HIGH EFFICIENCY BRINE/WATER HEAT PUMPS

OPERATING AND INSTALLATION MANUAL

- **TERRA 6**
- **TERRA 8**
- **TERRA 11**
- **TERRA 14**
- **TERRA 18**
- **TERRA 22**
- **TERRA 27**

TRANSLATION OF THE ORIGINAL MANUAL

OCHSNER
WÄRMEPUMPEN

CONTENTS

PLEASE NOTE

OPERATION

1. Information on documentation 4
1.1 Safety information 4
1.1.1 Arrangement of safety information 4
1.1.2 Symbols and possible dangers 4
1.1.3 Keywords 4
1.2 Other symbols 5
1.3 Units of measurement 5
1.4 Specified performance figures 5

2. Safety 5
2.1 Intended use 5
2.2 General safety information 5

3. Appliance description 6
3.1 Functionality 6
3.2 Appliance components 6
3.2.1 Indoor unit 6
3.2.2 Heat pump control unit 7
3.3 Name plate 7

4. Activating settings 8
4.1 Operating costs 8
4.1.1 Flow temperatures 8
4.1.2 Ventilation 8
4.1.3 Heating setback program 9
4.1.4 Screed drying program 9

5. Maintenance and care 9

6. Problem solving 9

INSTALLATION

7. Safety 10
7.1 General safety information 10
7.2 Regulations, codes and standards 10

8. Appliance description 10
8.1 Scope of delivery 10
8.2 Hydraulic variants of the indoor unit 11

9. Preparing to install the appliance 13
9.1 Indoor unit installation location 13
9.1.1 Keep minimum clearances 13
9.2 Preparing the heat source system 14
9.2.1 Geothermal collectors 14
9.2.2 Preparing the wall conduits 14
9.2.3 Preparing the collection shaft 15
9.3 Preparing the electrical connections 16
9.3.1 Heat pumps for three-phase alternating current 16
9.3.2 Heat pumps for single phase alternating current 17
9.3.3 Cables from main distributor to indoor unit 17
9.3.4 Temperature sensor 17
9.3.5 Pumps and servomotors (230 VAC) 18
9.3.6 PSU signal contact 18
9.3.7 Smart Grid 18

10. Appliance installation 19
10.1 Installation of indoor unit 19
10.1.1 Delivery and transportation 19
10.1.2 Positioning the appliance 20
10.1.3 Disassembling the appliance casing 20
10.1.4 Assembling the appliance casing 21
10.2 Connecting the heat sink system 22
10.2.1 Connecting the heating water 22
10.2.2 Safety valve drain 23
10.2.3 Filling the heating system 23
10.2.4 Diaphragm expansion vessel (DEV) 24
10.2.5 Flow metering 24
10.2.6 Cooling version 25
10.2.7 Connecting the DHW 25
10.3 Connecting heat source system 25
10.3.1 Connecting the brine hydraulics 25
10.3.2 Heat transfer medium (brine circuit) 25
10.3.3 Filling the brine circuit 26
10.3.4 Safety valve drain 26
10.3.5 Diaphragm expansion vessel (DEV) 27
10.3.6 Flow metering 27
10.4 Electrical connection 27
10.4.1 General 27
10.4.2 Electrical connection of the indoor unit 27

11. Commissioning 30
11.1 Before switching on for the first time 30
11.2 Testing the control circuit 30
11.3 Adjusting the flow rate 30
11.3.1 Flow rate of the heat sink system 30
11.3.2 Flow rate of the heat source system 33
11.4 Pumps in the indoor unit 35
11.5 Necessary conditions for commissioning 36
11.6 Commissioning the system 37
11.7 Decommissioning 38

12. Troubleshooting 39
12.1 Fault messages on the master controller 39
12.2 Reset high limit safety cut-out 41

13. Appliance maintenance 42
13.1 Testing safety valves 42
13.2 Maintenance contract 43

14. Specification 44
14.1 Heat pumps for three-phase alternating current 44
14.1.1 Data table 44
14.2 Heat pumps for single phase alternating current 48
14.2.1 Data table 48
14.3 Performance diagrams 50
14.3.1 Details of energy consumption 57
14.4 Limits of use 59
14.5 System schematic diagrams 60
14.6 Voltage quality in island mode 76
14.7 Dimensions and connections 77
14.7.1 Indoor unit 77

15. Environment and recycling 78

16. Declaration of conformity 79

17. ERP-Data 83

PLEASE NOTE

- The appliance can be used by children over the age of eight years and by people with reduced physical, sensory or mental abilities or with a lack of experience and knowledge, if they are supervised or instructed on the safe use of the appliance and understand the dangers that can arise from its use. Children must not be allowed to play with the appliance. Children must not be allowed to clean or carry out user maintenance on the appliance without supervision.
- Connection to the mains electricity supply must be by means of a fixed connection. It must be possible to isolate the appliance from the mains supply with a multi pole switch which has a gap of at least 3 mm across all poles.
- You must not disconnect the mains supply even if heating is not required. If the power supply is disconnected, active frost protection of the system cannot be guaranteed.
- You do not need to switch off the system for the summer. The heat pump control unit changes over automatically between summer and winter.
- It is advised that you observe the minimum clearances in order to ensure fault-free operation of the appliance and to allow for maintenance work on the appliance.
- In bivalent mode, the return water from the second heat generator can flow through the heat pump. Note that the return water temperature must not exceed 65°C.
- Maintenance work such as checking the electrical safety of the appliance may only be carried out by a qualified contractor.
- We recommend an annual inspection (to assess the appliance's actual condition) and if necessary any maintenance (to reinstate it to its expected condition) by a qualified contractor.

OPERATION

1. Information on documentation

The "Please note" and "Operation" sections are intended for the appliance user and the qualified contractor.

The "Installation" section is intended for the qualified contractor.

Unless otherwise stated, all the content of this documentation applies to the appliances listed on the title page. This documentation describes appliances that are not always standard items. There may therefore be differences to your specific appliance.

Information
Read all of this documentation carefully before using the appliance and keep the documents safe. Pass this documentation on to the new user.

1.1 Safety information

1.1.1 Arrangement of safety information

KEYWORD: Type of risk
The possible consequences of not observing the safety information are shown here.
» Instructions for action to remedy or remove the source of danger are shown here.

1.1.2 Symbols and possible dangers

Symbol	Type of risk
	Injury
	Electrocution
	Burns (burns, scalding)
	Material damage (appliance, consequential and environmental damage)

1.1.3 Keywords

Keyword	Meaning
DANGER	Failure to observe this information will result in serious injury or death.
WARNING	Failure to observe this information may result in serious injury or death.
CAUTION	Failure to observe this information may result in non-serious or minor injury.

1.2 Other symbols

► This triangular symbol is used as a bullet point.

» These two arrows represent the symbol for an instruction. This shows that there is something you must do. The actions required are described step by step.

○○⊙ These symbols show you the level of a software menu. In this example, three menu levels are indicated.

1.3 Units of measurement

Information
In these documents, unless otherwise specified, all linear measurements (e.g. in tables and illustrations) are given in millimetres.

1.4 Specified performance figures

The appliance performance figures indicated in these documents (text, tables and diagrams) have been calculated according to standardised measurement conditions. However, these measurement conditions often do not completely correspond to the plant-specific conditions applicable in the respective user's system. System-specific factors that can affect the conditions include, for example, the specific design of the system, the age of the system and the actual flow rates. For this reason, the stated performance figures can differ from plant-specific performance data.

The stated performance figures can be confirmed only if the measurements taken for the appliance are carried out according to the relevant standardised measurement conditions.

2. Safety

2.1 Intended use

The appliance is intended for use in a domestic environment. It can safely be used by persons who have received no instruction. The appliance can similarly be used in a non-domestic environment such as commercial premises, as long as it is used in the same instructed manner.

Any use of the appliance that is different from or goes beyond this is not regarded as intended use. "Intended use" also includes observing this documentation and the documentation of any accessories used.

Information
Air pressure and air humidity will affect the operational reliability of the electrical components in the heat pump system (dielectric strength). The location of the heat pump system must be no more than 1000 m above sea level.

2.2 General safety information

Observe the following safety information and instructions for the appliance.

► Only qualified contractors should carry out the electrical work and installation of this appliance. Only qualified contractors may open the appliance.

► Commissioning and maintenance of the appliance may be carried out only by OCHSNER Customer Service or by customer service partners authorised by OCHSNER.

► The authorised contractor is responsible for compliance with all relevant regulations during installation and commissioning.

► Operate the appliance only when fully installed and with all safety equipment fitted.

► Protect the appliance from dust and dirt ingress during building work. Use the plastic cover provided.

► Alterations to the appliance may be carried out only by OCHSNER Customer Service or by customer service partners authorised by OCHSNER.

► Functions to protect the heat pump can be enabled using the controller. However, since the controller is not certified as a safety device, safety measures in case of breakdown or damage to the heat pump (e.g. additional external switching of the safety devices in use) must comply with local regulations. In the case of upgrades or updates to the controller software, all function parameters of the heat pump must be checked.

- Before commencing work on electrical connections and installation, the heat pump system must be isolated and voltage-free.
- The appliance may not be used as a step or platform. Do not climb on the appliance or place any loads on it.

WARNING: Injury
The appliance may be used by children aged 8 and up and persons with reduced physical, sensory or mental capabilities or a lack of experience provided that they are supervised or that they have been instructed on how to use the appliance safely and have understood the possible risks. Children must not be allowed to play with the appliance. Children must not be allowed to clean or carry out user maintenance on the appliance without supervision.

3. Appliance description

The appliance is a brine/water heat pump consisting of an indoor unit and a brine circuit (geothermal collectors, geothermal probe). The appliance can be used to heat a building and provide domestic hot water (DHW).

3.1 Functionality

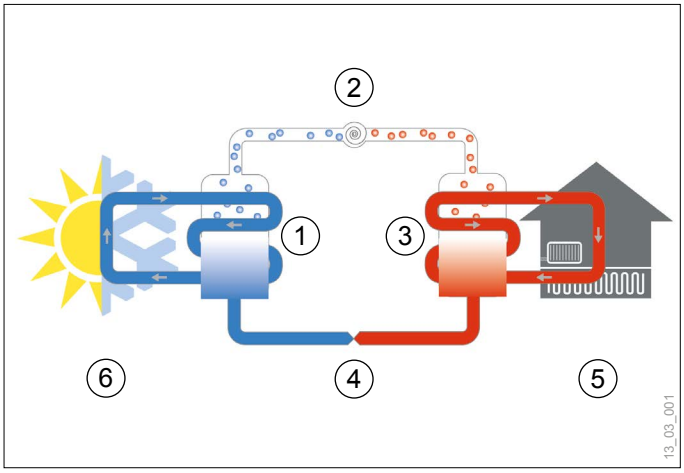
The brine/water heat pump extracts thermal energy from the ground (low temperature) and transmits it together with electrical drive energy in the form of useful heat (higher temperature) to a heating and/or DHW circuit.

The heat pump generally works in monovalent heating mode. The heat pump can be combined with other heat generators.

The heat pump consists of separated circuits linked together via heat exchangers:

- Heat source circuit (brine circuit with geothermal collectors or geothermal probe)
- Refrigerant circuit
- Heat sink circuit (supply of heat to the central heating and/or DHW)

The operating principle of a brine/water heat pump:



1 Evaporator (plate heat exchanger)
2 Compressor
3 Condenser (plate heat exchanger)
4 Expansion valve
5 Heat sink (heating, DHW)
6 Geothermal energy as a heat source (brine circuit)

3.2 Appliance components

3.2.1 Indoor unit

The indoor unit is intended to be installed only inside the building. The indoor unit contains the compressor, which in terms of sound technology is acoustically decoupled a

number of times from the casing. The casing is acoustically optimised and allows particularly quiet operation.

Compressor

The fully hermetically sealed compressor is designed for high efficiency heat pump applications. A suitable starting current limiter for the compressor is installed in the indoor unit.

Electric booster heater

You have the option to fit the appliance with an electric booster heater (electric immersion heater).

Condenser

The condenser takes the form of a plate heat exchanger. The plate heat exchanger is built of stainless steel and insulated on all sides against condensation and heat loss.

Evaporator

The evaporator takes the form of a plate heat exchanger. The plate heat exchanger is built of stainless steel and insulated on all sides against condensation and heat loss.

3.2.2 Heat pump control unit

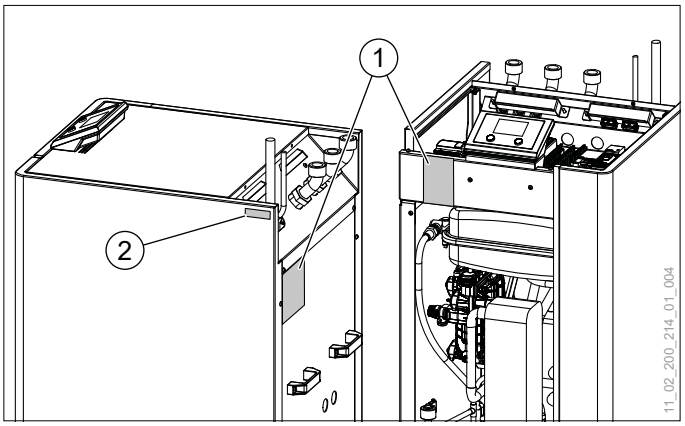
The OCHSNER heat pump controller includes devices for controlling heat pump heating systems with a cooling function as well as DHW heating. In its standard version, the heat pump control unit consists of the OTE controller and the master controller, both of which are installed in the indoor unit.

The OTE controller can control the following system circuits and heat generators:

- ► 1x direct circuit (heating and/or cooling)
- ► 1x mixer circuit (heating and/or cooling)
- ► 1x directly heated DHW tank (with electric booster heater)
- ► 1x heat pump (heating and cooling)
- ► 1x additional heat generator (electric booster heater or enable contact for external heat generator)

3.3 Name plate

Two name plates are attached to the indoor unit to identify your heat pump. In addition, a label with the serial number is attached to the right-hand casing panel of the appliance.

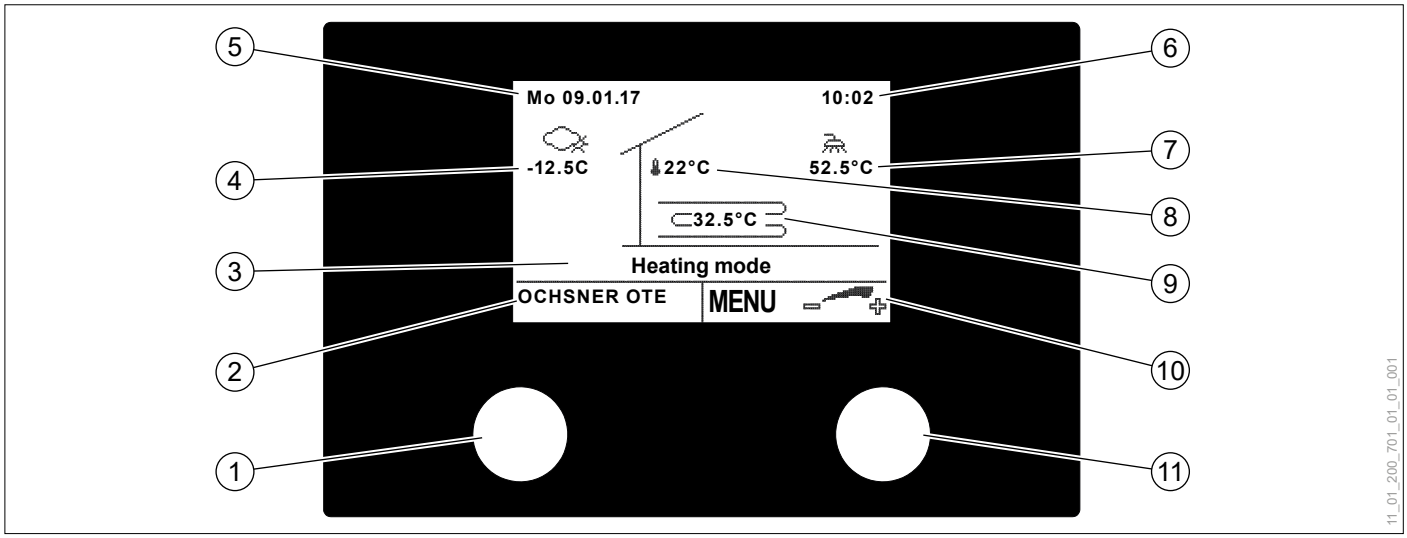


1 Name plate (back of indoor unit and front of control box)
2 Serial number (right-hand casing panel)

4. Activating settings

Settings are activated with the master controller on the indoor unit (with graphic display or touchscreen), or via a remote controller with touchscreen that is attached to the wall.

The master controller is mounted in an easily accessible plastic cover on the top of the indoor unit. Two buttons are provided for controlling the menu, with an illuminated graphic display.



1 Button A:
Press to go back one menu step (ESC)
2 Displays function of Button A or fault message
3 Operating status
4 Outdoor temperature
5 Date
6 Time
7 DHW temperature
8 Actual room temperature
9 System temperature
10 Displays function of Button B
11 Button B:
Turn to select from menu or to change setting
Press to confirm (ENTER)

Pressing Button B on the right calls up the main menu with a diagram of the heating system. Each heat consumer (heating circuit, DHW circuit) and each heat generator (heat pump, electric booster heater, boiler etc.) has its own menu and corresponding submenus.

Pressing Button A takes you back one step to the previous menu.

You will find further information on operating the heat pump control unit in the control unit's operating manual that is also supplied with the heat pump.

Information
The heat pump has no separate ON/OFF switch. In an emergency, the system must be shut down via the specified safety devices.
» Ensure easy access to the safety devices. It must be possible to perform an emergency shutdown at all times.

4.1 Operating costs

In the first two heating seasons, higher running costs are to be expected (up to 50% more, depending on residual moisture in the building). Enabling the screed drying program will also increase operating costs further.

4.1.1 Flow temperatures

For optimum operation of your heat pump, you should aim for the lowest possible heating flow temperatures (and also DHW temperatures). The maximum system temperature for your heat pump should be restricted to 60°C.

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

4.1.2 Ventilation

Any ventilation should be intermittent, especially during the heating period, and according to your own require-

ments. Intermittent ventilation is considerably more energy efficient than permanent ventilation, and therefore saves money. Avoid permanent ventilation.

4.1.3 Heating setback program

From an energy efficiency point of view, using a time program to reduce the heating flow temperature is not recommended for low temperature heating systems (such as underfloor heating). These systems are slow to respond and, due to the additional output from the system required following the end of the setback phase, it is possible that the second heat generator (boiler, electric immersion heater) will cut in. This can lead to higher operating costs.

4.1.4 Screed drying program

Screed drying mode with a brine/water heat pump (screed, construction moisture) is not permissible.

Material damage
Screed drying mode with this heat pump leads to efficiency losses, formation of frost with faulting in the ground, and even system failure.
» For screed drying mode, use an electric immersion heater as the heat generator. The electric immersion heater should be installed in the heat pump flow (indoor unit option), in the heat pump buffer tank or in the low loss header.

5. Maintenance and care

We recommend an annual inspection and if necessary have your heat pump serviced by OCHSNER Customer Service.

Material damage
Maintenance work on electrical components of the heat pump may be carried out only by qualified contractors.

» If it is necessary to clean the casing sections of the indoor unit, use only a damp cloth (with water or a weak soapy solution). Do not use any abrasive or aggressive cleaning materials.

» During the building phase, protect the indoor unit from dirt and dust with a suitable covering. Use the plastic cover provided.

» Ensure that the heating circuit is filled with sufficient water.

Information
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.

6. Problem solving

Problem	Cause	Solution
Too little DHW is available or the central heating system is too cold.	The power supply to the appliance has been cut off	Check the safety device on the main distributor board for your house. Switch the safety device back on. If the safety device triggers again after being switched back on, contact a qualified contractor or OCHSNER Customer Service.
The appliance is leaking water.	The drain for the safety valve is blocked.	Clean the safety valve drain. (see page 26, Safety valve drain)

If you have a problem that you cannot resolve, contact the system installer, a qualified contractor or OCHSNER Customer Service.

Faults are displayed as”Er XXX”on the master controller of the OTE control unit. If a fault occurs, contact your system installer. The system installer knows your hydraulic system and how it operates. The causes of faults can often be found in the settings or in the hydraulics.

Before contacting the installer, make a note of the serial number and the heat pump model. The serial number and heat pump model of your appliance are shown on the name plate. The name plates are attached to the back of the appliance on the outside and behind the front appliance casing panel (control box outer side).

► **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: kundendienst@ochsner.de

INSTALLATION

7. Safety

Only a qualified contractor should carry out installation, commissioning, maintenance and repair of the appliance.

7.1 General safety information

We guarantee trouble-free function and operational reliability only if the original accessories and spare parts intended for the appliance are used.

7.2 Regulations, codes and standards

Information
Observe all applicable national and regional regulations and instructions.

8. Appliance description

8.1 Scope of delivery

The standard delivery of your appliance includes the following components.

► **1x indoor unit:**
The following components are installed in the indoor unit:

	TERRA 6 TERRA 8 TERRA 11 TERRA 14				TERRA 18 TERRA 22 TERRA 27			
Hydraulic variant	**M2-1**	**M2-2**	**M2-3**	**M2-4**	**M4-1**	**M4-2**	**M4-3**	**M4-4**
Starting current limiter	+	+	+	+	+	+	+	+
Flow meter (heat sink side)	+	+	+	+	+	+	+	+
Flow meter (heat source side)	+	+	+	+	+	+	+	+
Circulation pump (heat sink side)	+	+	+	+	+	+	+	+
Circulation pump (heat source side)	+	+	+	+	+	+	+	+
Internal flexible hose	+	+	+	+	+	+	+	+
Safety valve (heat sink side)	+	+	+	+	+	+	+	+
Safety valve (heat source side)	+	+	+	+	+	+	+	+
Master controller	+	+	+	+	+	+	+	+
OTE heat pump controller	+	+	+	+	+	+	+	+
Diaphragm expansion vessel 24 l (heat sink side)	+	+	+	+	-	-	-	-
Diaphragm expansion vessel 24 l (heat source side)	+	+	+	+	+	+	+	+
3-way switching module (DHW)	+	+	-	-	+	+	-	-
Electric booster heater 8.8 kW	+	-	+	-	+	-	+	-

► **3x connection pipes (45° elbow):**
For vertical or horizontal connection to the heating system.
M2: 5/4”
M4: 6/4”

► **1x outdoor temperature sensor (TA)**

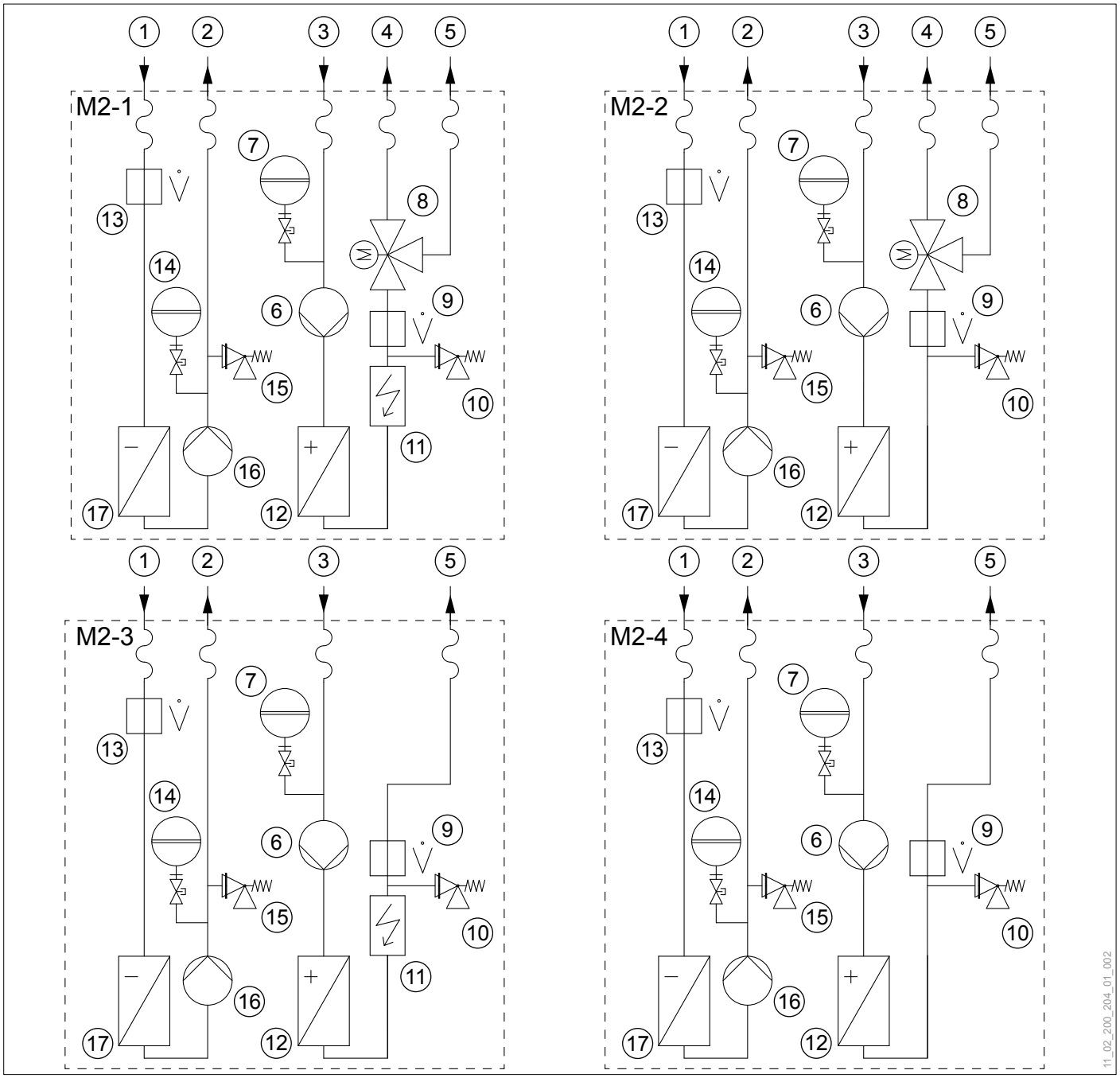
► **1x contact sensor for a mixed circuit (TMK)**

► **2x pocket sensors for a heat pump buffer tank (TPO, TPM)**

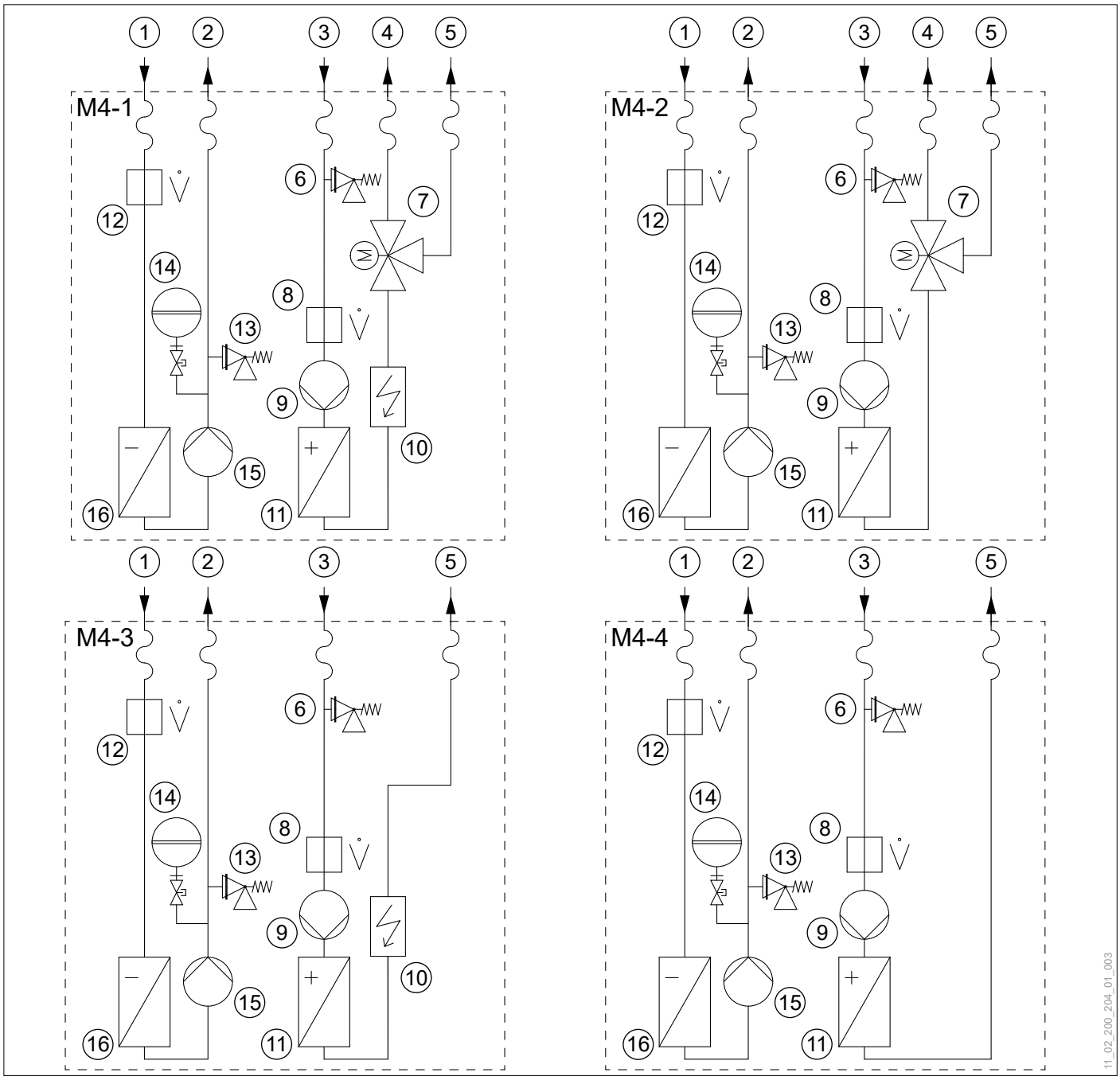
► **1x pocket sensor for a DHW cylinder (TB)**

8.2 Hydraulic variants of the indoor unit

The indoor unit is available in eight different hydraulic variants that are illustrated schematically below. Various system configurations are possible for each of these indoor unit hydraulic variants. (see page 60, System schematic diagrams)



1 Heat source return
2 Heat source flow
3 Heating water/DHW return
4 DHW flow
5 Heating water flow
6 Heat generator pump
7 Diaphragm expansion vessel (heat sink side)
8 3-way switching module
9 Flow meter (heat sink side)
10 Safety valve (heat sink side)
11 Electric booster heater
12 Heat exchanger (heat sink side)
13 Flow meter (heat source side)
14 Diaphragm expansion vessel (heat source side)
15 Safety valve (heat source side)
16 Heat source pump
17 Heat exchanger (heat source side)



1 Heat source return
2 Heat source flow
3 Heating water/DHW return
4 DHW flow
5 Heating water flow
6 Safety valve (heat sink side)
7 3-way switching module
8 Flow meter (heat sink side)
9 Heat generator pump
10 Electric booster heater
11 Heat exchanger (heat sink side)
12 Flow meter (heat source side)
13 Safety valve (heat source side)
14 Diaphragm expansion vessel (heat source side)
15 Heat source pump
16 Heat exchanger (heat source side)

9. Preparing to install the appliance

Before installing the indoor unit, preparatory work needs to be carried out by qualified contractors.

