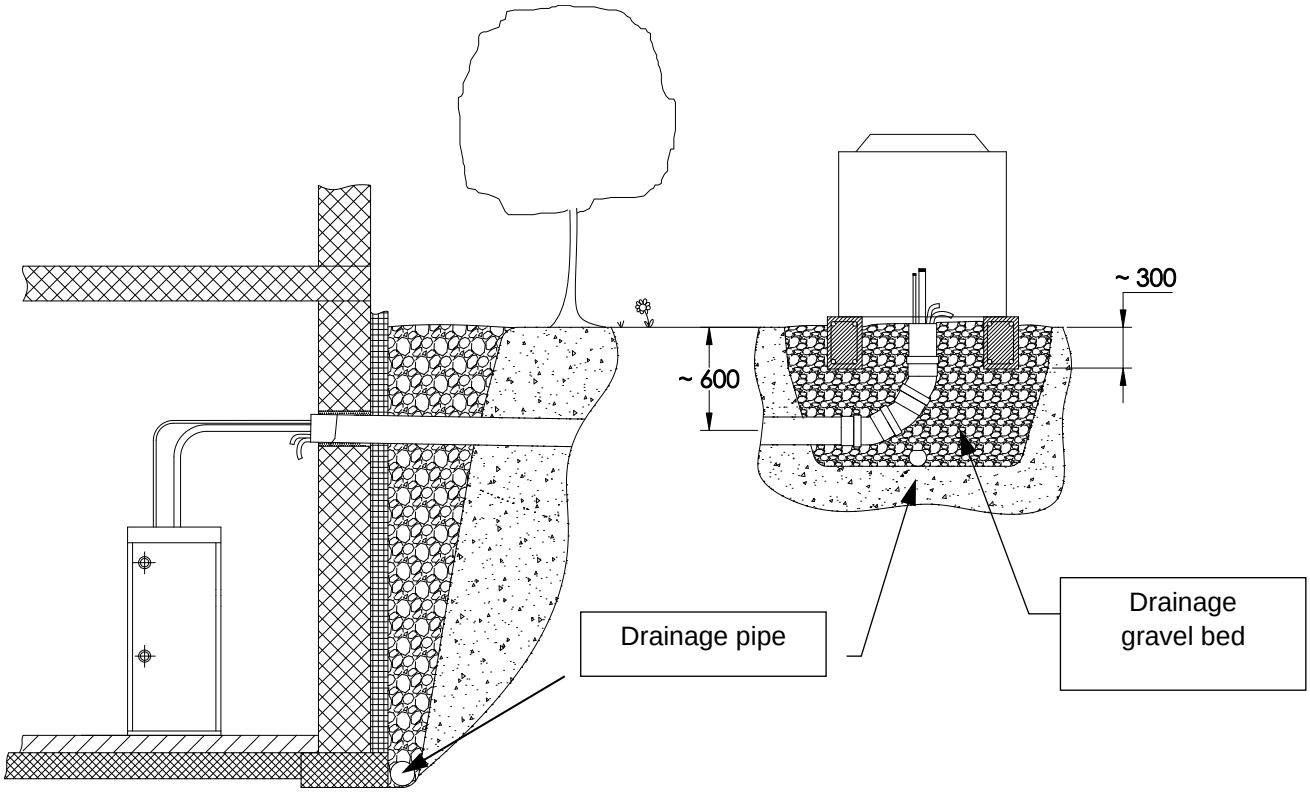


Figure 44: Conduit to house (dimensions in mm)

6 Electrical connection

6.1 Preparation

CAUTION!
Before starting any wiring, isolate the heating system from the power supply.

DANGER of electric shock
All electrical connection and installation work must be carried out according to the relevant national and regional regulations.

Connection work may only be carried out by an approved contractor according to this manual!

The listed fuse protection ratings and cable cross-sections are guideline values only! The electrician connecting up the heat pump is responsible for selecting the correct safety devices. Cables should be selected by the electrician taking into account the output and cable lengths.

WARNING
Before commissioning, the necessary fault protection measures on the system and the earth connection must be checked by a certified electrician. **The main power circuit for the compressor motor has no upstream power contactor on the machine side.** Control devices and equipment to disconnect and shut down all supply voltages across all poles, which must be provided on the system side, must meet the technical safety requirements of **EN 60204-1 sections 5 and 13.4.5**, as well as the international regulations in the **IEC 60947** series.
During maintenance or service work, shut down all heat pump supply voltages on the system side and observe safety regulations to EN 50110-1.
Failure to observe the technical safety requirements or precautions may result in serious injury or death.

Checklist:

- The specified voltage must be consistent with the grid voltage. Pay attention to the information on the type plate!
- For connection of the appliance, approval must be obtained from the relevant power supply utility.
- Fuse protection for the main power circuit 230 V/400 VAC should be provided via a circuit breaker, which triggers a shutdown across all poles in the event of a fault.
- If RCDs (FI) are used, they must trigger an AC/DC-sensitive shutdown.
- The supply lines must be protected against surges and short circuits.
- It is essential that the regulations of the responsible PSU (power supply utility) and the applicable EN standards are observed.

6.2 Guidelines

Position	min. cross-section
Connection cables 230 VAC: Always size connection cables according to the local conditions.	1.5 mm²
Control cable 230 VAC: Pumps, actuators	min. 1.0 mm²
Sensor leads: (outdoor sensors, etc.), sensor leads are sensitive to EMC and must always be routed separately (min. 20 cm) from 230 V/400 V lines. If separation is not possible, screened cables should be used. Screening should be connected to PE on the heat pump Max. line length 50 m!	2x 1.0 mm²
Bus leads: Modbus from outdoor to indoor unit, room remote control units, eBus from OTE controller to room remote control units, auxiliary modules, underneath each other in cascades). These lines must always be routed in a screened version. The screen should be earthed to PE on the heat pump. OCHSNER recommends the following conventional cable: Y(ST)Y) 2x2x0.8 **CAUTION**: Always use a twisted wire pair! Example: MODEBUS = A/B Example: eBus = SIGNAL/GND Do not connect GND to the screen!	2x2x0.8 mm²

Table 1: Cable selection

6.3 Power connection details

According to the wiring diagram (see section 6.15, Wiring diagrams) the 400 VAC and 230 VAC power supplies should be provided separately. The following power supplies must be provided:

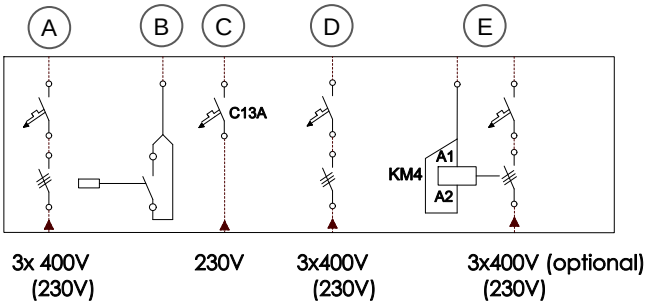


Figure 45: Power supply

A 400 V (230 V) compressor supply
B PSU signal contact (indoor unit control box)
C 230 V controller supply (indoor unit control box)
D 400 V (230 V) electric booster heater (indoor unit control box)
E Option: 400 V (230 V) DHW auxiliary heater for anti-legionella function.

The 230 VAC controller power supply to the outdoor unit is via terminal strip X2 in the indoor unit control box (L N PE). This ensures that the outdoor unit and the indoor unit are in phase.

If it is not possible to comply with the 100 mm minimum clearances between sensor leads and 230 V/400 V, then screened cables should be used.

The listed fuse protection ratings are guide values only! The electrician connecting up the heat pump is responsible for selecting the correct safety devices.

OCHSNER does not accept liability for faults resulting from incorrectly designed safety devices!

*PSU = power supply utility

6.4 PSU signal contact

CAUTION!
There is a 230 VAC control voltage present on the PSU signal contact!

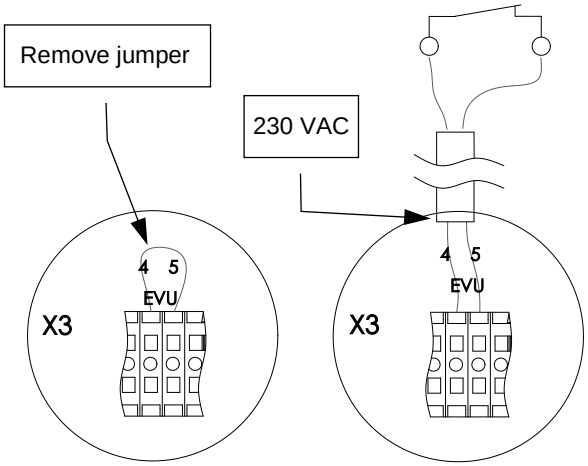


Figure 46: PSU signal contact

Remove the jumper and insert cables as shown in the drawing. If the PSU signal contact is interrupted, the compressor and the booster heater (if installed) will immediately shut down.

6.5 Uninterrupted tariff

In the case of tariff switching without interrupted power supply, the heat pump is temporarily shut down by the power supply utility. The PSU signal contact on the EAGLE indoor unit (terminal strip X3) should be used for this. To enable the function, remove the jumper and connect the cables.

6.6 Shutdown by tariff contactor

In case of shutdown by a tariff contactor (sealed by the PSU, installed on site), the heat pump compressor power supply is disconnected. In this case, the PSU signal contact must be switched via an auxiliary contact on the tariff contactor (N/C contact) (otherwise ERROR).

6.7 Night tariff

Where tariff switching takes place within the meter (night tariff), the PSU signal contact is not connected.

6.8 Modbus wiring

A Modbus connection is required between the EAGLE outdoor and indoor units. Communication between the bus subscribers requires a twisted cable. Cables of type **Y(ST)Y 2x2x0.8 mm² have proved to be suitable**.

CAUTION!
Always use a twisted wire pair.

MODBUS = A/B
eBus = SIGNAL/GND
Do not connect GND to the screen!

6.9 Sensor wiring

Never apply voltage to the sensor terminals! This would destroy the controller.

The type NTC5K temperature sensors of the OTE controller are supplied with a cable length of 4.0 m. If this length is not sufficient, the leads can be extended to the required dimension. Please use 2x 1.0 mm² flexible cable.

During installation of the sensor cable, ensure that the cable is not routed parallel to cables with AC voltage >230 VAC.

Outdoor sensor TA
Install the outdoor sensor of the controller at a height of approx. 2.5 m on the outside of the building wall (facing north-west). Make sure that the outdoor sensor is not exposed to direct sunlight or wind, as this will impair the control characteristics. Also avoid positioning it close to the evaporator. There may be a risk of influence on the control.

Mixer sensor TMK
If a mixer circuit is installed in addition to the direct heating circuit, a mixer sensor must be installed. The mixer sensor is a contact sensor and is supplied with the heat pump including a band clamp and heat conducting paste. Install the mixer sensor directly downstream of the mixer circuit pump. When using multi-skin or plastic pipes, provide a suitable large metal bridge.

Buffer sensor (TPO, TPM)
Two buffer sensors are required in the buffer tank. The heat pump is switched on based on readings from the TPO and switched off based on those from the TPM.

- Install a sensor pocket in the female socket provided for the upper buffer sensor (TPO)
- Install a sensor pocket in the female socket provided for the lower buffer sensor (TPM)

NOTE
In systems with **direct heating circuit,** install the TPO sensor in the heating flow of the heat pump indoor unit.

- Install the TPO sensor in the indoor unit at the marked location on the heating flow pipe, downstream from the electric booster heater (MFA).
- The required controller parameters are set by OCHSNER customer service or specialist personnel authorised by OCHSNER.

In systems with a buffer tank, a bypass or a low loss header or a heating circuit with mixing valve, the TPO sensor must **not be installed in the indoor unit**.

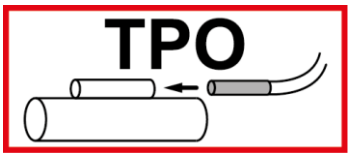


Figure 47: Pipe marking in the heat pump indoor unit

DHW sensor TB
The DHW sensor is included in the delivery of the heat pump. OCHSNER DHW tanks are fitted with appropriate female sockets for installing the sensor.

Install the DHW sensor in the top one-third of the DHW tank (or at the very least in the top half). The lower the selected location of the DHW sensor, the larger the switching hysteresis (5-15 K) will need to be.

NOTE
Ensure that the DHW sensor is correctly positioned and extends beyond the tank insulation into the interior of the DHW tank. This is the only way in which the temperature can be measured correctly.

6.10 Pumps, drives 230 VAC

Pumps (heating circuit pumps, DHW charging pump) and drives (mixer valves, etc.) are connected directly to the controller.

A test run may only be carried out on a system that has been prepared for commissioning! A relay test can be performed on the OTE controller to check the relevant outputs (actuators).

6.11 HLSC on the heating circuit

If an on-site high limit safety cut-out (HLSC) is installed, it can be connected to the HLSC contact on terminal strip X3. This shuts down the feed pump. This only applies for hydraulic connection versions 7.1 and 7.2. In all other versions, the HLSC must be installed directly in the power supply of the on-site heating circuit pump.

6.12 DHW booster heater

A separate contactor must be provided in the electric distribution box for the optional electric auxiliary heater in the DHW tank (anti-legionella function). See electrical wiring diagram in section 13, Specification. This function is an option and therefore not supplied with the heat pump.

6.13 Wiring diagram

The following wiring should be prepared by the system installer for heat pump commissioning by OCHSNER customer service:

	BMK	Cable	Wires	Output/fuse protection	From (source)	To (target)
1	**W1**	Power supply controllers	230 VAC - L/N/PE	Fuse protection: C13A	Primary/secondary distribution	Indoor unit
2	**W2**	Power supply compressor	3x 400 VAC - L1/L2/L3/N/PE or 1x 230 VAC - L/N/PE	EAGLE 717: C16A EAGLE 414: C20A	Primary/secondary distribution	Indoor unit
3	**W3**	Power supply booster heater	3x 400 VAC - L1/L2/L3/N/PE or 1x 230 VAC - L/N/PE	8.8 kW 3x 400 V, B16A across all poles 1x 230 V, B40A	Primary/secondary distribution	Indoor unit
4	**W4**	Power supply compressor	3x 400 VAC - L1/L2/L3/N/PE or 1x 230 VAC - L/N/PE	EAGLE 717: C16A EAGLE 414: C20A	Indoor unit	Outdoor unit
5	**W5**	Control cable	230 VAC - 23/24/L/N/PE 5x 1.5 mm²	Internal fuse protection	Indoor unit	Outdoor unit
6	**W7**	MODBUS	2x 2x 0.8 mm² screened		Indoor unit	Outdoor unit
7	OTE	TA outdoor temperature sensor	2x 1.0 mm² screened		Indoor unit - OTE	Building exterior wall
8	OTE	eBus to room remote control *(optional)*	2x 2x 0.8 mm² screened		Indoor unit - OTE	Room remote control
9	OTE	Communication to RoomTerminal *(optional)*	2x 2x 0.8 mm² screened		Indoor unit - OTE	RoomTerminal touchscreen
10	OTE	All required sensors TB, TMK *(optional)*	2x 1.0 mm²		Indoor unit - OTE	Heating system
11	OTE	All required actuators, servomotors, pumps	230VAC at least 1.0 mm²		Indoor unit - OTE	Heating system

Table 2: Wiring diagram

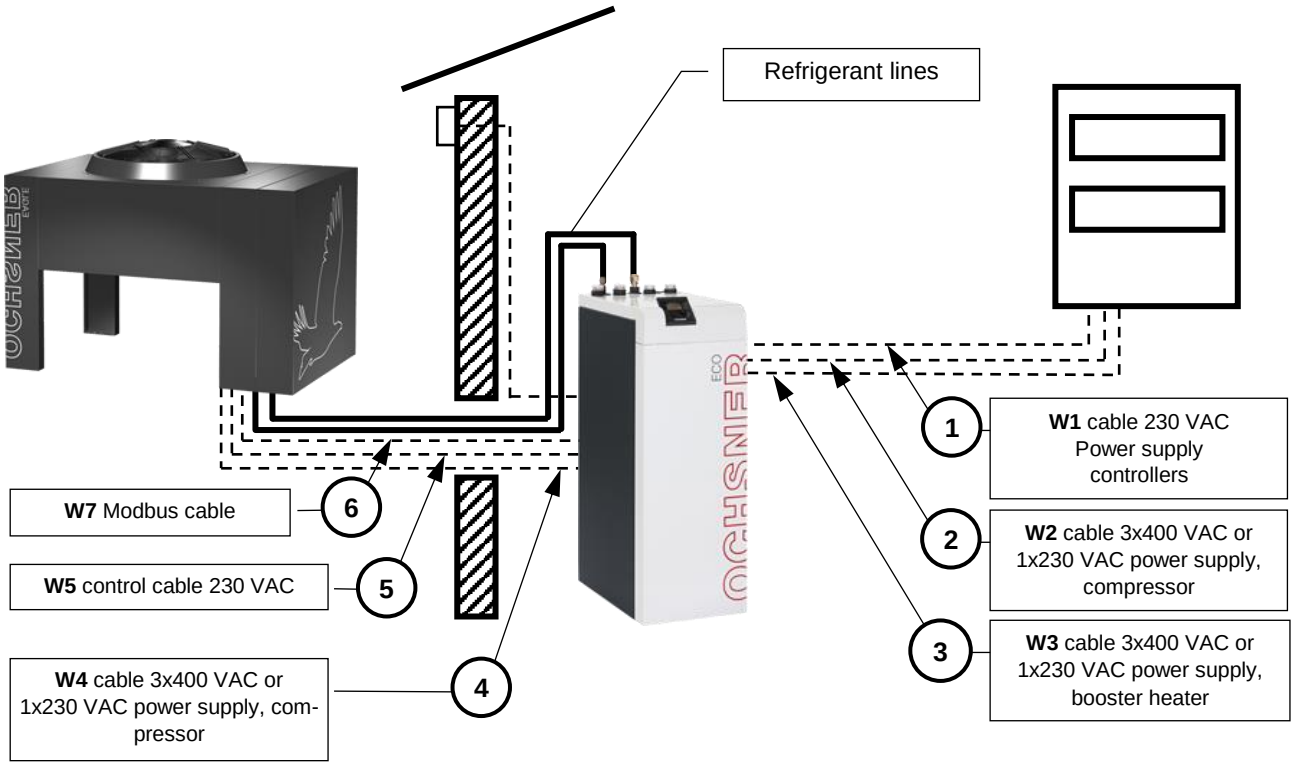


Figure 48: Wiring overview

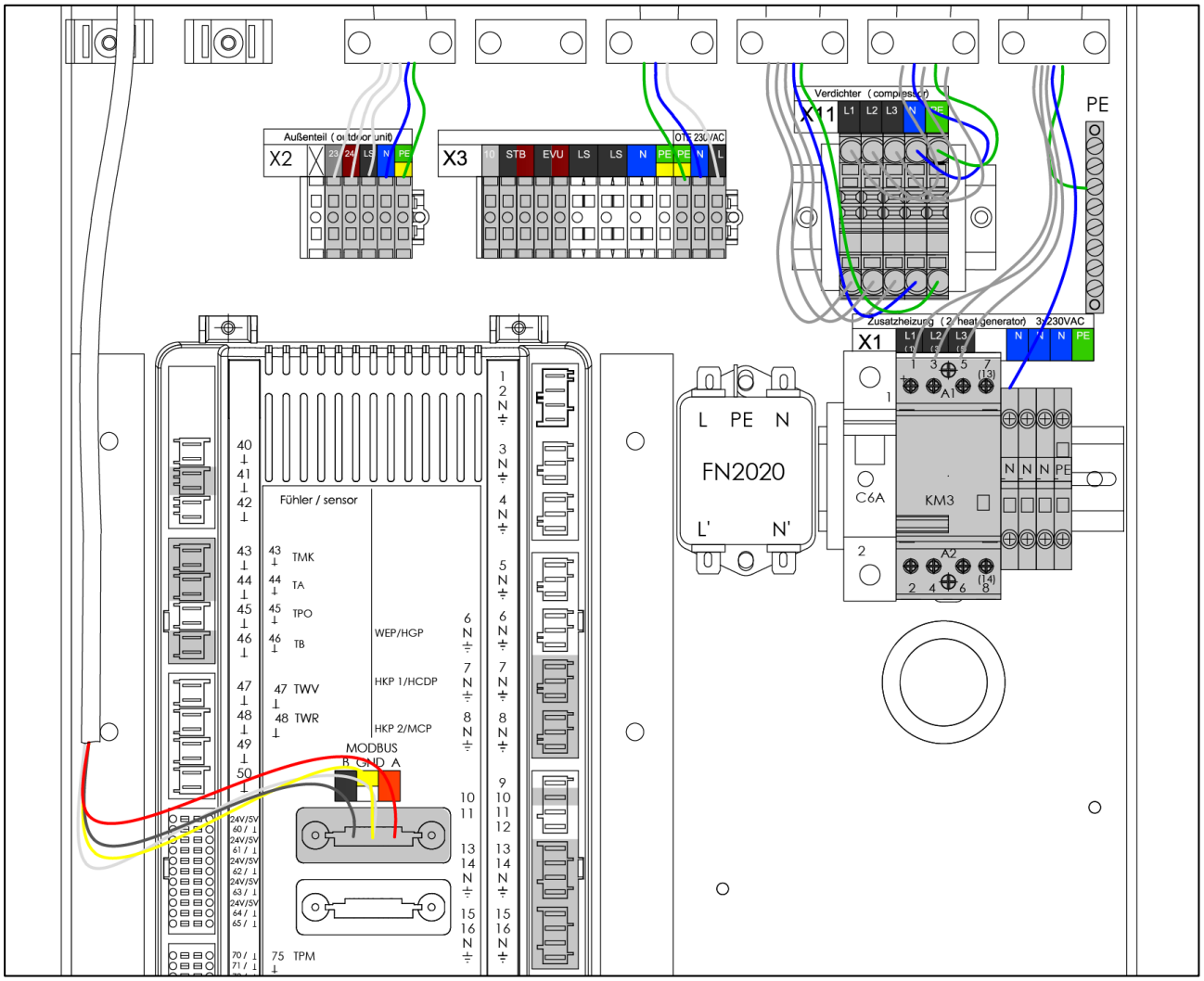
NOTE
OCHSNER can provide a cable harness as an accessory for the electrical connection between indoor unit (Golf-Midi or T200) and outdoor unit. The cable harness combines the Modbus cable (W7), the control cable (W5) and the compressor supply (W4). For the MULTI TOWER (T200) an external junction box (X11) must be provided next to the indoor unit.

6.14 Indoor unit wiring

CAUTION
Isolate the system from the power supply before attempting any electrical work!

CAUTION
Connecting cable cross-sections should be sized according to local regulations.

6.14.1 Golf-Midi indoor unit



Terminal		Description
X1	L1/L2/L3 (KM3)	Power supply electr. booster heater 8.8 kW (W2)
	N1/N2/N3/PE	
X2	23/24/LS/N/PE	Control cable to outdoor unit (W5)
X3	L/N/PE	Power supply OTE controller (W1)
	EVU	PSU signal contact

OTE pin	Description
7	Heating circuit pump 1, direct (HCP 1)
8	Heating circuit pump 2, with mixer valve (HCP 2)
13/14	DHW charging pump ON/OFF (WWL)
15/16	Heating circuit mixing valve (MVH)
41/42	Control elements (eBus)

	HLSC	External high limit safety cut-out (heat sink)
	10	DHW auxiliary heater
X11	L1/L2/L3/N/PE	Compressor power supply (W4, to outdoor unit)

43	Mixer sensor (TMK)
44	Outdoor temperature sensor (TA)
46	DHW sensor (TB)
72	Default target value, building management system (BMS)
MODBUS B/GND/A	Modbus connection to outdoor unit

Note: If the X11 terminal is not provided in the indoor unit control box on site, provide an external junction box with X11.

6.14.2 T200 (MULTI TOWER) indoor unit

The appliance control box is located behind the front panel (see section 4.2.5).

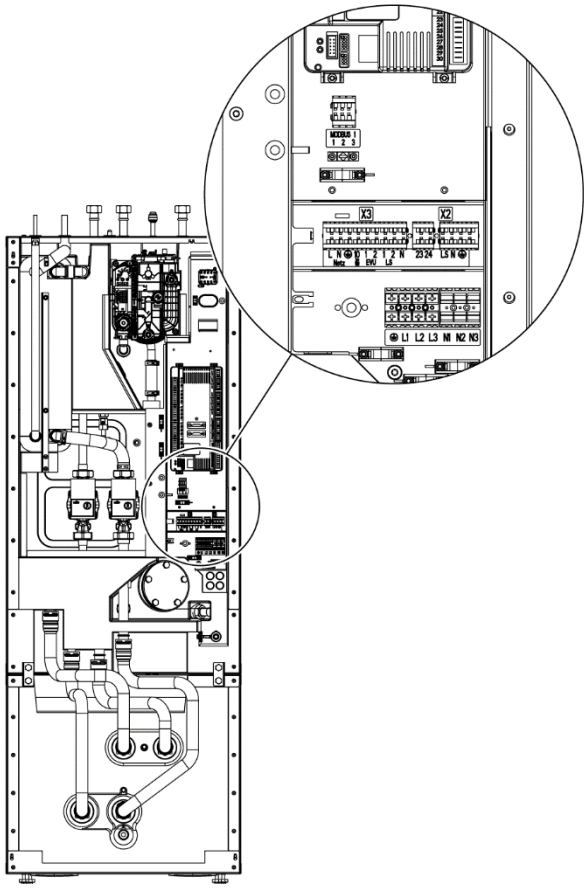


Figure 49: T200 electrical connection

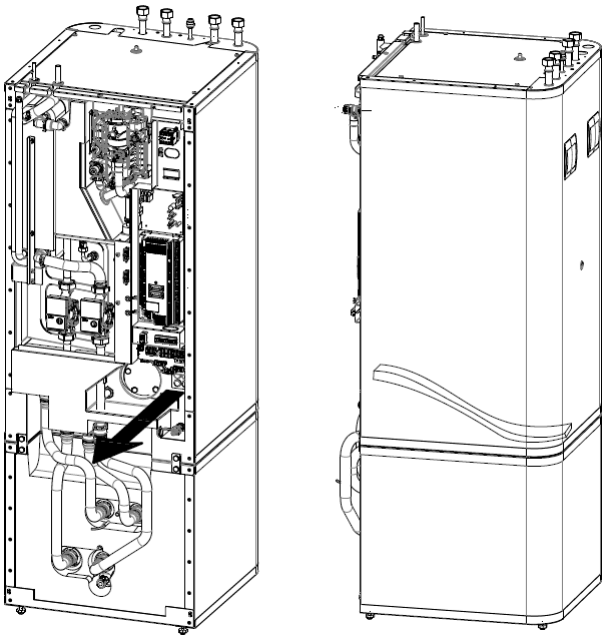
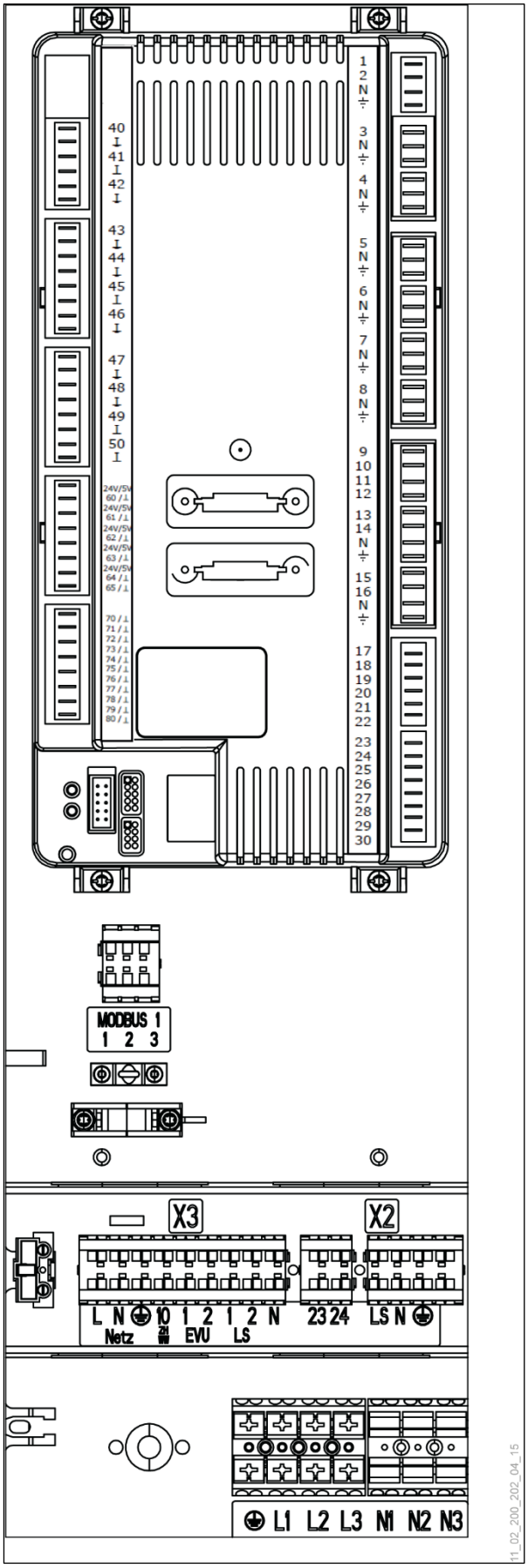


Figure 50: T200 indoor unit cable entry

- Route all mains and sensor cables through the cable entry into the appliance.

T200 control box:



Terminal		Description
X1	L1/L2/L3	Power supply
	N1/N2/N3	electr. booster heater 8.8 kW
X2	23/24/LS/N/PE	Control cable to outdoor unit
X3	L/N/PE	Power supply OTE controller
	10	DHW auxiliary heater
	1/2 (EVU)	PSU signal contact
	1/2	External high limit safety cut-out (heat sink)
Modbus B/GND/A		Modbus connection to outdoor unit

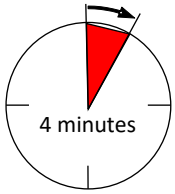
OTE pin	Description
8	Heating circuit pump 2, with mixer valve (HCP 2)
15/16	Heating circuit mixing valve (MVH)
41/42	Control elements (eBus)
43	Mixer sensor (TMK)
44	Outdoor temperature sensor (TA)
72	Default target value, building management system (BMS)

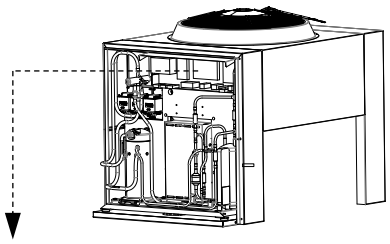
Figure 51: T200 indoor unit connection terminals

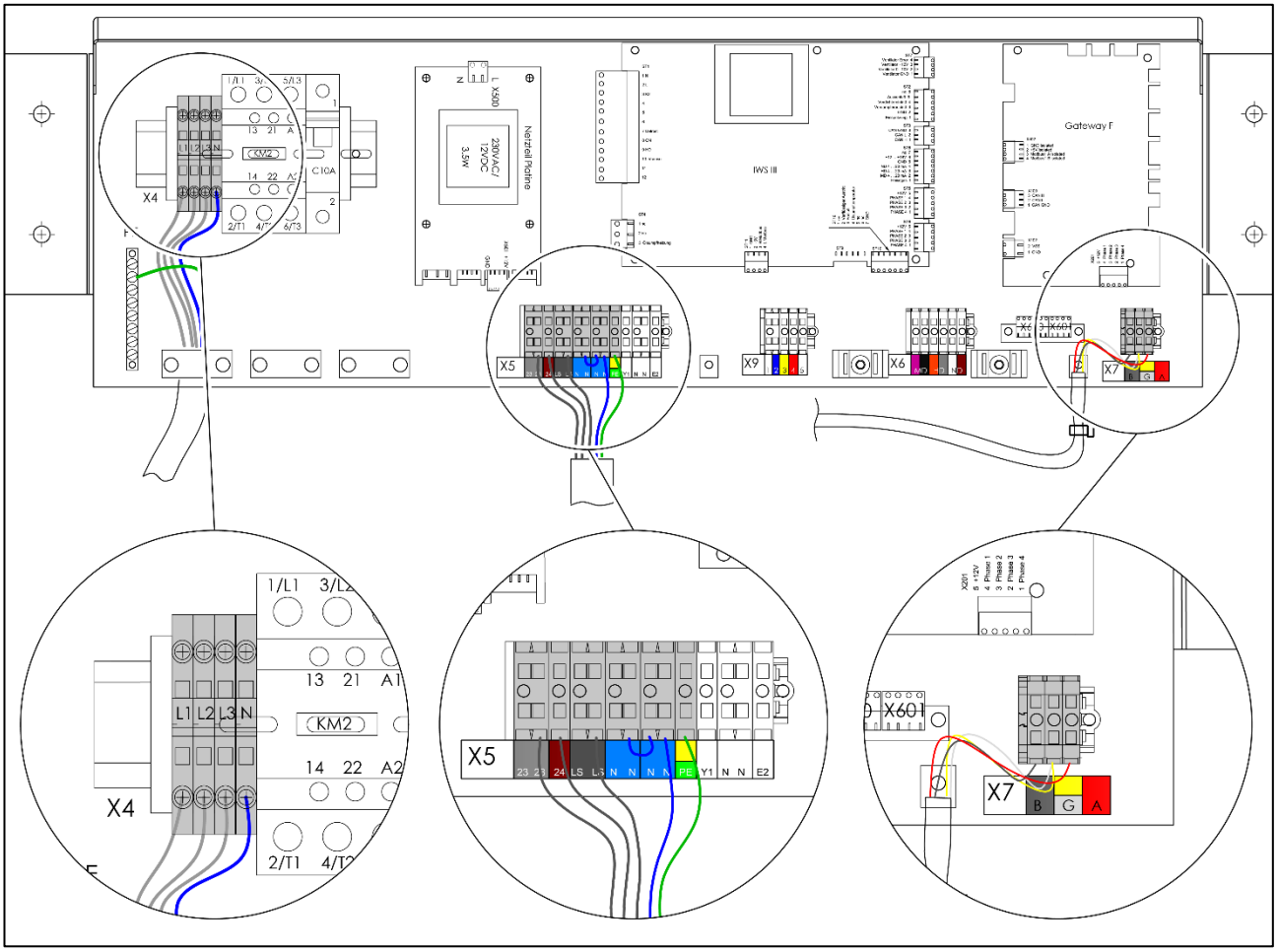
Outdoor unit wiring

CAUTION danger of death!
Prior to carrying out any work/repairs on the outdoor unit, wait at least **4 minutes** after disconnecting the unit from the power supply, to ensure all capacitors have been discharged.

From disconnection from power supply: +4 minutes





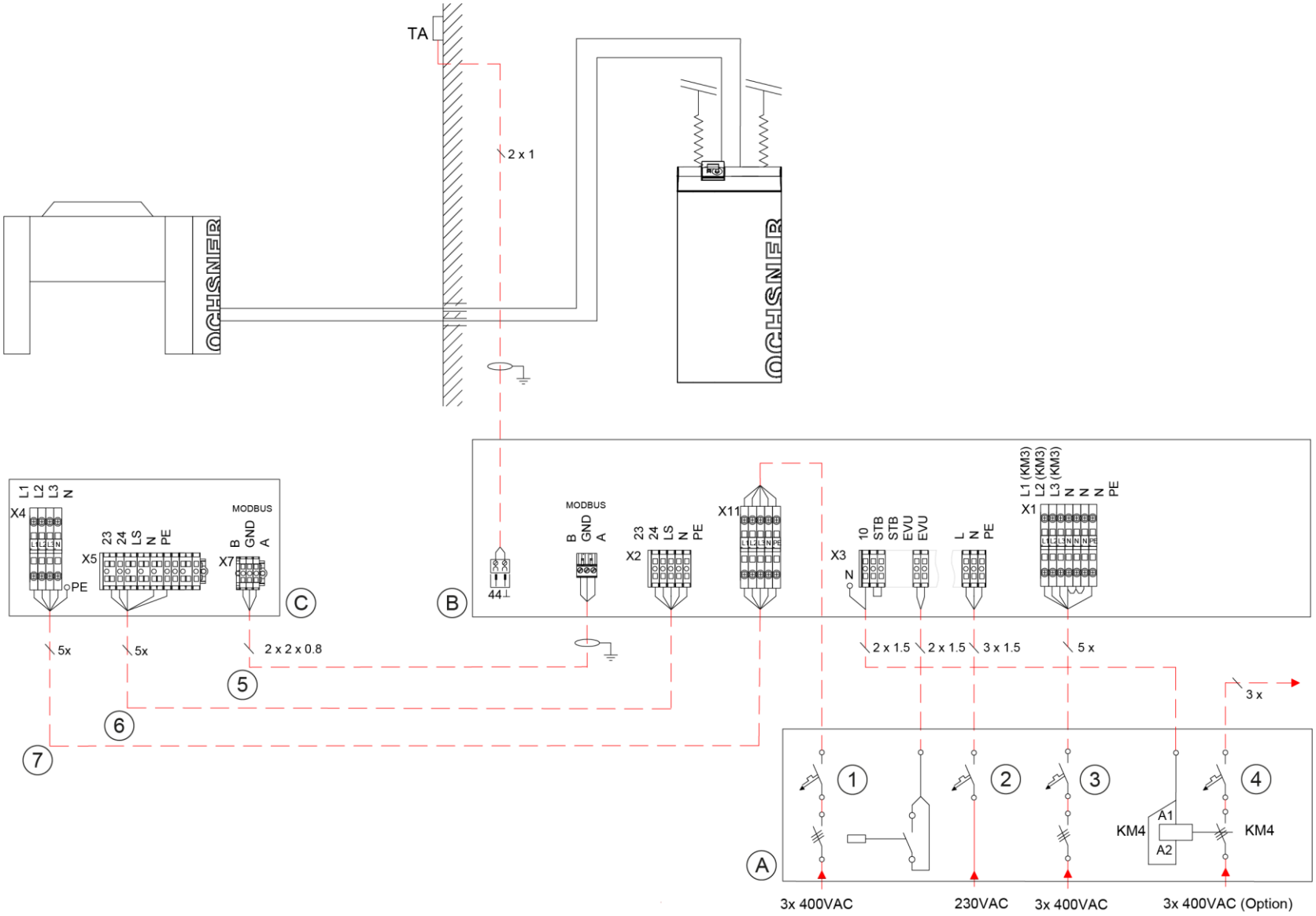


Terminal		Description
X4	L1/L2/L3/N/PE	Compressor power supply (W4, to indoor unit)
X5	23/24/LS/N/PE	Control cable to indoor unit
X7	B/GND/A	Modbus connection to indoor unit