9.1 Indoor unit installation location

Material damage
The indoor unit is intended to be installed only inside the building. It must not be installed in rooms with high levels of humidity (permanently above 70%).

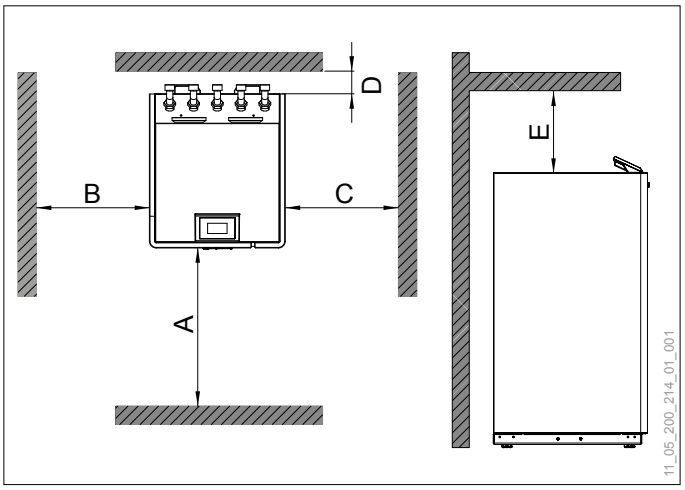
The installation location for the indoor unit must meet the following requirements:

- A dry and frost-free room
- Sound optimised environment
- A horizontal floor with adequate load bearing capacity (for weight of indoor unit, see page 44, Specification)
- Not situated directly below or above bedrooms
- Max. room temperature 30°C
- The installation room must not be subject to a risk of explosions arising from dust, gases or vapours.

9.1.1 Keep minimum clearances

Observing the specified minimum clearances for the indoor unit ensures:

- Correct installation of the appliance
- Fault-free operation
- Ability to carry out maintenance on the appliance.



A ≥ 1000 mm
B ≥ 500 mm
C ≥ 500 mm
D ≥ 50 mm
E ≥ 500 mm

9.2 Preparing the heat source system

We recommend installing the heat source system or brine circuit using shallow laying, deep trench laying or geothermal probes.

Sizing and routing the brine circuit (heat source system) is the system installer's responsibility and must be carried out in compliance with OCHSNER guidelines.

9.2.1 Geothermal collectors

Information
If the appliance, the brine lines, the pipe fixings and the wall conduits are not installed correctly, structure-borne sound can be transmitted to the building.
» Ensure that the brine lines are installed in a way that provides structure-borne noise attenuation. The system installer carrying out the work is responsible for this.

Extraction capacity for shallow laying (acc. to VDI 4640):

Soil conditions	Max. spec. extraction capacity at 1800 h/a [W/m²]	Max. spec. extraction capacity at 2400 h/a [W/m²]
Dry, non-cohesive soil	10	8
Cohesive soil, moist	25	20
Water-saturated soil, sand/gravel	40	32

Extraction capacity for deep trench laying (acc. to VDI 4640):

Soil conditions	Max. spec. extraction capacity at 1800 h/a [W/m], deep trench
Cohesive soil, moist	100
Water-saturated soil, sand/gravel	125

Extraction capacity for geothermal probes (acc. to VDI 4640):

Soil conditions	Max. spec. extraction capacity at 1800 h/a [W/m]	Max. spec. extraction capacity at 2400 h/a [W/m]
Dry sediment	25	20
Shale, slate	45	35
Firm rock with high thermal conductivity	84	70
Substratum with high groundwater flow	65-80	55-65

» Carry out the connection to the brine circuit in such a way that flushing or venting of the brine circuit is possible at any time.

» Avoid routing the lines in the vicinity of bedrooms. The heat transfer medium can produce noise emissions in the brine lines under certain operation conditions.

Information
Ensure that the flow velocity in the pipe network does not exceed 0.8 m/s, as this can cause increased noise emissions.
For reliable operation, observe a temperature differential of 3 K between the evaporator inlet and outlet.

9.2.2 Preparing the wall conduits

For the brine lines, ensure that there is an appropriate and system-specific wall conduit through the exterior wall of the building.

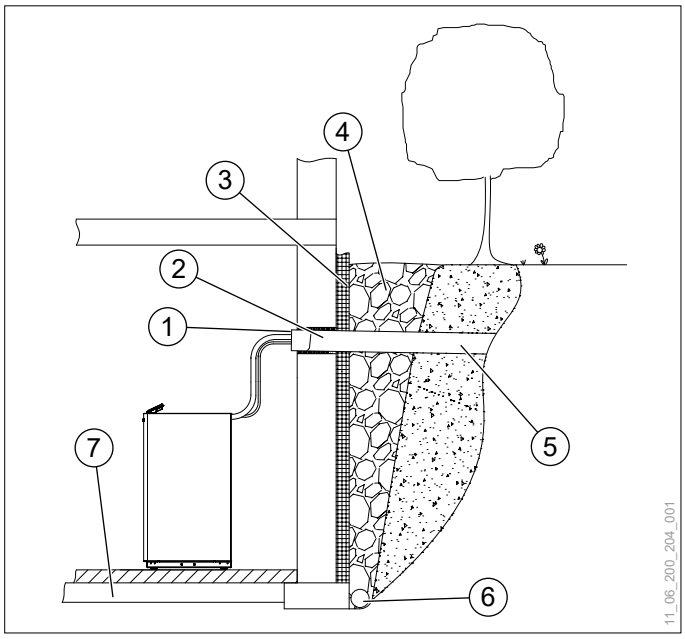
» Ensure that the wall conduits are constructed in an appropriate, plant-specific manner.

» Take the construction of the wall (tiles, concrete) into account.

» Take the prevailing groundwater situation into account.

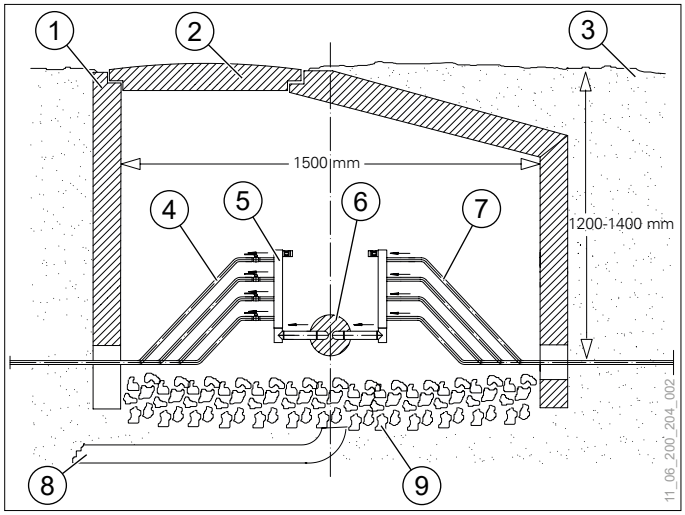
Material damage
Inadequate wall conduits can cause significant damage to property, due to water penetrating the building or stonework (seepage, condensation, flood water). Where the wall conduits are created below ground level, the breach must be appropriate to local conditions at the site (e.g. non-accumulating or accumulating seepage water, groundwater under pressure).
» Use a suitable pipe liner or wall sleeve for the wall conduit.
» Tie the external end of the wall conduit in to the external waterproof seal of the building.
» Ensure that the pipe liner is arranged with a slight fall (at least 2%) to the outside.
» On both the outside and inside edge of the wall, use appropriate ring seals to seal the space between the wall sleeve and the brine lines passing through.

Material damage
PU foam is not suitable as a sealant for the pipe liner.



1 Appropriately sealed wall conduit
2 Appropriate sealing of the brine lines as they pass through the pipe liner
3 Insulation
4 Gravel
5 Pipe liner (with min. 2% fall to outside)
6 Drainage
7 Foundation

9.2.3 Preparing the collection shaft



1 Concrete ring (diameter min. 1500 mm)
Shaft depth min. 2000 mm
2 Access (diameter min. 800 mm)
3 Sand bed
4 Heat source flow (brine)
5 Brine distributor
6 Pipe liner to building
7 Heat source return (brine)
8 Drainage
9 Gravel

Information
When laying brine lines in the ground, schedule the work so that the pipe liner can be laid together with the already inserted brine lines in the trench between the indoor unit and the collection shaft.
- If the pipe liner is laid empty, inserting the brine lines afterwards will be difficult if not impossible, depending on the configuration of the connection line.

» Install a pipe liner between the wall conduit into the building and the collection shaft. The pipe liner contains the lines for the heat source flow (brine) and heat source return (brine).

» For the underground pipe liner, use rigid waste pipes.

» Use a pipe liner of a suitable diameter for the system-specific brine lines and the planned pipe bends.

» For 90° bends in the pipes, use either 3x 30° bends or 6x 15° bends (depending on the diameter of the pipe liner and the depth at which it is laid).

» Dig a straight trench between the wall conduit and the collection shaft.

» Lay the pipe liner, with the brine lines already inserted, in the trench between the collection shaft and the indoor unit.

» Lay the pipe liner with a slight fall (at least 2%) to the collection shaft.

» Ensure that the wall conduits are appropriate and plant-specific, and that the pipe liner is appropriately sealed.

» Any exposed brine lines outside the pipe liner must also be protected from a build-up of condensation using appropriate insulating material. Out of doors, the insulating material must also have UV protection.

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

Material damage
PU foam is not suitable as a sealant for the pipe liner.

9.3 Preparing the electrical connections

WARNING: Electrocution
All electrical connection and installation work must be carried out according to the applicable national and regional regulations.

WARNING: Electrocution
Before commencing work on electrical connections and installation, the heat pump system must be isolated and voltage-free.

WARNING: Electrocution
Work on electrical connections and installation may be conducted only by qualified contractors.

Material damage
This appliance contains frequency converters (e.g. EC circulation pumps). Leakage currents may arise in normal operation. In the event of faults, these components may cause DC fault currents. An incorrectly selected RCD may trip during normal operation or, in the event of a fault, may not trip at all or only trip after a delay.
» Make sure that the power supply for this appliance is separate from the domestic installation.
» Install a type B, AC/DC-sensitive RCD.

Information
It is essential that the regulations of the responsible power supply utility (PSU) and the applicable EN standards be observed.

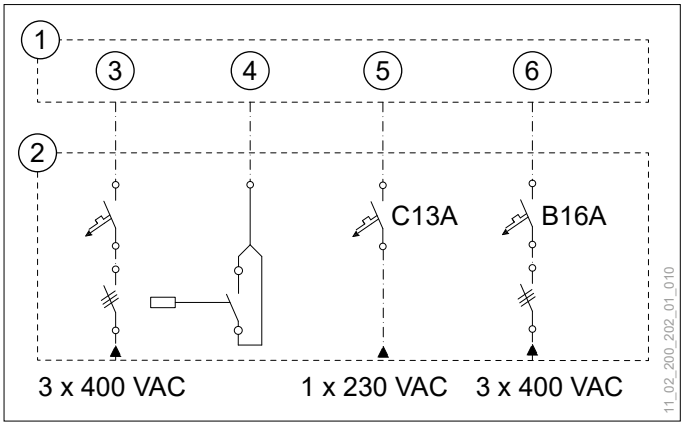
Information
The values specified in this documentation for circuit protectors and cable cross-sections are standard values. The contractor carrying out the work is responsible for plant-specific sizing of safety equipment and cable cross-sections.

- For the electrical connection, use the system principle schematic appropriate to your heat pump system. (see page 60, System schematic diagrams)
- In the case of a fault, the protection on the main power circuit (compressor) and electric booster heater must break the circuit across all poles.
- All power supply cables must be protected against surges and short circuits.
- For the optional electric booster heater (8.8 kW), a suitable high limit safety cut-out (HLSC) is installed in the indoor unit.

Information
The main power circuit for the compressor 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.

Material damage
Protect the main power circuit (compressor), the control circuit (control unit) and the electric booster heater separately from one another.

9.3.1 Heat pumps for three-phase alternating current

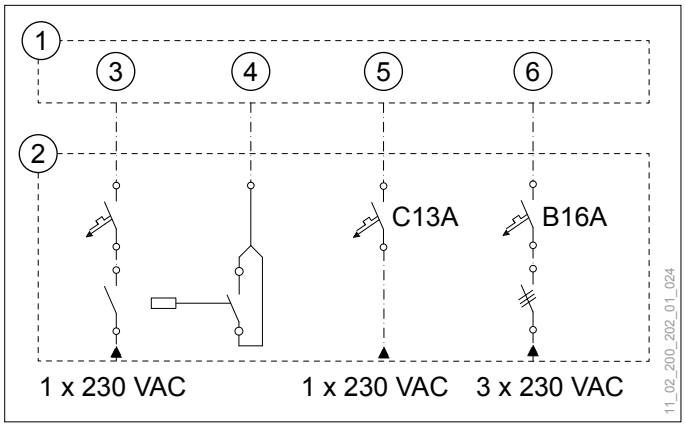


1 Heat pump indoor unit control box
2 Main system distributor board
3 Supply to main power circuit (compressor)
4 PSU signal contact
5 Supply to control circuit (OTE controller)
6 Supply to electric booster heater (optional)

Description	Type	Max. starting current [A]	Max. operating current [A]	Fuse protection
Main power circuit (compressor and fan)	TERRA 6 HPLA	14,0	4,8	C16A
	TERRA 8 HPLA	21,5	6,2	C16A
	TERRA 11 HPLA	26,0	7,4	C16A
	TERRA 14 HPLA	30,0	9,7	C16A
	TERRA 18 HPLA	37,5	13,0	C16A
	TERRA 22 HPLA	62,5	18,0	C25A
	TERRA 27 HPLA	62,5	21,0	C25A
Electric booster heater (optional)	TERRA 6 HPLA - TERRA 27 HPLA	–	14	B16A
Control circuit (control unit)	TERRA 6 HPLA - TERRA 27 HPLA	–	6	C13A

Material damage
Operating a three-phase motor (compressor, pumps, fans) for long periods using an incorrectly phased three-phase supply will damage the motor.
» Ensure that all three-phase motors are connected to a three-phase supply with a clockwise rotating field.

9.3.2 Heat pumps for single phase alternating current



1 Heat pump indoor unit control box
2 Main system distributor board
3 Supply to main power circuit (compressor)
4 PSU signal contact
5 Supply to control circuit (OTE controller)
6 Supply to electric booster heater

Description	Type	Max. starting current [A]	Max. operating current [A]	Fuse protection
Main power circuit (compressor and fan)	TERRA 6 HPLB	30,0	12,8	C16A
	TERRA 8 HPLB	41,5	17,1	C25A
	TERRA 11 HPLB	54	22,8	C25A
	TERRA 14 HPLB	65	27,9	C32A
Electric booster heater (optional)	TERRA 6 HPLB - TERRA 14 HPLB	–	12,8	B16A
Control circuit (control unit)	TERRA 6 HPLB - TERRA 14 HPLB	–	6	C13A

9.3.3 Cables from main distributor to indoor unit

Description	Wires	Min. cable cross-section
Supply to electric booster heater (optional) (8.8 kW electric immersion heater)	3x 400 VAC (L1/L2/L3/N/PE) or 3x 230 VAC (L/L/L/N/PE)	2.5 mm²
Control circuit supply	1x 230 VAC (L/N/PE)	1.5 mm²
Supply to pumps and servomotors	1x 230 VAC (L/N/PE)	1.0 mm²
Sensor leads (system temperature sensors)	2x (shielding recommended)	1.0 mm²
Bus leads (eBus connections from OTE controller to remote controllers or auxiliary modules and in cascades)	Example: Y(ST)Y 2x2x0.8 (shielded cable design and twisted cable pairs)	0.8 mm²

9.3.4 Temperature sensor

Information
The maximum line length for sensor leads is 50 m.

Information
Sensor leads must be routed separately from 230 V and 400 V cables. If a minimum distance of 20 cm cannot be maintained, then shielded cables should be used. The shielding should be connected to the earth rail of the heat pump.

Outdoor temperature sensor (TA):

» Fit the outdoor temperature sensor at a height of approx. 2.5 m to the outside wall of the building (on the north-west side). Make sure that the outdoor temperature sensor is not exposed to direct sunlight or wind, as this will impair the control characteristics.

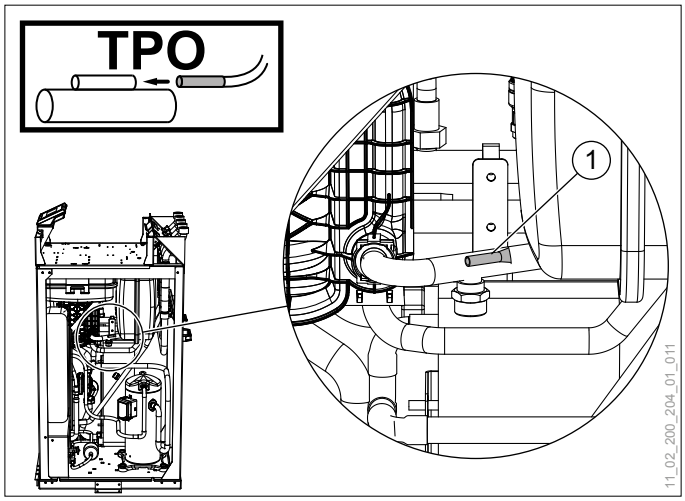
Buffer sensor (TPO, TPM):

In the heat pump buffer tank, two buffer sensors are required. The heat pump is switched on on the basis of readings from the TPO and switched off on the basis of 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)

Information
For systems with a direct heating circuit, install the TPO sensor in the indoor unit heating flow.
» Install the TPO sensor in the sensor sleeve on the heating flow pipe in the indoor unit (marked point downstream of the multifunctional assembly).
The TPO sensor does not need to be installed if there is already a heat pump buffer tank, a bypass or a low loss header or heating circuit with mixing valve.



1 Sensor sleeve for the TPO sensor on the heating flow pipe of the indoor unit

DHW sensor (TB):

OCHSNER DHW cylinders 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 position of the DHW sensor, the larger the switching hysteresis (5-15 K) will need to be.

Information
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.

Mixer sensor (TMK):

If, in addition to a direct heating circuit, your system also has a heating circuit with mixing valve, then a mixer sensor must be installed. The mixer sensor is supplied with the heat pump, as a contact sensor including band clamp and heat conducting paste.

» Install the mixer sensor immediately downstream of heating circuit circulation pump 2 for the heating circuit with mixing valve, on a (metal) pipe made of a good heat-conducting material.

9.3.5 Pumps and servomotors (230 VAC)

Pumps (heating circuit pumps, DHW charging pump) and servomotors (switching module, mixing valve) are connected directly to the OTE controller (1x 230 VAC power supply).

Material damage
A test run of the pumps and servomotors may be conducted only on a system that has been prepared for commissioning. The hydraulics must be fully connected.

9.3.6 PSU signal contact

Tariff switching on the heat pump system

In the case of tariff switching (with interrupted power delivery), the heat pump is temporarily shut down by the power supply utility (PSU).

Uninterrupted tariff

In the case of tariff switching with uninterrupted power supply, the heat pump is temporarily shut down by the power supply utility. A PSU signal contact is provided for this purpose on the indoor unit. To activate this function, it is necessary to remove a cable bridge in the control box and connect the PSU signal contact cable. (see page 27, Electrical connection of the indoor unit)

Shutdown by means of a tariff contactor

In the case of shutdown by means of a tariff contactor installed on behalf of the customer (sealed by the PSU), the power supply to the heat pump compressor is disconnected. Here, it is essential to connect an auxiliary contact to the tariff contactor (N/C contact) of the PSU signal contact on the indoor unit.

Night tariff

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

9.3.7 Smart Grid

For the Smart Grid function, special descriptions are available on request from your OCHSNER Customer Service department.

10. Appliance installation

10.1 Installation of indoor unit

10.1.1 Delivery and transportation

The appliance is delivered on a one-way pallet, wrapped in film. The appliance casing is assembled on delivery.

Information
Should you notice any transportation damage to the appliance, you must report such damage immediately when the delivery is unloaded. Claims for transportation damage cannot be made subsequently.

Material damage
» Protect the appliance from damage by using transport straps.
» When transporting, protect the appliance from impact.

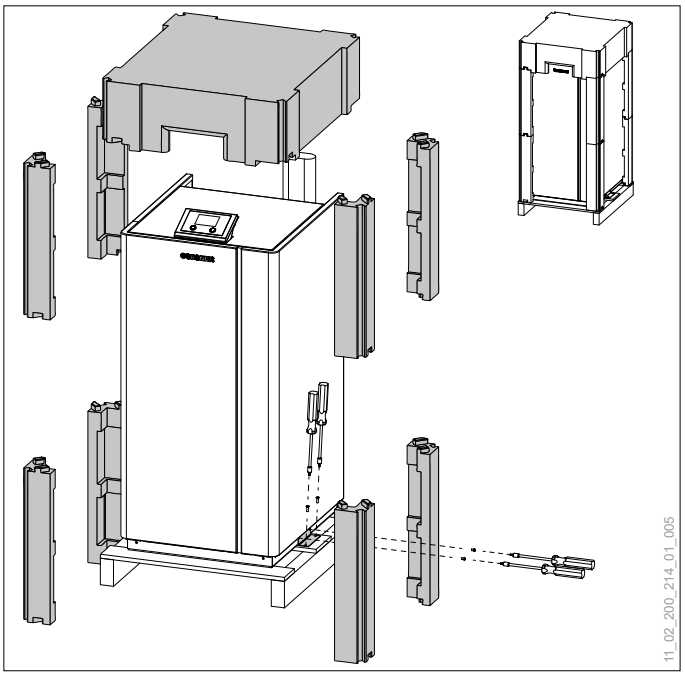
- The appliance is secured to the one-way (recyclable) pallet of the transport packaging with screws.
- The transport packaging or one-way pallet is suitable for transportation using a forklift truck.
- For level transportation to the installation location, the appliance may remain in the transport packaging.
- Leave the appliance in the transport packaging or on the one-way pallet for lifting and moving by crane or forklift.
- The standard packaging of the appliance does not provide protection against the weather or sea water.
- The appliance may be stored and transported only at temperatures of between -20°C and +45°C.
- The appliance must be stored in its transport packaging.

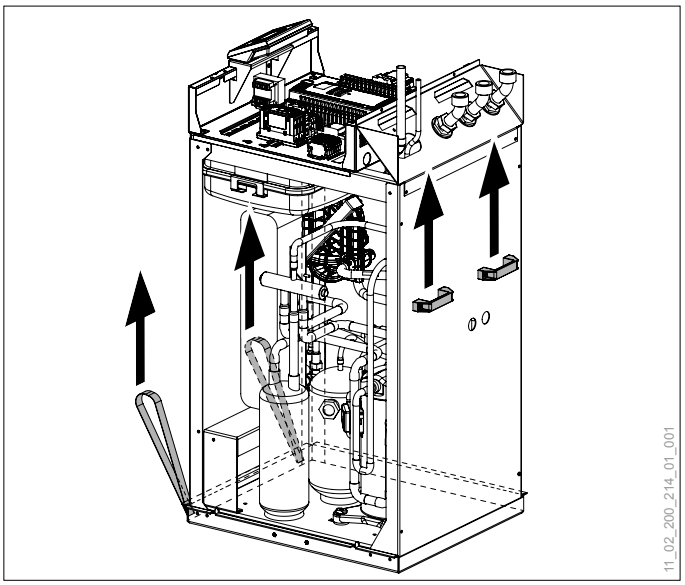
Information
If the route to the installation location is difficult, the transport packaging should be removed and the appliance casing disassembled.

Please note the following when removing the transport packaging:

» Remove the transport packaging.

» Undo and remove the eight woodscrews on the two transport fixing brackets (left and right) securing the appliance to the one-way pallet.

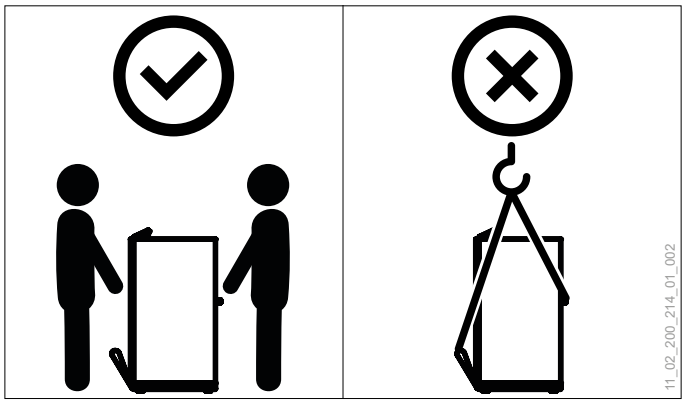




» Use the pre-installed transport aids (2 lifting slings at the front and 2 lifting handles at the rear) to lift and transport the appliance.

» Transport the appliance in an upright position. Over short distances, you may transport the appliance carefully at an angle of up to 30°.

Material damage
Note the following points when carrying the appliance with the pre-installed transport aids:
- When lifting and carrying the appliance, make sure that all 4 transport aids are pulled evenly and at the same time.
- Ensure that the appliance casing is not damaged during transport.
- The transport aids are not suitable for lifting by crane.



Material damage
When being transported with the appliance casing disassembled, sensitive components will be exposed.
» Take care transporting the appliance.

10.1.2 Positioning the appliance

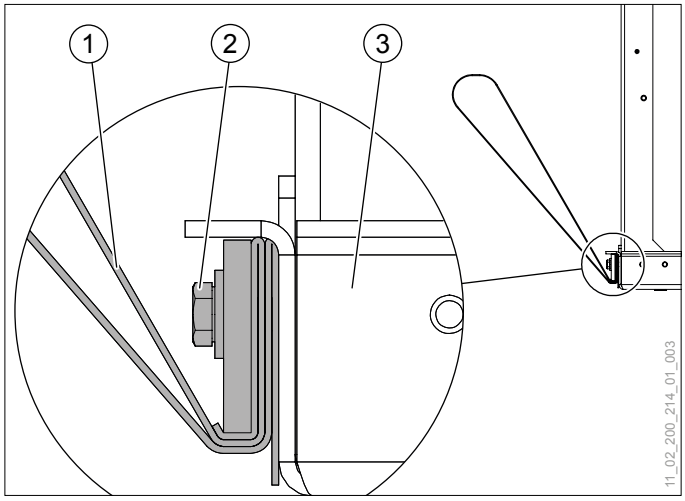
» Position the appliance at the intended installation location.

» Use the pre-installed transport aids (2 lifting slings at the front and 2 lifting handles at the rear) to slide and tilt the appliance.

» Observe minimum clearances.

» Ensure the appliance is horizontal. To compensate for minor unevenness in the floor, use the four height-adjusting plastic glides on the underside of the appliance.

Information
On the underside of the indoor unit, there are four plastic glides with rubber mounted threaded pins (without nuts). Discrepancies in floor height of up to 6 mm can be compensated for.



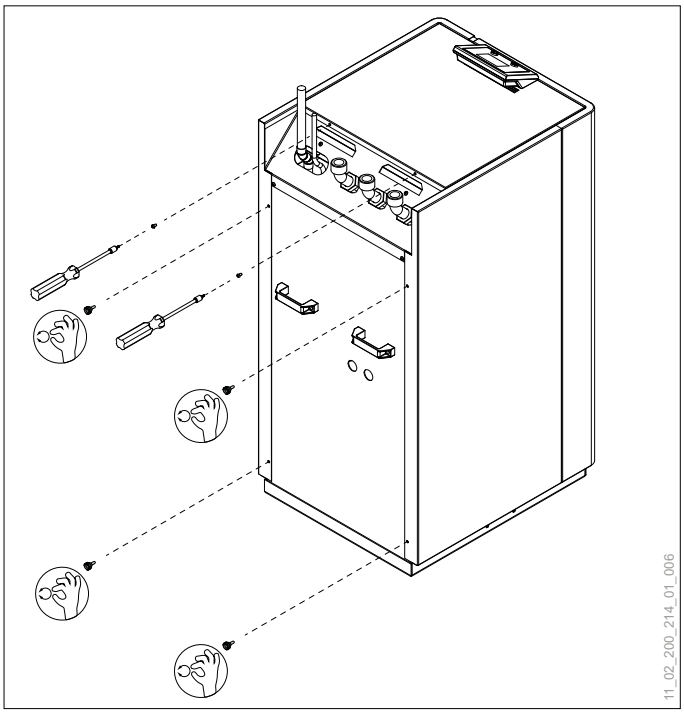
1 Lifting sling
2 Mounting bolt
3 Appliance frame

» After the appliance has been placed in position, remove the two lifting slings at the front of the appliance.