Figure 52: Outdoor unit wiring

6.15 Wiring diagrams

6.15.1 EAGLE 717 with Golf-Midi indoor unit



A Main distributor
B Indoor unit control box
C Outdoor unit control box

1 Compressor supply (C16A across all poles)

2 Controller supply (C13A)

3 Electric booster heater supply (B16A across all poles)

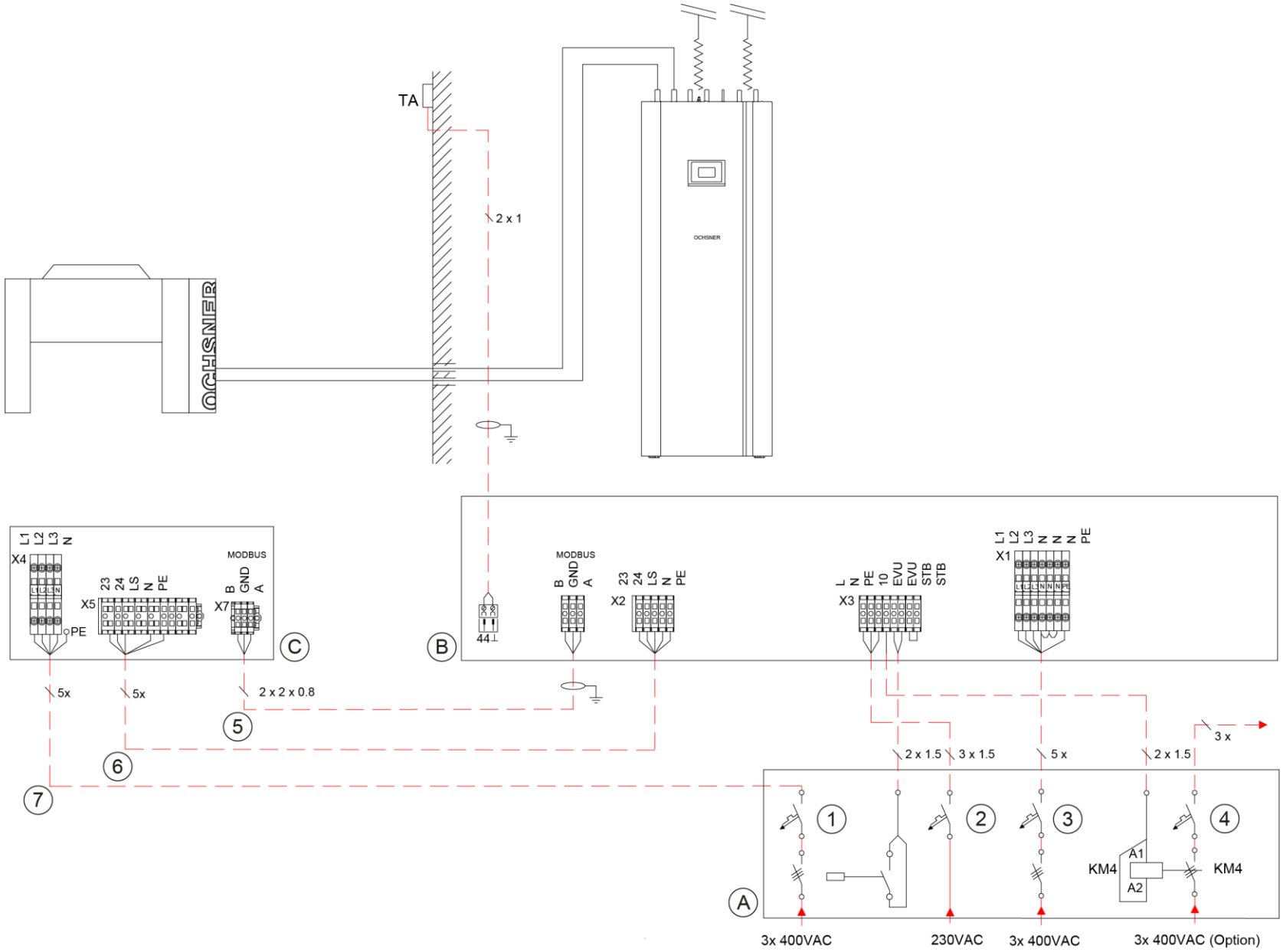
4 Option: Supply for DHW auxiliary heater for anti-legionella function

5 Modbus cable

6 Control cable

7 Compressor supply

6.15.2 EAGLE 717 with T200 indoor unit



A Main distributor
B Indoor unit control box
C Outdoor unit control box

1 Compressor supply (C16A across all poles)

2 Controller supply (C13A)

3 Electric booster heater supply (B16A across all poles)

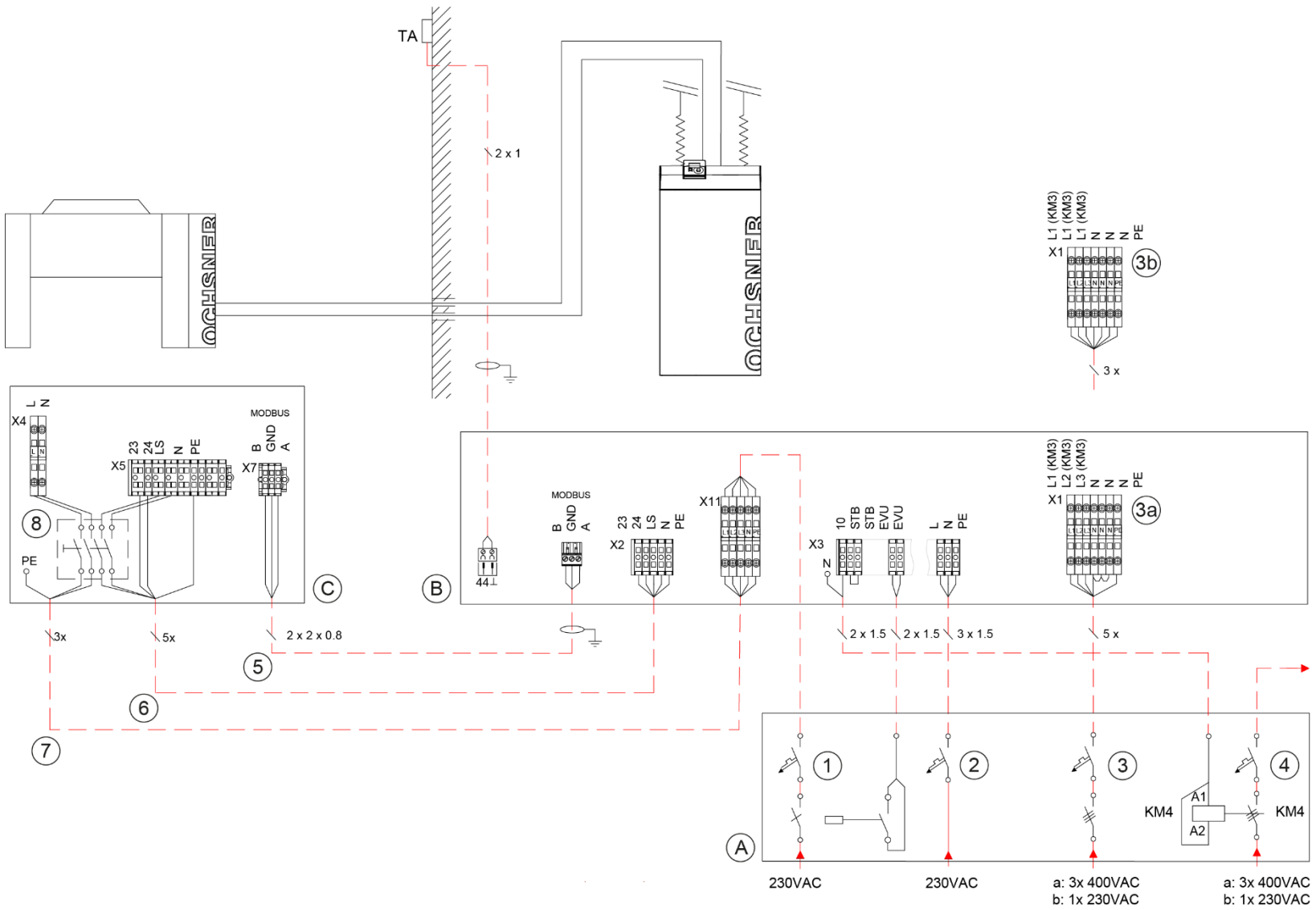
4 Option: Supply for DHW auxiliary heater for anti-legionella function

5 Modbus cable

6 Control cable

7 Compressor supply

6.15.3 EAGLE 414 with Golf-Midi indoor unit



A Main distributor
B Indoor unit control box
C Outdoor unit control box

1 Compressor supply (C20A)

2 Controller supply (C13A)

3 Electric booster heater supply
a: 3x 400 V (B16A across all poles)
b: 1x 230 V (B40A)

3a Booster heater with 3-phase power supply

3b Booster heater with single phase power supply

4 Option:
Supply for DHW auxiliary heater for anti-legionella function

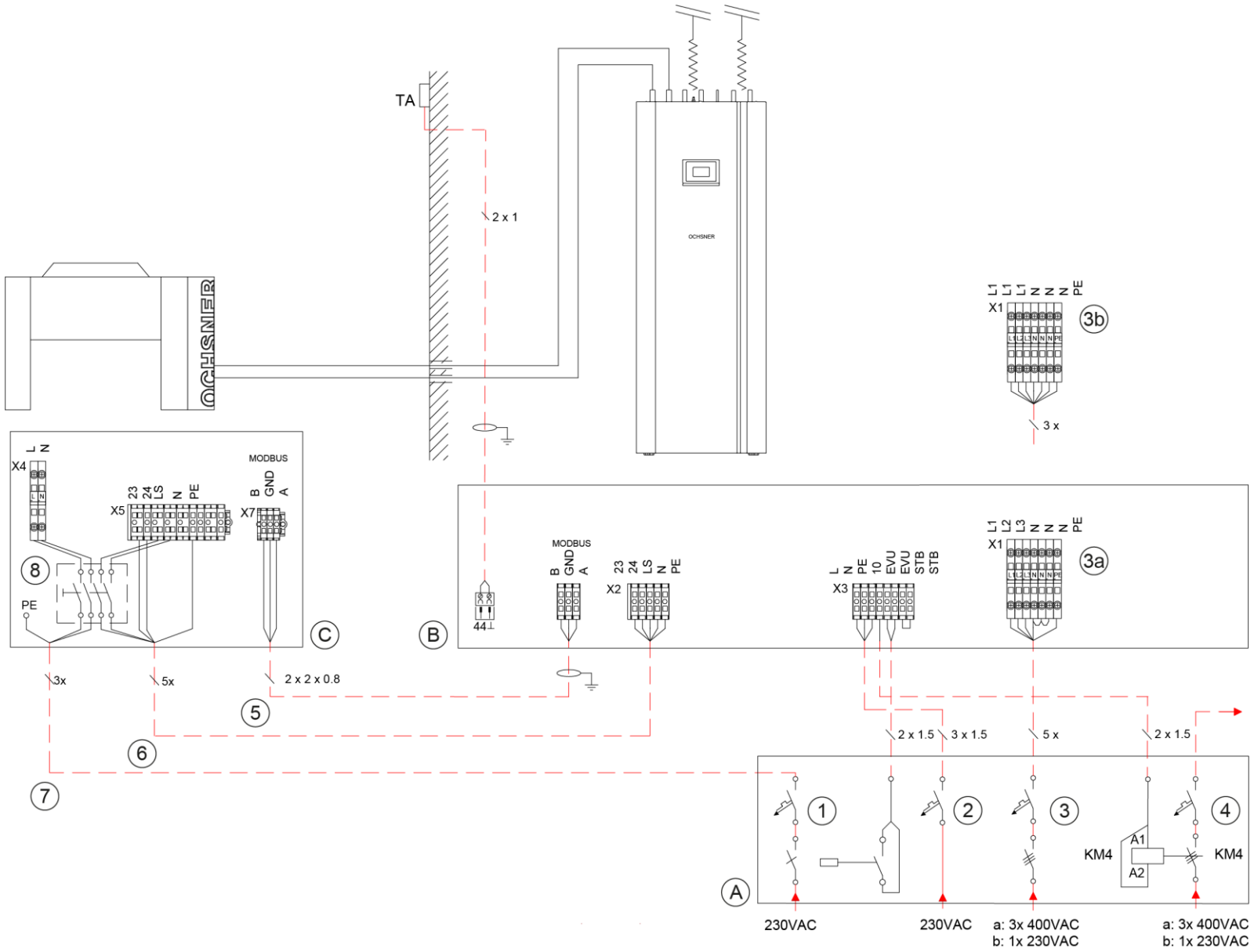
5 Modbus cable

6 Control cable

7 Compressor supply

8 Option:
Mains switch for EAGLE outdoor unit

6.15.4 EAGLE 414 with T200 indoor unit



A Main distributor
B Indoor unit control box
C Outdoor unit control box

1 Compressor supply (C20A)

2 Controller supply (C13A)

3 Electric booster heater supply
a: 3x 400 V (B16A across all poles)
b: 1x 230 V (B40A)

3a Booster heater with 3-phase power supply

3b Booster heater with single phase power supply

4 Option:
Supply for DHW auxiliary heater for anti-legionella function

5 Modbus cable

6 Control cable

7 Compressor supply

8 Option:
Mains switch for EAGLE outdoor unit

7 Heating system

The heating water and system pressure should be checked regularly by the system operator and corrected in case of deviations (pressure too high/low). The flow rates at the heat sink system (WNA) are monitored by the integral flow sensor. The specified system maintenance intervals and system checks must also be observed.

If major modifications or pipe breakages require draining and subsequent replacing of a large proportion of the heating water, this should be done in the presence of OCHSNER customer service or by an authorised OCHSNER authorised partner (see enclosed logbook). In the case of non-routine refilling (e.g. after modifications or pipe breakages), a current water assessment must be prepared, and, on the basis of this, the heat sink system must be refilled, with additives if required, by the installer.

7.1 Quality of heating water

Use the correct fill water that is suitable for the components of your heating system. We recommend fill water prepared according to Guideline VDI 2035-2.

A high pH value and low electrical conductivity in the fill water will reduce to a minimum the risk of corrosion to iron and copper materials, as long as there is also low oxygen content. This will also minimise scaling (calcification).

Fill water characteristics	
pH value at 25°C	8.5-10
Electrical conductivity at 25°C	< 100 µS/cm
Oxygen content	< 0.05 mg/l
Chloride	< 30 mg/l

Unsuitable fill water can damage your system due to scaling and corrosion. If necessary, ensure that the fill water is professionally softened and demineralised.

7.2 Pressure maintaining system

For the operational reliability of your system in defrosting or cooling mode, it is important that the hydraulic safety and pressure maintaining devices are sufficiently sized and inspected annually according to the relevant standards.

CAUTION
The closures provided are only for transport. Replace them with suitable plugs if the DHW flow or return is not being used!

8 Commissioning

8.1 Before starting

The heat pump has no separate ON/OFF switch. In an emergency, the system must be shut down via the specified circuit breaker. The circuit breaker must be accessible so that an emergency shutdown can be performed at any time.

Caution - risk to life
First-time start-up of electrical systems is permitted only in the presence of a qualified electrician.

Do not turn ON (or OFF) the power to the system, until:

- Nobody can be put at risk
- All installation work on the heat pump is completed
- All wiring is completed
- Voltages have been checked according to the documentation
- The hydraulic system has been filled with water
- The system has been fully vented

The supply voltage for the compressor must not be turned on, until the refrigerant circuit and the hydraulics have been filled with the correct medium.

Once all conditions above have been checked and met, the controller voltage of 230 VAC (fuse F1) can be switched on for checking individual functions.

Carefully check all sensors and their measurement values for plausibility and all outputs used in your hydraulic system for correct function.

CAUTION
Operating the heat pump with too little or no refrigerant will damage the appliance. Operating circulation pumps without water in the system will destroy the pump.

The heat pump must be commissioned by OCHSNER customer service or an authorised OCHSNER partner. The OCHSNER commissioning guidelines apply. Operating the system without it having been properly commissioned by factory customer service will void all guarantee and warranty rights.

8.2 Persons required on site

The electrician, installer and future system maintainer or operator must be present during commissioning for instruction.

Information for the system installer:

- The OCHSNER customer service engineer / customer service partner makes the user specific adjustments according to the information in the system datasheet. If the system installer is not present during commissioning or if a fully completed system datasheet is not available, the system is put into operation using the control factory settings. OCHSNER will accept no liability for any faulty operation (heating curve too low, bivalent point too high, etc.). Any claims resulting from this will be charged to the system installer.

- For the system to operate efficiently, it is essential that hydraulic balancing is carried out and the controller is adjusted according to the system requirements.

- Special work, such as venting, electrical connections, renewed instruction, etc., not included in the scope of work provided by OCHSNER will be charged separately.

8.3 Setting the flow rate

The nominal flow rate must be ensured in each operating mode (DHW charging, heating or cooling mode via separate cooling/buffer tank, etc.). The flow rate is measured via the installed flow sensor and shown on the OTE controller display. On the supplied circulation pumps, the flow rate is adjusted via the adjusting screw.

To enable hydronic balancing according to the relevant standards, in particular during combined heating or heating/cooling and DHW heating modes, the appropriate balancing valves must be installed and the system regulated accordingly.

The **measured flow rate** is displayed on the heat pump display and must correspond to the nominal flow rate.

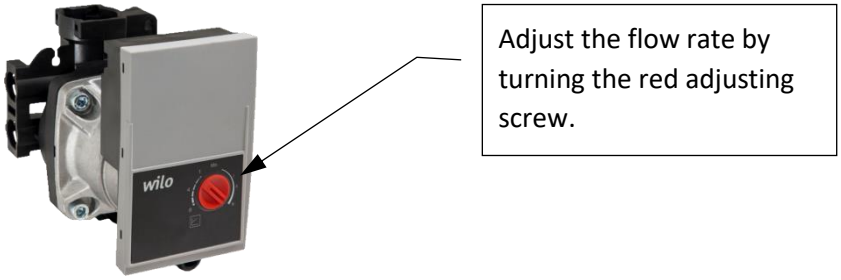


Figure 53: Setting the flow rate

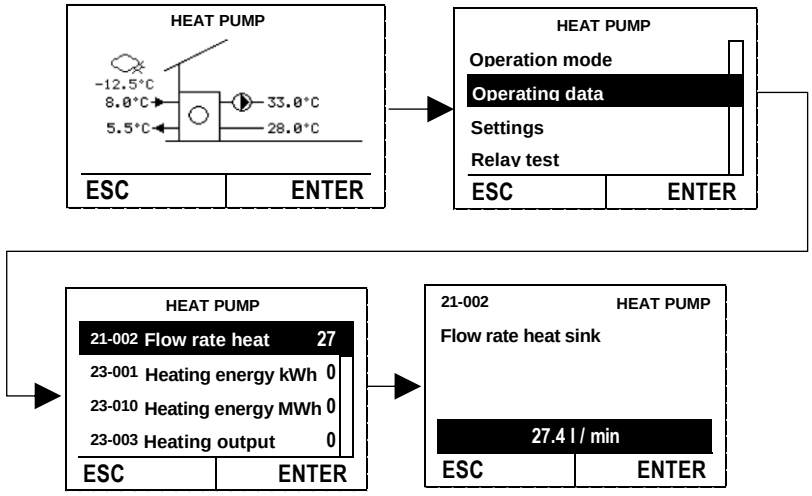


Figure 54: Reading the flow rate

Heat consumption						
Heat pumps	Circulation pump	Item no.	Nominal flow rate, heat sink		Internal differential pressure	Residual head
OCHSNER AIR EAGLE 717	PARA HPS 25/7.5 RKC	922586	1.8 m³/h	30 l/min	220 mbar In DHW mode +30 mbar	380 mbar (350 mbar)
OCHSNER AIR EAGLE 414	PARA HPS 25/7.5 RKC	922586	1.4 m³/h	23 l/min	160 mbar In DHW mode +10 mbar	590 mbar (580 mbar)

Table 3: Nominal flue rates

9 Operation

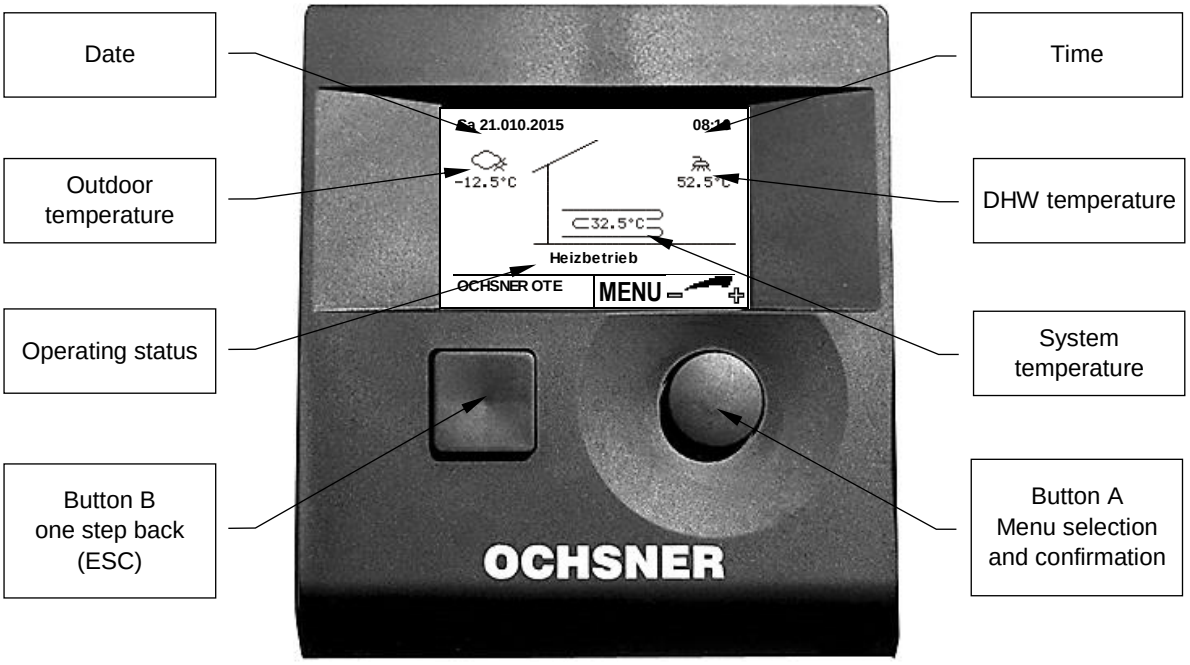


Figure 55: Operation

The main display shows current temperatures, the operating state and the date and time. The "operating state" display provides information about the entire system. All heat generators and/or consumers are free from faults.