» Undo and remove the two mounting bolts and remove the two lifting slings.

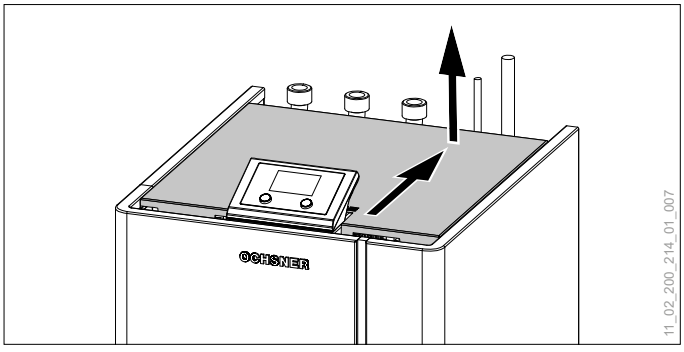
» Then screw the two mounting bolts back into the appliance frame.

10.1.3 Disassembling the appliance casing

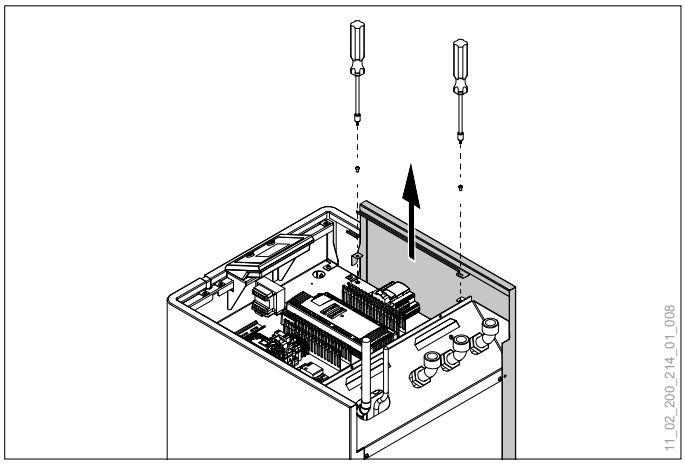


» Undo and remove the four knurled screws for the appliance casing panel at the rear of the appliance.

» Undo and remove the two fixing screws for the control box cover, on the rear of the appliance.

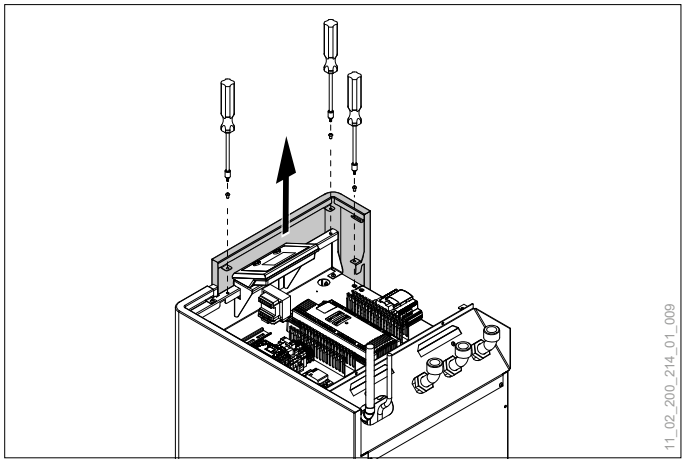


» Slide back the control box cover. Lift the control box cover up and away.



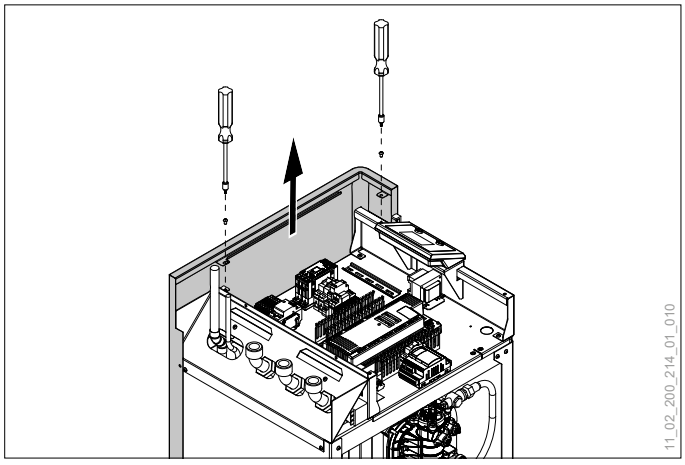
» Undo and remove the two fixing screws for the left-hand appliance casing panel, inside the control box.

» Lift the left-hand appliance casing panel up and away.



» Undo and remove the three fixing screws for the front appliance panel, inside the control box.

» Lift the front appliance casing panel up and away.

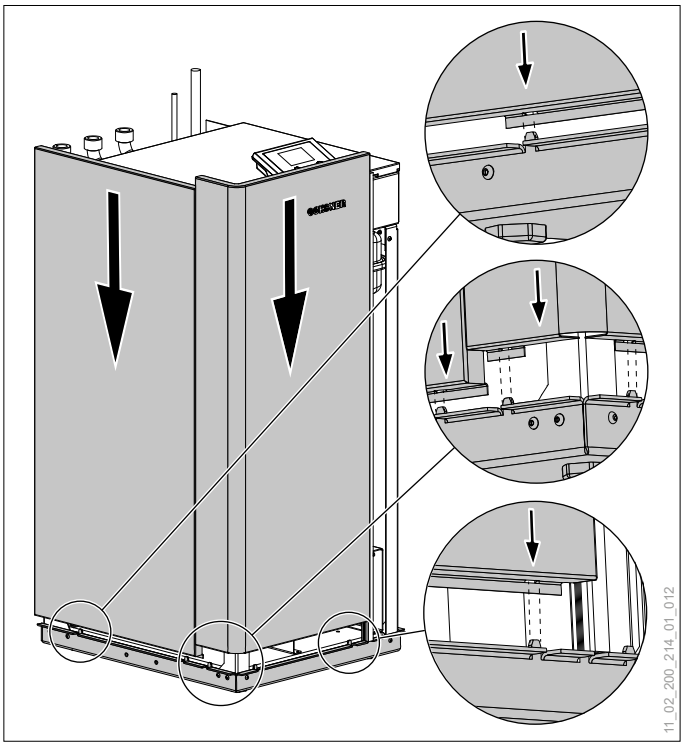


» Undo and remove the two fixing screws for the right-hand appliance casing panel, inside the control box.

» Lift the right-hand appliance casing panel up and away.

Material damage
When the appliance casing has been disassembled, sensitive components are fully exposed.
» Assemble the appliance casing as soon as there is nothing that needs doing inside the appliance.
» During the building phase, provide the appliance with additional protection from dirt and dust with a suitable covering.

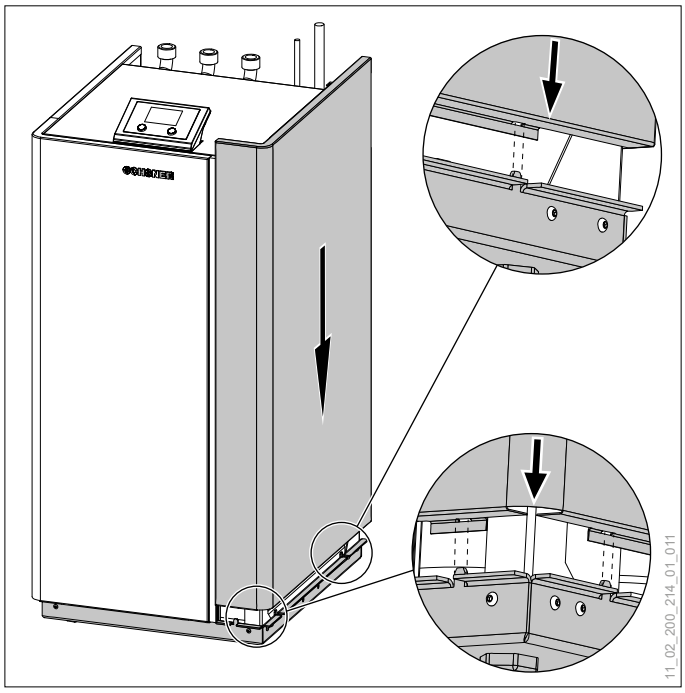
10.1.4 Assembling the appliance casing



» Slide the left-hand and front appliance casing panels down from the top along the frame of the appliance, until the panels click into place at the bottom.

» Ensure that both panels are fully engaged at the five positions along the bottom.

» Secure both of these appliance casing panels with screws at the fixing points provided, inside the control box.

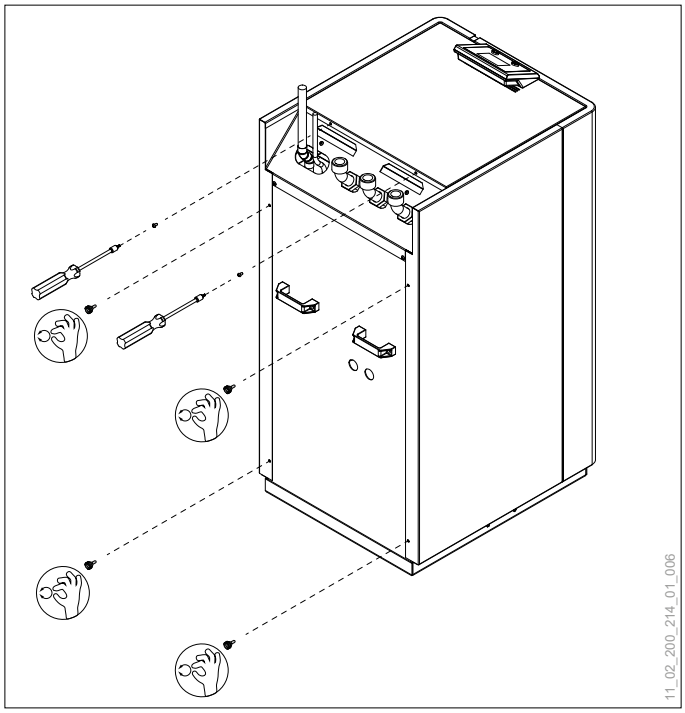


» Slide the right-hand appliance casing panel down from the top along the frame of the appliance, until the panel clicks into place at the bottom.

» Ensure that the panel is fully engaged at the three points along the bottom.

» Secure the appliance casing with screws at the fixing points provided, inside the control box.

» Secure the appliance casing with screws at the rear of the indoor unit.



10.2 Connecting the heat sink system

Information
The hydraulic connection from the heat sink system (WNA) to the heat pump may be made only by a qualified contractor.

Information
For maintenance purposes, a shut-off valve should be fitted to every hydraulic line close to the connection point on the heat pump.

Information
We recommend installing an appropriately sized heat pump buffer tank or a low loss header.

► The pipe network and the pumps should be correctly dimensioned for your heating system and according to the technical data for your heat pump.

► A (manual) air vent valve must be fitted at the highest point in the pipework.

► At the lowest point in the pipework, fit a drain pipe to allow the system to be drained.

► Ensure that no foreign bodies (dust, dirt etc.) can enter the pipework.

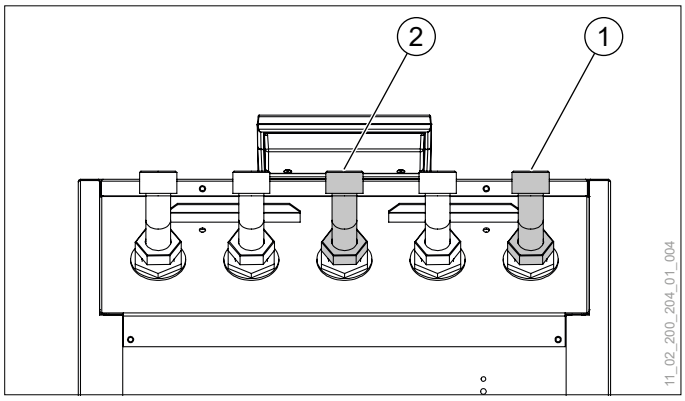
► A guard (strainer) can be installed in the return line of the heat pump to catch dirt.

Information
Ensure that the guard is easy to clean for maintenance purposes. A heavily soiled strainer can lead to a high pressure safety shutdown or to a malfunction shutdown based on flow metering (heat sink).

Information
Ensure that the flow velocity in the pipe network does not exceed 0.8 m/s, as this can cause increased noise emissions.

10.2.1 Connecting the heating water

» Before connecting the heat pump, flush the pipework through with filtered flushing water according to the relevant standards. Foreign bodies such as rust, sealing material and swarf will impair the operational reliability of the heat pump.



1 Heating water flow
2 Heating water/DHW return

» Make the appropriate connections from the indoor unit heating flow and heating return to the heating system.

» Ensure that the connection is tight.

» When installing pipework, take care to prevent transmission of vibration noise.

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

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

10.2.2 Safety valve drain

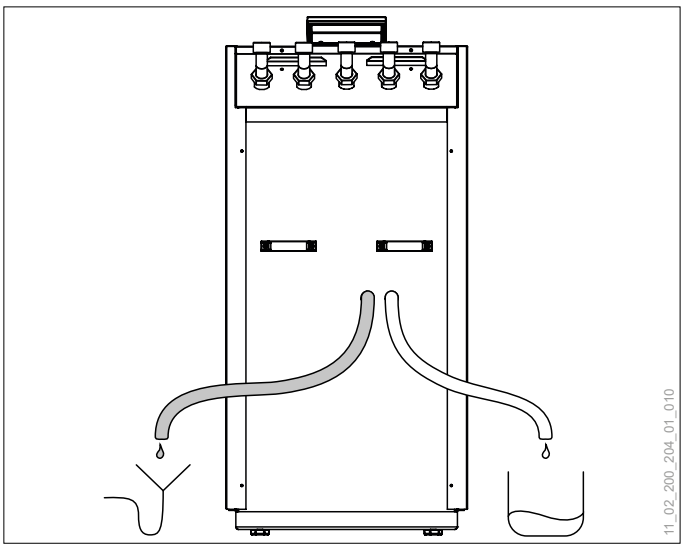
Information
The indoor unit has an internal safety valve for the heat sink system (DHW, heating water).
» Observe national and regional regulations regarding the design of the drain and prescribed regular operational tests.

Information
The maximum operating pressure of the heat transfer medium is 3 bar. However, due to closing pressure differences, the safety valve may begin to open from a pressure of 2.4 bar.

If the valve is triggered, the liquid exits via a hose on the rear of the indoor unit.

» The safety valve drain should be sized so that the liquid can drain unobstructed via an open and readily visible waste water drain.

» Install the hose with a consistent fall to the drain. Avoid kinking the hose.

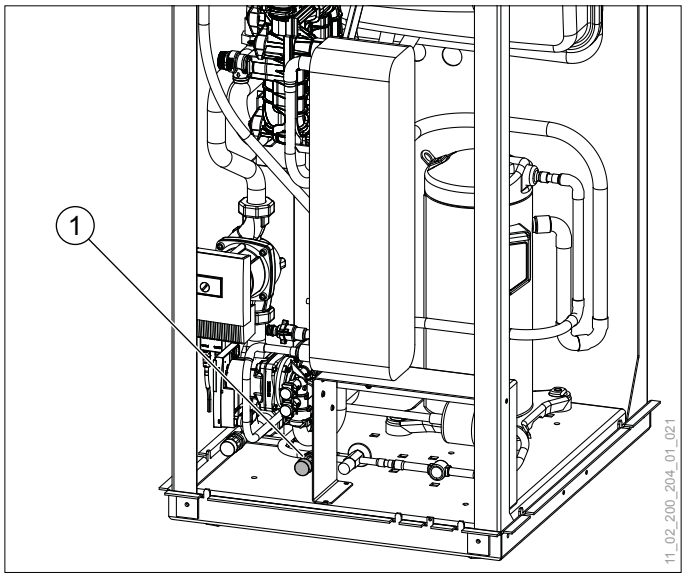


10.2.3 Filling the heating system

On delivery, the 3-way switching module will be in the “heating mode” position.

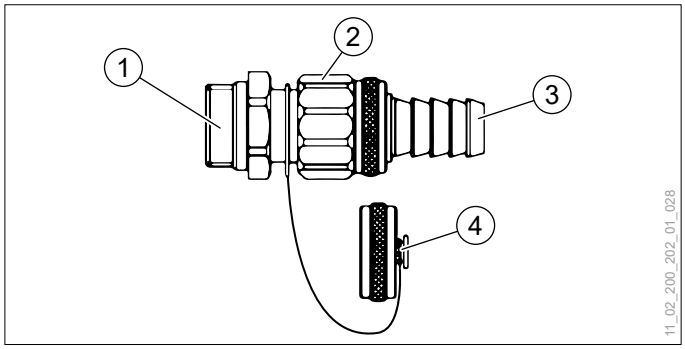
You can find information on subsequent manual switching of the 3-way switching module in the controller operating instructions (DHW circuit/relay test).

» Fill the heating system with suitable fill water using the drain and fill valve.



1 Drain and fill valve with hose screw connector (special thread M21x1.5)

Information
The drain and fill valve has a special thread (M21x1.5) for the hose screw connection.
» Take care of the hose screw connector provided and keep it close to the heat pump.



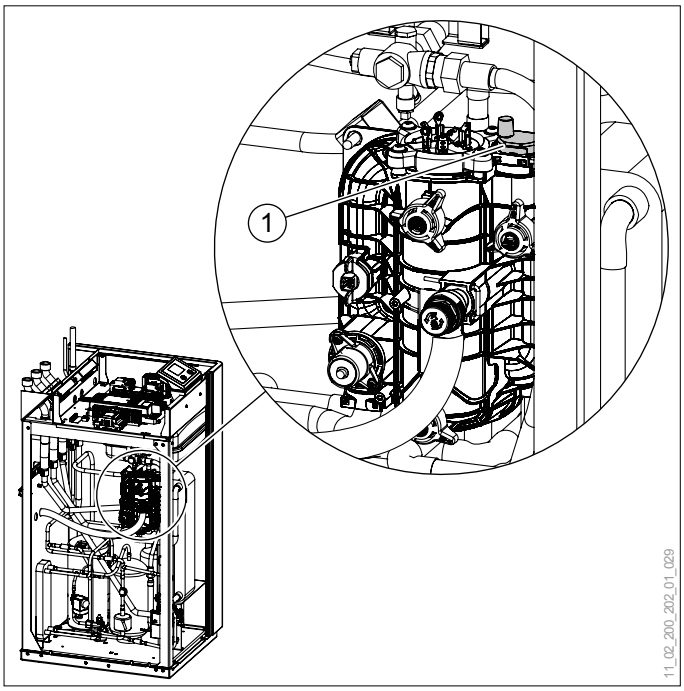
1 Drain and fill valve
2 Locking ring for closing and opening the drain and fill valve
3 Hose screw connector (special thread M21x1.5)
4 Cover

Venting the heating system

On the TERRA 6, TERRA 8, TERRA 11 and TERRA 14 (M2 hydraulic version) indoor units, the multifunctional assembly (MFA) has a quick-action air vent valve for venting the heating system.

» Before venting, open the quick-action air vent valve on the multifunctional assembly (MFA). Do this by pulling the red cover on the valve.

Material damage
During venting, water can escape from the air outlet on the quick-action air vent valve.
» Ensure that the electronics in the indoor unit do not become wet.



1 Quick-action air vent valve on the multifunctional assembly (TERRA 6, TERRA 8, TERRA 11, TERRA 14).

Material damage
» Close the quick-action air vent valve again after venting by pressing the red cover on the valve.

10.2.4 Diaphragm expansion vessel (DEV)

► The indoor units for the TERRA 6, TERRA 8, TERRA 11 and TERRA 14 heat pumps are factory-fitted with a 24 l diaphragm expansion vessel for the heat sink system.

► The factory-set pre-charge pressure on the DEV is 1.5 bar.

Information
The set charge pressure on the DEV must not be taken as correct but must be adjusted for the particular system.
» Set the charge pressure on the DEV according to the height of your system and the filling pressure of your heating system.

10.2.5 Flow metering

A flow meter is installed (heat sink system) inside the indoor unit of your heat pump. The flow meter measures the flow rate in your heating system. Too low a flow rate will lead to a safety shutdown of the heat pump.

Information
The nominal flow rates for the heat sink system (WNA) should be determined. Different flow rates can lead to a reduction in the efficiency of the heat pump.

10.2.6 Cooling version

When used for cooling, all system components (pipes, fittings) must be insulated against condensation build-up using appropriate insulating materials. This is particularly important on the flow line from the heat pump to the heat pump buffer tank.

» Especially in relation to cooling mode, ensure adequate sizing of the hydraulic safety devices.

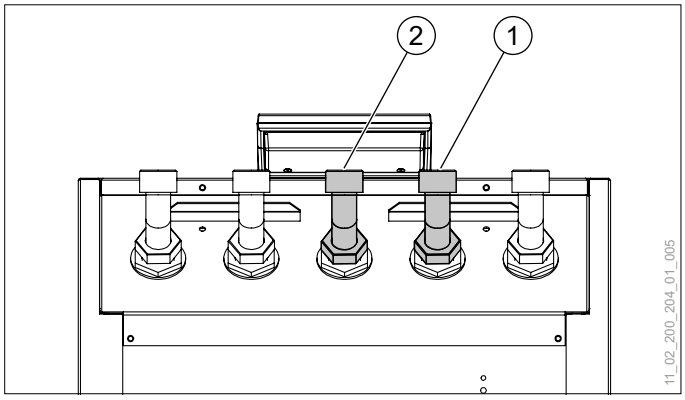
» Allow for a pressure maintaining device with appropriate pre-charge pressure, adjusted for the operating conditions.

» Ensure that in cooling mode the appliance casing on the indoor unit is fully and correctly installed. (see page 20, Disassembling the appliance casing)

10.2.7 Connecting the DHW

The indoor unit can be fitted with an optional 3-way switching module for switching between the DHW circuit and the heating circuit.

When sizing an additional external DHW charging pump, take into consideration the pressure differential of the external plate heat exchanger.



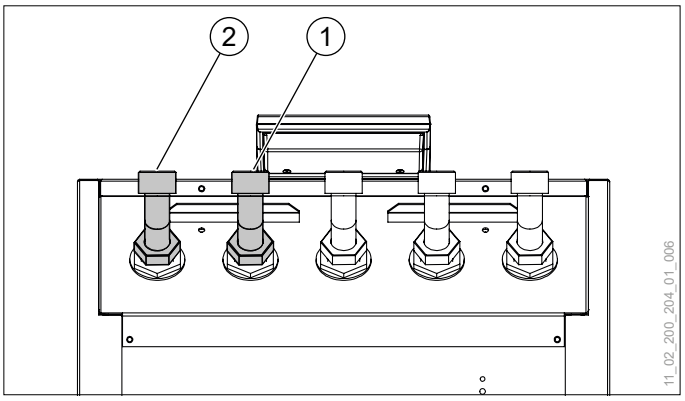
1 DHW flow
2 Heating water/DHW return

» Make the appropriate connections from the DHW flow and DHW return on the indoor unit to the DHW tank.

10.3 Connecting heat source system

Information
The system installer must ensure structure-borne noise attenuation of the pipe fixings for the brine hydraulics and sealing of the wall conduits.

10.3.1 Connecting the brine hydraulics



1 Heat source flow (brine)
2 Heat source return (brine)

» Connect the brine hydraulics (heat source flow and heat source return) to the indoor unit.

» Use pipe fixings with suitable structure-borne noise attenuation to secure the brine hydraulics.

» Do not install the pipe fixings in the vicinity of bends in the pipes.

» Check the brine hydraulics for leaks.

» Insulate the brine lines around the connection points on the indoor unit.

10.3.2 Heat transfer medium (brine circuit)

Information
When selecting the heat transfer medium in the brine circuit, observe national and regional regulations and codes (also with regard to investment subsidies).

» Calculate the required heat transfer medium (brine) charge in advance. The charge is determined based on the line length, pipe diameter and heat pump liquid capacity.

» Mix the heat transfer medium in a clean container. The antifreeze must not be mixed with corrosive raw water (pH value below 7.0), distilled water or rain water.

Information
When using ethylene glycol as an antifreeze:
» Ensure an antifreeze percentage of 25-30% for frost protection of -12 to -15°C.

» Check the frost protection, pH value and reserve alkalinity.

» Check that the mixing ratio is correct using a refractometer. These checks must be carried out with a representative liquid quantity (e.g. 3x 1/4 l).

Information
As the heat transfer medium's protection against corrosion decreases over time, we recommend carrying out a liquid analysis every two years.

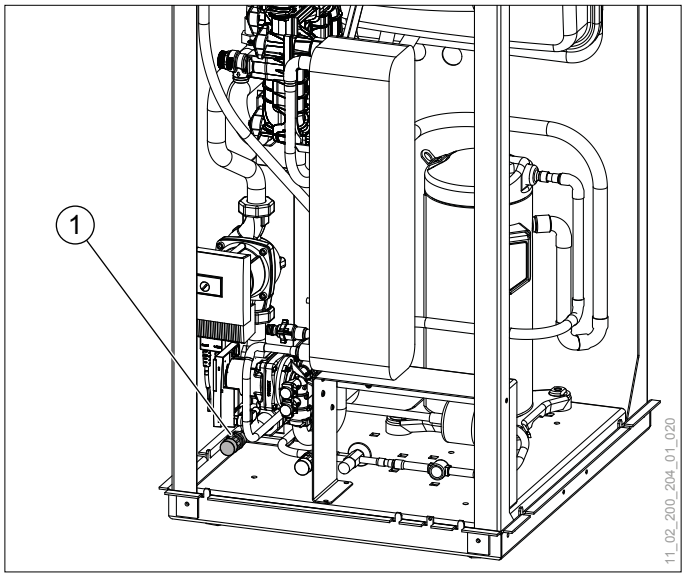
10.3.3 Filling the brine circuit

» Fill the brine circuit via the drain and fill valve.

» Flush the brine circuit.

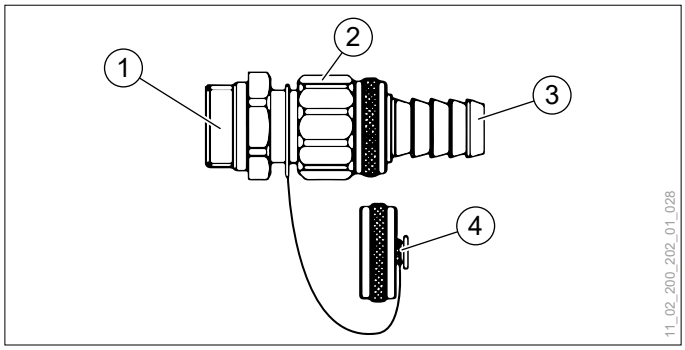
» Allow the brine to flow into the brine circuit.

» Vent the brine circuit.



1 Drain and fill valve with hose screw connector (special thread M21x1.5)

Information
The drain and fill valve has a special thread (M21x1.5) for the hose screw connection.
» Take care of the hose screw connector provided and keep it close to the heat pump.



1 Drain and fill valve
2 Locking ring for closing and opening the drain and fill valve
3 Hose screw connector (special thread M21x1.5)
4 Cover

Material damage
Operating the heat pump with too little or no heat transfer medium (brine) will damage the appliance.

10.3.4 Safety valve drain

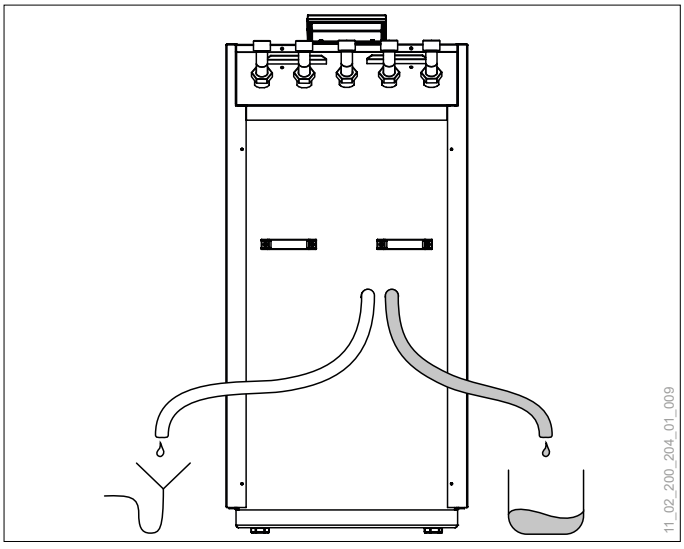
Information
The indoor unit has an internal safety valve for the heat source system (brine).
» Observe national and regional regulations regarding the design of the drain and prescribed regular operational tests.

Information
The maximum operating pressure of the heat transfer medium is 3 bar. However, due to closing pressure differences, the safety valve may begin to open from a pressure of 2.4 bar.

If the valve is triggered, the liquid exits via a hose on the rear of the indoor unit.

» Size the safety valve drain so that the liquid can drain unobstructed into a brine collection container.

» Install the hose with a consistent fall to the brine collection container. Avoid kinking the hose.



Material damage
The liquid (brine) drained via the right-hand safety valve must not end up in the domestic drain!
» Collect the liquid in a brine collection container.

10.3.5 Diaphragm expansion vessel (DEV)

► The indoor unit is equipped at the factory with a 24 l diaphragm expansion vessel for the heat source system.

► The factory-set pre-charge pressure on the DEV is 1.5 bar.

Information
The set charge pressure on the DEV must not be taken as correct but must be adjusted for the particular system.
» Set the pre-charge pressure on the DEV and the charge pressure for your heat source system according to the height of your system.

» Allow for a pressure maintaining device with appropriate pre-charge pressure, adjusted for the operating conditions.

10.3.6 Flow metering

A flow meter (heat source system) is installed in the indoor unit of your heat pump. The flow meter measures the flow rate in your heat source system. Too low a flow rate will lead to a safety shutdown of the heat pump.

Information
The nominal flow rates for the heat source system (WQA) should be ensured. Different flow rates can lead to a reduction in the efficiency of the heat pump.

10.4 Electrical connection

10.4.1 General

WARNING: Electrocution
Before commencing work on electrical connections and installation, the heat pump system must be isolated and voltage-free.

WARNING: Electrocution
Work on electrical connections and installation may be conducted only by qualified contractors.

WARNING: Electrocution
Before commissioning, the necessary fault protection measures on the system and the earth connection must be checked by an authorised contractor.

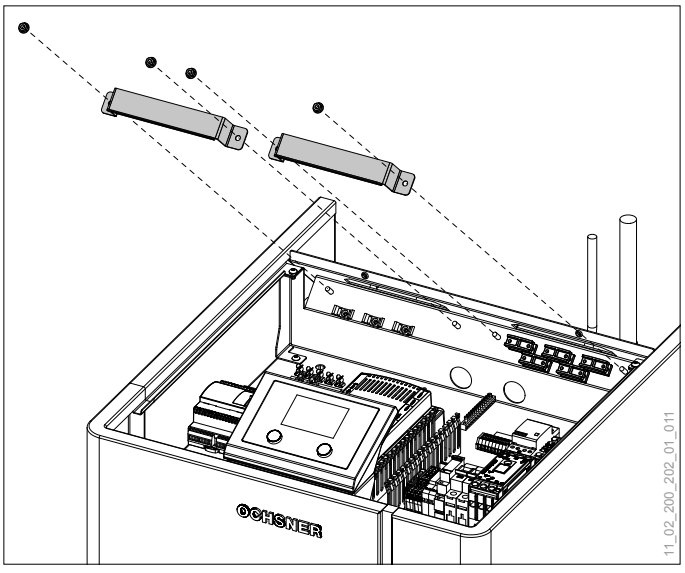
Information
It is essential that the regulations of the responsible power supply utility (PSU) and the applicable EN standards be observed.

► Before making the electrical connections, the necessary preparations must have been completed. (see page 16, Preparing the electrical connections)

► For the electrical connection, use the system principle schematic appropriate to your heat pump system. (see page 60, System schematic diagrams)

10.4.2 Electrical connection of the indoor unit

» Remove the control box cover. (see page 20, Disassembling the appliance casing)



» Undo and remove the four nuts on the two metal plates at the cable entries.

» Remove the two metal plates at the cable entries to gain access to the cable strain reliefs.

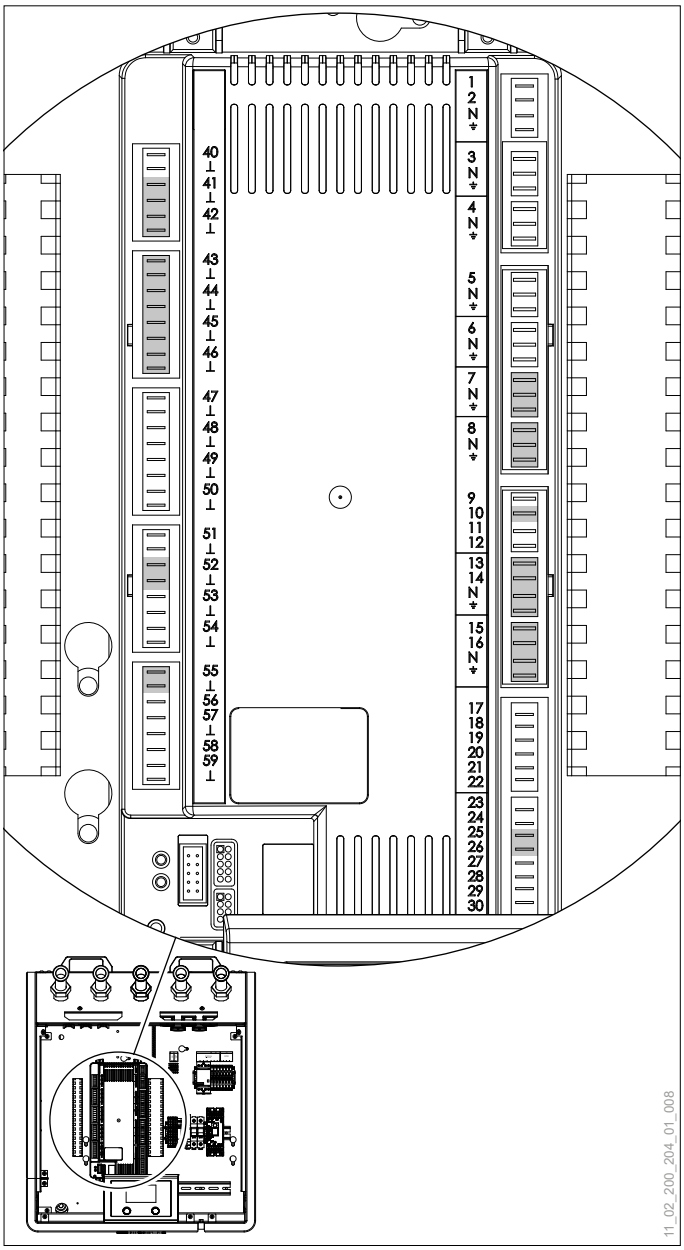
Information
When fitting the cables in the indoor unit, ensure that subsequent hydraulic connection work will not be obstructed by the cables.

Information
For the cables inside the control box on the indoor unit, use the cable strain reliefs provided.

» Connect the temperature sensors required by your system (TA, TPO, TPM, TMK, TB) directly to the OTE controller.

» Connect the external pumps and servomotors required by your system (switching module, mixing valve) directly to the OTE controller.

Information
For external pumps and servomotors, use the PE terminals on the relevant OTE plug.



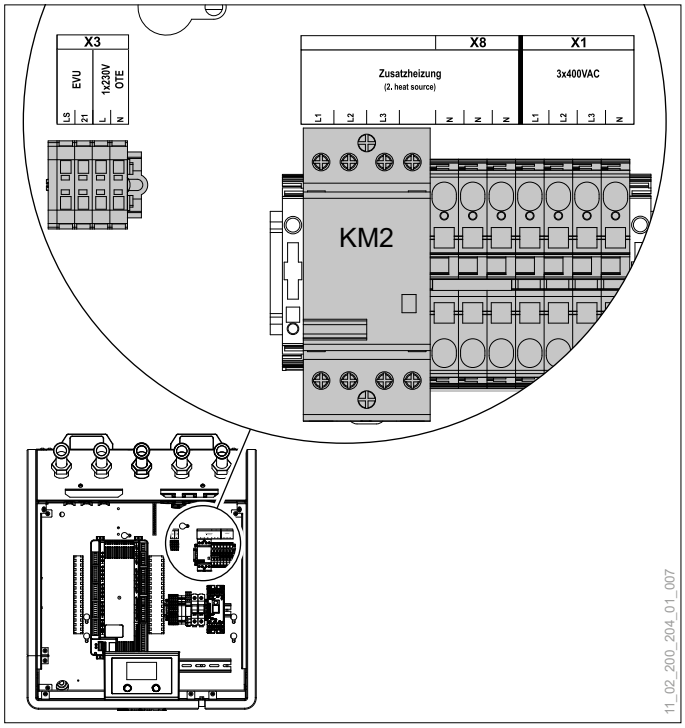
OTE pin	Description
7	Heating circuit circulation pump 1, direct (HCP 1)
8	Heating circuit circulation pump 2, mixed (HCP 2)
10	DHW auxiliary heater, only on M4 (DHWAH)
13/14	DHW charging pump ON/OFF (WWL)
15/16	Heating circuit mixing valve (MVH)
25/26	Buzzer fault output
41/42	Control elements (eBus)
43	Mixer sensor (TMK)
44	Outdoor temperature sensor (TA)
45	Top buffer sensor (TPO)
46	DHW sensor (TB)
52	Bottom buffer sensor (TPM)

Material damage
An external source of voltage at the sensor terminals can destroy the OTE controller.
» Ensure that no 230 VAC or 400 VAC cables are touching the sensor terminals on the OTE controller.

» Connect the power supply cable for the control circuit (X3).

» Connect the power supply for the main power circuit (X1).

» Connect the power supply for the electric booster heater, if present (KM2, X8).



	Terminal	Description
X1	L1/L2/L3/N	Connection from main power circuit (compressor) to three-phase power supply
	L/N/PE	Connection from main power circuit (compressor) to single phase power supply
X3	L/N	Mains connection for the control circuit (OTE)
X3	LS/21	PSU signal contact
KM2	L1/L2/L3	Mains connection for the optional electric booster heater (comprising 3 individual heating elements)
X8	N/N/N	

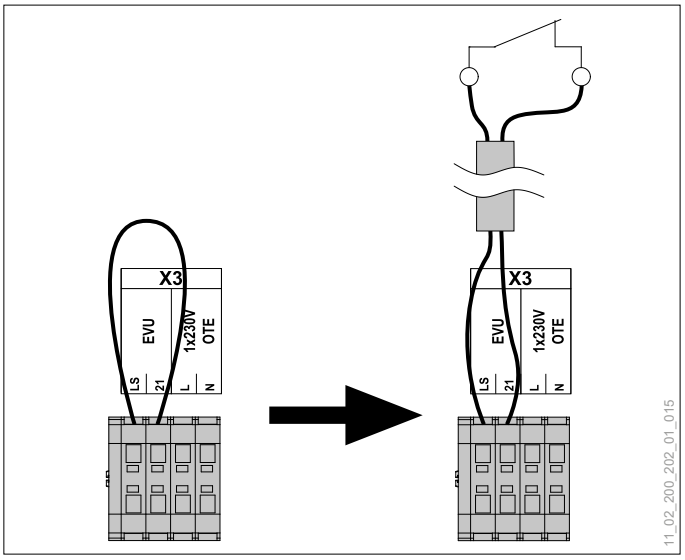
Information
Connect the PE conductor from the power cables to the earth rail in the control box.

WARNING: Electrocution
When the appliance power supply is on, there will always be 230 VAC at the PSU signal contact.

When using the PSU signal contact, please note the following: (see page 18, PSU signal contact)

» Remove the factory-fitted clamp on X3 (LS/21).

» Connect the cable for the PSU signal contact to X3 (LS/21).



11. Commissioning

OCHSNER Customer Service or an authorised customer service partner must be requested to commission the system. In order to be allocated an appointment, a completed and signed commissioning form must be provided. Commissioning appointments must be requested at least two weeks in advance.

11.1 Before switching on for the first time

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

WARNING: Electrocution
First-time start-up of electrical systems is permitted only in the presence of a qualified contractor.

» Make sure that no persons can be put at risk during the first start-up.

» Make sure that the heat sink system (heating and DHW production) has been connected to the heat pump.

» Make sure that the hydraulic system is filled with water.

» Make sure that the system has been fully vented.

» Make sure that the electrical installation has been carried out and completed professionally.

Material damage
Operating the circulation pumps without water in the system will destroy the pumps.

The power supply to the main power circuit (compressor) must not be switched on until the brine circuit has been filled with heat transfer medium (brine) and the hydraulic system with the correct medium.

11.2 Testing the control circuit

Once all the above conditions have been checked, the power supply to the control circuit (OTE controller, 230 VAC) can be switched on so that the individual functions can be tested.

» Check all of the sensors and their values for plausibility.

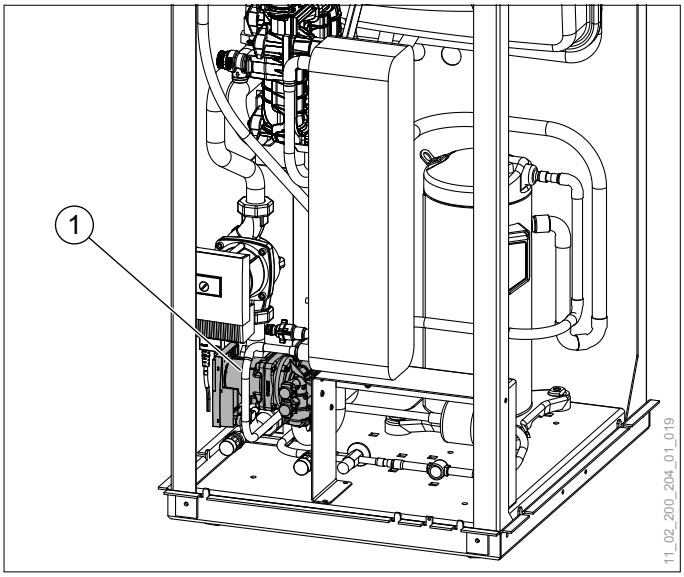
» Check all of the controller outputs used on your hydraulic system for correct function.

11.3 Adjusting the flow rate

The nominal flow rates of the heat sink and heat source system must be ensured in each operating mode (DHW charging, heating, cooling mode via separate cooling heat pump buffer tanks, etc.). The flow rate is measured using the installed flow meters. The measured values can be read off from the master controller display on the indoor unit.

11.3.1 Flow rate of the heat sink system

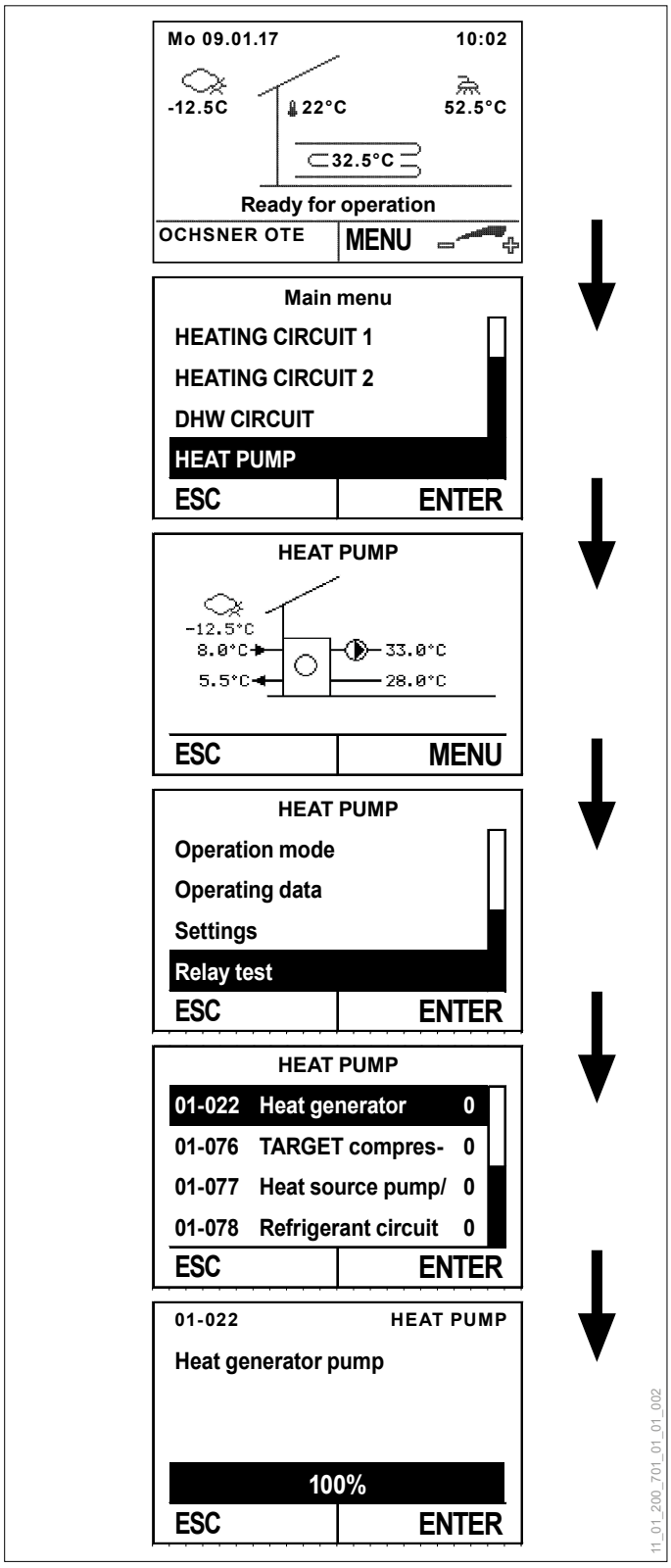
The flow rate of the heat sink system is adjusted using the adjusting screw on the heat generator pump (HGP). To enable hydronic balancing according to the relevant standards, in particular during combined heating or heating/cooling and DHW heating modes, the appropriate balancing valves must be installed and the system regulated accordingly.



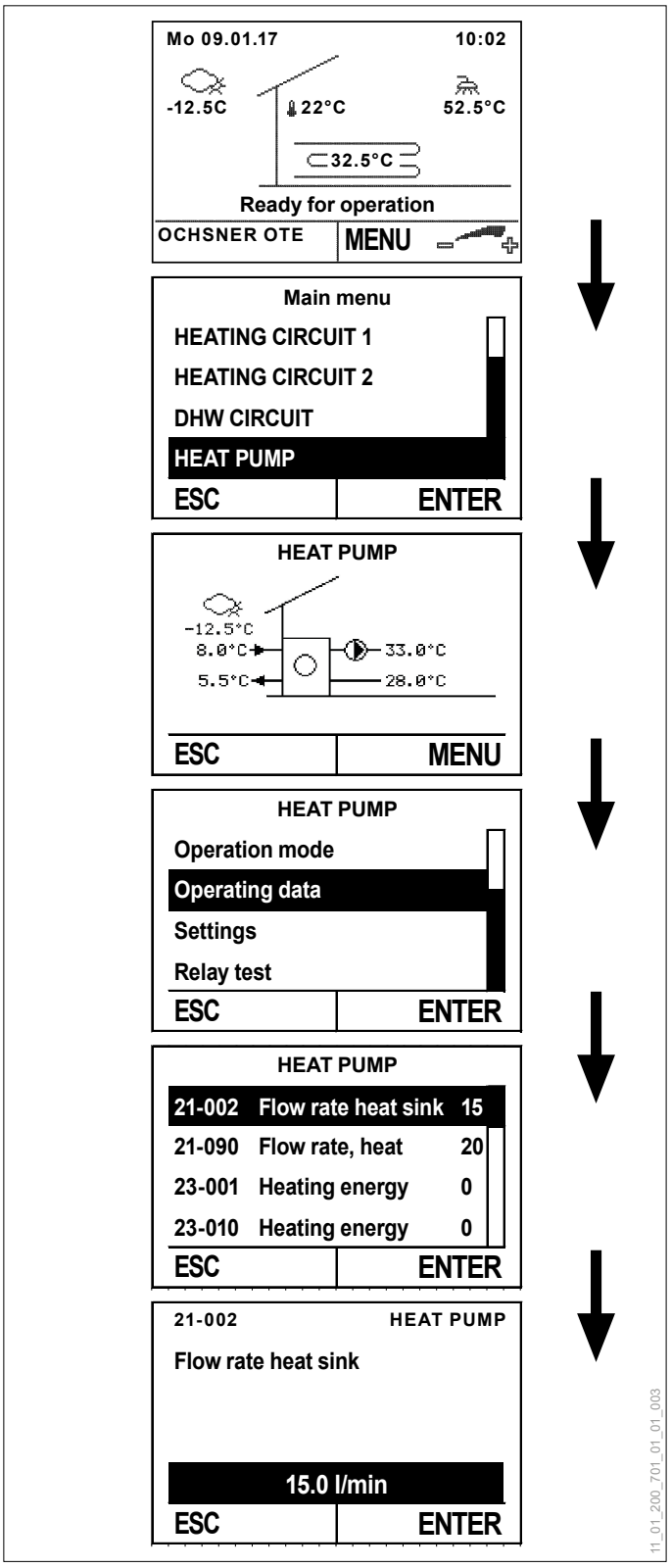
1 Heat generator pump (HGP)

Information
To be able to change the flow rate in the heat sink system, you will have to turn the adjusting screw on the heat generator pump.
» Remove the front casing panel of the indoor unit to gain access to the heat generator pump. (see page 20, Disassembling the appliance casing)

» Switch on the heat generator pump via the relay test menu on the master controller.



» Read off the measured flow rate on the master controller display.



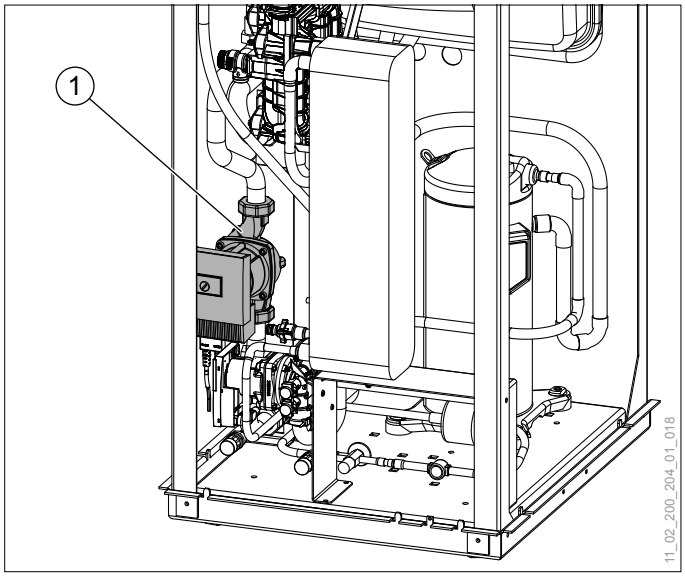
» Adjust the flow rate to its correct level by turning the adjusting screw on the heat generator pump.

		TERRA 6			TERRA 8			TERRA 11			TERRA 14		
Hydraulic variant		M2			M2			M2			M2		
Connection dimension	[inch]	DN 32 1 1/4”			DN 32 1 1/4”			DN 32 1 1/4”			DN 32 1 1/4”		
Heat generator pump (heat sink circulation pump)		Yonos Para HPS 25/7.5			Yonos Para HPS 25/7.5			Yonos Para HPS 25/7.5			Yonos Para HPS 25/7.5		
		internal			internal			internal			internal		
Pump head	[mbar]	769	778	784	760	771	780	630	761	772	477	675	765
Spread at B0/W35	[K]	5	7	10	5	7	10	5	7	10	5	7	10
Flow rate	[m^3/h]	1,0	0,71	0,50	1,29	0,92	0,65	1,77	1,26	0,89	2,27	1,74	1,22
		100%	70%	50%	100%	70%	50%	100%	70%	50%	100%	70%	50%
Internal pressure loss (M2-1)	[mbar]	113	58	28	264	135	66	279	142	70	414	211	104
Residual head I (M2-1)	[mbar]	656	720	756	496	637	714	351	619	703	63	464	661
Addnl 3-way switching module	[mbar]	External DN 32 kvs16			External DN 32 kvs16			External DN 32 kvs16			External DN 32 kvs16		
Pressure loss	[mbar]	4	2	1	7	3	2	12	6	3	20	12	6
Residual head II (M2-1)	[mbar]	652	718	755	490	633	712	339	612	700	43	452	655
External plate heat exchanger (PHE) for DHW		PHE 2007 A=1” B=1”			PHE 2007 A=1” B=1”			PHE 2007 A=1” B=1”			PHE 5007 A=1 1/4” B=1”		
Primary pressure loss, side A (HP)	[mbar]	37	19	9	63	32	16	77	39	19	37	22	11
Primary pressure loss, side B (DHW)	[mbar]	71	36	18	72	37	18	26	13	7	48	28	14
Residual head III heating	[mbar]	585	684	738	424	600	696	325	605	696	15	436	647
Residual head III: heating/cooling incl. additional external 3-way switching module (M2-1)	[mbar]	615	699	746	427	601	697	262	573	681	6	430	645

		TERRA 18			TERRA 22			TERRA 27		
Hydraulic variant		M4			M4			M4		
Connection dimension	[inch]	DN 40 1 1/2”			DN 40 1 1/2”			DN 40 1 1/2”		
Heat generator pump (heat sink circulation pump)		Stratos Para 25/1-8			Stratos Para 25/1-8			Stratos Para 25/1-8		
		internal			internal			internal		
Pump head	[mbar]	730	727	725	642	729	726	575	713	727
Spread at A2/W35	[K]	5	7	10	5	7	10	5	7	10
Flow rate	[m^3/h]	2,92	2,09	1,46	3,8	2,71	1,9	4,42	3,16	2,21
		100%	70%	50%	100%	70%	50%	100%	70%	50%
Internal pressure loss (M4-1)	[mbar]	358	182	89	497	254	124	549	280	137
Internal pressure loss (M4-4)	[mbar]	287	146	72	392	200	98	388	198	97
Residual head I (M4-1)	[mbar]	372	545	635	145	475	602	26	433	590
Residual head (M4-4 for cascade)	[mbar]	443	580	653	250	529	628	187	515	630
Addnl 3-way switching module	[mbar]	External DN 40 kvs25			External DN 40 kvs25			External DN 40 kvs25		
Pressure loss	[mbar]	14	7	3	23	12	2	31	16	8
Residual head II (M4-1)	[mbar]	359	538	632	122	463	600	-6	417	582
Residual head (M4-4 for cascade)	[mbar]	429	574	650	227	517	626	156	499	623
External plate heat exchanger (PHE) for DHW		PHE 5007 A=1 1/4” B=1”			PHE 5007 A=1 1/4” B=1”			PHE 5007 A=1 1/4” B=1”		
Primary pressure loss, side A (HP)	[mbar]	47	24	12	65	33	16	65	33	16
Primary pressure loss, side B (DHW)	[mbar]	80	41	20	90	46	23	90	46	23
Residual head III heating	[mbar]	292	504	615	55	429	579	-64	387	568
Residual head III: heating/cooling incl. additional external 3-way switching module (M4-1)	[mbar]	312	514	620	57	430	583	-71	384	566
Residual head III (M4-4)	[mbar]	382	550	638	162	484	610	91	466	606

11.3.2 Flow rate of the heat source system

The flow rate of the heat source system is adjusted using the adjusting screw on the heat source pump (HSP).

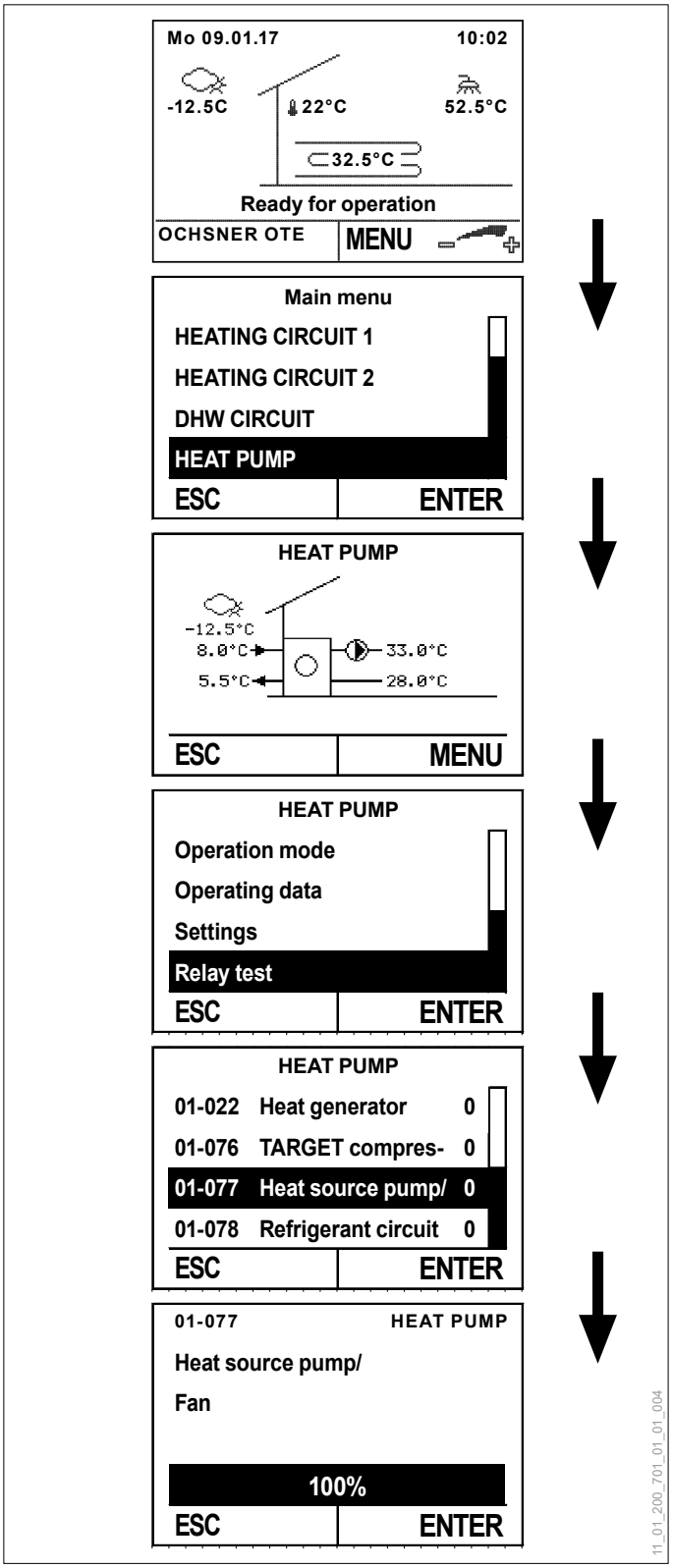


1 Heat source pump (HSP)

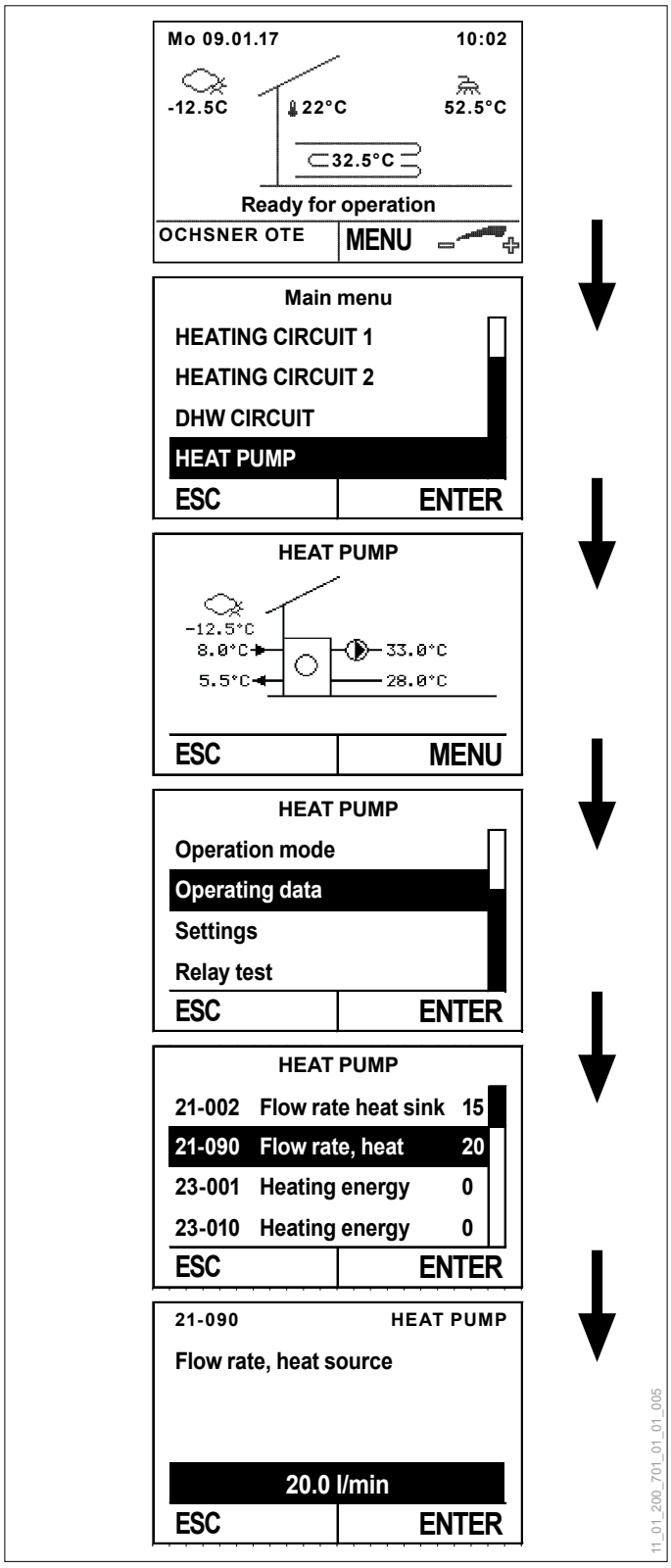
Information
To be able to change the flow rate in the heat source system, you will have to turn the adjusting screw on the heat source pump.