9.1 Menus

The OCHNSER AIR EAGLE is operated via the master operating panel on the heat pump indoor unit. There are 2 buttons (A and B) as well as an illuminated graphic display for showing the functions.

Pressing the right-hand button (A) calls up the main menu with a diagram of the heating system is illustrated.

Each heat consumer (heating circuits, DHW circuits) and each heat generator (heat pump, electric booster heater, boiler etc.) has its own menu and submenus.

Pressing button (B) takes you back one step (ESC).

You can also purchase a RoomTerminal with touchscreen.

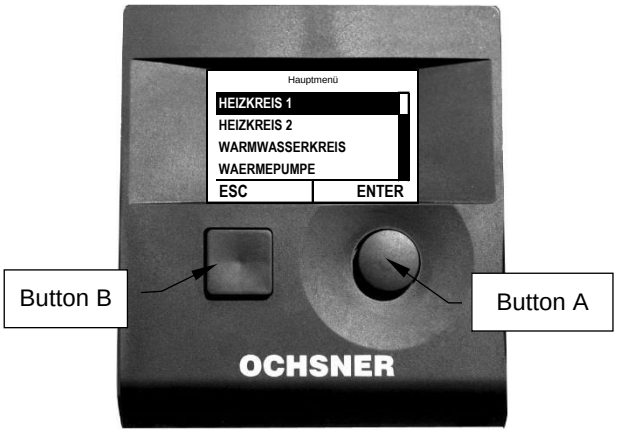


Figure 56: Operation

For more information on how to operate the controller, see the current OTE operating manual which is supplied with every heat pump.

9.2 Appliance function

9.2.1 Heating circuit

The heating circuits operate fully automatically with weather compensation and summer/winter changeover.

9.2.2 DHW

DHW heating is according to the default target value. The efficiency of the system can be increased with a DHW time program.

9.2.3 Anti-legionella function

To prevent legionella, the DHW has to be periodically heated to a temperature of at least 60°C. The anti-legionella function is automatic and can be controlled via a time program. Depending on the system version, the electric booster heater is activated.

9.2.4 Second heat generator

OCHNSER AIR EAGLE heat pumps are supplied with an electric emergency/booster heater as standard. The electric immersion heater is built into the MFA module and is required to ensure the operational reliability of your heating system. Protect the supply voltage in the main distribution box across all poles. The voltage is supplied via the KM3 contactor and is automatically switched on by the system.

Effect of the electric emergency/booster heater in the heat pump flow:

- Mono energetic operation
  The electric emergency/booster heater guarantees heating mode and the provision of high DHW temperatures when the bivalent point is not reached.
- Emergency mode
  Should the heat pump fail due to a fault, the heating output is provided by the electric emergency/booster heater.

For the operational reliability of your heating system, ensure the power supply to the electric booster heater at all times!

9.2.5 Screed drying program

In case of return temperatures <25°C (room temperatures) the heat for drying has to be provided by the electric emergency/booster heater! At these low system temperatures the heat for drying must not be provided by the heat pump as the frost protection of the appliance can no longer be guaranteed during the defrost cycle. At the end of the drying out program, the electric emergency/booster heater can be disconnected as long as it is not required for the operation of the appliance. Note that emergency operation is not possible in the screed drying program.

9.3 System operation

9.3.1 Running costs

Depending on the residual building moisture, increased running costs of up to 50% are to be expected.

9.3.2 Flow temperatures

To ensure energy saving operation of the heat pump, try to keep the heating flow temperature (and also DHW temperatures) as low as possible. For EAGLE heat pumps, the max. system temperature should be limited to 60°C.

NOTE
Increasing the room temperature by 1°C results in an increase in consumption of 5-7%.

10 Troubleshooting

Let only trained specialist personnel carry out adjustments and troubleshooting! Standard settings for the controller are made by customer service during commissioning. The operator and contracting partner is responsible for additional corrections and program adjustments!

Fault/display	Cause	Solution
Heating system does not heat up, no fault	1. PSU shutdown 2. Energy transfer to the heating circuits is interrupted or too low 3. Power failure 4. DHW priority	Chick individual room controls, vent heating circuit, open valves, check DHW circulation pump, increase output level of the DHW circulation pump Check fuses
Heat pump only produces DHW but does not heat or heats too late	DHW target temperature is too high	Check the DHW target temperature
	Anti-legionella mode	Use time program Install electric immersion heater for DHW
	DHW circulation hydraulics	Reduce flow rate and use timer
	DHW heat exchanger scaled up	Notify heating contractor, clean heat exchanger, descale
DHW temperature not reached or no longer reached	Heat exchanger for DHW is too small	Increase size of heat exchanger
	Heat exchanger is scaled up	Descale heat exchanger
	Sensor positioned incorrectly	Position correctly
	Pipework too small	Install larger pipes
	Faulty DHW sensor	replace
	DHW charging pump faulty	replace
	DHW charging pump output level set too low	Set higher output levels
	3-way switching valve faulty	replace
Heat pump runs continually and yields only low temperature; traces of oil in the appliance	Escaping refrigerant refrigerant line leaking	Switch off heat pump, notify customer service
Er.91 insufficient flow rate	The minimum flow rate at the heat pump is not being reached.	insufficient system pressure, Check pressure maintaining device, buffer charging pump faulty, diverter valve faulty
No hot water and heating system remains cold.	Power failure	Check cause! Reset circuit breaker.

Table 4: Troubleshooting

10.1 Error Codes OTE

Code	Log file no.	Error designation	Possible cause / remedy
115		Er 01: DHW sensor faulty	Replace sensor
116		Er 10: Outside sensor faulty	Replace sensor
117		Er 14: Mixer sensor faulty	Replace sensor
124		Er 20: TWR sensor faulty	Replace sensor
120		Er 22: TWR/TPM shutdown sensor faulty	Replace sensor
136		Er 23: TPV sensor faulty	Replace sensor
118		Er 24: Buffer sensor faulty	Replace sensor
114		Er 29: TWV sensor faulty	Replace sensor
11	11	Er 30: Phase monitor	Monitoring via starting current limiter KS01 (display of alarm type via flashing sequence of red LED)
134		Er 32: THG sensor faulty	Replace sensor
138		Er 33: High pressure sensor faulty	Check sensor
137		Er 34: Low pressure sensor faulty	Check sensor
5	5	Er 36: High pressure	Insufficient heat distribution, circulation pump faulty, valve closed / air in system, check hydraulics
18	18	Er 37: Low pressure	Lack of source energy, lack of refrigerant, check expansion valve of refrigerant circuit (OCHSNER)
16	16	Er 38: Hot gas	Expansion valve, lack of refrigerant, target value too high, check refrigerant circuit (OCHSNER)
10	10	Er 39: Compressor motor protection	Overload, source temperature too high, check: compressor in refrigerant circuit (OCHSNER)
8	8	Er 42: Heat sink frost protection	Insufficient heat distribution, circulation pump faulty, valve closed /air in system, check buffer pump or hydraulics
		Er 46: TSG sensor faulty	Replace sensor
9	9	Er 47: Defrost fault	Insufficient defrosting energy, check evaporator / sensor, check booster heater, check refrigerant circuit (OCHSNER)
129	129	Er 48: TQE sensor faulty	Replace sensor
130	130	Er 49: TQA sensor faulty	Replace sensor
12	12	Er 50: Expansion valve	Check function of EEV (OCHSNER)
1	1	Er 56: Heat source flow rate	insufficient flow rate, lack of source energy, check source pump/filter
2	2	Er 57: Heat source frost protection	Lack of source energy, source temperature too low: check heat source, check source pump/filter, clean water filter, groundwater pump faulty
3	3	Er 58: Heat source motor protection	Overload, check motor protection, check wiring to motor/fan, TK
143	143	Er 59: TWV + TWR sensor break	Check sensor
144	144	Er 60: TQA + TQE sensor break	Check sensor
42	42	Er 71: Bus fault, room remote control	Check eBus wiring
30	30	Er 80: HG 1 address	Check addressing
31	31	Er 81: HG 2 address	Check addressing
32	32	Er 82: HG 3 address	Check addressing
33	33	Er 83: HG 4 address	Check addressing
34	34	Er 84: HG 5 address	Check addressing
35	35	Er 85: HG 6 address	Check addressing
36	36	Er 86: HG 7 address	Check addressing
37	37	Er 87: HG 8 address	Check addressing
20	20	Er 91: Heat sink flow rate	insufficient water pressure, circulation pump faulty, valve closed / air in system, check hydraulics
21	21	Er 90: Overheating	Check refrigerant circuit (OCHSNER)
98	98	Er 98: Electric immersion heater running as sole heat generator!	Check setting for operating mode of heat pump
104	104	Er104: Heat pump sum fault	Only for ELW or AIR EAGLE – OCHSNER customer service
108	108	Er108: Outdoor unit communication fault	Only for ELW - check wiring
109	109	Er109: Compressor overheating	Only for ELW – automatic acknowledgement
100	100	Er200: Condensation temperature too low	Check refrigerant circuit (OCHSNER)

Code	Log file no.	Error designation	Possible cause / remedy
102	102	Er 201: Evaporation temperature too low	Check refrigerant circuit (OCHSNER)
103	103	Er 202: Evaporation temperature too high	Check refrigerant circuit (OCHSNER)
240	240	Er 240: OTE does not detect a Modbus PCB	Only for AIR EAGLE – OCHSNER customer service
241	241	Er 241: Modbus communication error	Only for AIR EAGLE – check wiring of Modbus line between indoor and outdoor units. Otherwise, OCHSNER customer service
242	242	Er 242: CAN Bus communication error	Only for AIR EAGLE – check wiring of CAN bus line and Modbus line (possible consequential fault of Er241) Otherwise, OCHSNER customer service

Table 5: OTE Error Codes

10.2 Dealing with faults

Various Faults "Er. XXX" as well as troubleshooting options are displayed on the OTE controller. In the event of a fault, your installer is your first point of contact. The installer must be notified of the faults and can provide you with valuable information for troubleshooting. Your installer knows your hydraulic system and how it operates. The causes of faults can be found in the settings or hydraulics.

If it is nevertheless not possible to identify or rectify the causes, OCHSNER customer service is available to help.

10.3 Rectifying minor causes independently

Your heat pump is extremely maintenance friendly. To operate the heat pump efficiently and without faults, you can remedy minor causes simply on site.

Before you start:

- Disconnect the system from the power supply,
- Safeguard against unauthorised reconnection,
- Ensure it is voltage-free,
- Before carrying out any further work, wait at least 4 minutes after switching off the power supply!
- Do not reach into the fan!
- Do not remove the protective grille from the fan.

Ensure that:

- the evaporator is free from leaves and twigs or other foreign bodies.
- condensate can drain away.
- there is sufficient water in the heating circuit.
- the system pressure is adequate.

You can optimise your system by checking the heating circuit and DHW heating settings. Keep records and only adjust 1-2 settings in a day.

10.4 Cleaning and care

Protect the appliance from dust and dirt during building work. A large plastic bag is provided for this purpose. A damp cloth is sufficient to look after plastic and sheet metal parts. Do not use any abrasive or corrosive cleaning materials.

Ensure that no ice is formed, especially around walking surfaces and entrances around the outdoor unit.

11 Maintenance

For maintenance work, disconnect the power supply to the indoor unit and the outdoor unit of your heat pump.

NOTE

Ensure that the refrigerant circuit of your heat pump is tested for leaks once a year (in acc. with Regulation (EU) no. 517/2014).

- Ensure year-round access to soldered joints in the refrigerant circuit.
- Document the results of the leakage test in the system test report.

We recommend arranging for an inspection and if necessary a service on the heat pump to be conducted once a year. We draw your attention to the fact that statutory regulations require regular testing of heating systems by the system user.

The refrigerants used in OCHSNER heat pumps are non-flammable, non-toxic and ozone neutral. However, heat pumps are refrigeration equipment and are subject to the provisions of the F-gas Regulations (Regulation (EU) no. 517/2014). OCHSNER Customer Service will be pleased to help in carrying out maintenance and testing, in particular as required by the F-gas Regulations. For more information, see www.ochsner.com.

We recommend testing the heating water system pressure and correcting it if necessary (pressure too high/low).

We recommend adjusting the pre-charge pressure in the diaphragm expansion vessel (DEV) on the system accordingly (system height).

We recommend monitoring the flow rate of the heat sink system (WNA) and if necessary the heat source system (WQA) using the flow meters specified by OCHSNER.

We recommend that when non-routine work takes place requiring refilling (e.g. system alteration or pipe breakage), a current water assessment be prepared and the heat sink system be refilled on the basis of this.

11.1 Customer service

Once a date has been agreed with or requested from OCHSNER customer service, repairs to your heat pump are carried out by a trained customer service specialist on site. In order for service work to be carried out, the accessibility of the heat pump and auxiliary equipment must be ensured at all times!

Please observe the minimum clearances when installing the equipment.

Customer Service hotline for Austria:
Tel: **+43 (0) 504245 – 499**
Email: kundendienst@ochsner.at

Customer Service hotline for Germany:
Tel: **+49 (0) 69 256694 - 495**
Email: kundendienst@ochsner.de

Customer Service hotline for Switzerland:
Tel: **+41 (0) 800 100 911**
Email: kontakt@ochsner.com

11.2 Maintenance contract

OCHSNER offers a wide range of maintenance contracts. For more information, see www.ochsner.com.

Benefits of a maintenance contract

- Annual inspections fulfil the statutory requirements of the F-gas regulations.
- A correctly performed service not only helps to save energy but also protects the environment.
- In addition, correct care of the heating system is necessary to ensure many years of service life and indeed to extend the service life of the system.
- For the system user, this reduces the risk of system failure.

For more information about customer service and the scope of the maintenance contracts, see www.ochsner.com.

12 Environment and recycling

12.1 Disposal of transport packaging

The transport packaging for the heat pump consists of recyclable raw materials. Waste transport packaging should be sorted and recycled. Leave disposal of transport packaging to the authorised contractor who has installed the appliance.

12.2 Decommissioning

Before decommissioning, all 'live' connections should be isolated from the power supply by an authorised contractor.

Appliances with refrigerant should only be decommissioned by an authorised contractor (refrigeration/air conditioning/heating). The refrigerant should be emptied/removed and recycled or disposed of by the contractor.

Improper disposal of refrigerant can cause significant environmental damage and carries a penalty!

12.3 Disposal of the appliance

The old heat pump should be disposed of at regional waste collection facilities in accordance with applicable regional environmental regulations and standards.

Parts of the heat pump must not be disposed of as domestic waste!

13 Specification

13.1 Data table (with Golf-Midi indoor unit)

APPLIANCE DATA:		EAGLE 717	EAGLE 414
Dimensions of outdoor unit HxWxD	[mm]	1260 x 1480 x 960	
Dimensions of indoor unit HxWxD	[mm]	1150 x 400 x 650	
Hydraulic connection	[inch]	1" fem.	
Weight of outdoor unit	[kg]	200	
Weight of indoor unit	[kg]	70	
Casing colour	outdoor	RAL 7016, anthracite grey	

HEATING MODE PERFORMANCE FIGURES:		EAGLE 717	EAGLE 414
Standard point A7/W35			
Heating output range	[kW]	6.7 - 8.3	3.5 - 10.6
Total heating output / power consumption EN 14511	[kW]	7.1 / 1.5	6.0 / 1.3
COP EN 14511		4.8	4.5
Standard point A2/W35			
Heating output range	[kW]	6.0 - 10.4	3.1 - 10.2
Total heating output / power consumption EN 14511	[kW]	7.1 / 1.7	5.5 / 1.4
COP EN 14511		4.2	4
Standard point A7/W55			
Heating output range	[kW]	6.6 - 8.6	3.9 - 11.0
Total heating output / power consumption EN 14511	[kW]	8.6 / 2.7	6.4 / 2.1
COP EN 14511		3.3	3.1
Standard point A-7/W34			
Heating output range	[kW]	5.2 - 14.1	2.6 - 8.6
Total heating output / power consumption EN 14825	[kW]	12.8 / 4.1	7.8 / 2.7
COP EN 14825		3.1	2.9

SPECIFICATION:		EAGLE 717	EAGLE 414
Outdoor unit, controller (phases/nominal voltage/frequency)	[~]/[V]/[Hz]	3/400/50	1/230/50
Fuse protection (tripping curve "C")	[A]	16	20
Max. operating current	[A]	16	20
Max. starting current, compressor	[A]	< 10	< 10
Sound power level/sound pressure level at 3 m indoor unit	[dBA]	< 50/32	< 50/32

Electric auxiliary heater:		EAGLE 717	EAGLE 414	
Phases/nominal voltage/frequency	[~]/[V]/[Hz]	3/400/50	1/230/50	3/400/50
Max. output	[kW]	8.8	8.8	8.8
Max. operating current	[A]	16	40	16

COOLING MODE:		EAGLE 717	EAGLE 414
Limits of use (outdoor temperature)	[°C]	15 - 40	15 - 40

Table 6: Specification (part 1)

CONDENSER:		EAGLE 717	EAGLE 414
Type		Plate heat exchanger	
Material		Stainless steel 1.4301	
Number	[pce]	1	1
Max. refrigerant operating pressure	[bar]	45	45
Max. heat transfer medium operating pressure	[bar]	3	3
Heat transfer medium temperature differential	[K]	5	5
Application range	[°C]	65	65
Heat transfer medium		Water	Water
Heat exchanger test pressure	[bar]	78	78
Heat transfer medium flow rate	[m³/h]	1.8	1.4
Internal pressure differential	[mbar]	220	160
Flow meter FM standard	internal		
Circulation pump heat sink WNA	internal		
Residual head I WNA external, incl. FM	[mbar]	380	590

REFRIGERANT CIRCUIT		EAGLE 717	EAGLE 414
No. of refrigerant circuits	[pce]	1	1
Refrigerant		R410A	R410A
Defrost technology		Hot gas	Hot gas
Refrigerant charge (from-to)	[kg]	5.5 - 7.3	8 - 9.2

COMPRESSOR:		EAGLE 717	EAGLE 414
Type		Scroll	Scroll
Number	[pce]	1	1
Output levels		Infinitely variable	Infinitely variable
Speed	[rpm]	2100-7000	2100-7000
Voltage/frequency	[V]/[Hz]	400/50	230/50

FAN:		EAGLE 717	EAGLE 414
Type		axial	
Number	[pce]	1	
Voltage/frequency	[V]/[Hz]	230	
Power consumption	[W]	230	

EVAPORATOR:		EAGLE 717	EAGLE 414
Unit type			
Type		Finned tube	
Number	[pce]	1	
Air flow rate	[m³/h]	4000	
Sound pressure level at 10 m /Sound power level at standard conditions A7/W55	[dBA]	29/57	

Table 7: Specification (part 2)

13.2 Data table (T200 indoor unit)

APPLIANCE DATA:		
Height	mm	1931
Width	mm	680
Depth	mm	855
Tilt height	mm	2121
Empty weight	kg	203
Filled weight	kg	471
IP rating		IP 20
Tank thermal insulation	mm	90
Heat exchanger area	m²	3.3
Heat exchanger capacity	l	21
DHW TANK:		
Nominal capacity	l	168
Material		Enamelled steel
Energy efficiency class		C
Standby losses	W	65
Tank volume	l	189
Standby power consumption at 65°C	kWh/24h	1.6
Standby power consumption at 65°C	W	79
Area of smooth tube coil	m²	3.2
Max. operating pressure	bar	10
Test pressure	bar	15
Draw-off rate of DHW tank	l/min	25
BUFFER TANK:		
Nominal capacity	l	100
Material		Steel
Max. operating pressure	bar	3
Test pressure	bar	4.5
Max. permissible temperature	°C	95
Water hardness	°dH	≤3
pH value (with aluminium compounds)		8.0-8.5
pH value (without aluminium compounds)		8.0-10.0
Conductivity (softening)	µS/cm	<1000
Conductivity (desalinated)	µS/cm	20-100
Chloride	mg/l	<30
Oxygen 8-12 weeks after filling (softening)	mg/l	<0.02
Oxygen 8-12 weeks after filling (desalination)	mg/l	<0.1
Max. power consumption of charging pump	W	72
Max. power consumption of heating circuit pump	W	72
CONNECTION:		
Connections on the heating side	inch	1" union nut
Cold water connection	inch	1" union nut
DHW connection	inch	1" union nut
DHW circulation connection	mm	12