» Remove the front casing panel of the indoor unit to gain access to the heat generator pump. (see page 20, Disassembling the appliance casing)

» Switch on the heat source pump via the relay test menu on the master controller.



» Read off the measured flow rate on the master controller display.



» Adjust the flow rate to its correct level by turning the adjusting screw on the heat source pump.

		TERRA 6	TERRA 8
Hydraulic variant		M2	M2
Connection dimension	[inch]	DN 32 1 1/4”	DN 32 1 1/4”
Heat source circulation pump (heat source pump)		Stratos Para 25/1-8	Stratos Para 25/1-8
		internal	internal
Operating point		B0/W35	B0/W35
Spread	[K]	3	3
Flow rate	[m^3/h]	1,45	1,87
Flow meter		internal	internal
Residual head l	[mbar]	589	579

		TERRA 11	TERRA 14
Hydraulic variant		M2	M2
Connection dimension	[inch]	DN 32 1 1/4”	DN 32 1 1/4”
Heat source circulation pump (heat source pump)		Stratos Para 25/1-8	Stratos Para 25/1-8
		internal	internal
Operating point		B0/W35	B0/W35
Spread	[K]	3	3
Flow rate	[m^3/h]	2,59	3,28
Flow meter		internal	internal
Residual head l	[mbar]	505	421

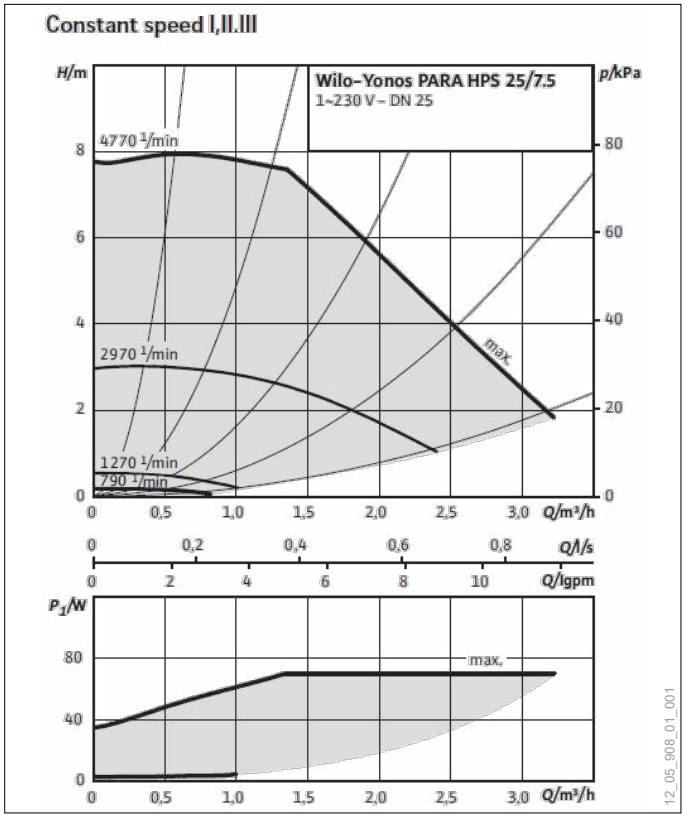
		TERRA 18	TERRA 22	TERRA 27
Hydraulic variant		M4	M4	M4
Connection dimension	[inch]	DN 40 1 1/2”	DN 40 1 1/2”	DN 40 1 1/2”
Heat source pump		Stratos Para 25/1-12	Stratos Para 25/1-12	Stratos Para 25/1-12
		internal	internal	internal
Operating point		B0/W35	B0/W35	B0/W35
Spread	[K]	3	3	3
Flow rate	[m^3/h]	4,15	5,62	6,38
Flow meter		internal	internal	internal
Residual head l	[mbar]	737	462	240

11.4 Pumps in the indoor unit

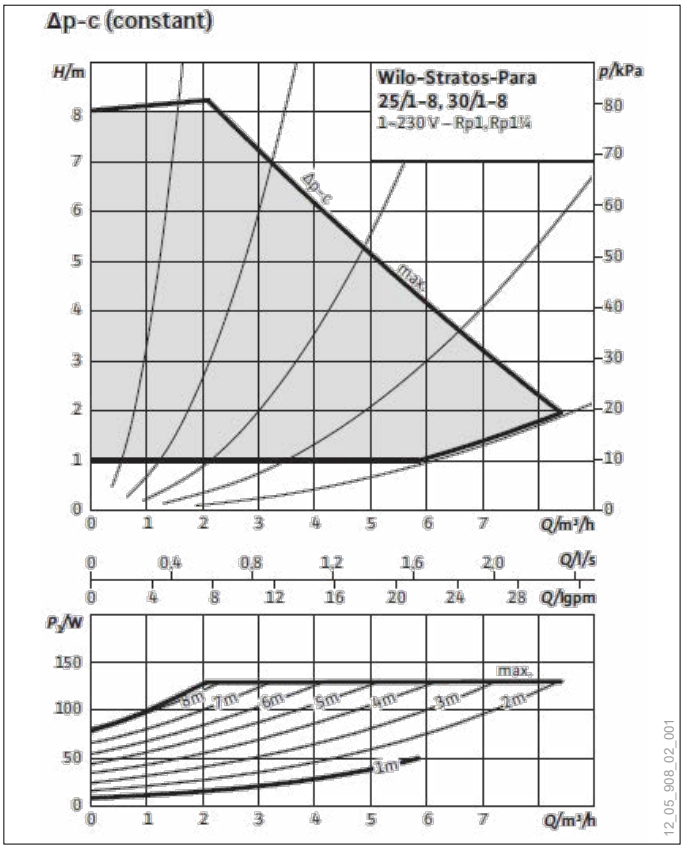
Heat generator pump (HGP)	Heat pump
Yonos Para HPS 25/7.5	TERRA 6
	TERRA 8
	TERRA 11
	TERRA 14
Stratos Para 25/1-8	TERRA 18
	TERRA 22
	TERRA 27

Heat source pump (HSP)	Heat pump
Stratos Para 25/1-8	TERRA 6
	TERRA 8
	TERRA 11
	TERRA 14
Stratos Para 25/1-12	TERRA 18
	TERRA 22
	TERRA 27

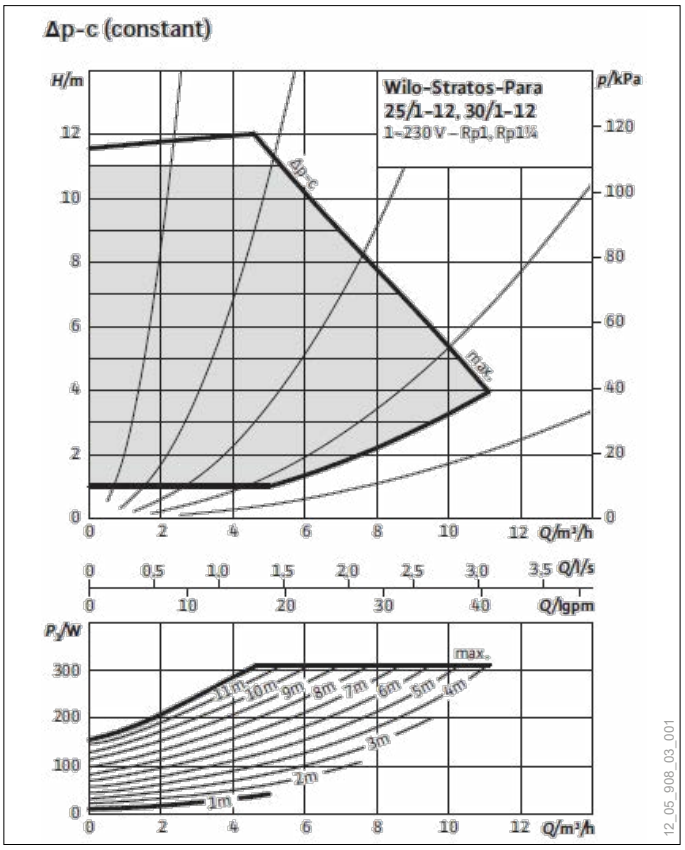
Yonos Para HPS 25/7.5



Stratos Para 25/1-8



Stratos Para 25/1-12



11.5 Necessary conditions for commissioning

Before commissioning, the system installer must ensure the following points:

- ► The design and installation of the system have been approved by OCHSNER.
- ► The OCHSNER guidelines have been observed (system installed according to OCHSNER standard hydraulic schematics or a special OCHSNER hydraulic system).
- ► The system datasheet is available and has been fully and correctly completed.

1. The heat sink system is fully ready (heating and DHW heating).

- ► The hydraulic pipework has been correctly dimensioned and installed such that the required nominal flow rates can be set.
- ► The heat sink system has been flushed, filled and vented according to the relevant standards.
- ► System fill water of a quality compliant with the relevant standards (VDI 2035) is assured.
- ► Operating pressure has been set and the system temperature and buffer temperature lie between 20°C and 30°C at the time of commissioning.
- ► The necessary safety devices are in place and have been adjusted and checked according to system requirements.
- ► A DHW tank is present and has been filled for commissioning.
- ► All shut-off valves have been opened, adjusted and checked.
- ► The flow meter has been checked for correct function.
- ► The system has been hydronically balanced.

2. The heat source system has been prepared.

- ► The hydraulic pipework has been correctly dimensioned and installed such that the required nominal flow rates can be set.
- ► The necessary safety devices are in place and have been adjusted and checked according to system requirements.
- ► The wall conduit has been properly sealed.
- ► **In the case of air/water and direct evaporation/water heat pumps, if the routing of the connection lines by the system installer has been contractually agreed:**
  Ensure that the refrigerant lines between the indoor and outdoor units have been correctly routed in accordance with refrigeration engineering guidelines. The refrigerant lines have been correctly channelled through the wall conduits with some surplus length between the connections at the indoor and outdoor units.
- ► **In the case of brine/water heat pumps:**
  The system pressure and addition of frost protection additive (between -12°C and -15°C) have been assured. The heat source system has been flushed, filled and vented according to the relevant standards.
- ► **In the case of water/water heat pumps:**
  All filters have been checked and cleaned. The water quality is in accordance with OCHSNER guidelines.

Information
OCHSNER will accept no liability for damage (e.g. to plate heat exchangers) caused by poor water quality.

3. The electrical installation has been completed.

Information
Temporary electrical installations are not permissible and will lead to commissioning being cancelled.

- ► Electrical connection and installation work has been carried out, checked and completed in accordance with national and regional regulations.
- ► A safety device that will shut down across all poles has been provided on every supply (compressor, heat source pump and controller). Every additional heat generator is also provided with its own safety device.
- ► The three-phase supply has been checked to ensure a clockwise rotating field.

4. On site requirements

- ► An authorised and technically competent representative of the system installer (the heating or electrical contractor) is present along with the system user during the commissioning.
- ► Customer-specific controller settings are available (heating curve and functional logic, according to system datasheet).
- ► Where connections are in a shaft or on the roof, an assistant is provided by the customer.

- ► Climbing aids and fall protection (compliant attachment points) are provided on site in accordance with the relevant standards.
- ► Vehicle access to the heat pump system is available.

Information
OCHSNER customer service or a customer service partner carries out customer-specific settings according to the details on 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 responsibility for any faulty operation (too low a heating curve, too high a bivalent point, etc.). Any additional work required will be charged to the system installer.

11.6 Commissioning the system

Before commissioning, the relevant requirements must be met. (see page 36, Necessary conditions for commissioning)

Commissioning is carried out by OCHSNER customer service or by a customer service partner authorised by OCHSNER. The OCHSNER commissioning guidelines apply.

Information
If the system is operated without technically correct commissioning in accordance with the OCHSNER guidelines, all warranty claims will be invalid.

Information
Special work such as system venting, connecting electrical cables, additional training, etc., which is not included in OCHSNER‘s scope of delivery, will be invoiced separately.

Activities carried out by OCHSNER:

- ► Checking that the system has been installed according to OCHSNER guidelines. In commissioning the system, OCHSNER offers no warranty regarding the ability to meet the heat demand of the building to be heated.
- ► Functional testing of the heating circuit (system pressure, function of diaphragm expansion vessel, volume settings). Responsibility for the system remains with the system installer.
- ► Checking the flow rates.
- ► Checking that all shut-off valves are open.
- ► Checking the electrical connections to the system components including all required safety devices.
- ► In the case of air/water and direct evaporation/water heat pumps (depending on contractual terms):
  - ► Version 1:
    Where connecting lines have been laid as contractually agreed by the system installer. OCHSNER customer service is responsible for:
    - Connecting the previously laid refrigerant lines.
    - Conducting leakage tests on the refrigerant lines.
    - Evacuating the refrigerant lines.
    - Insulating the refrigerant lines around the connection points on the indoor and outdoor units.
    - Charging the system with the correct refrigerant according to OCHSNER guidelines.
  - ► Version 2:
    Where connection lines have been laid and the technical installation of the refrigerant circuit carried out by OCHSNER Customer Service.

- ► Checking that the 3-phase supply is correctly phased with a clockwise rotating field.
- ► Switching on the main power circuit (3-phase supply to heat pump).
- ► Switching on the power supply to the control circuit.
- ► Configuring the system using the commissioning assistant.
- ► Checking the sensor configuration.
- ► Conducting a relay test on the outputs.
- ► Making customer-specific settings on the heat pump system.
- ► Producing a commissioning report and completing the entries in the service book.
- ► Handing the system over to the system user or end customer.
- ► Explanation of the basic functions of the heat pump system (controller operation, etc.).

Information
OCHSNER customer service will provide an explanation of the basic functions of the heat pump system (controller operation, etc.). If the system user is not present for commissioning, the system installer will assume responsibility for this explanation. Instruction on the functionality of the overall system is the responsibility of the system installer.

11.7 Decommissioning

You do not need to switch off your heat pump system in the summer. The heat pump control unit changes over automatically between summer and winter.

Material damage
If the power supply to your heat pump system is switched off, frost protection of the system cannot be guaranteed.
» You should not switch off the power supply to your heat pump, even outside the heating period.

Should you wish to deactivate your heat pump system, then switch off the system using the master controller. This way, safety functions such as frost protection remain enabled.

Material damage
If the power supply to the heat pump system is interrupted and there is a risk of frost, drain the system on the water side.

12. Troubleshooting

Information
Resolving faults and making changes to settings on the heat pump system may only be carried out by qualified contractors. Standard settings for the controller are set by OCHSNER Customer Service as part of the commissioning process. The system user and contractual partner is responsible for any further corrections and settings to programs.

Problem	Cause	Solution
Too little DHW is available or the central heating system is too cold.	The power supply to the appliance has been cut off.	Check the safety device on the main distributor board for your house. Switch the safety device back on. If the safety device triggers again after being switched back on, contact a qualified contractor or OCHSNER Customer Service.
The appliance is leaking water.	The drain for the safety valve is blocked.	Clean the safety valve drain.
The heating system does not heat up, no fault message.	PSU shutdown	Check individual room controls, vent the heating circuit, open valves, check heating circuit circulation pump, increase the output level of the heating circuit circulation pump, check fuses
	Energy transfer to the heating circuits is interrupted or too low	
	Power failure	
	DHW priority	
The heat pump is only producing DHW and is not providing heating, or is doing so 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 time clock
	DHW heat exchanger scaled up	Notify heating contractor, clean heat exchanger, descale
DHW temperature is not or is no longer being reached.	Heat exchanger for DHW is too small.	Increase size of heat exchanger
	Heat exchanger is scaled up	Descale heat exchanger
	Sensor incorrectly positioned	Correctly position sensor
	Pipework too small	Install pipes with larger diameters
	Faulty DHW sensor	Replace DHW sensor
	DHW charging pump is faulty	Replace DHW charging pump
	DHW charging pump output level set too low	Set higher output levels
	3-way switching module is faulty	Replace 3-way switching module
Heat pump runs continuously but yields only low temperatures, and there are traces of oil in the appliance.	Refrigerant leak, refrigerant line not leak tight	Switch off heat pump, notify OCHSNER Customer Service
Flow rate too low	The minimum flow rate at the heat pump is not being reached.	System pressure too low: check pressure maintenance equipment. Buffer charging pump is faulty, 3-way switching module is faulty

12.1 Fault messages on the master controller

► In the event of a fault, the relevant fault messages will be displayed on the controller as “Er XXX”.

► If the high limit safety cut-out is triggered, this will not be displayed with a fault message on the master controller.

In the following table, the possible fault messages are listed together with the associated code or fault history code. Fault messages with an associated fault history code are stored and can be read off again later, even when no fault is present. Stored fault messages are listed in the “Service Report” menu under the “Error data” submenu.

Code	Fault code history	Display message	Possible cause and solution
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: TPM or TWR 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	Check power supply
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	Deficient heat distribution, faulty circulation pump, valve closed or air in the system, check hydraulics
18	18	Er 37: Low pressure	Lack of source energy, lack of refrigerant, expansion valve, check refrigerant circuit (by OCHSNER Customer Service)
16	16	Er 38: Hot gas	Expansion valve, lack of refrigerant, target temperature too high, check refrigerant circuit (by OCHSNER Customer Service)
10	10	Er 39: Compressor motor protection	Motor overload relay, phase fault/overload, source temperature too high, check compressor in refrigerant circuit (by OCHSNER Customer Service)
8	8	Er 42: Heat sink frost protection	Deficient heat distribution, faulty circulation pump, valve closed or air in the system, check buffer charging pump or hydraulics (brine antifreeze level)
		Er 46: TSG sensor faulty	Replace sensor
9	9	Er 47: Defrost fault	Too little de-icing energy, evaporator/sensor, check refrigerant circuit (by OCHSNER Customer Service)
129	129	Er 48: TQE sensor/Evaporator 1 is faulty	Replace sensor
130	130	Er 49: TQA sensor/Evaporator 2 is faulty	Replace sensor
12	12	Er 50: Expansion valve	Check function of electronic expansion valve (by OCHSNER)
1	1	Er 56: Heat source flow rate	Lack of source energy, heat source pump/filter, flow rate at heat source too low
2	2	Er 57: Heat source frost protection	Lack of source energy, source temperature too low, check heat source, check heat source pump/filter, clean water filter, submersible pump faulty
3	3	Er 58: Heat source motor protection	Check motor protection, check wiring to motor, motor protection relay, phase fault/overload, thermal cutout
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: Heat generator 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	Water pressure too low, circulation pump faulty, valve closed/air in system, check hydraulics
21	21	Er 90: Overheating	Check refrigerant circuit (by OCHSNER Customer Service)
98	98	Er 98: Auxiliary heat generator running as only heat generator	Check operation mode of heat pump
104	104	Er104: Sum fault, heat pump	OCHSNER Customer Service
108	108	Er108: Outdoor unit, general	Check wiring
109	109	Er109: Compressor overheating	Automatic acknowledgement
100	100	Er200: Condensation temperature too low	Check refrigerant circuit (by OCHSNER Customer Service)
102	102	Er 202: Evaporation temp. too low	Check refrigerant circuit (by OCHSNER Customer Service)
103	103	Er 203: Evaporation temp. too high	Check refrigerant circuit (by OCHSNER Customer Service)
240	240	Er240: OTE cannot recognise a Modbus PCB	Check by OCHSNER Customer Service
241	241	Er241: Modbus communication error	Power shutdown? Check the wiring of the Modbus cable between indoor and outdoor units. Otherwise check by OCHSNER Customer Service
242	242	Er242: CAN bus communication fault	Check wiring of CAN bus cable and Modbus cable (possible consequential fault of Er 241), otherwise check by OCHSNER Customer Service

12.2 Reset high limit safety cut-out

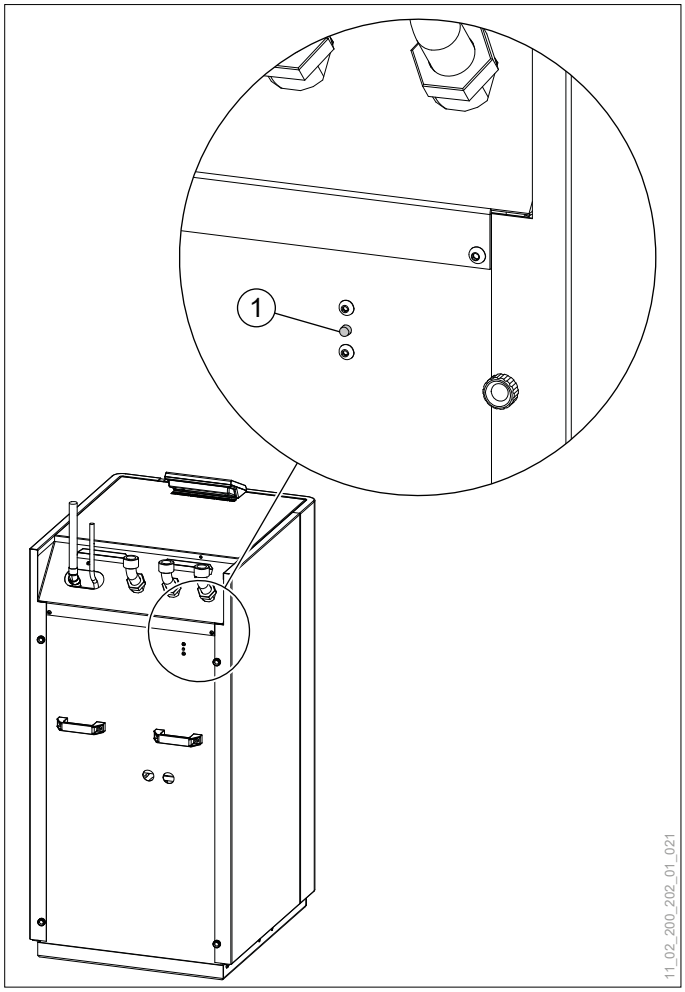
If the temperature sensor of the high limit safety cut-out registers a heating water temperature of over 85°C, the power supply to the internal electric booster heater is cut off.

» Check whether the high limit safety cut-out has triggered.

» Check the flow rate of the heating water.

» Remedy the source of the fault.

» Press the reset button on the rear of the appliance to reset the high limit safety cut-out. The reset button can be reached by hand from the left-hand side.



1 Reset button for high limit safety cut-out on rear of appliance

13. Appliance maintenance

WARNING: Electrocution
For maintenance work, cut off the power supply to the indoor unit of your heat pump.

Information
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 carried out 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. 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. You can find more information at www.ochsner.com.

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

We recommend adjusting the 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.

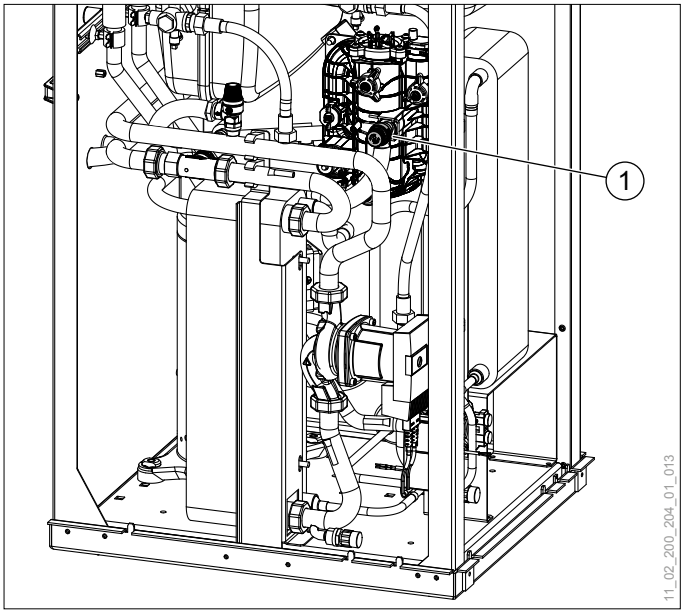
13.1 Testing safety valves

Information
The indoor unit has internal safety valves for the heat sink system (DHW, heating) and the heat source system (brine circuit).
» Observe the national and regional regulations regarding the prescribed regular operational tests.

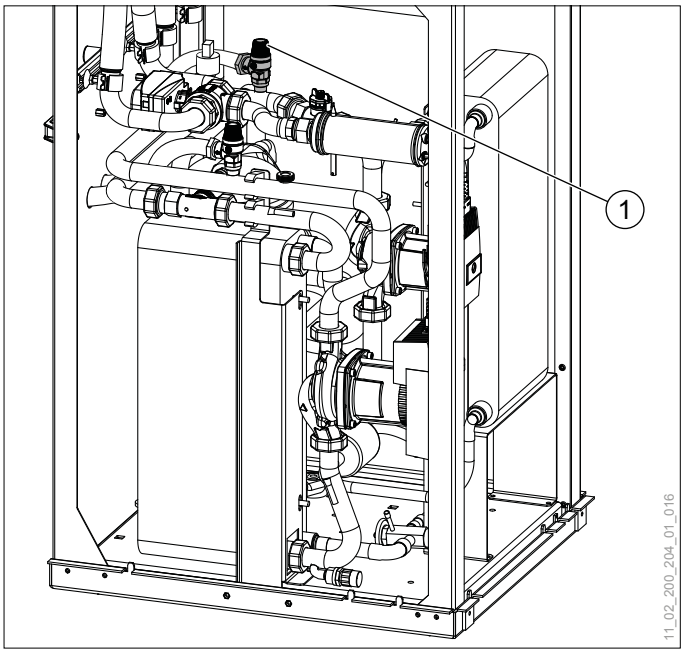
» Remove the left-hand appliance casing panel to gain access to the internal safety valves. (see page 20, Disassembling the appliance casing)

» To test, turn the red knob on the safety valve until water emerges from the safety valve drain.

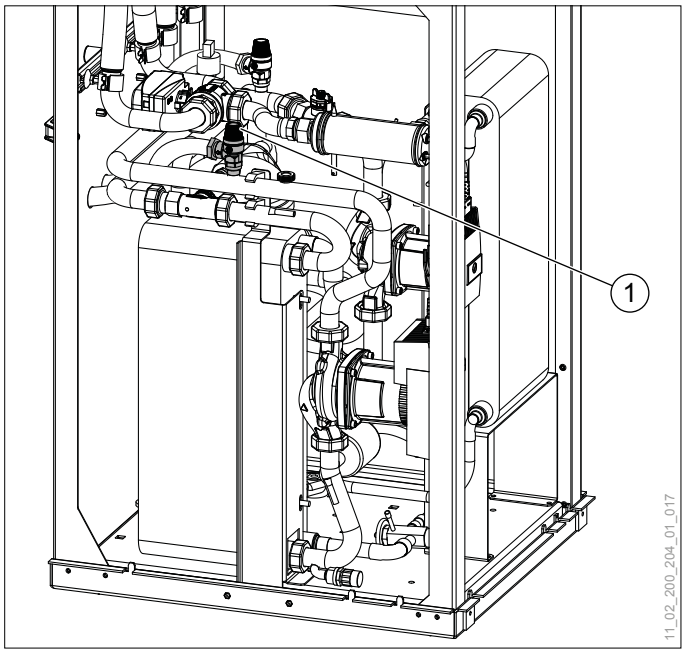
» Ensure that the safety valve is closed again after the test.



1 Internal safety valve of the heat sink system in TERRA 6, TERRA 8, TERRA 11 and TERRA 14.



1 Internal safety valve of the heat sink system in TERRA 18, TERRA 22 and TERRA 27.



1 Internal safety valve of the heat source system.

13.2 Maintenance contract

OCHSNER offers a wide range of maintenance contracts. You can find more information at www.ochsner.com.

Benefits of a maintenance contract

- ► Annual inspection fulfils the statutory requirements (of, for example, 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.

You can find further information on customer service and on the services offered under the maintenance contracts at www.ochsner.com.

14. Specification

14.1 Heat pumps for three-phase alternating current

14.1.1 Data table

		TERRA 6 HPLA	TERRA 8 HPLA	TERRA 11 HPLA	TERRA 14 HPLA
INDOOR UNIT:					
Hydraulic variant		M2-1/M2-2/M2-3/M2-4	M2-1/M2-2/M2-3/M2-4	M2-1/M2-2/M2-3/M2-4	M2-1/M2-2/M2-3/M2-4
Dimensions HxWxD	[mm]	1286x600x680	1286x600x680	1286x600x680	1286x600x680
Hydraulic connection		DN 32 (1 1/4") male	DN 32 (1 1/4") male	DN 32 (1 1/4") male	DN 32 (1 1/4") male
Weight	[kg]	200	210	220	230
Casing colour		Tiger white 29/11289/ grey RAL 7016	Tiger white 29/11289/ grey RAL 7016	Tiger white 29/11289/ grey RAL 7016	Tiger white 29/11289/ grey RAL 7016
HEATING MODE PERFORMANCE FIGURES:					
Operating point B0/W35					
Heating output	[kW]	5,8	7,5	10,3	13,2
Total power consumption	[kW]	1,2	1,55	2,05	2,75
Coefficient of performance EN 14511/EN 255		4.8/-	4.8/5.0	5.0/5.2	4.8/5.0
Operating current	[A]	2,4	2,6	3,3	4,8
Operating point B0/W50					
Heating output	[kW]	5,3	6,8	9,3	12,1
Total power consumption	[kW]	1,7	2,3	3,1	3,9
Coefficient of performance EN 14511/EN 255		3.1/-	3.0/3.2	3.0/3.2	3.1/3.3
Operating current	[A]	2,9	3,9	5,1	6,7
Operating point S0/W60					
Heating output	[kW]	5,0	6,2	8,8	11,8
Total power consumption	[kW]	2,0	2,5	3,7	4,4
Coefficient of performance EN 14511/EN 255		2.5/-	2.5/2.7	2.4/2.6	2.7/2.9
Operating current	[A]	3,2	4,4	6,1	7,6
SPECIFICATION:					
Phases/nominal voltage/frequency	[~]/[V]/[Hz]	3/400/50	3/400/50	3/400/50	3/400/50
Output factor cos ϕ		0,72	0,86	0,89	0,84
Fuse protection		C16A	C16A	C16A	C16A
Max. operating current	[A]	4,8	6,2	7,4	9,7
Max. starting current	[A]	14,0	21,5	26,0	30,0
Sound power/sound pressure level (at 1 m distance)	[dBA]	43 / 35	44 / 36	48 / 40	50 / 42
ELECTRIC BOOSTER HEATER (M2-1, M2-3):					
Phases/nominal voltage/frequency	[~]/[V]/[Hz]	3/400/50	3/400/50	3/400/50	3/400/50
Max. output	[kW]	8.8 (2.9 / 2.9 / 2.9)	8.8 (2.9 / 2.9 / 2.9)	8.8 (2.9 / 2.9 / 2.9)	8.8 (2.9 / 2.9 / 2.9)
Max. operating current	[A]	12,8	12,8	12,8	12,8
CONDENSER (HEAT SINK SYSTEM):					
Type		Plate heat exchanger	Plate heat exchanger	Plate heat exchanger	Plate heat exchanger
Material		Stainless steel 1.4301	Stainless steel 1.4301	Stainless steel 1.4301	Stainless steel 1.4301
Number	[pce]	1	1	1	1
Max. refrigerant operating pressure	[bar]	45	45	45	45
Max. heat transfer medium operating pressure	[bar]	6	6	6	6
Heat transfer medium temperature differential	[K]	5	5	5	5
Application range	[°C]	65	65	65	65
Heat transfer medium		Water	Water	Water	Water
Test pressure	[bar]	54	54	54	54
Heat transfer medium flow rate	[m³/h]	1,0	1,29	1,77	2,27
Internal pressure differential	[mbar]	113	264	279	414
Flow meter, heat sink		built-in	built-in	built-in	built-in

		TERRA 6 HPLA	TERRA 8 HPLA	TERRA 11 HPLA	TERRA 14 HPLA
Heat sink circulation pump (heat generator pump)	internal	Yonos Para 25/7.5	Yonos Para 25/7.5	Yonos Para 25/7.5	Yonos Para 25/7.5
Residual head I M2-1	[mbar]	656	496	351	63

REFRIGERANT CIRCUIT:

No. of refrigerant circuits	[pce]	1	1	1	1
Refrigerant		R410A	R410A	R410A	R410A
Refrigerant charge	[kg]	1,4	1,72	2,03	2,3

COMPRESSOR:

Type		Fully hermetic/scroll	Fully hermetic/scroll	Fully hermetic/scroll	Fully hermetic/scroll
Number	[pce]	1	1	1	1
Output levels		1	1	1	1
Speed	[rpm]	2900	2900	2900	2900
Voltage/frequency	[V]/[Hz]	400 / 50	400 / 50	400 / 50	400 / 50
Max. operating current	[A]	4,8	6,2	7,4	9,7

EVAPORATOR (HEAT SOURCE SYSTEM):

Type		Plate heat exchanger	Plate heat exchanger	Plate heat exchanger	Plate heat exchanger
Material		Stainless steel 1.4301	Stainless steel 1.4301	Stainless steel 1.4301	Stainless steel 1.4301
Number	[pce]	1	1	1	1
Max. refrigerant operating pressure	[bar]	12	12	12	12
Max. heat transfer medium operating pressure	[bar]	6	6	6	6
Heat transfer medium temperature differential	[K]	3	3	3	3
Application range	[°C]	-5/+20	-5/+20	-5/+20	-5/+20
Heat transfer medium		Brine	Brine	Brine	Brine
Test pressure	[bar]	54	54	54	54
Heat transfer medium flow rate	[m³/h]	1,45	1,87	2,59	3,28
Internal pressure differential	[mbar]	111	121	195	279
Flow meter, heat source		built-in	built-in	built-in	built-in
Circulation pump, heat source (heat source pump)	internal	Stratos Para 25/1-8	Stratos Para 25/1-8	Stratos Para 25/1-8	Stratos Para 25/1-8
Residual head I	[mbar]	589	579	505	421

Information
Data on sound pressure levels refer to operation at full load at a distance of 1 m. Sound pressure and sound power levels are given +/-3 dB(A).

		TERRA 18 HPLA	TERRA 22 HPLA	TERRA 27 HPLA
INDOOR UNIT:				
Hydraulic variant		M4-1/M4-2/M4-3/M4-4	M4-1/M4-2/M4-3/M4-4	M4-1/M4-2/M4-3/M4-4
Dimensions HxWxD	[mm]	1286x600x680	1286x600x680	1286x600x680
Hydraulic connection		DN 40 (1 1/2”) male	DN 40 (1 1/2”) male	DN 40 (1 1/2”) male
Weight	[kg]	230	250	250
Casing colour		Tiger white 29/11289/ grey RAL 7016	Tiger white 29/11289/ grey RAL 7016	Tiger white 29/11289/ grey RAL 7016
HEATING MODE PERFORMANCE FIGURES:				
Operating point B0/W35				
Heating output	[kW]	17,0	22,7	26,1
Total power consumption	[kW]	3,80	4,8	5,8
Coefficient of performance EN 14511/EN 255		4.5/-	4.7/4.9	4.5/4.7
Operating current	[A]	7,3	8,7	10,7
Operating point B0/W50				
Heating output	[kW]	16,1	21,2	23,4
Total power consumption	[kW]	5,1	6,4	7,4
Coefficient of performance EN 14511/EN 255		3.2/-	3.3/3.5	3.2/3.5
Operating current	[A]	8,7	11,6	13,6
Operating point S0/W60				
Heating output	[kW]	15,4	20,2	22,2
Total power consumption	[kW]	5,9	8,0	9,3
Coefficient of performance EN 14511/EN 255		2.6/-	2.5/2.7	2.4/2.6
Operating current	[A]	9,6	14,5	17,1
SPECIFICATION:				
Phases/nominal voltage/frequency	[~]/[V]/[Hz]	3/400/50	3/400/50	3/400/50
Output factor cos ϕ		0,75	0,8	0,79
Fuse protection		C16A	C25A	C25A
Max. operating current	[A]	13,0	18,0	21,0
Max. starting current	[A]	37,5	62,5	62,5
Sound power/sound pressure level (at 1 m distance)	[dBA]	53 / 45	59.3 / 51.3	60.1 / 52.1
ELECTRIC BOOSTER HEATER (M4-1, M4-3):				
Phases/nominal voltage/frequency	[~]/[V]/[Hz]	3/400/50	3/400/50	3/400/50
Max. output	[kW]	8.8 (2.6 / 3.0 / 3.2)	8.8 (2.6 / 3.0 / 3.2)	8.8 (2.6 / 3.0 / 3.2)
Max. operating current	[A]	14	14	14
CONDENSER (HEAT SINK SYSTEM):				
Type		Plate heat exchanger	Plate heat exchanger	Plate heat exchanger
Material		Stainless steel 1.4301	Stainless steel 1.4301	Stainless steel 1.4301
Number	[pce]	1	1	1
Max. refrigerant operating pressure	[bar]	45	45	45
Max. heat transfer medium operating pressure	[bar]	6	6	6
Heat transfer medium temperature differential	[K]	5	5	5
Application range	[°C]	65	65	65
Heat transfer medium		Water	Water	Water
Test pressure	[bar]	54	54	54
Heat transfer medium flow rate	[m³/h]	2,92	3,8	4,42
Internal pressure differential	[mbar]	358	497	549
Flow meter, heat sink		built-in	built-in	built-in
Heat sink circulation pump (heat generator pump)	internal	Stratos Para 25/1-8	Stratos Para 25/1-8	Stratos Para 25/1-8
Residual head I M4-1	[mbar]	372	145	26
REFRIGERANT CIRCUIT:				
No. of refrigerant circuits	[pce]	1	1	1
Refrigerant		R410A	R410A	R410A
Refrigerant charge	[kg]	2,35	4,3	4,5
COMPRESSOR:				
Type		Fully hermetic/scroll	Fully hermetic/scroll	Fully hermetic/scroll
Number	[pce]	1	1	1
Output levels		1	1	1
Speed	[rpm]	2900	2900	2900
Voltage/frequency	[V]/[Hz]	400 / 50	400 / 50	400 / 50
Max. operating current	[A]	13,0	18,0	21,0

		TERRA 18 HPLA	TERRA 22 HPLA	TERRA 27 HPLA
EVAPORATOR (HEAT SOURCE SYSTEM):				
Type		Plate heat exchanger	Plate heat exchanger	Plate heat exchanger
Material		Stainless steel 1.4301	Stainless steel 1.4301	Stainless steel 1.4301
Number	[pce]	1	1	1
Max. refrigerant operating pressure	[bar]	12	12	12
Max. heat transfer medium operating pressure	[bar]	6	6	6
Heat transfer medium temperature differential	[K]	3	3	3
Application range	[°C]	-5/+20	-6/+20	-6/+20
Heat transfer medium		Brine	Brine	Brine
Test pressure	[bar]	54	54	54
Heat transfer medium flow rate	[m³/h]	4,15	5,62	6,38
Internal pressure differential	[mbar]	413	688	860
Flow meter, heat source		built-in	built-in	built-in
Circulation pump, heat source (heat source pump)	internal	Stratos Para 25/1-12	Stratos Para 25/1-12	Stratos Para 25/1-12
Residual head l	[mbar]	737	462	240

Information
Data on sound pressure levels refer to operation at full load at a distance of 1 m. Sound pressure and sound power levels are given +/-3 dB(A).

14.2 Heat pumps for single phase alternating current

14.2.1 Data table

		TERRA 6 HPLB	TERRA 8 HPLB	TERRA 11 HPLB	TERRA 14 HPLB
INDOOR UNIT:					
Hydraulic variant		M2-1/M2-2/M2-3/M2-4	M2-1/M2-2/M2-3/M2-4	M2-1/M2-2/M2-3/M2-4	M2-1/M2-2/M2-3/M2-4
Dimensions HxWxD	[mm]	1286x600x680	1286x600x680	1286x600x680	1286x600x680
Hydraulic connection		DN 32 (1 1/4”) male	DN 32 (1 1/4”) male	DN 32 (1 1/4”) male	DN 32 (1 1/4”) male
Weight	[kg]	200	210	220	230
Casing colour		Tiger white 29/11289/ grey RAL 7016	Tiger white 29/11289/ grey RAL 7016	Tiger white 29/11289/ grey RAL 7016	Tiger white 29/11289/ grey RAL 7016
HEATING MODE PERFORMANCE FIGURES:					
Operating point B0/W35					
Heating output	[kW]	5,8	7,5	10,3	13,2
Total power consumption	[kW]	1,2	1,55	2,05	2,75
Coefficient of performance EN 14511/EN 255		4.8/-	4.8/5.0	5.0/5.2	4.8/5.0
Operating current	[A]	5,8	7,5	9,7	13,6
Operating point B0/W50					
Heating output	[kW]	5,3	6,8	9,3	12,1
Total power consumption	[kW]	1,7	2,3	3,1	3,9
Coefficient of performance EN 14511/EN 255		3.1/-	3.0/3.2	3.0/3.2	3.1/3.3
Operating current	[A]	8,2	11,1	14,7	19,3
Operating point S0/W60					
Heating output	[kW]	5,0	6,2	8,8	11,8
Total power consumption	[kW]	2,0	2,5	3,7	4,4
Coefficient of performance EN 14511/EN 255		2.5/-	2.5/2.7	2.4/2.6	2.7/2.9
Operating current	[A]	9,7	12,1	17,5	21,7
SPECIFICATION:					
Phases/nominal voltage/frequency	[~]/[V]/[Hz]	1/230/50	1/230/50	1/230/50	1/230/50
Output factor cos ϕ		0.90	0.90	0,92	0,88
Fuse protection		C16A	C25A	C25A	C32A
Max. operating current	[A]	12,8	17,1	22,8	27,9
Max. starting current	[A]	30	41,5	54	65
Sound power/sound pressure level (at 1 m distance)	[dBA]	43 / 35	44 / 36	48 / 40	50 / 42
ELECTRIC BOOSTER HEATER (M4-1, M4-3):					
Phases/nominal voltage/frequency	[~]/[V]/[Hz]	1/230/50	1/230/50	1/230/50	1/230/50
Max. output	[kW]	8.8 (2.9 / 2.9 / 2.9)	8.8 (2.9 / 2.9 / 2.9)	8.8 (2.9 / 2.9 / 2.9)	8.8 (2.9 / 2.9 / 2.9)
Max. operating current	[A]	38,3	38,3	38,3	38,3
CONDENSER (HEAT SINK SYSTEM):					
Type		Plate heat exchanger	Plate heat exchanger	Plate heat exchanger	Plate heat exchanger
Material		Stainless steel 1.4301	Stainless steel 1.4301	Stainless steel 1.4301	Stainless steel 1.4301
Number	[pce]	1	1	1	1
Max. refrigerant operating pressure	[bar]	45	45	45	45
Max. heat transfer medium operating pressure	[bar]	6	6	6	6
Heat transfer medium temperature differential	[K]	5	5	5	5
Application range	[°C]	65	65	65	65
Heat transfer medium		Water	Water	Water	Water
Test pressure	[bar]	54	54	54	54
Heat transfer medium flow rate	[m³/h]	1,0	1,29	1,77	2,27
Internal pressure differential	[mbar]	113	264	279	414
Flow meter, heat sink		built-in	built-in	built-in	built-in
Heat sink circulation pump (heat generator pump)	internal	Yonos Para 25/7.5	Yonos Para 25/7.5	Yonos Para 25/7.5	Yonos Para 25/7.5
Residual head I M4-1	[mbar]	656	496	351	63
REFRIGERANT CIRCUIT:					

		TERRA 6 HPLB	TERRA 8 HPLB	TERRA 11 HPLB	TERRA 14 HPLB
No. of refrigerant circuits	[pce]	1	1	1	1
Refrigerant		R410A	R410A	R410A	R410A
Refrigerant charge	[kg]	1,4	1,72	2,03	2,3

COMPRESSOR:

Type		Fully hermetic/scroll	Fully hermetic/scroll	Fully hermetic/scroll	Fully hermetic/scroll
Number	[pce]	1	1	1	1
Output levels		1	1	1	1
Speed	[rpm]	2900	2900	2900	2900
Voltage/frequency	[V]/[Hz]	230 / 50	230 / 50	230 / 50	230 / 50
Max. operating current	[A]	14,4	18,6	22,2	29,1

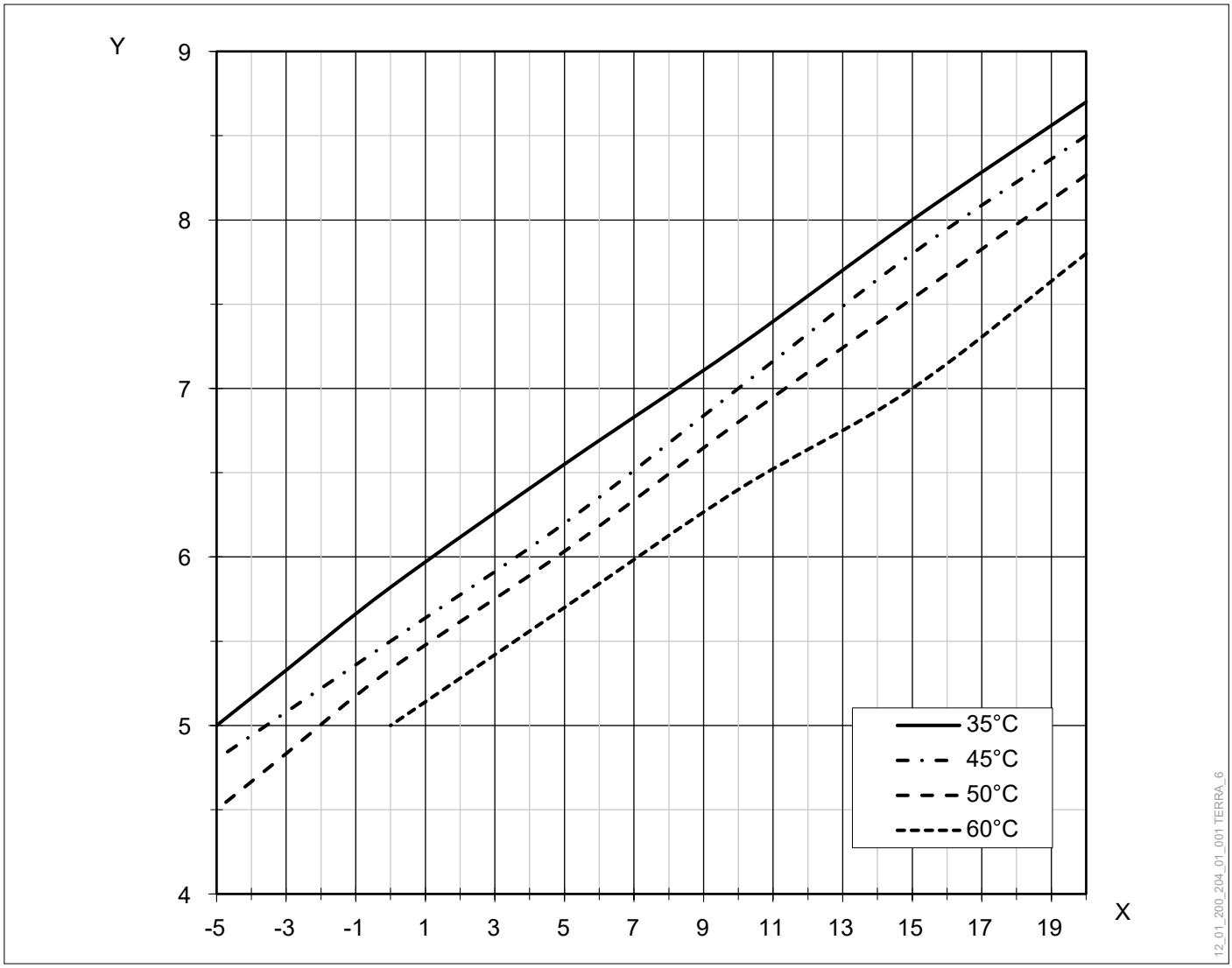
EVAPORATOR (HEAT SOURCE SYSTEM):

Type		Plate heat exchanger	Plate heat exchanger	Plate heat exchanger	Plate heat exchanger
Material		Stainless steel 1.4301	Stainless steel 1.4301	Stainless steel 1.4301	Stainless steel 1.4301
Number	[pce]	1	1	1	1
Max. refrigerant operating pressure	[bar]	12	12	12	12
Max. heat transfer medium operating pressure	[bar]	6	6	6	6
Heat transfer medium temperature differential	[K]	3	3	3	3
Application range	[°C]	-5/+20	-5/+20	-5/+20	-5/+20
Heat transfer medium		Brine	Brine	Brine	Brine
Test pressure	[bar]	54	54	54	54
Heat transfer medium flow rate	[m³/h]	1,45	1,87	2,59	3,28
Internal pressure differential	[mbar]	111	121	195	279
Flow meter, heat source		built-in	built-in	built-in	built-in
Circulation pump, heat source (heat source pump)	internal	Stratos Para 25/1-8	Stratos Para 25/1-8	Stratos Para 25/1-8	Stratos Para 25/1-8
Residual head I	[mbar]	589	579	505	421

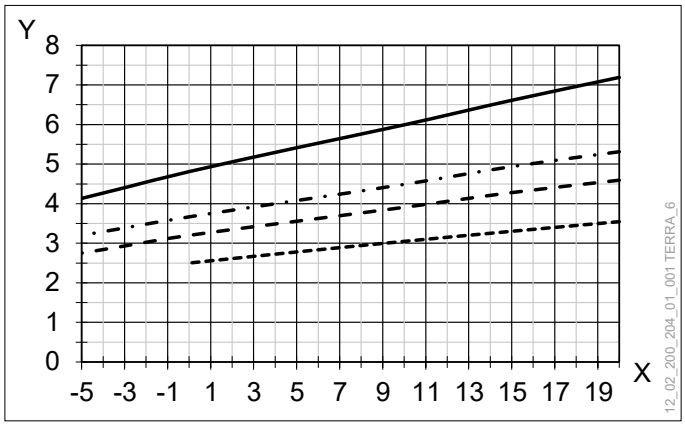
Information
Data on sound pressure levels refer to operation at full load at a distance of 1 m. Sound pressure and sound power levels are given +/-3 dB(A).

14.3 Performance diagrams

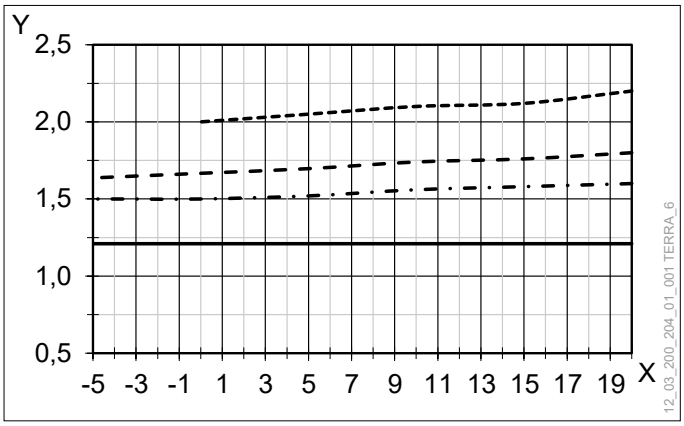
TERRA 6 HPLA



X Brine temperature [°C]
Y Heating output [kW], component tolerance/output tolerance ±10%

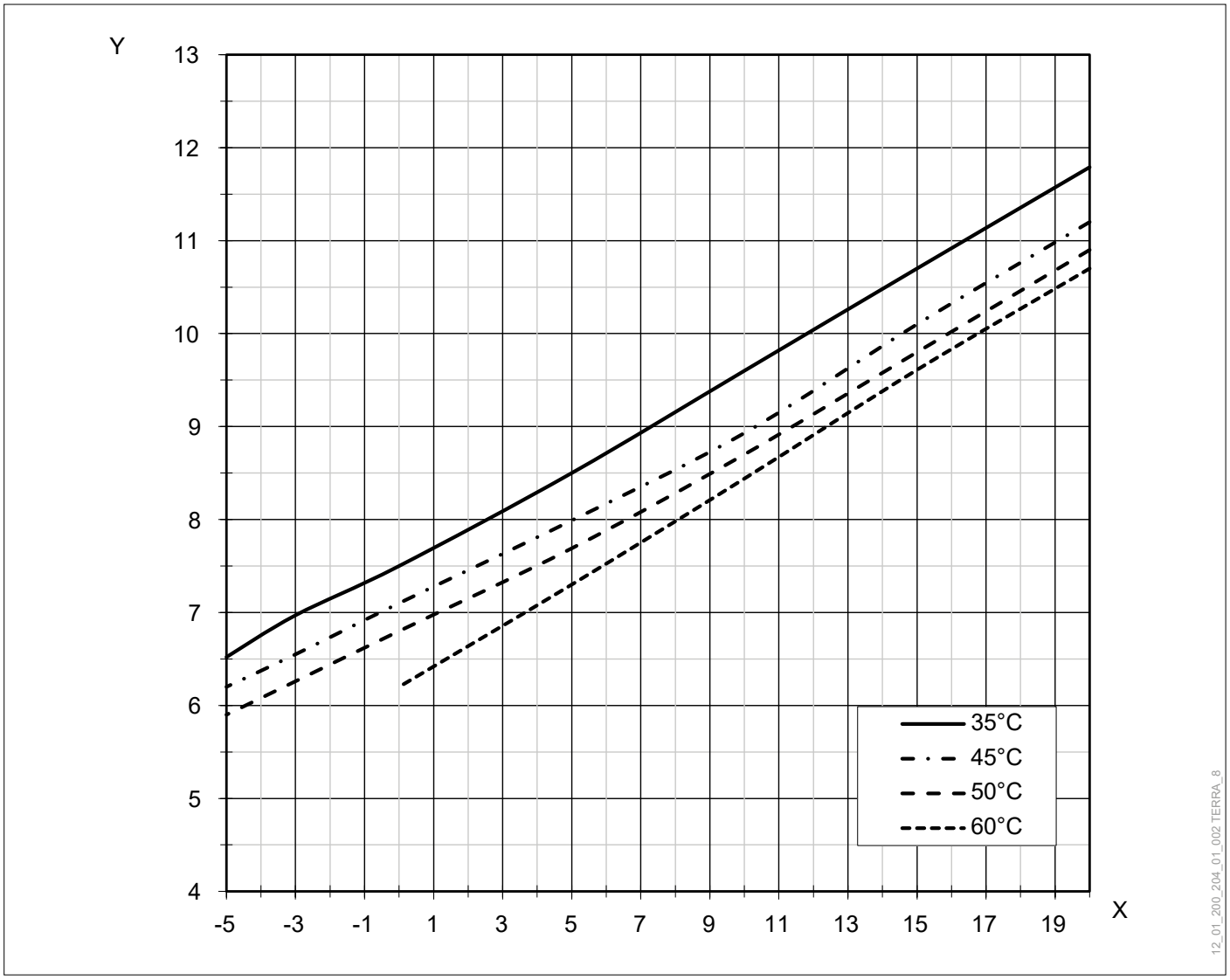


X Brine temperature [°C]
Y Coefficient of performance (COP), component tolerance/output tolerance ±10%

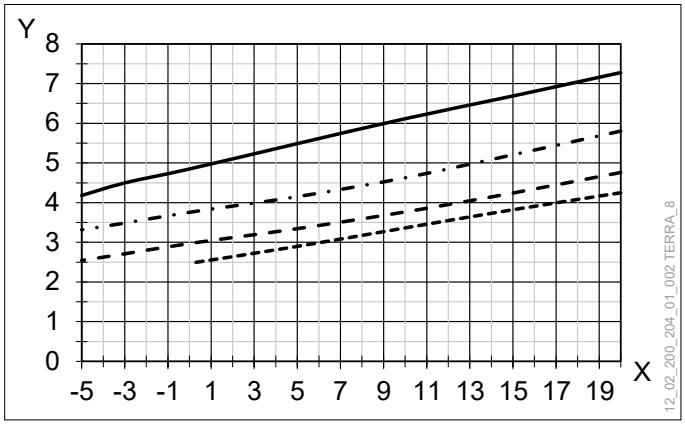


X Brine temperature [°C]
Y Power consumption [kW], component tolerance/output tolerance ±10%

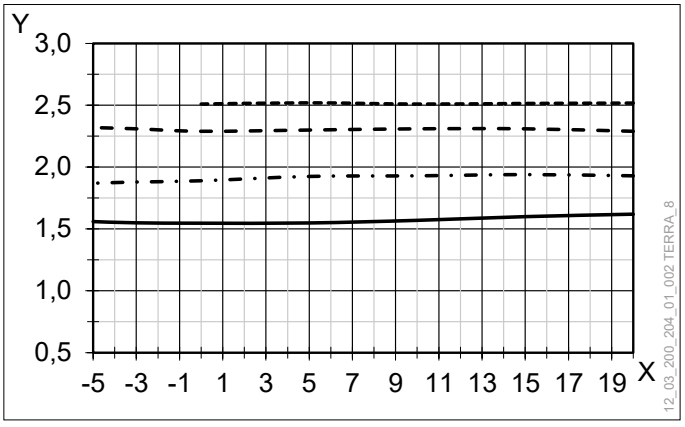
TERRA 8 HPLA



X Brine temperature [°C]
Y Heating output [kW], component tolerance/output tolerance ±10%