Table 8: T200 Specification

13.3 Pressure drop

Heat consumption						
Heat pumps	Circulation pump	Item no.	Nominal flow rate, heat sink		Internal differential pressure	Residual head
OCHSNER AIR EAGLE 717	PARA HPS 25/7.5 RKC	922586	1.8m³/h	30 l/min	220 mbar In DHW mode +30 mbar	380 mbar (350 mbar)
OCHSNER AIR EAGLE 414	PARA HPS 25/7.5 RKC	922586	1.4 m³/h	23 l/min	160 mbar In DHW mode +10 mbar	590 mbar (580 mbar)

Table 9: Pressure drop

13.4 Pump curves

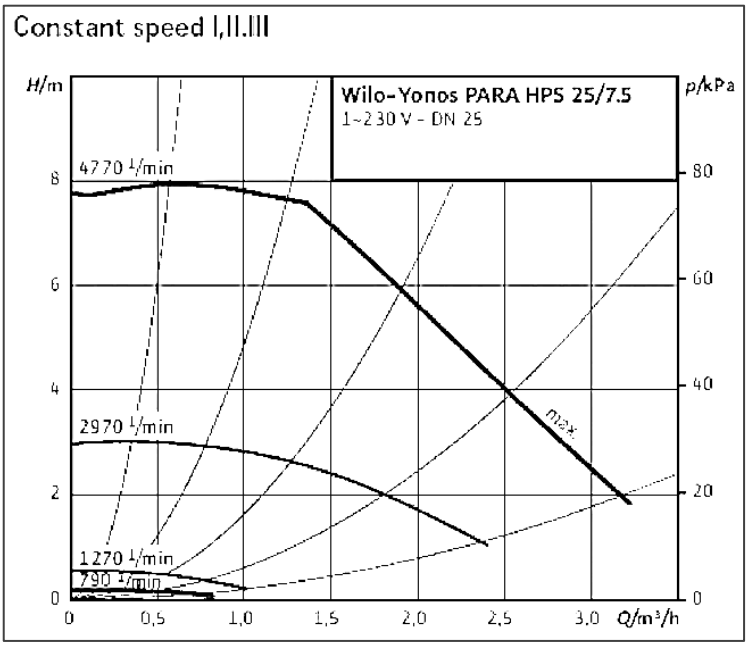
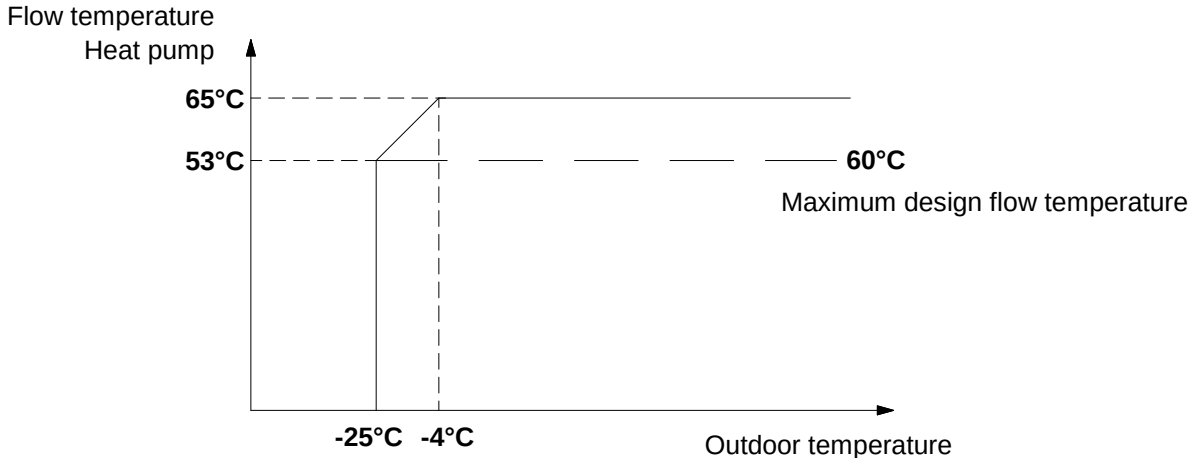


Figure 57: Pump curve

13.5 Limits of use



13.6 Performance diagrams EAGLE 717

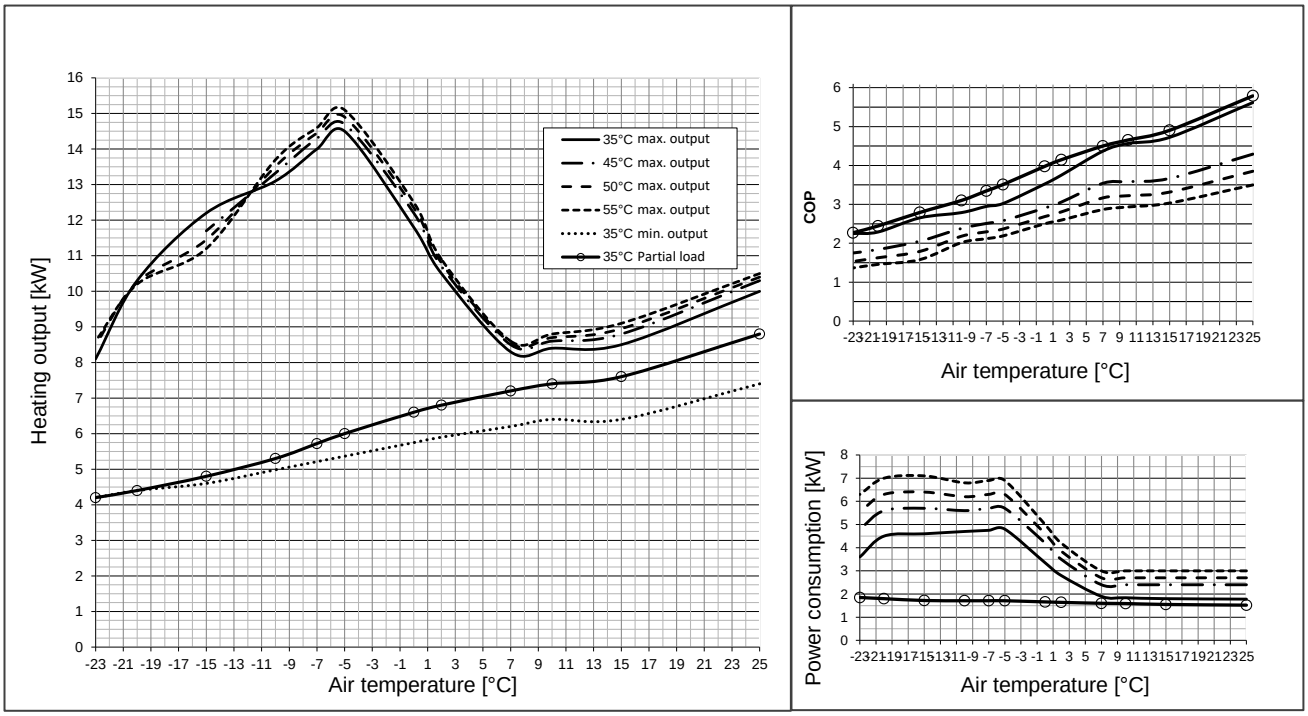


Figure 58: Performance diagrams EAGLE 717

13.7 Performance diagrams EAGLE 414

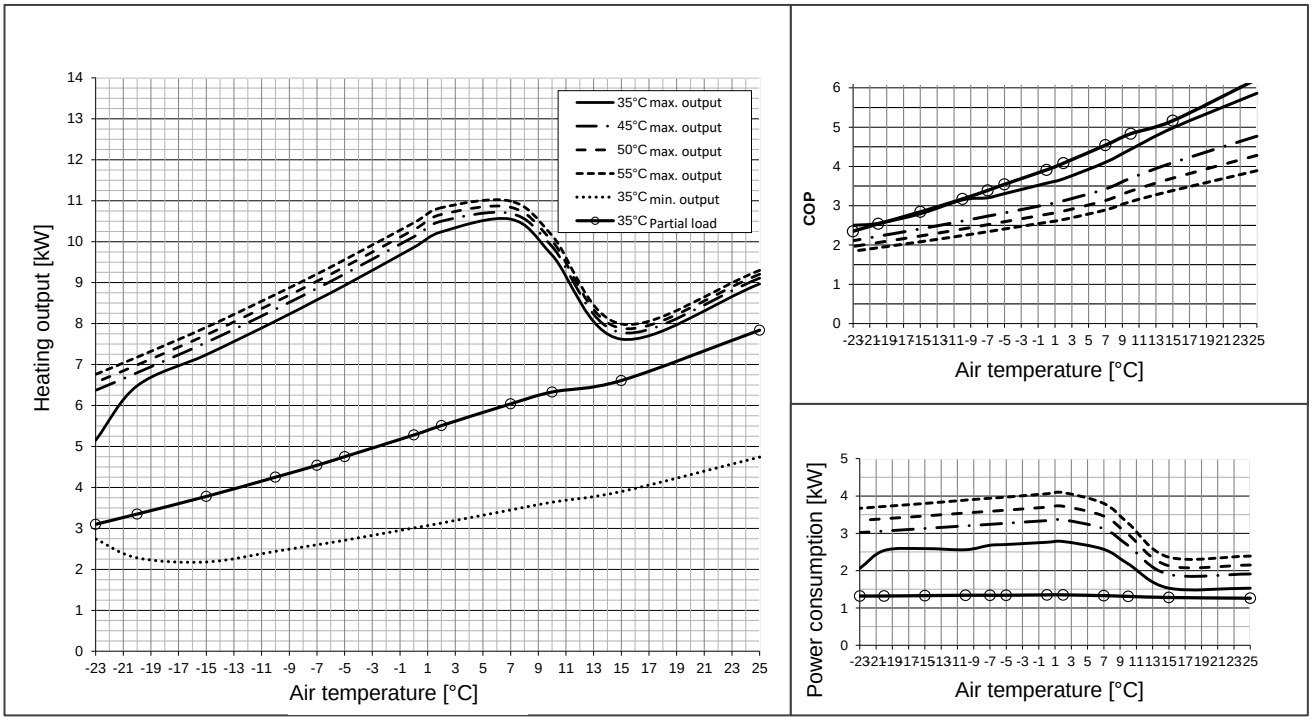


Figure 59: Performance diagrams EAGLE 414

1) Performance figures to EN 14511 - ΔT 5K
2) Performance figures with a component tolerance of ± 10%
3) CAUTION! During sizing, ensure the electric immersion heater, if installed, is adequately sized.

13.8 Details of energy consumption

Product data conform to EU regulations on the Directive for Ecodesign of Energy Related Devices.

13.8.1 AIR EAGLE 414

OCHSNER AIR EAGLE 414

LOW TEMPERATURE		35°C		
A++		**Colder**	**Medium**	**Warmer**
ηs		141	161	191
Energy consumption	[kWh]	7273	5177	2641
P rated	[kW]	10	10	9
SCOP	[-]	3.6	4.1	4.85
MEDIUM TEMPERATURE		55°C		
A++		**Colder**	**Medium**	**Warmer**
ηs		118	132	152
Energy consumption	[kWh]	9081	6197	3452
P rated	[kW]	11	10	10
SCOP	[-]	3.02	3.51	3.87
DHW		SP300		
A		**Colder**	**Medium**	**Warmer**
ηWH		87	95	110
Energy consumption	[kWh]	1638	1497	1299
Draw-off profile		XL		
Tank losses	[W]	94		
		indoor	outdoor	
Sound power level	[dBA]	-	57.0	
Controller class with room remote control	**VI**	Controller contribution [%]		4
Controller class without room remote control	**II**	Controller contribution [%]		2

OCHSNER AIR EAGLE 414 with T200

LOW TEMPERATURE		35°C		
A++		**Colder**	**Medium**	**Warmer**
ηs		141	161	191
Energy consumption	[kWh]	7273	5177	2641
P rated	[kW]	10	10	9
SCOP	[-]	3.6	4.1	4.85
MEDIUM TEMPERATURE		55°C		
A++		**Colder**	**Medium**	**Warmer**
ηs		118	132	152
Energy consumption	[kWh]	9081	6197	3452
P rated	[kW]	11	10	10
SCOP	[-]	3.02	3.51	3.87
DHW		T200		
A		**Colder**	**Medium**	**Warmer**
ηWH		84	92	106
Energy consumption	[kWh]	1001	915	794
Draw-off profile		L		
Tank losses	[W]	79		
		indoor	outdoor	
Sound power level	[dBA]	-	57.0	
Controller class with room remote control	**VI**	Controller contribution [%]		4
Controller class without room remote control	**II**	Controller contribution [%]		2

13.8.2 AIR EAGLE 717

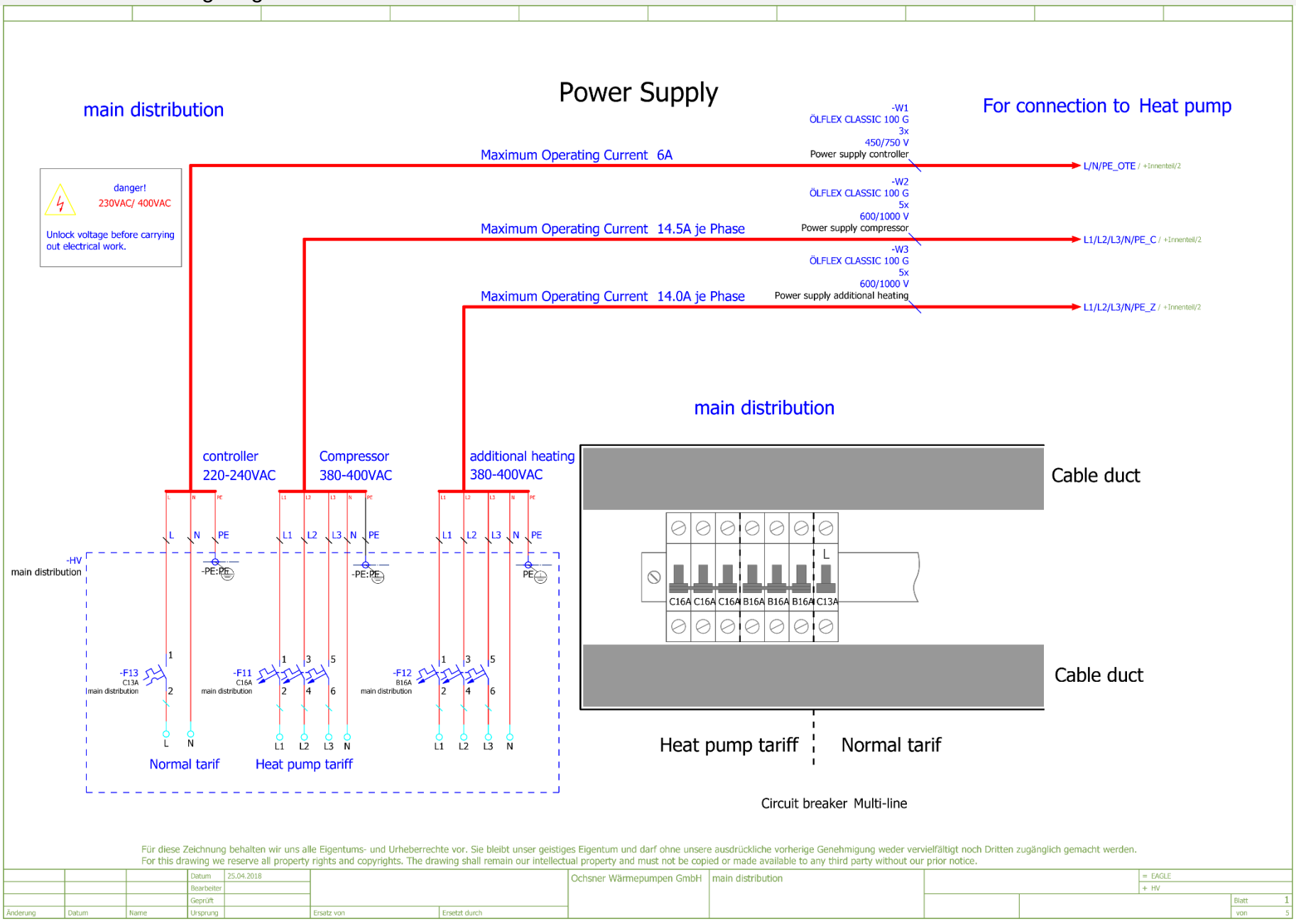
OCHSNER AIR EAGLE 717

LOW TEMPERATURE		35°C		
A++		**Colder**	**Medium**	**Warmer**
ηs		164	174	208
Energy consumption	[kWh]	8466	7948	2949
P rated	[kW]	14	17	11
SCOP	[-]	4.18	4.42	5.28
MEDIUM TEMPERATURE		55°C		
A++		**Colder**	**Medium**	**Warmer**
ηs		133	141	177
Energy consumption	[kWh]	10081	9757	3622
P rated	[kW]	14	17	11
SCOP	[-]	3.4	3.71	4.49
DHW		SP300		
A		**Colder**	**Medium**	**Warmer**
ηWH		91	100	115
Energy consumption	[kWh]	1566	1431	1242
Draw-off profile		XL		
Tank losses	[W]	94		
		indoor	outdoor	
Sound power level	[dBA]	-	57.0	
Controller class with room remote control	**VI**	Controller contribution [%]		4
Controller class without room remote control	**II**	Controller contribution [%]		2

OCHSNER AIR EAGLE 717 with T200

LOW TEMPERATURE		35°C		
A++		**Colder**	**Medium**	**Warmer**
ηs		164	174	208
Energy consumption	[kWh]	8466	7948	2949
P rated	[kW]	14	17	11
SCOP	[-]	4.18	4.42	5.28
MEDIUM TEMPERATURE		55°C		
A++		**Colder**	**Medium**	**Warmer**
ηs		133	141	177
Energy consumption	[kWh]	10081	9757	3622
P rated	[kW]	14	17	11
SCOP	[-]	3.4	3.71	4.49
DHW		T200		
A		**Colder**	**Medium**	**Warmer**
ηWH		88	96	110
Energy consumption	[kWh]	957	875	759
Draw-off profile		L		
Tank losses	[W]	79		
		indoor	outdoor	
Sound power level	[dBA]	-	57.0	
Controller class with room remote control	**VI**	Controller contribution [%]		4
Controller class without room remote control	**II**	Controller contribution [%]		2

13.9 Electrical wiring diagrams EAGLE 717



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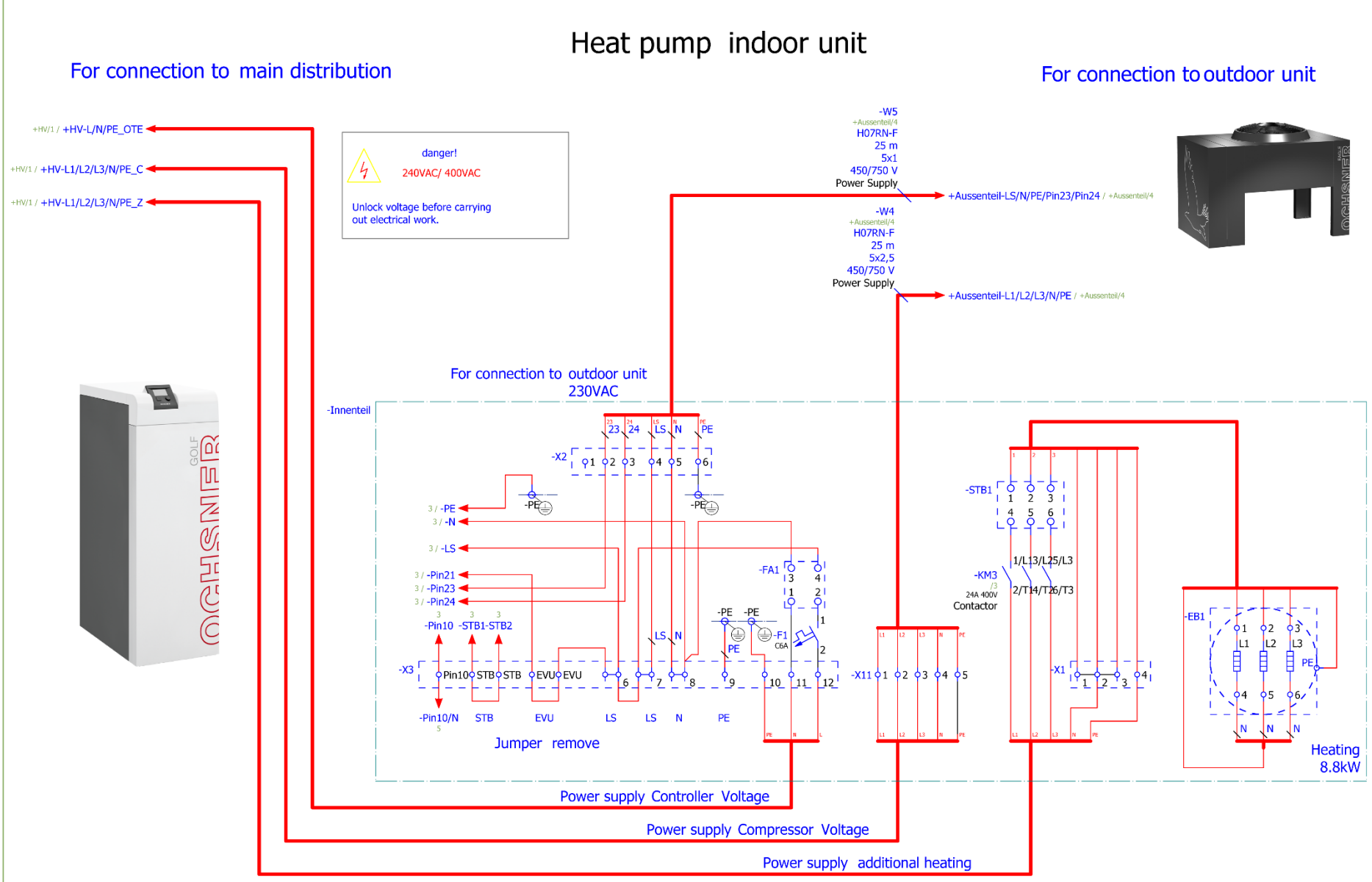
			Bearbeiter					+ HV	
			Geprüft						Blatt 1
Änderung	Datum	Name	Ursprung		Ersatz von	Ersetzt durch			von 5

Heat pump indoor unit



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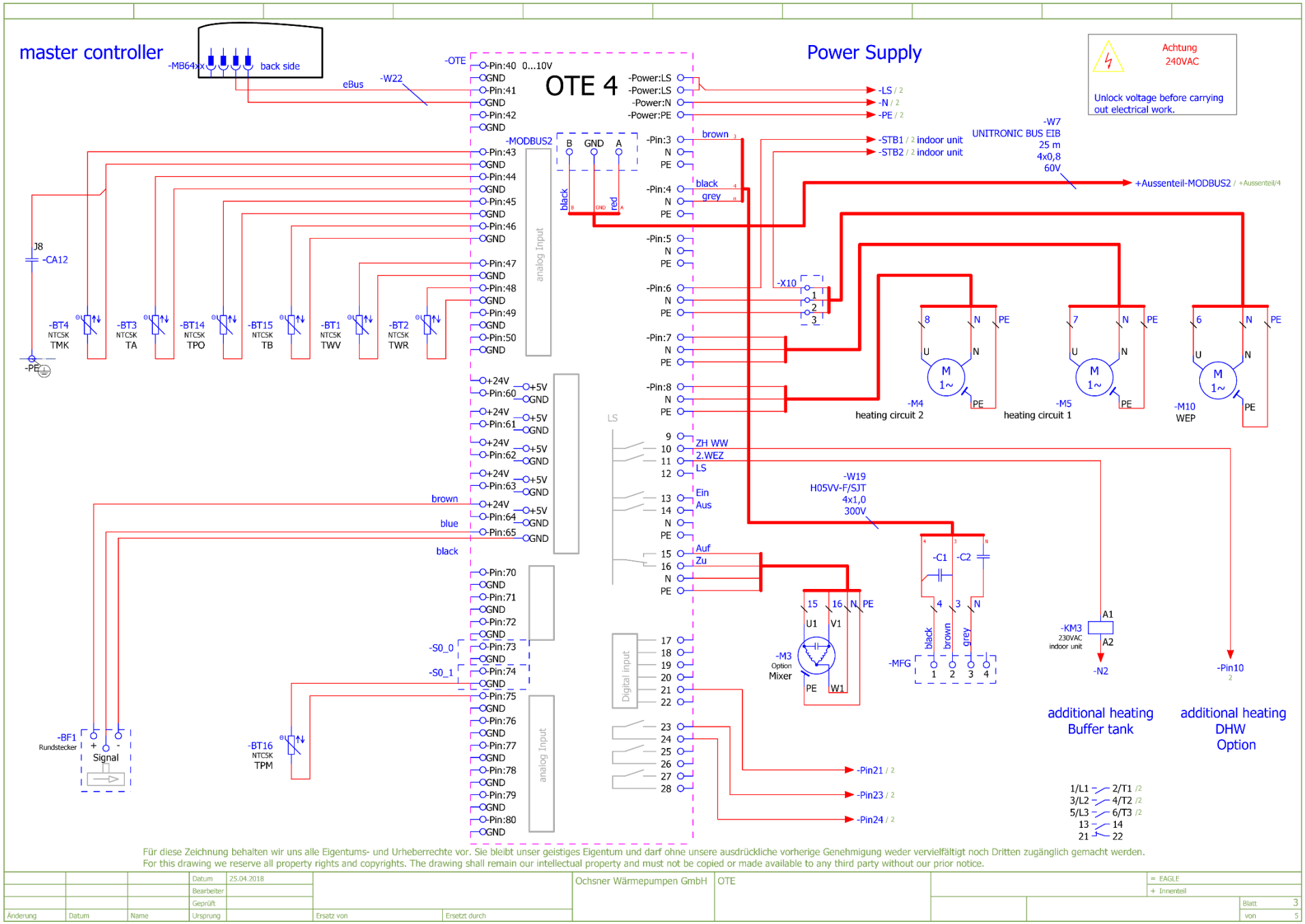

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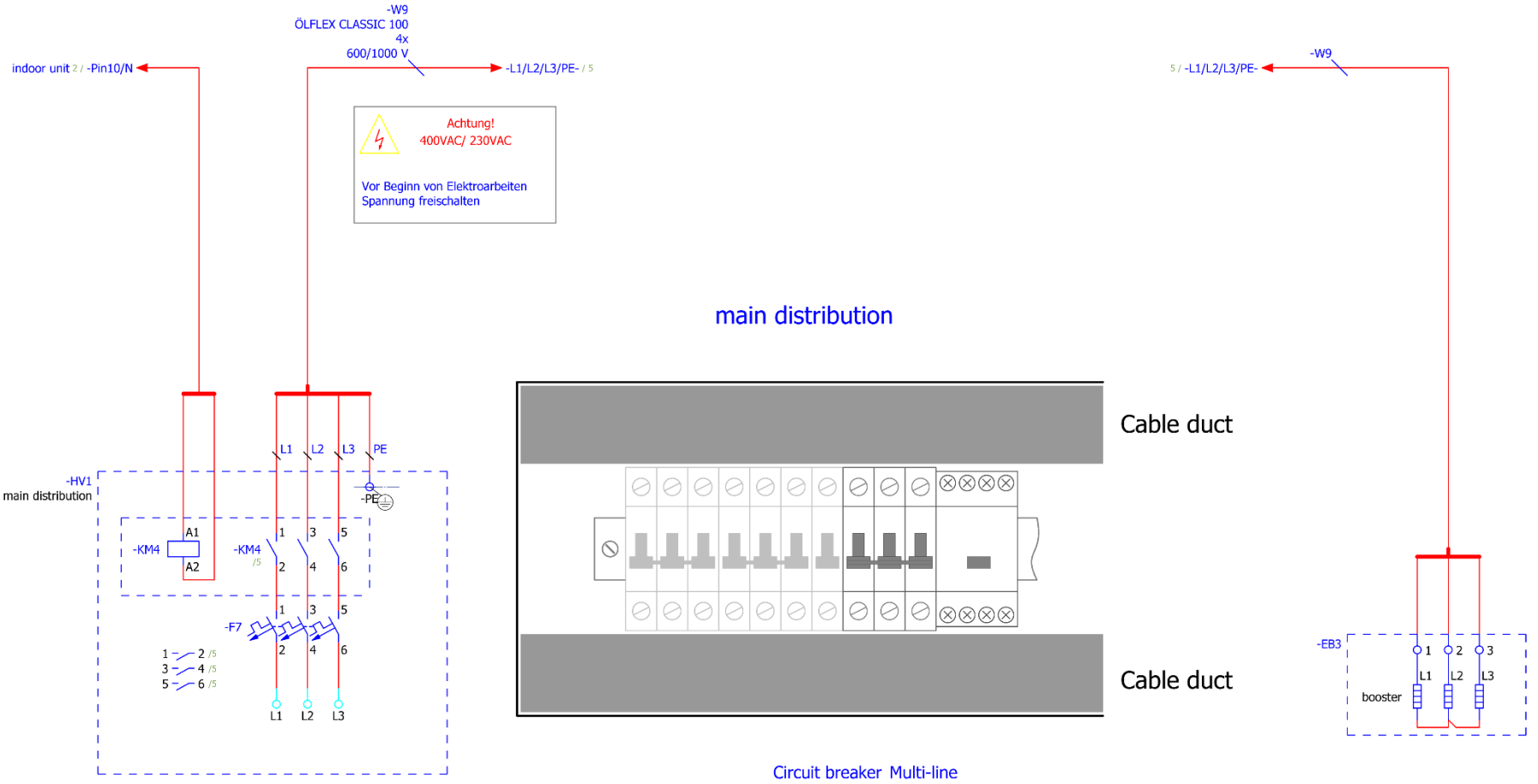
Digital output OTE

DHW
additional heating



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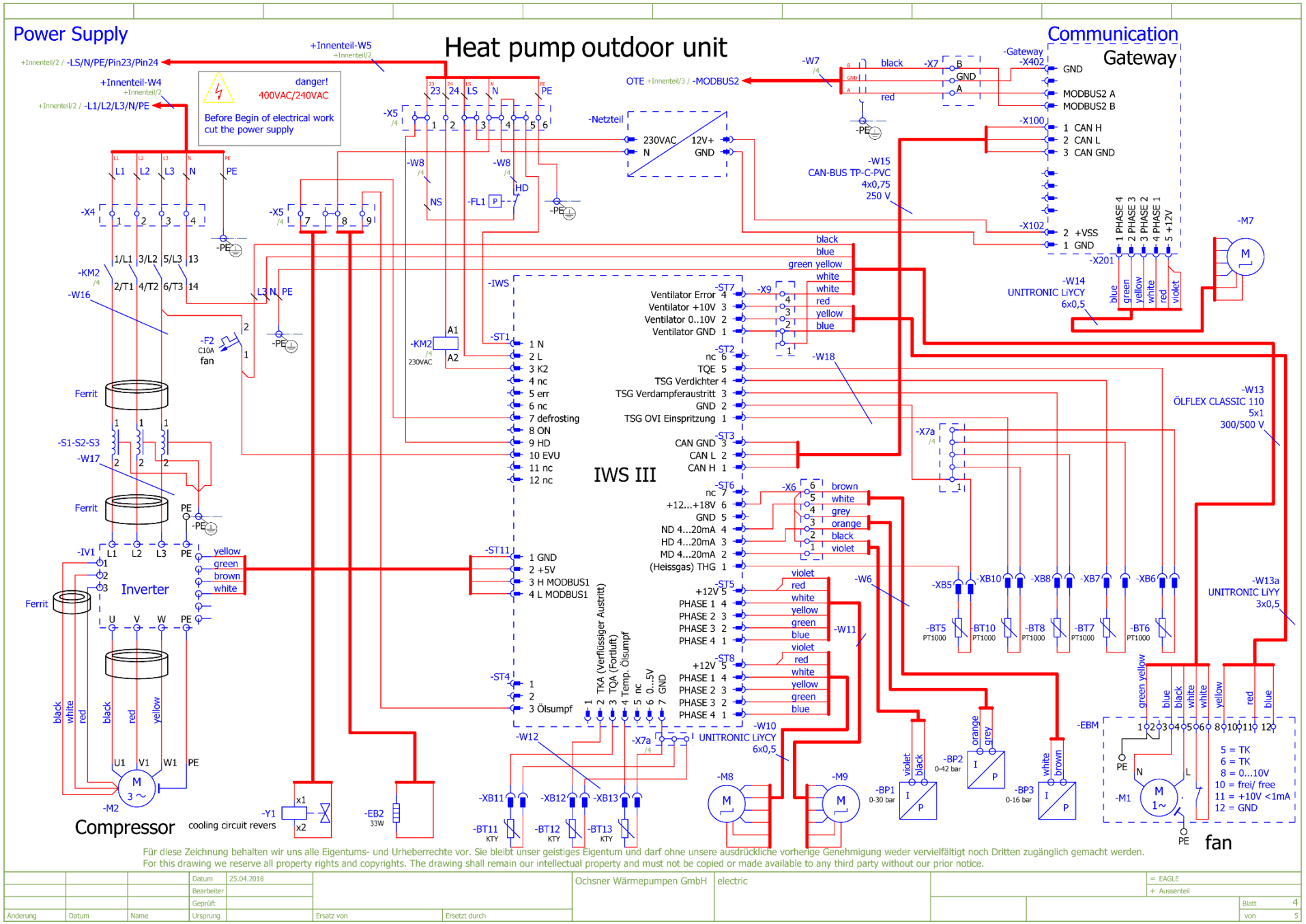
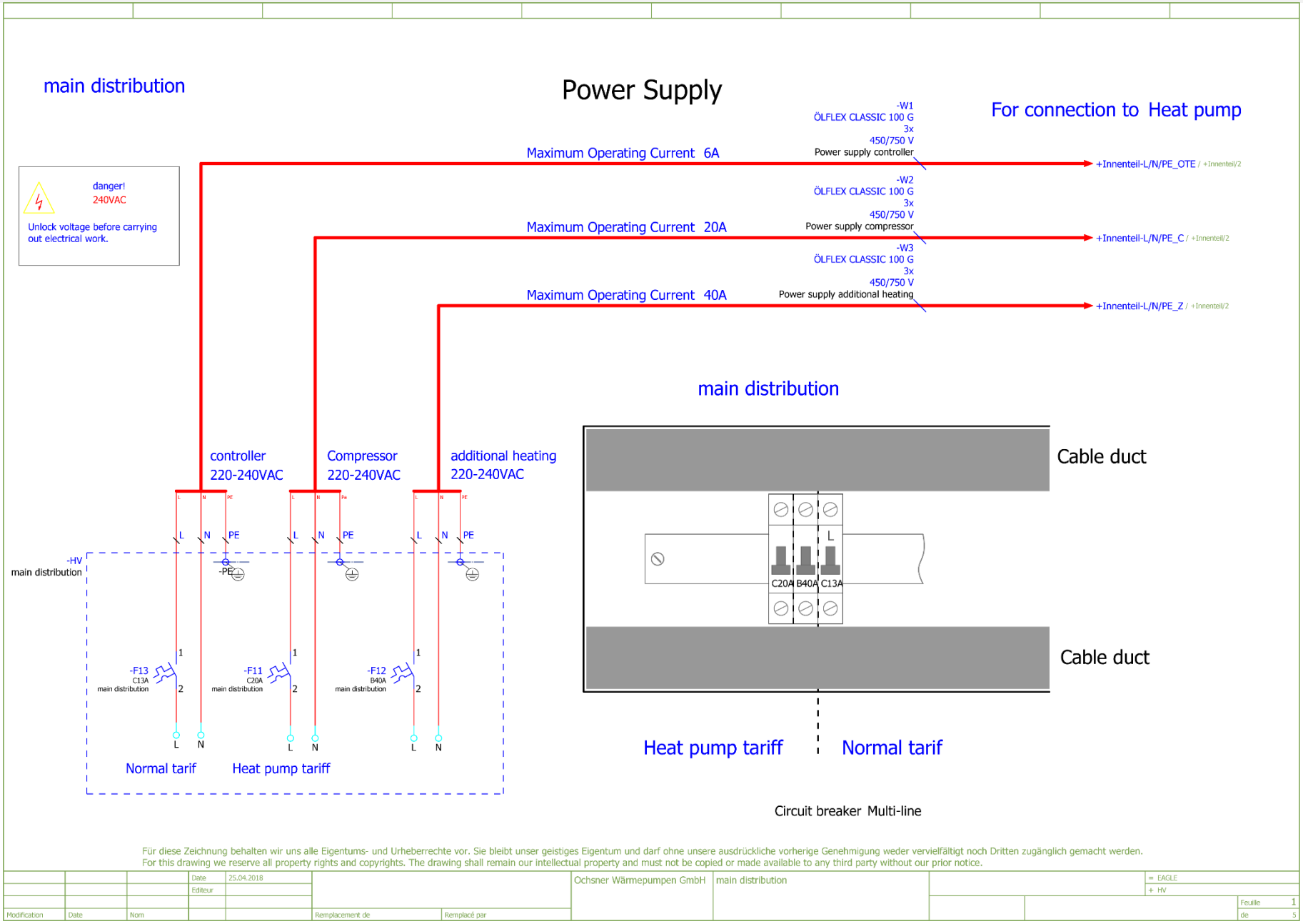
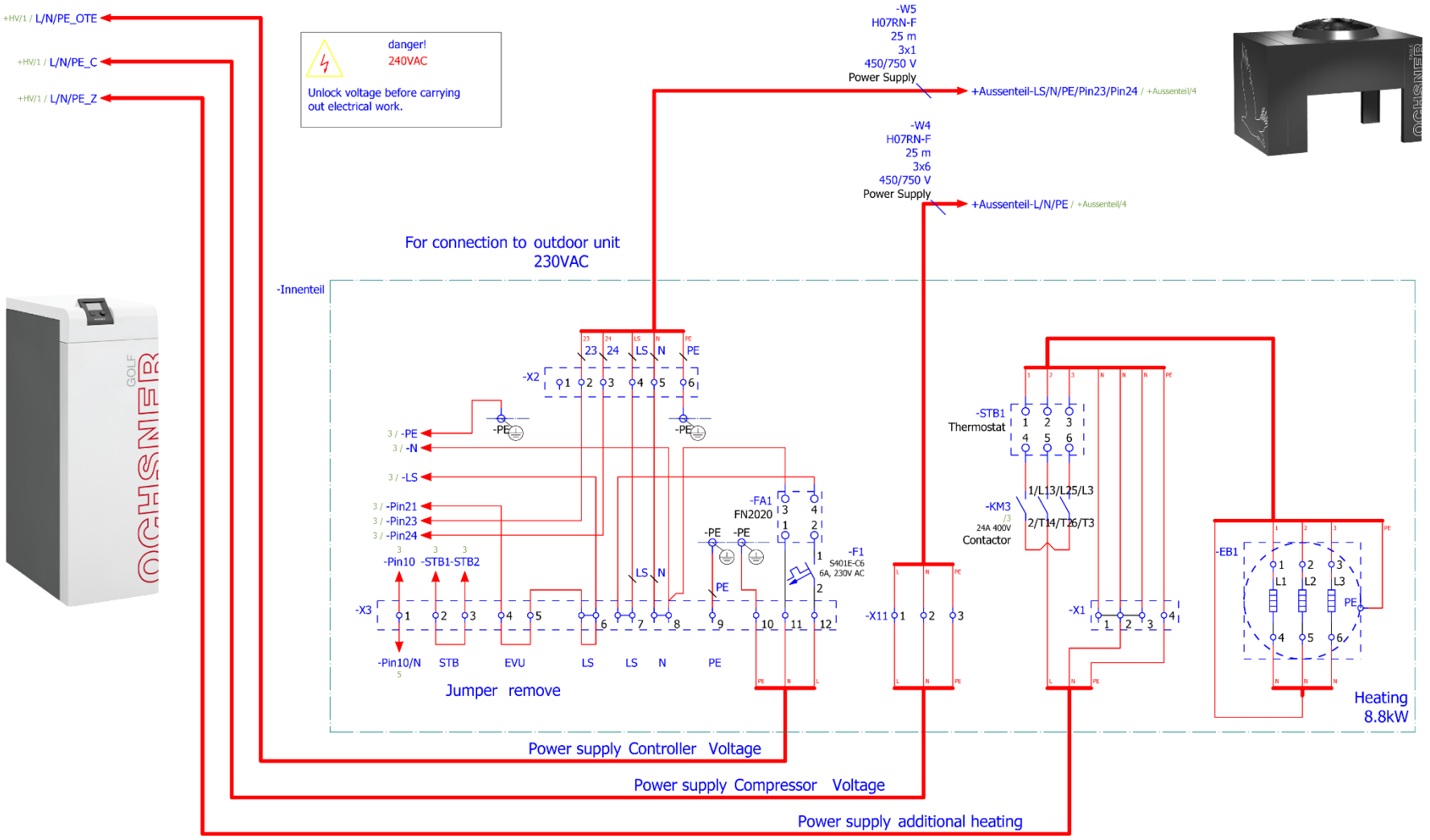