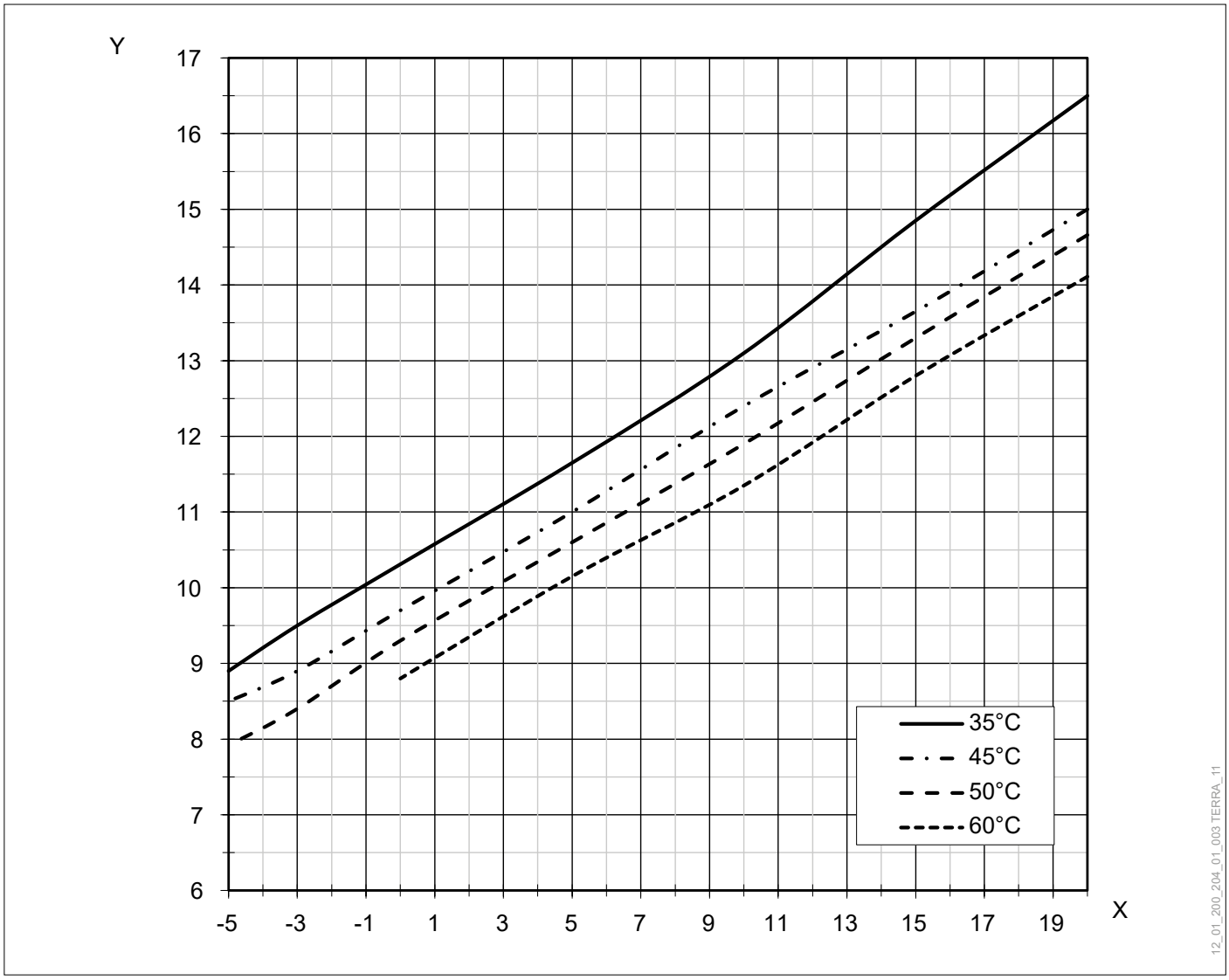


X Brine temperature [°C]
Y Coefficient of performance (COP), component tolerance/output tolerance ±10%

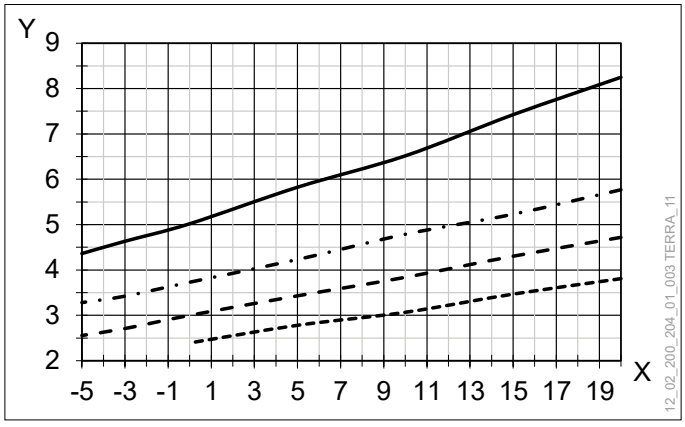


X Brine temperature [°C]
Y Power consumption [kW], component tolerance/output tolerance ±10%

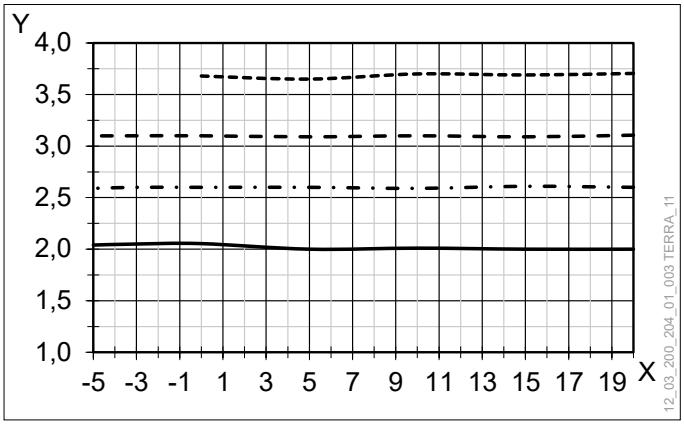
TERRA 11 HPLA



X Brine temperature [°C]
Y Heating output [kW], component tolerance/output tolerance ±10%

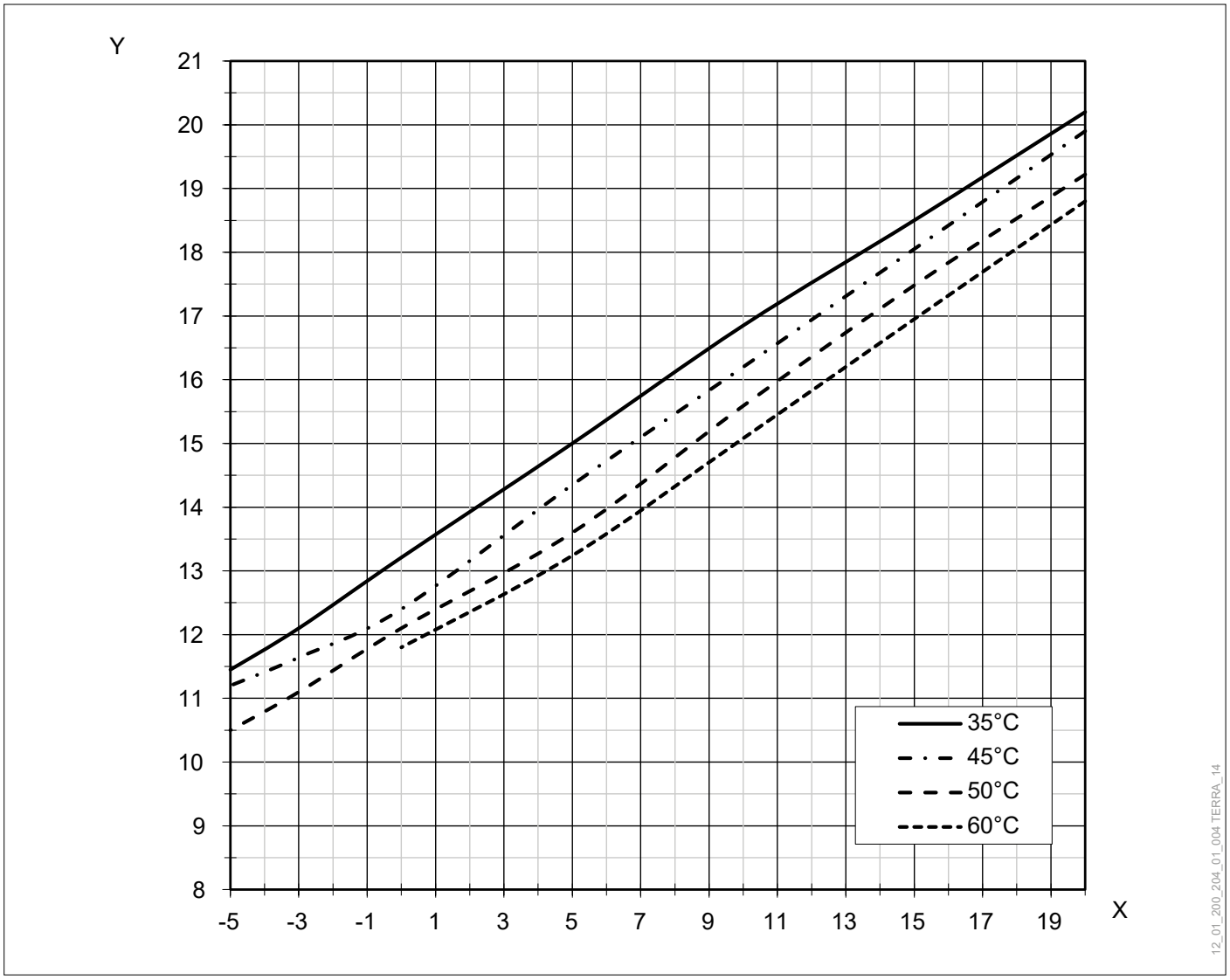


X Brine temperature [°C]
Y Coefficient of performance (COP), component tolerance/output tolerance ±10%

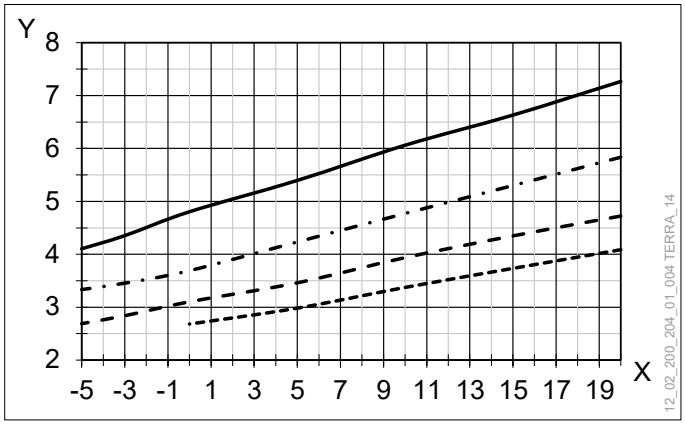


X Brine temperature [°C]
Y Power consumption [kW], component tolerance/output tolerance ±10%

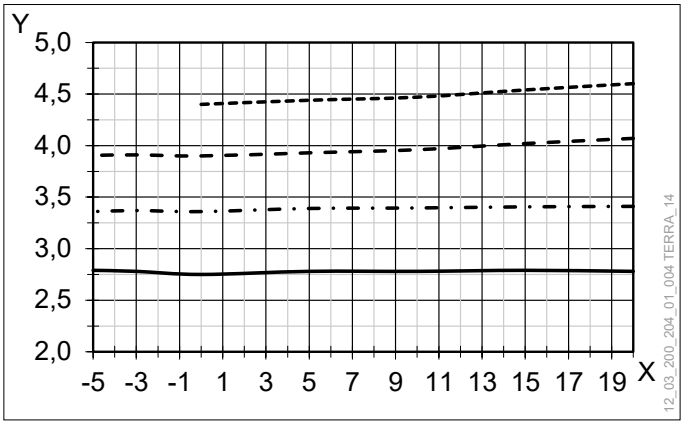
TERRA 14 HPLA



X Brine temperature [°C]
Y Heating output [kW], component tolerance/output tolerance ±10%

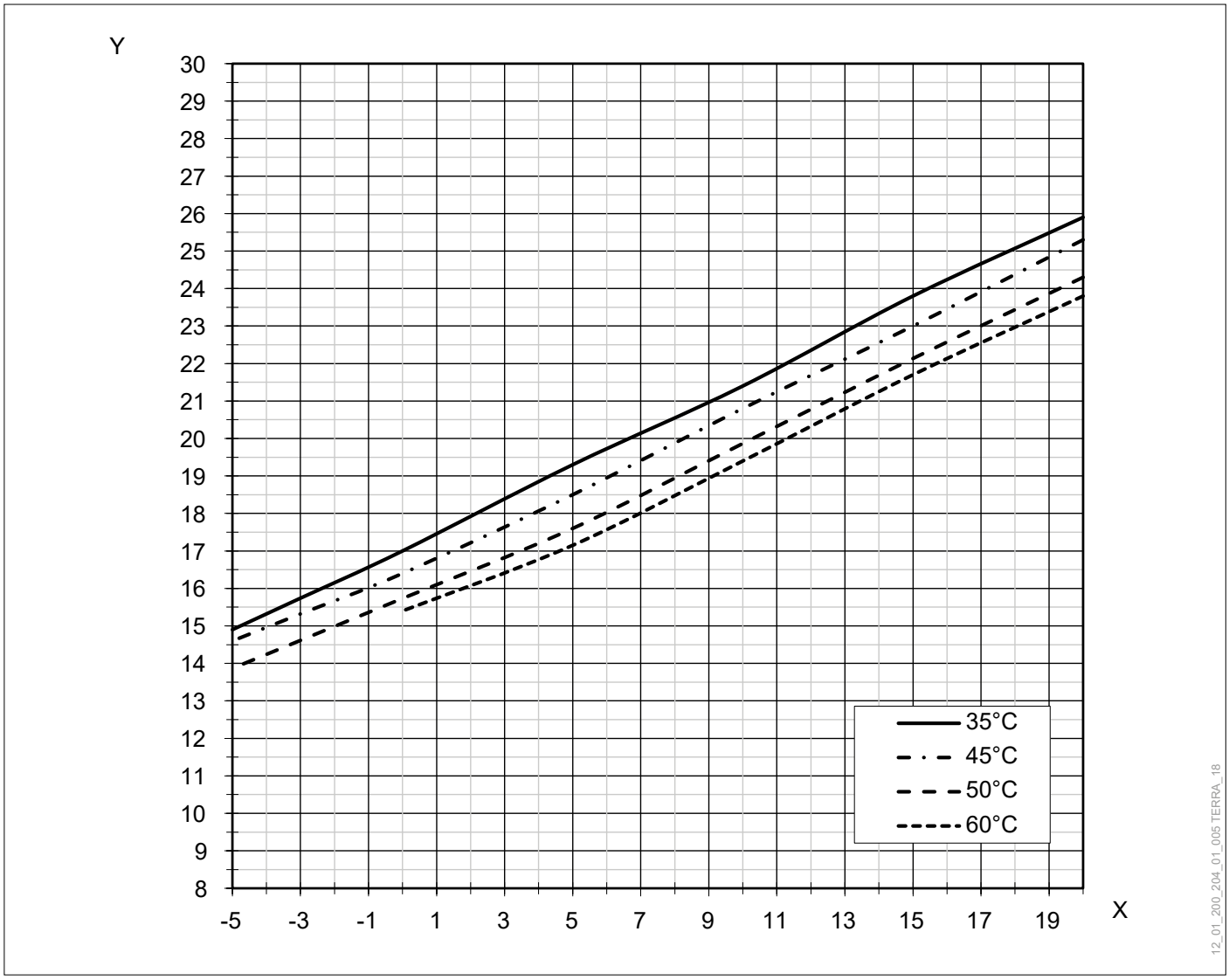


X Brine temperature [°C]
Y Coefficient of performance (COP), component tolerance/output tolerance ±10%

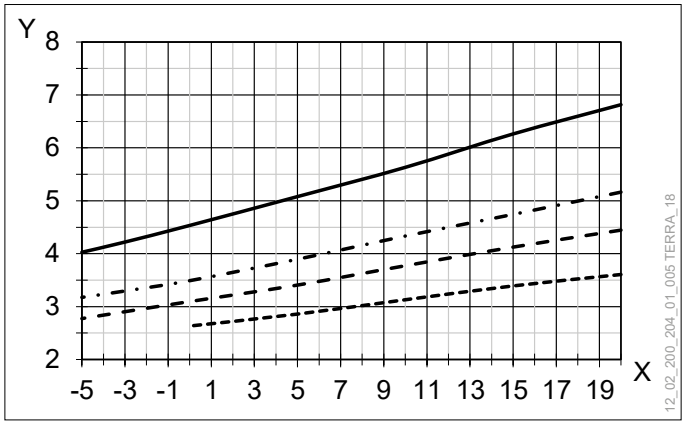


X Brine temperature [°C]
Y Power consumption [kW], component tolerance/output tolerance ±10%

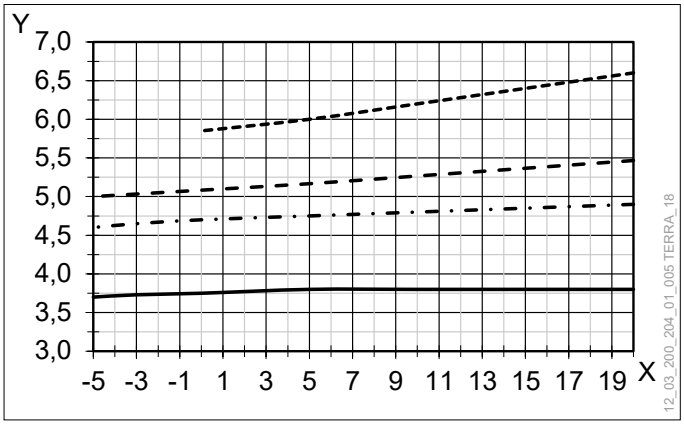
TERRA 18 HPLA



X Brine temperature [°C]
Y Heating output [kW], component tolerance/output tolerance ±10%

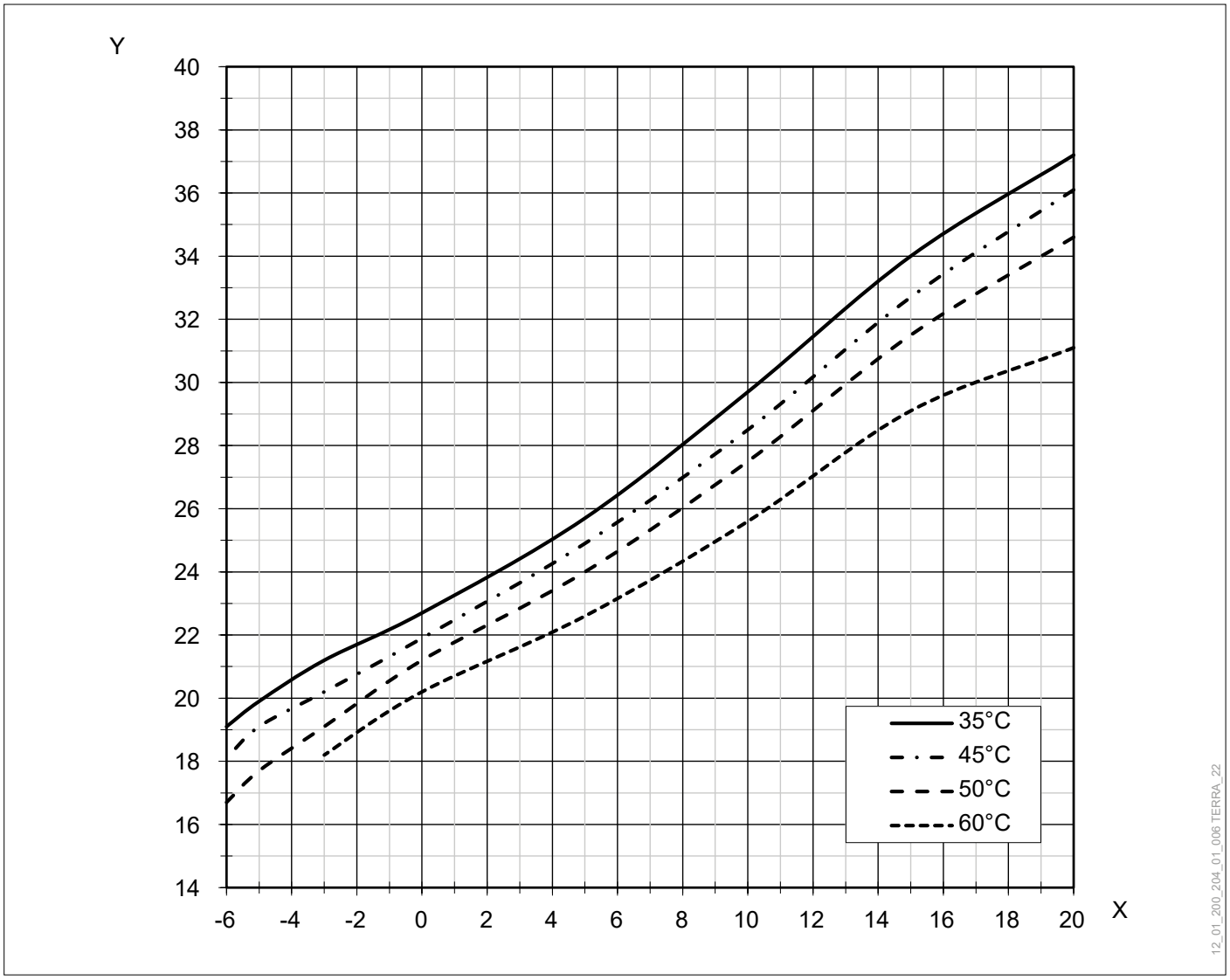


X Brine temperature [°C]
Y Coefficient of performance (COP), component tolerance/output tolerance ±10%

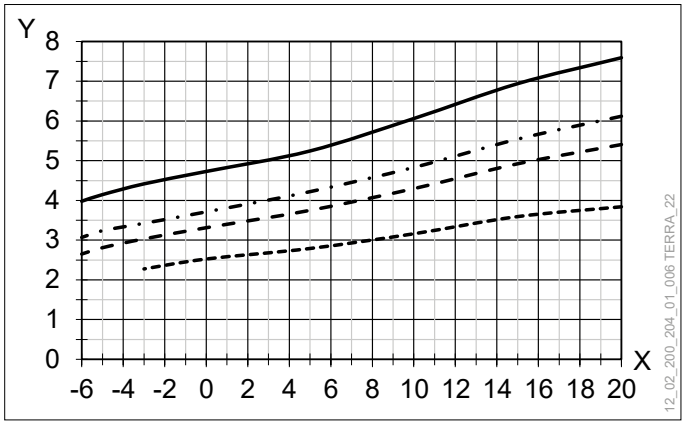


X Brine temperature [°C]
Y Power consumption [kW], component tolerance/output tolerance ±10%

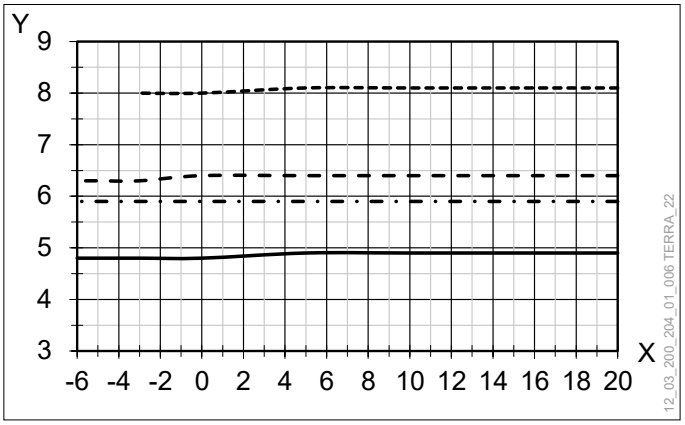
TERRA 22 HPLA



X Brine temperature [°C]
Y Heating output [kW], component tolerance/output tolerance ±10%

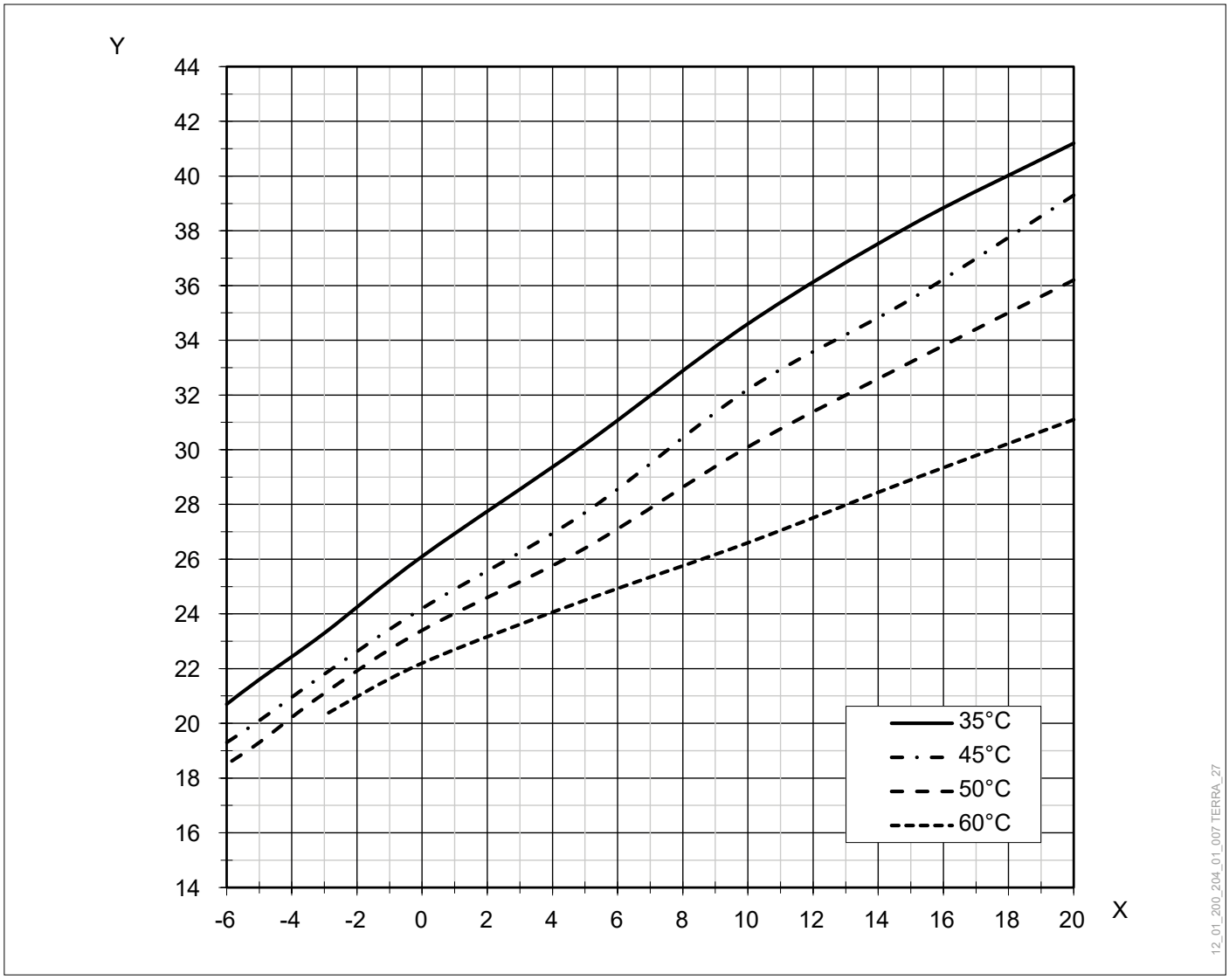


X Brine temperature [°C]
Y Coefficient of performance (COP), component tolerance/output tolerance ±10%

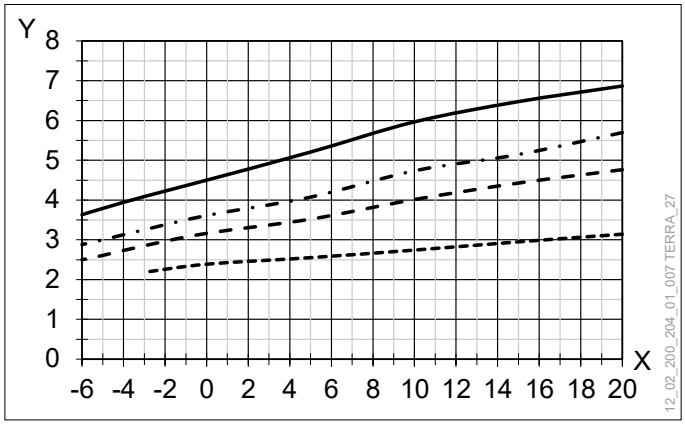


X Brine temperature [°C]
Y Power consumption [kW], component tolerance/output tolerance ±10%

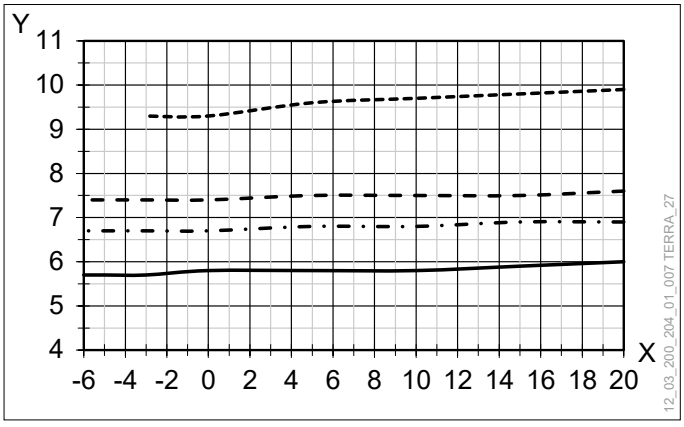
TERRA 27 HPLA



X Brine temperature [°C]
Y Heating output [kW], component tolerance/output tolerance ±10%



X Brine temperature [°C]
Y Coefficient of performance (COP), component tolerance/output tolerance ±10%



X Brine temperature [°C]
Y Power consumption [kW], component tolerance/output tolerance ±10%

14.3.1 Details of energy consumption

Product data conform to EU Regulations on the Ecodesign of Energy Related Products (ErP).