Power Supply
Heat pump outdoor unit
Communication
Gateway
+Innenteil-W5
+Innenteil/2 / -LS/N/PE/Pin23/Pin24
+Innenteil-W4
+Innenteil/2 / -L1/L2/L3/N/PE
danger!
400VAC/240VAC
Before Begin of electrical work
cut the power supply
OTE +Innenteil/3 / -MODBUS2
-Netzteil
230VAC
12V+
N
GND
-W7
black
red
-X7
B
GND
A
-Gateway
-X402
GND
MODBUS2 A
MODBUS2 B
-X100
1 CAN H
2 CAN L
3 CAN GND
-W15
CAN-BUS TP-C-PVC
4x0,75
250 V
-X102
2 +VSS
1 GND
-X201
1 PHASE 4
2 PHASE 3
3 PHASE 2
4 PHASE 1
5 +12V
-W14
UNITRONIC LiYCY
6x0,5
blue
green
yellow
white
red
violet
-M7
-X4
-X5
-W8
NS
HD
-FL1
-KM2
-W16
-F2
C10A
fan
Ferrit
-S1-S2-S3
-W17
-IV1
Inverter
Compressor
cooling circuit revers
-M2
-Y1
-EB2
33W
-IWS
IWS III
-ST1
1 N
2 L
3 K2
4 nc
5 err
6 nc
7 defrosting
8 ON
9 HD
10 EVU
11 nc
12 nc
-ST2
nc
TQE
TSG Verdichter
TSG Verdampferaustritt
GND
TSG OVI Einspritzung
-ST3
CAN GND
CAN L
CAN H
-ST4
1
2
3 Ölsumpf
-ST5
+12V
PHASE 1
PHASE 2
PHASE 3
PHASE 4
-ST6
nc
+12...+18V
GND
ND 4...20mA
HD 4...20mA
MD 4...20mA
(Heissgas) THG
-ST7
Ventilator Error
Ventilator +10V
Ventilator 0..10V
Ventilator GND
-ST8
-ST11
1 GND
2 +5V
3 H MODBUS1
4 L MODBUS1
TKA (Verflüssiger Austritt)
TQA (Fortluft)
Temp. Ölsumpf
nc
0...5V
GND
-X9
-X6
-X7a
-W18
-W6
-W11
-W10
UNITRONIC LiYCY
6x0,5
-W12
-W13
ÖLFLEX CLASSIC 110
5x1
300/500 V
-W13a
UNITRONIC LiYY
3x0,5
-XB5
-XB10
-XB8
-XB7
-XB6
-BT5
-BT10
-BT8
-BT7
-BT6
PT1000
-XB11
-XB12
-XB13
-BT11
-BT12
-BT13
KTY
-M8
-M9
-BP1
0-30 bar
-BP2
0-42 bar
-BP3
0-16 bar
-EBM
-M1
5 = TK
6 = TK
8 = 0...10V
10 = frei/ free
11 = +10V <1mA
12 = GND
fan
Für diese Zeichnung behalten wir uns alle Eigentums- und Urheberrechte vor. Sie bleibt unser geistiges Eigentum und darf ohne unsere ausdrückliche vorherige Genehmigung weder vervielfältigt noch Dritten zugänglich gemacht werden.
For this drawing we reserve all property rights and copyrights. The drawing shall remain our intellectual property and must not be copied or made available to any third party without our prior notice.
Datum
25.04.2018
Bearbeiter
Geprüft
Ursprung
Ersatz von
Ersetzt durch
Ochsner Wärmepumpen GmbH
electric
= EAGLE
+ Aussenteil
Änderung
Datum
Name
Blatt
4
von
5

13.10 Electrical wiring diagrams EAGLE 414



Heat pump indoor unit



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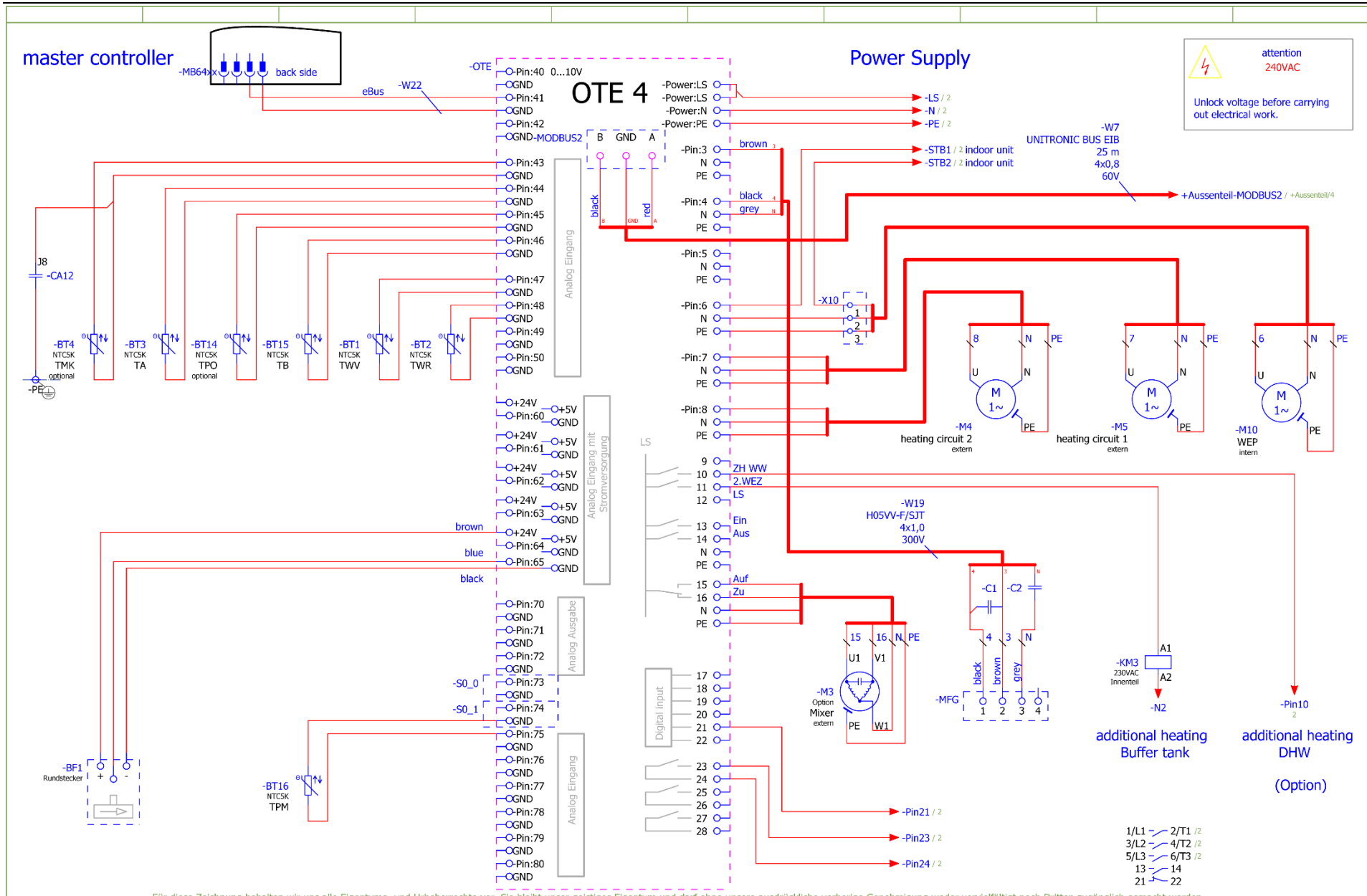
Modification	Date	Nom			Remplacement de	Remplacé par		Feuille 2 de 5



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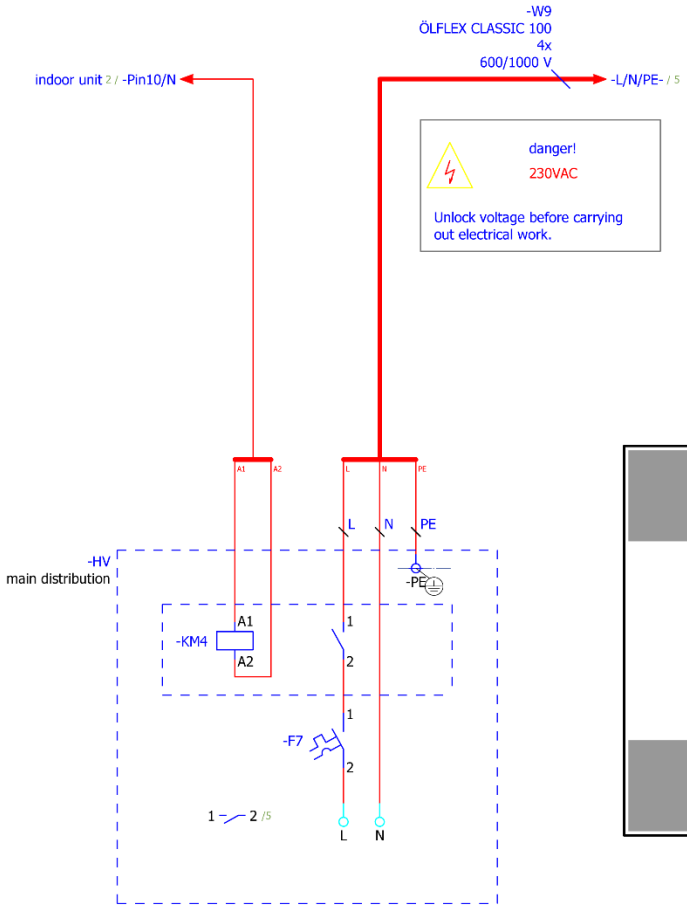
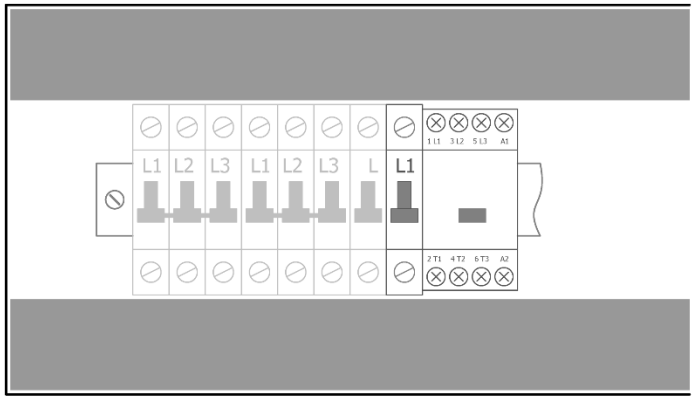
			Editeur					+ Innenteil	
Modification	Date	Nom			Remplacement de	Remplacé par			Feuille 3 de 5

DHW Comfort Heating (Option)

Digital output OTE



main distribution

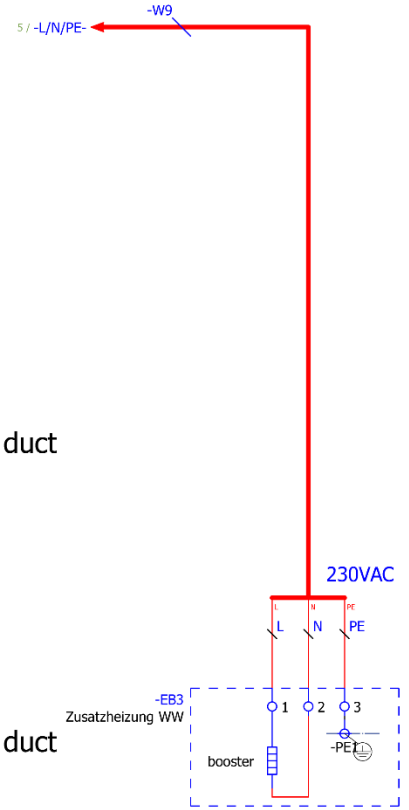


Cable duct

Cable duct

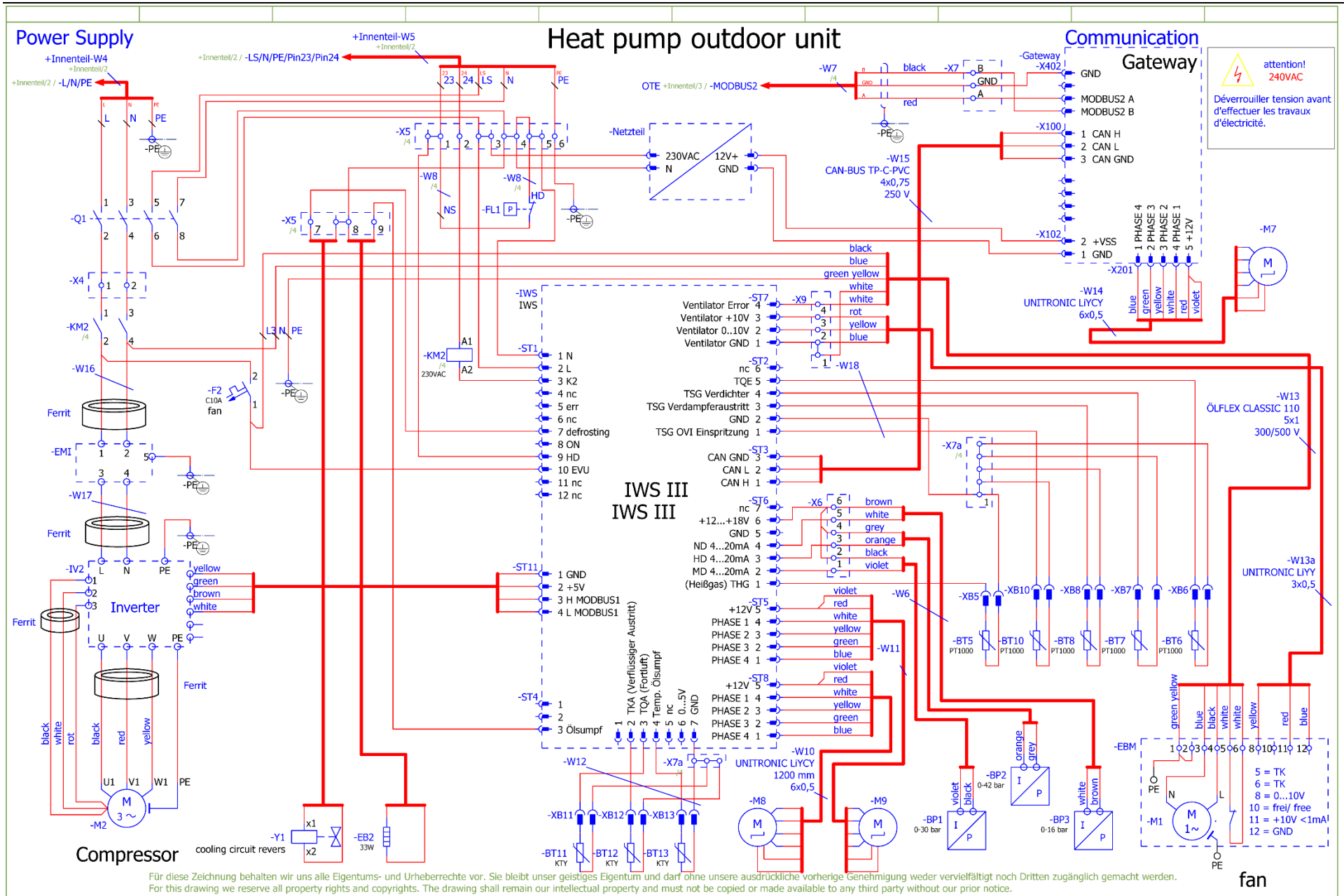
Circuit breaker Multi-line

DHW additional heating



additional heating DHW

			Date	25.04.2018		Ochsner Wärmepumpen GmbH	Option	= EAGLE	
			Editeur					+ Innenteil	
Modification	Date	Nom			Remplacement de	Remplacé par			Feuille 5 de 5


Power Supply
Heat pump outdoor unit
Communication
Gateway
attention!
240VAC
Déverrouiller tension avant d'effectuer les travaux d'électricité.
+Innenteil-W4
+Innenteil/2 / -L/N/PE
+Innenteil-W5
+Innenteil/2 / -LS/N/PE/Pin23/Pin24
OTE +Innenteil/3 / -MODBUS2
-Netzteil
230VAC
12V+
GND
-W15
CAN-BUS TP-C-PVC
4x0,75
250 V
-W14
UNITRONIC LiYCY
6x0,5
-W13
ÖLFLEX CLASSIC 110
5x1
300/500 V
-W13a
UNITRONIC LiYY
3x0,5
-W10
UNITRONIC LiYCY
1200 mm
6x0,5
-W11
-W12
-W16
-W17
-W18
-W6
-Q1
-KM2
-F2
C10A
fan
-EMI
-IV2
Inverter
Ferrit
-M2
Compressor
-Y1
cooling circuit revers
-EB2
33W
-IWS
IWS
IWS III
IWS III
-ST1
1 N
2 L
3 K2
4 nc
5 err
6 nc
7 defrosting
8 ON
9 HD
10 EVU
11 nc
12 nc
-ST2
nc 6
TQE 5
TSG Verdichter 4
TSG Verdampferaustritt 3
GND 2
TSG OVI Einspritzung 1
-ST3
CAN GND 3
CAN L 2
CAN H 1
-ST4
1
2
3 Ölsumpf
TKA (Verflüssiger Austritt)
TQA (Fortluft)
Temp. Ölsumpf
nc
0...5V
GND
-ST5
-ST6
nc 7
+12...+18V 6
GND 5
ND 4...20mA 4
HD 4...20mA 3
MD 4...20mA 2
(Heißgas) THG 1
-ST7
Ventilator Error 4
Ventilator +10V 3
Ventilator 0..10V 2
Ventilator GND 1
-ST8
-ST11
1 GND
2 +5V
3 H MODBUS1
4 L MODBUS1
-X4
-X5
-X6
-X7
-X7a
-X9
-Gateway
-X402
GND
MODBUS2 A
MODBUS2 B
-X100
1 CAN H
2 CAN L
3 CAN GND
-X102
2 +VSS
1 GND
-X201
1 PHASE 4
2 PHASE 3
3 PHASE 2
4 PHASE 1
5 +12V
-M7
-M8
-M9
-XB5
-XB10
-XB8
-XB7
-XB6
-XB11
-XB12
-XB13
-BT5
-BT10
-BT8
-BT7
-BT6
PT1000
-BT11
-BT12
-BT13
KTY
-BP1
0-30 bar
-BP2
0-42 bar
-BP3
0-16 bar
-EBM
-M1
fan
5 = TK
6 = TK
8 = 0...10V
10 = frei/ free
11 = +10V <1mA
12 = GND
Für diese Zeichnung behalten wir uns alle Eigentums- und Urheberrechte vor. Sie bleibt unser geistiges Eigentum und darf ohne unsere ausdrückliche vorherige Genehmigung weder vervielfältigt noch Dritten zugänglich gemacht werden.
For this drawing we reserve all property rights and copyrights. The drawing shall remain our intellectual property and must not be copied or made available to any third party without our prior notice.
Date
25.04.2018
Editeur
Ochsner Wärmepumpen GmbH
electric
= EAGLE
+ Aussenteil
Modification
Date
Nom
Remplacement de
Remplacé par
Feuille 4
de 5

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16 Declaration of conformity

DE	EU-KONFORMITÄTSERKLÄRUNG	ES	DECLARACIÓN DE CONFORMIDAD DE LA UE
EN	EU DECLARATION OF CONFORMITY	PT	DECLARAÇÃO DE CONFORMIDADE CE
FR	DÉCLARATION DE CONFORMITÉ UE	NL	EU-CONFORMITEITSVERKLARING
PL	DEKLARACJA ZGODNOŚCI UE	CS	PROHLÁŠENÍ O SHODĚ EU
IT	DICHIARAZIONE DI CONFORMITÀ UE		

			D-A	CH	EXP	UK		D-A	CH	EXP	UK
DE	Produktmodell/Produkt:										
EN	Product model / product:	AIR EAGLE 414 C11B G1-1	285630	285630	285630	285630					
FR	ModèleModèle / Produit :	AIR EAGLE 717 C11A G1-1	285640	285640	285640	285640					
PL	Model produktu/produkt:	AIR EAGLE 414 C11B T200	285900	285900	285902	-					
IT	Modello/prodotto:	AIR EAGLE 717 C11A T200	285910	285910	285912	-					
ES	Modelo de producto/producto:	AIR EAGLE 414 C11B T201	-	-	-	286620					
PT	Modelo de produto/produto:	AIR EAGLE 717 C11A T201	-	-	-	286630					
NL	Productmodel/product:										
CS	Model výrobku/výrobek:										

DE	Name und Anschrift des Herstellers oder seines Bevollmächtigten:	OCHSNER Wärmepumpen GmbH Krackowizerstraße 4 A 4020 Linz Werk A-3350 Haag
EN	Name and address of manufacturer or its authorised representative:	
FR	Nom et adresse du fabricant ou de son représentant :	
PL	Nazwa i adres producenta lub pełnomocnika:	
IT	Nome e indirizzo del produttore o del suo rappresentante legale:	
ES	Nombre y dirección del fabricante o de su representante autorizado:	
PT	Nome e endereço do fabricante ou do seu mandatário:	
NL	Naam en adres van de fabrikant of zijn gevolmachtigde:	
CS	Název a adresa výrobce nebo jeho zplnomocněného zástupce:	

DE	Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller.
EN	This declaration of conformity is issued under the sole responsibility of the manufacturer.
FR	La présente déclaration de conformité est établie sous la seule responsabilité du fabricant.
PL	Wyłączną odpowiedzialność za wystawienie niniejszej deklaracji zgodności ponosi producent.
IT	Il produttore si assume la responsabilità esclusiva dell'emissione della presente dichiarazione di conformità.
ES	El fabricante es el único responsable de la elaboración de esta declaración de conformidad.
PT	A presente declaração de conformidade é emitida sob a exclusiva responsabilidade do fabricante.
NL	De fabrikant is als enige verantwoordelijk voor het opstellen van deze conformiteitsverklaring.
CS	Odpovědnost za vystavení tohoto prohlášení o shodě nese výlučně výrobce.

DE	Gegenstand der Erklärung:	Luft-Wasser–Wärmepumpe	AIR EAGLE 414 C11B G1-1 AIR EAGLE 717 C11A G1-1 AIR EAGLE 414 C11B T200 AIR EAGLE 717 C11A T200 AIR EAGLE 414 C11B T201 AIR EAGLE 717 C11A T201
EN	Object of the declaration:	Air/water heat pump	
FR	Objet de la déclaration :	Pompe à chaleur air/eau	
PL	Przedmiot deklaracji:	Pompa ciepła typu powietrze-woda	
IT	Oggetto della dichiarazione:	Pompa di calore–aria/acqua	
ES	Objeto de la declaración:	Bomba de calor de aire/agua	
PT	Objeto da declaração:	Bomba de calor ar/água	
NL	Voorwerp van de verklaring:	Lucht-water-warmtepomp	
CS	Předmět prohlášení:	Tepelné čerpadlo vzduch-voda	

DE	Der oben beschriebene Gegenstand der Erklärung erfüllt die einschlägigen Harmonisierungsrechtsvorschriften der Union.
EN	The object of the declaration described above is in conformity with the relevant harmonisation legislation of the European Union.
FR	L'objet de la déclaration décrit ci-dessus est conforme à la législation d'harmonisation en vigueur de la communauté européenne.
PL	Opisany powyżej produkt objęty deklaracją spełnia obowiązujące przepisy harmonizacyjne Unii Europejskiej.
IT	L'oggetto della dichiarazione sopra specificato è conforme ai requisiti delle normative di armonizzazione applicabili dell'Unione.
ES	El objeto de la declaración descrita anteriormente se ajusta a la legislación de armonización pertinente de la Unión.
PT	O objeto da declaração acima citado preenche os requisitos constantes da legislação correspondente da União em matéria de harmonização.
NL	Het bovengenoemde voorwerp van de verklaring voldoet aan de geldende voorschriften van het harmonisatierecht van de Unie.
CS	Výše popsaný předmět prohlášení splňuje příslušné harmonizační právní předpisy Unie.

Low Voltage Directive (LVD) 2014/35/EU	Regulation (EU) Fluorinated Greenhouse Gases 517/2014
Electromagnetic Compatibility (EMC) Directive 2014/30/EU	Regulation (EU) Ecodesign Requirements 813/2013
Energy-related Products Directive (ErP) 2009/125/EC	Delegated Regulation (EU) 811/2013 (energy efficiency labelling)
Restriction of Hazardous Substances (RoHS) Directive 2011/65/EU	Regulation (EU) 2017/1369 (energy consumption labelling)

DE	Angabe der einschlägigen harmonisierten Normen, die zugrunde gelegt wurden, oder Angabe der anderen technischen Spezifikationen, in Bezug auf die die Konformität erklärt wird:
EN	References to the relevant harmonised standards used or references to the other technical specifications in relation to which conformity is declared:
FR	Indication des normes harmonisées en vigueur ou indication d'autres spécifications techniques servant de référence à la présente déclaration de conformité :
PL	Wskazanie odnośnych zastosowanych norm zharmonizowanych lub innych specyfikacji technicznych, w odniesieniu do których deklarowana jest zgodność:
IT	Indicazione delle normative di armonizzazione applicabili sulle quali si è basato il prodotto, o indicazione delle altre specifiche tecniche in riferimento alle quali si dichiara la conformità:
ES	Indicación de las normas armonizadas pertinentes utilizadas o de las demás especificaciones técnicas con respecto a las cuales se declara la conformidad:
PT	Indicação da legislação de harmonização pertinente que serviu de base ou indicação das outras especificações técnicas em relação às quais é declarada a conformidade:
NL	Vermelding van de geldende, geharmoniseerde normen die daaraan ten grondslag liggen, of vermelding van de andere technische specificaties op basis waarvan de conformiteit verklaard wordt:
CS	Uvedení příslušných harmonizovaných norem použitých jako základ nebo uvedení jiných technických specifikací, s ohledem na které je vystaveno prohlášení o shodě:

EN 378-1: 2018-07	EN 61000-3-11: 2017-04	EN ISO 12100: 2013-10
EN 378-2: 2018-07	EN 61000-3-12: 2012-07	
EN 14825: 2016-09	EN 55014-1: 2018-09	
EN 12102: 2018-01	EN 55014-2: 2016-02	
	EN 60335-1:2012-11 +A11:2014	
	EN 60335-2-40:2014-02	

DE	Zusatzangaben:	Diese Erklärung beinhaltet keine Zusicherung von Eigenschaften. Bitte beachten Sie die Sicherheitshinweise in der mitgelieferten Produktdokumentation. Bei einer nicht mit uns abgestimmten Änderung des (der) Gerät(e)s verliert diese Erklärung Ihre Gültigkeit.
EN	Additional information:	This declaration contains no warranties of any product characteristics. Please observe the safety information in the product documentation supplied. Any modification to the appliance(s) that has not been approved by us effectively voids this statement.
FR	Indications supplémentaires :	La présente déclaration n'apporte aucune garantie quant aux propriétés. Veuillez tenir compte des consignes de sécurité fournies dans la documentation du produit. En cas de modification du ou des appareils sans notre accord préalable, la présente déclaration perd sa validité.
PL	Informacje dodatkowe:	Niniejsza deklaracja nie stanowi przyrzeczenia właściwości. Należy przestrzegać wskazówek dotyczących bezpieczeństwa podanych w dołączonej dokumentacji produktu. W przypadku zmiany wprowadzonej w urządzeniu (urządzeniach) nieuzgodnionej z nami niniejsza deklaracja traci ważność.
IT	Dati aggiuntivi:	La presente dichiarazione non comporta alcuna garanzia di caratteristiche. Si prega di attenersi alle avvertenze di sicurezza indicate nella documentazione fornita con il prodotto. Questa dichiarazione perde di validità in caso di modifiche del(i) dispositivo(i) apportate senza la nostra approvazione.
ES	Información adicional:	Esta declaración no incluye ninguna garantía de propiedades. Tenga en cuenta las instrucciones de seguridad de la documentación del producto suministrada. En caso de que se produzca un cambio en los aparatos no acordado con nosotros, esta declaración perderá su validez.
PT	Indicações complementares:	A presente declaração não contém qualquer garantia de características. Queira levar em conta as indicações de segurança contidas na documentação do produtofornecida com o conjunto. No caso de uma alteração do(s) aparelho(s) que não tenha sido efetuada em coordenação com os nossos serviços, a presente declaração perderá a sua validade.
NL	Aanvullende gegevens:	Deze verklaring bevat geen verzekering van eigenschappen. Neem de veiligheidsaanwijzingen in de meegeleverde productdocumentatie in acht. Deze verklaring is niet meer geldig bij een verandering van het (de) appara(a)t(en) die niet met ons overlegd is.
CS	Doplňující údaje:	Toto prohlášení neslouží jako záruka vlastností. Dodržujte bezpečnostní pokyny v dodané dokumentaci k výrobku. Provedením jakékoliv úpravy přístroje/ přístrojů bez předchozí konzultace s námi pozbývá toto prohlášení platnosti.

DE	Unterzeichnet für und im Namen von:	**OCHSNER Wärmepumpen GmbH**	DE	Ort und Datum der Ausstellung:	**Haag, 12.06.2019**
EN	Signed for and on behalf of:		EN	Place and date of issue:	
FR	Signé pour et au nom de :		FR	Lieu et date de l'implantation :	
PL	Podpisano w imieniu i na rzecz:		PL	miejscowość i data wystawienia:	
IT	Firma per e per conto di:		IT	Luogo e data di emissione:	
ES	Firmado por y en nombre de:		ES	Lugar y fecha de elaboración:	
PT	Assinado para e em nome de:		PT	Local e data da emissão:	
NL	Ondertekend voor en in naam van:		NL	Plaats en datum van opmaak:	
CS	Podepsán/a za a jménem:		CS	Místo a datum vystavení:	

DE	Name, Funktion, Unterschrift:		
EN	Name, position, signature:		
FR	Nom, fonction, signature :		
PL	Imię i nazwisko, stanowisko, podpis:		
IT	Nome, funzione, firma:		
ES	Nombre, función, firma:		
PT	Nome, função, assinatura:		
NL	Naam, functie, handtekening:		
CS	Jméno, funkce, podpis:	**Karl Ochsner** **CEO - Chief Executive Officer**	**Clemens Birklbauer** **CTO – Chief Technology Officer**

17 ERP-Data

Model:	AIR EAGLE 414 C11B G1-1
Air-to-water heat pump:	yes
Water-to-water heat pump:	no
Brine-to-water heat pump:	no
Low-temperature heat pump:	no
Equipped with a supplementary heater:	yes
Heat pump combination heater:	no
Temperature application:	medium
Climate conditions:	average

Item	Symbol	Value	Unit
Rated heat output (*)	Praded	10	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T			
T_j = -7 °C	Pdh	8.1	kW
T_j = +2 °C	Pdh	5.6	kW
T_j = +7 °C	Pdh	3.7	kW
T_j = +12 °C	Pdh	3.8	kW
T_j = bivalent temperature	Pdh	8.3	kW
T_j = operation limit temperature	Pdh	7.7	kW
For air-to-water heat pumps: T_j = -15 °C (if TOL < - 20 °C)	Pdh	—	kW
Bivalent temperature	T_{biv}	-6	°C
Power input „compressor off“		0	W
Power consumption in modes other than active mode			
Off mode	P_{OFF}	19	kW
Thermostat-off mode	P_{TO}	31	kW
Standby mode	P_{SB}	31	kW
Crankcase heater mode	P_{CK}	30	kW
Other items			
Capacity control	variable		
Sound power level, indoors	L_{WA}	—	dB
Sound power level, outdoors	L_{WA}	57	dB
Annual energy consumption	Q_{HE}	6197	kWh
For heat pump combination heater:			
Declared load profile	—		
Daily electricity consumption	Q_{elec}	—	kWh

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	η_s	132	%
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
T_j = -7 °C	COPd	2.28	
T_j = +2 °C	COPd	3.62	
T_j = +7 °C	COPd	4.09	
T_j = +12 °C	COPd	5.09	
T_j = bivalent temperature	COPd	2.37	
T_j = operation limit temperature	COPd	2.12	
For air-to-water heat pumps:For air-to-water heat pumps: T_j = -15 °C (if TOL < - 20 °C)	COPd	—	
For air-to-water heat pumps: Operation limit temperature	TOL	-22	°C
Heating water operating limit temperature	WTOL	65	°C
Supplementary heater			
Rated heat output (*)	Psup	2.04	kW
Type of energy input	electricity		
For air-to-water heat pumps: Rated air flow rate, outdoors	—	4000	m^3/h
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	—	—	m^3/h
Water heating energy efficiency	η_{wh}	—	%
Daily fuel consumption	Q_{fuel}	—	kWh

Contact details:	OCHSNER Wärmepumpen GmbH, Ochsner-Straße 1, A-3350 Haag

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

Model:	AIR EAGLE 717 C11A G1-1
Air-to-water heat pump:	yes
Water-to-water heat pump:	no
Brine-to-water heat pump:	no
Low-temperature heat pump:	no
Equipped with a supplementary heater:	yes
Heat pump combination heater:	no
Temperature application:	medium
Climate conditions:	average

Item	Symbol	Value	Unit
Rated heat output (*)	Praded	17	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T			
T_j = -7 °C	Pdh	13.6	kW
T_j = +2 °C	Pdh	9.3	kW
T_j = +7 °C	Pdh	6.4	kW
T_j = +12 °C	Pdh	7.3	kW
T_j = bivalent temperature	Pdh	14.1	kW
T_j = operation limit temperature	Pdh	14.1	kW
For air-to-water heat pumps: T_j = -15 °C (if TOL < - 20 °C)	Pdh	—	kW
Bivalent temperature	T_{biv}	-6	°C
Power input „compressor off“		0	W
Power consumption in modes other than active mode			
Off mode	P_{OFF}	19	kW
Thermostat-off mode	P_{TO}	41	kW
Standby mode	P_{SB}	41	kW
Crankcase heater mode	P_{CK}	30	kW
Other items			
Capacity control	variable		
Sound power level, indoors	L_{WA}	—	dB
Sound power level, outdoors	L_{WA}	57	dB
Annual energy consumption	Q_{HE}	9757	kWh
For heat pump combination heater:			
Declared load profile	—		
Daily electricity consumption	Q_{elec}	—	kWh

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	η_s	141	%
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
T_j = -7 °C	COPd	2.40	
T_j = +2 °C	COPd	3.77	
T_j = +7 °C	COPd	4.58	
T_j = +12 °C	COPd	5.76	
T_j = bivalent temperature	COPd	2.31	
T_j = operation limit temperature	COPd	2.32	
For air-to-water heat pumps:For air-to-water heat pumps: T_j = -15 °C (if TOL < - 20 °C)	COPd	—	
For air-to-water heat pumps: Operation limit temperature	TOL	-22	°C
Heating water operating limit temperature	WTOL	65	°C
Supplementary heater			
Rated heat output (*)	Psup	2.58	kW
Type of energy input	electricity		
For air-to-water heat pumps: Rated air flow rate, outdoors	—	4000	m^3/h
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	—	—	m^3/h
Water heating energy efficiency	η_{wh}	—	%
Daily fuel consumption	Q_{fuel}	—	kWh

Contact details:	OCHSNER Wärmepumpen GmbH, Ochsner-Straße 1, A-3350 Haag

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

Model:	AIR EAGLE 414 C11B T200
Air-to-water heat pump:	yes
Water-to-water heat pump:	no
Brine-to-water heat pump:	no
Direct evaporation-to-water heat pump:	no
Low-temperature heat pump:	no
Equipped with a supplementary heater:	no
Heat pump combination heater:	no
Temperature application:	medium
Climate conditions:	average

Item	Symbol	Value	Unit
Rated heat output (*)	Praded	10	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T_j			
T_j = -7 °C	Pdh	8.1	kW
T_j = +2 °C	Pdh	5.6	kW
T_j = +7 °C	Pdh	3.7	kW
T_j = +12 °C	Pdh	3.8	kW
T_j = bivalent temperature	Pdh	8.3	kW
T_j = operation limit temperature	Pdh	7.7	kW
For air-to-water heat pumps: T_j = -15 °C (if TOL < - 20 °C)	Pdh	—	kW
Bivalent temperature	T_{biv}	-6	°C
Power input „compressor off“		0	W
Power consumption in modes other than active mode			
Off mode	P_{OFF}	19	kW
Thermostat-off mode	P_{TO}	31	kW
Standby mode	P_{SB}	31	kW
Crankcase heater mode	P_{CK}	30	kW
Other items			
Capacity control	variable		
Sound power level, indoors	L_{WA}	—	dB
Sound power level, outdoors	L_{WA}	57	dB
Annual energy consumption	Q_{HE}	6197	kWh
For heat pump combination heater:			
Declared load profile	L		
Daily electricity consumption	Q_{elec}	4.171	kWh

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	η_s	132	%
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T_j			
T_j = -7 °C	COPd	2.28	
T_j = +2 °C	COPd	3.62	
T_j = +7 °C	COPd	4.09	
T_j = +12 °C	COPd	5.09	
T_j = bivalent temperature	COPd	2.37	
T_j = operation limit temperature	COPd	2.12	
For air-to-water heat pumps:For air-to-water heat pumps: T_j = -15 °C (if TOL < - 20 °C)	COPd	—	
For air-to-water heat pumps: Operation limit temperature	TOL	-22	°C
Heating water operating limit temperature	WTOL	65	°C
Supplementary heater			
Rated heat output (*)	Psup	2.04	kW
Type of energy input	electricity		
For air-to-water heat pumps: Rated air flow rate, outdoors	—	4000	m^3/h
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	—	—	m^3/h
Water heating energy efficiency	η_{wh}	91	%
Daily fuel consumption	Q_{fuel}	—	kWh

Contact details:	OCHSNER Wärmepumpen GmbH, Ochsner-Straße 1, A-3350 Haag

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

Model:	AIR EAGLE 717 C11A T200
Air-to-water heat pump:	yes
Water-to-water heat pump:	no
Brine-to-water heat pump:	no
Low-temperature heat pump:	no
Equipped with a supplementary heater:	yes
Heat pump combination heater:	yes
Temperature application:	medium
Climate conditions:	average

Item	Symbol	Value	Unit
Rated heat output (*)	Praded	17	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T			
T_j = -7 °C	Pdh	13.6	kW
T_j = +2 °C	Pdh	9.3	kW
T_j = +7 °C	Pdh	6.4	kW
T_j = +12 °C	Pdh	7.3	kW
T_j = bivalent temperature	Pdh	14.1	kW
T_j = operation limit temperature	Pdh	14.1	kW
For air-to-water heat pumps: T_j = -15 °C (if TOL < - 20 °C)	Pdh	—	kW
Bivalent temperature	T_{biv}	-6	°C
Power input „compressor off“		0	W
Power consumption in modes other than active mode			
Off mode	P_{OFF}	19	kW
Thermostat-off mode	P_{TO}	41	kW
Standby mode	P_{SB}	41	kW
Crankcase heater mode	P_{CK}	30	kW
Other items			
Capacity control	variable		
Sound power level, indoors	L_{WA}	—	dB
Sound power level, outdoors	L_{WA}	57	dB
Annual energy consumption	Q_{HE}	9757	kWh
For heat pump combination heater:			
Declared load profile	L		
Daily electricity consumption	Q_{elec}	3.989	kWh

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	η_s	141	%
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
T_j = -7 °C	COPd	2.40	
T_j = +2 °C	COPd	3.77	
T_j = +7 °C	COPd	4.58	
T_j = +12 °C	COPd	5.76	
T_j = bivalent temperature	COPd	2.31	
T_j = operation limit temperature	COPd	2.32	
For air-to-water heat pumps:For air-to-water heat pumps: T_j = -15 °C (if TOL < - 20 °C)	COPd	—	
For air-to-water heat pumps: Operation limit temperature	TOL	-22	°C
Heating water operating limit temperature	WTOL	65	°C
Supplementary heater			
Rated heat output (*)	Psup	2.58	kW
Type of energy input	electricity		
For air-to-water heat pumps: Rated air flow rate, outdoors	—	4000	m^3/h
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	—	—	m^3/h
Water heating energy efficiency	η_{wh}	96	%
Daily fuel consumption	Q_{fuel}	—	kWh

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

Subject to technical modifications!

This manual describes appliances that are not always standard items. There may therefore be differences to your specific heat pump.

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Address ……

……

Tel. ……

Service engineer ……

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