TERRA 6

LOW TEMPERATURE			35°C	
A++		**colder**	**medi-um**	**warmer**
ηs		208	199	195
Energy consumption	[kWh]	2656	2330	1536
P rated	[kW]	6	6	6
SCOP	[-]	5,4	5,16	5,06
MEDIUM TEMPERATURE			**55 °C**	
A++		**colder**	**medi-um**	**warmer**
ηs		136	131	129
Energy consumption	[kWh]	3551	3087	2031
P rated	[kW]	5	5	5
SCOP	[-]	3,61	3,48	3,42
DHW			**SP300**	
A		**colder**	**medi-um**	**warmer**
ηWH		88	88	88
Energy consumption	[kWh]	1621	1621	1621
Draw-off profile			XL	
Tank losses	[W]		94	
		indoor	outdoor	
Sound power level	[dBA]	43		
Controller class, with remote controller	**VII**	Controller contribution [%]		3,5
Controller class, without remote controller	**III**	Controller contribution [%]		1,5

TERRA 8

LOW TEMPERATURE			35°C	
A++		**colder**	**medi-um**	**warmer**
ηs		228	216	214
Energy consumption	[kWh]	3134	2772	1806
P rated	[kW]	8	8	8
SCOP	[-]	5,9	5,59	5,55
MEDIUM TEMPERATURE			**55 °C**	
A++		**colder**	**medi-um**	**warmer**
ηs		133	127	126
Energy consumption	[kWh]	4735	4125	2689
P rated	[kW]	7	7	7
SCOP	[-]	3,51	3,38	3,35
DHW			**SP300**	
A		**colder**	**medi-um**	**warmer**
ηWH		82	82	82
Energy consumption	[kWh]	1733	1733	1733
Draw-off profile			XL	
Tank losses	[W]		94	
		indoor	outdoor	
Sound power level	[dBA]	44		
Controller class, with remote controller	**VII**	Controller contribution [%]		3,5
Controller class, without remote controller	**III**	Controller contribution [%]		1,5

TERRA 11

LOW TEMPERATURE		35°C		
A++		**colder**	**medi-um**	**warmer**
ηs		232	221	221
Energy consumption	[kWh]	4232	3715	2408
P rated	[kW]	10	10	10
SCOP	[-]	6	5,73	5,71
MEDIUM TEMPERATURE		55 °C		
A++		**colder**	**medi-um**	**warmer**
ηs		139	134	134
Energy consumption	[kWh]	6061	5262	3419
P rated	[kW]	9	9	9
SCOP	[-]	3,68	3,55	3,54
DHW		SP300		
A		**colder**	**medi-um**	**warmer**
ηWH		87	87	87
Energy consumption	[kWh]	1645	1645	1645
Draw-off profile		XL		
Tank losses	[W]	94		
		indoor	outdoor	
Sound power level	[dBA]	48		
Controller class, with remote controller	**VII**	Controller contribution [%]		3,5
Controller class, without remote controller	**III**	Controller contribution [%]		1,5

TERRA 14

LOW TEMPERATURE		35°C		
A++		**colder**	**medi-um**	**warmer**
ηs		217	208	208
Energy consumption	[kWh]	5793	5053	3262
P rated	[kW]	13	13	13
SCOP	[-]	5,62	5,4	5,41
MEDIUM TEMPERATURE		55 °C		
A++		**colder**	**medi-um**	**warmer**
ηs		136	131	131
Energy consumption	[kWh]	7931	6862	4445
P rated	[kW]	12	12	12
SCOP	[-]	3,59	3,48	3,47
DHW		SP300		
A		**colder**	**medi-um**	**warmer**
ηWH		86	86	86
Energy consumption	[kWh]	1657	1657	1657
Draw-off profile		XL		
Tank losses	[W]	94		
		indoor	outdoor	
Sound power level	[dBA]	50		
Controller class, with remote controller	**VII**	Controller contribution [%]		3,5
Controller class, without remote controller	**III**	Controller contribution [%]		1,5

TERRA 18

LOW TEMPERATURE		35°C		
A++		**colder**	**medi-um**	**warmer**
ηs		193	187	188
Energy consumption	[kWh]	8345	7199	4647
P rated	[kW]	17	17	17
SCOP	[-]	5,03	4,88	4,89
MEDIUM TEMPERATURE		55 °C		
A++		**colder**	**medi-um**	**warmer**
ηs		137	134	134
Energy consumption	[kWh]	10723	9210	5961
P rated	[kW]	16	16	16
SCOP	[-]	3,63	3,54	3,54
DHW		SP500		
A		**colder**	**medi-um**	**warmer**
ηWH		88	88	88
Energy consumption	[kWh]	1576	1576	1576
Draw-off profile		XL		
Tank losses	[W]	117		
		indoor	outdoor	
Sound power level	[dBA]	53		
Controller class, with remote controller	**VII**	Controller contribution [%]		3,5
Controller class, without remote controller	**III**	Controller contribution [%]		1,5

TERRA 22

LOW TEMPERATURE		35°C		
A++		**colder**	**medi-um**	**warmer**
ηs		205	199	200
Energy consumption	[kWh]	10497	9079	5835
P rated	[kW]	23	23	23
SCOP	[-]	5,33	5,17	5,2
MEDIUM TEMPERATURE		55 °C		
A++		**colder**	**medi-um**	**warmer**
ηs		139	135	135
Energy consumption	[kWh]	13918	11972	7725
P rated	[kW]	21	21	21
SCOP	[-]	3,67	3,57	3,58
DHW		SP500		
A		**colder**	**medi-um**	**warmer**
ηWH		89	89	89
Energy consumption	[kWh]	1565	1565	1565
Draw-off profile		XL		
Tank losses	[W]	117		
		indoor	outdoor	
Sound power level	[dBA]	59,3		
Controller class, with remote controller	**VII**	Controller contribution [%]		3,5
Controller class, without remote controller	**III**	Controller contribution [%]		1,5

TERRA 27

LOW TEMPERATURE		**35°C**		
A++		**colder**	**medi-um**	**warmer**
ηs		190	184	186
Energy consumption	[kWh]	12794	11034	7088
P rated	[kW]	26	26	26
SCOP	[-]	4,95	4,81	4,84
MEDIUM TEMPERATURE		**55 °C**		
A++		**colder**	**medi-um**	**warmer**
ηs		130	127	128
Energy consumption	[kWh]	16235	13947	8995
P rated	[kW]	23	23	23
SCOP	[-]	3,46	3,38	3,39
DHW		**SP500**		
A		**colder**	**medi-um**	**warmer**
ηWH		84	84	84
Energy consumption	[kWh]	1651	1651	1651
Draw-off profile			XL	
Tank losses	[W]		117	
		indoor	outdoor	
Sound power level	[dBA]	60,1		
Controller class, with remote controller	**VII**	Controller contribution [%]		3,5
Controller class, without remote controller	**III**	Controller contribution [%]		1,5

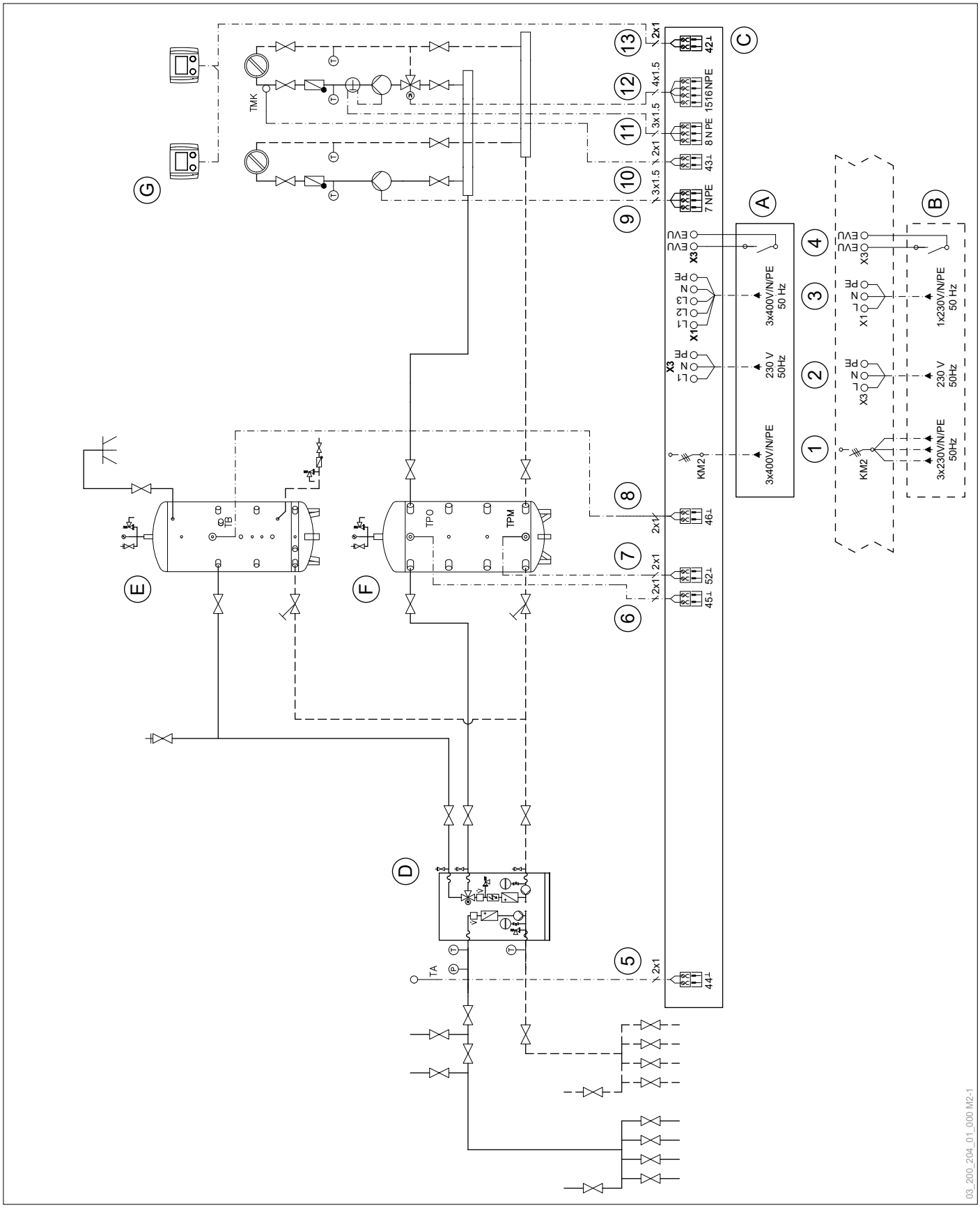
14.4 Limits of use

Limits of use for heating		**TERRA 6 HPL - TERRA 27 HPL**		
Spread	[K]	5	7	10
Max. heat pump flow temperature (heating)	[°C]	65	65	65
Max. flow temperature for sizing (heating)	[°C]	60	60	60
Max. evaporator inlet temperature (WQA)	[°C]	20	20	20
Min. evaporator inlet temperature (WQA)	[°C]	-5	-5	-5

Limits of use for cooling		**TERRA 6 CPL - TERRA 27 CPL**		
Spread	[K]	5	7	10
Max. heat pump flow temperature (cooling)	[°C]	7	10	13
Max. flow temperature for sizing (cooling)	[°C]	9	12	15
Max. evaporator inlet temperature (WQA)	[°C]	20	20	20
Min. evaporator inlet temperature (WQA)	[°C]	-5	-5	-5

14.5 System schematic diagrams

TERRA 6, TERRA 8, TERRA 11 and TERRA 14 (M2-1)

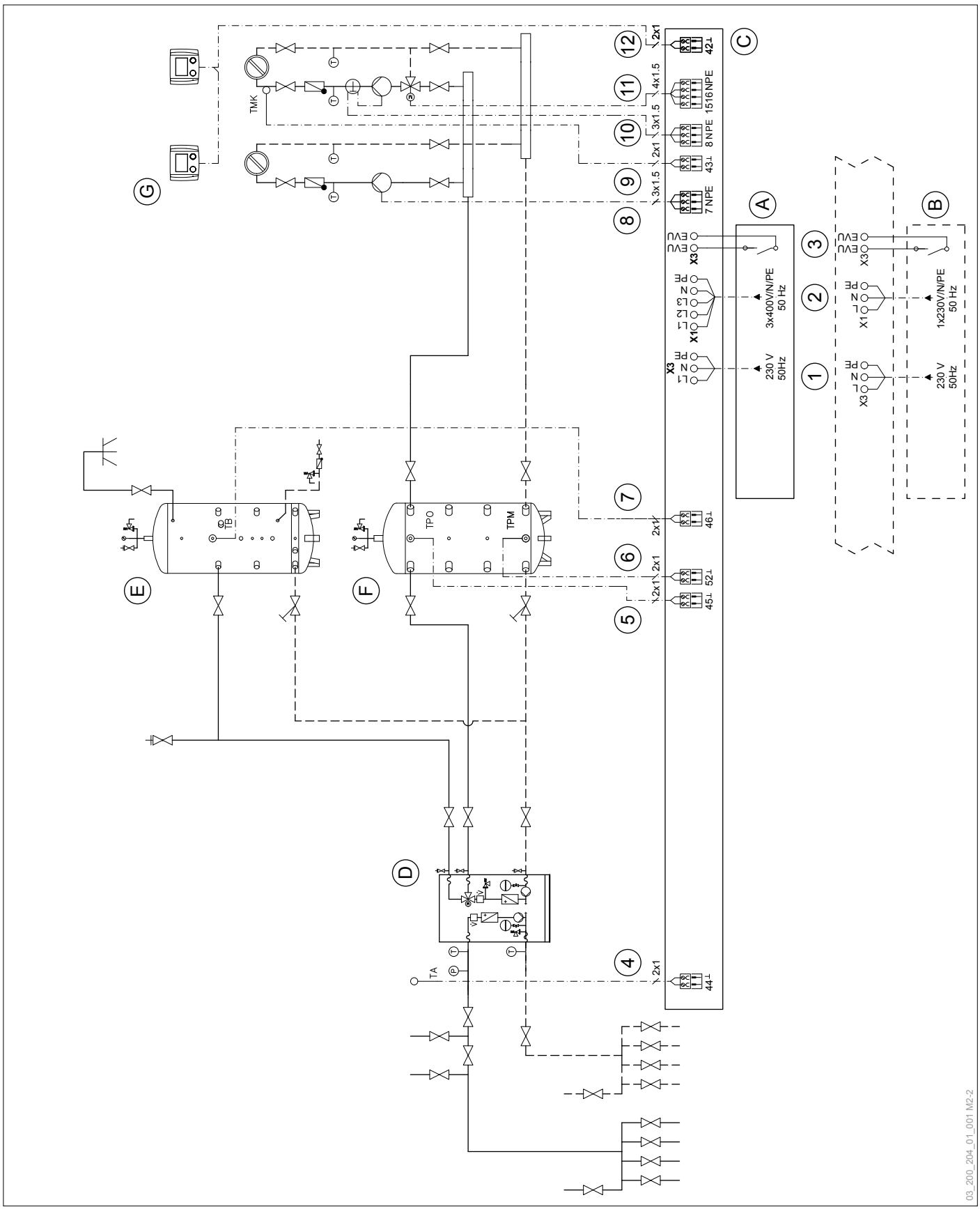


Key to system principle schematic for TERRA 6, TERRA 8, TERRA 11 and TERRA 14 (M2-1)

A Main distributor for 3-phase alternating current
B Main distributor for single phase alternating current
C Indoor unit control box
D Indoor unit
E DHW tank
F Heat pump separating cylinders
G Remote controller

1 Electric booster heater
2 Control circuit (OTE controller)
3 Main power circuit (compressor)
4 PSU signal contact
5 Outdoor temperature sensor (TA)
6 Top buffer sensor (TPO)
7 Bottom buffer sensor (TPM)
8 DHW sensor (TB)
9 Heating circuit circulation pump 1, direct (HCP 1)
10 Mixer sensor (TMK)
11 Heating circuit circulation pump 2, mixed (HCP 2)
Power supply via high limit safety cut-out
12 Heating circuit mixing valve (MVH)
13 Control elements (eBus)

TERRA 6, TERRA 8, TERRA 11 and TERRA 14 (M2-2)

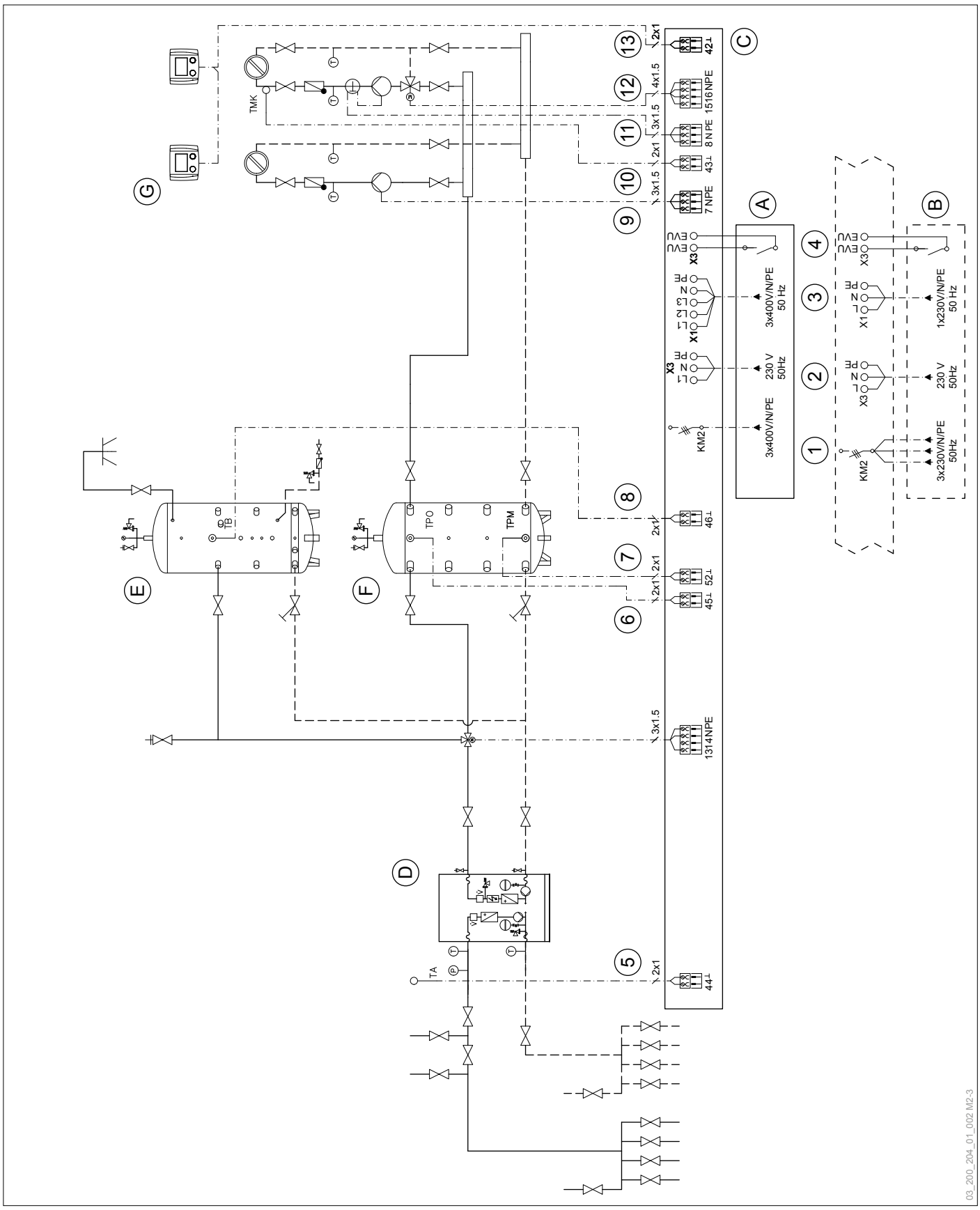


Key to system principle schematic for TERRA 6, TERRA 8, TERRA 11 and TERRA 14 (M2-2)

A Main distributor for 3-phase alternating current
B Main distributor for single phase alternating current
C Indoor unit control box
D Indoor unit
E DHW tank
F Heat pump separating cylinders
G Remote controller

1 Control circuit (OTE controller)
2 Main power circuit (compressor)
3 PSU signal contact
4 Outdoor temperature sensor (TA)
5 Top buffer sensor (TPO)
6 Bottom buffer sensor (TPM)
7 DHW sensor (TB)
8 Heating circuit circulation pump 1, direct (HCP 1)
9 Mixer sensor (TMK)
10 Heating circuit circulation pump 2, mixed (HCP 2)
Power supply via high limit safety cut-out
11 Heating circuit mixing valve (MVH)
12 Control elements (eBus)

TERRA 6, TERRA 8, TERRA 11 and TERRA 14 (M2-3)

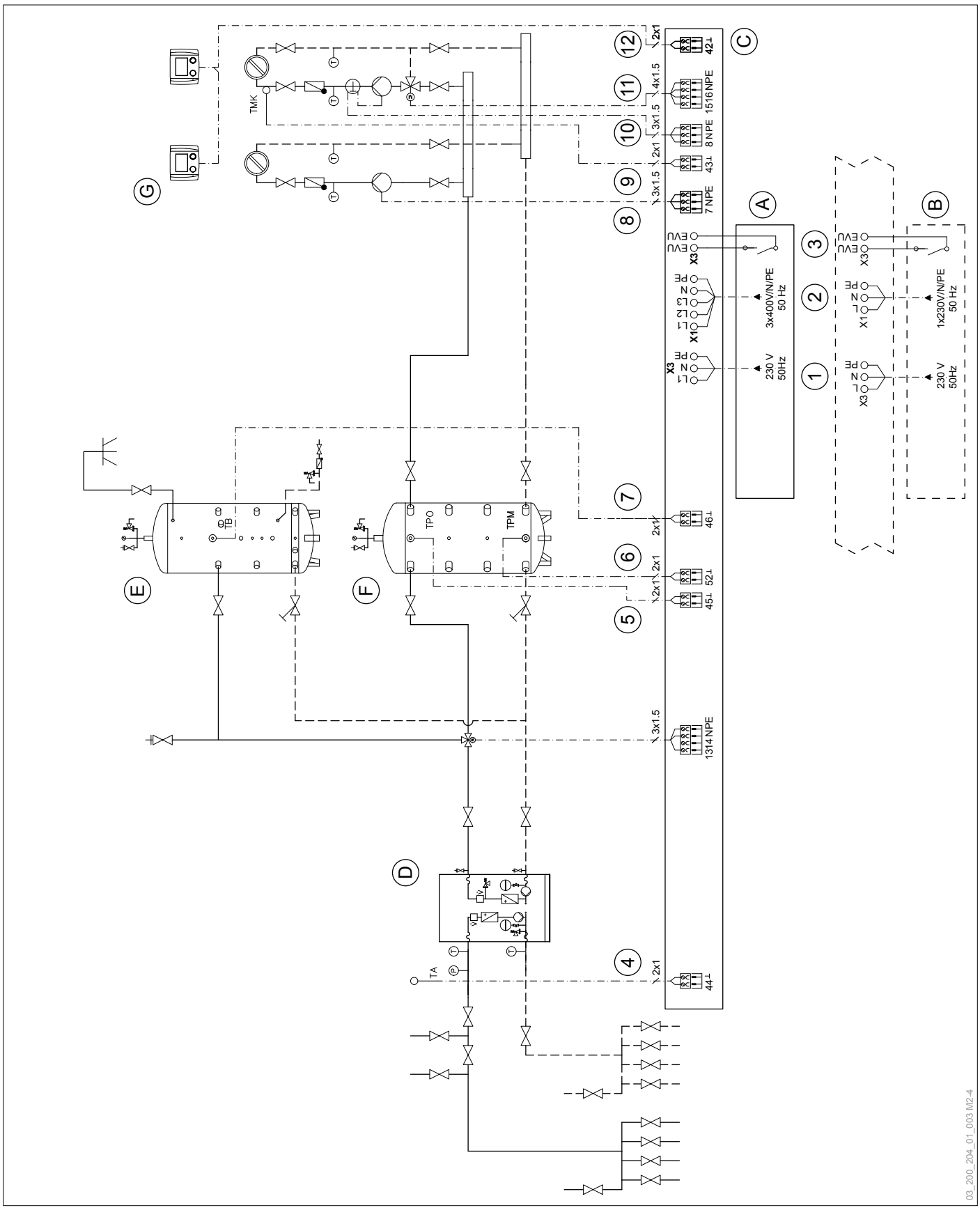


Key to system principle schematic for TERRA 6, TERRA 8, TERRA 11 and TERRA 14 (M2-3)

A Main distributor for 3-phase alternating current
B Main distributor for single phase alternating current
C Indoor unit control box
D Indoor unit
E DHW tank
F Heat pump separating cylinders
G Remote controller

1 Electric booster heater
2 Control circuit (OTE controller)
3 Main power circuit (compressor)
4 PSU signal contact
5 Outdoor temperature sensor (TA)
6 Top buffer sensor (TPO)
7 Bottom buffer sensor (TPM)
8 DHW sensor (TB)
9 Heating circuit circulation pump 1, direct (HCP 1)
10 Mixer sensor (TMK)
11 Heating circuit circulation pump 2, mixed (HCP 2)
Power supply via high limit safety cut-out
12 Heating circuit mixing valve (MVH)
13 Control elements (eBus)

TERRA 6, TERRA 8, TERRA 11 and TERRA 14 (M2-4)

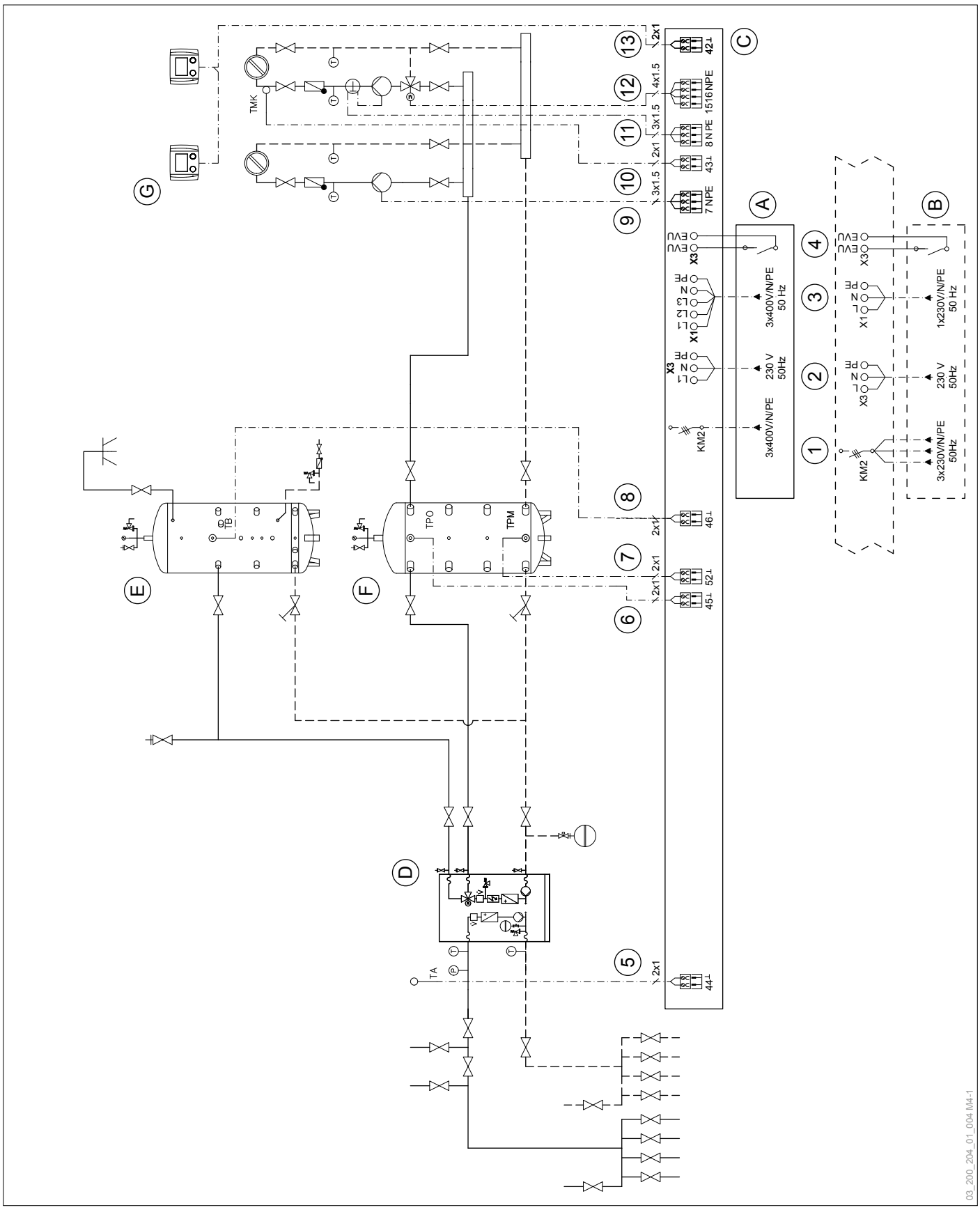


Key to system principle schematic for TERRA 6, TERRA 8, TERRA 11 and TERRA 14 (M2-4)

A Main distributor for 3-phase alternating current
B Main distributor for single phase alternating current
C Indoor unit control box
D Indoor unit
E DHW tank
F Heat pump separating cylinders
G Remote controller

1 Control circuit (OTE controller)
2 Main power circuit (compressor)
3 PSU signal contact
4 Outdoor temperature sensor (TA)
5 Top buffer sensor (TPO)
6 Bottom buffer sensor (TPM)
7 DHW sensor (TB)
8 Heating circuit circulation pump 1, direct (HCP 1)
9 Mixer sensor (TMK)
10 Heating circuit circulation pump 2, mixed (HCP 2)
Power supply via high limit safety cut-out
11 Heating circuit mixing valve (MVH)
12 Control elements (eBus)

TERRA 18, TERRA 22 and TERRA 27 (M4-1)

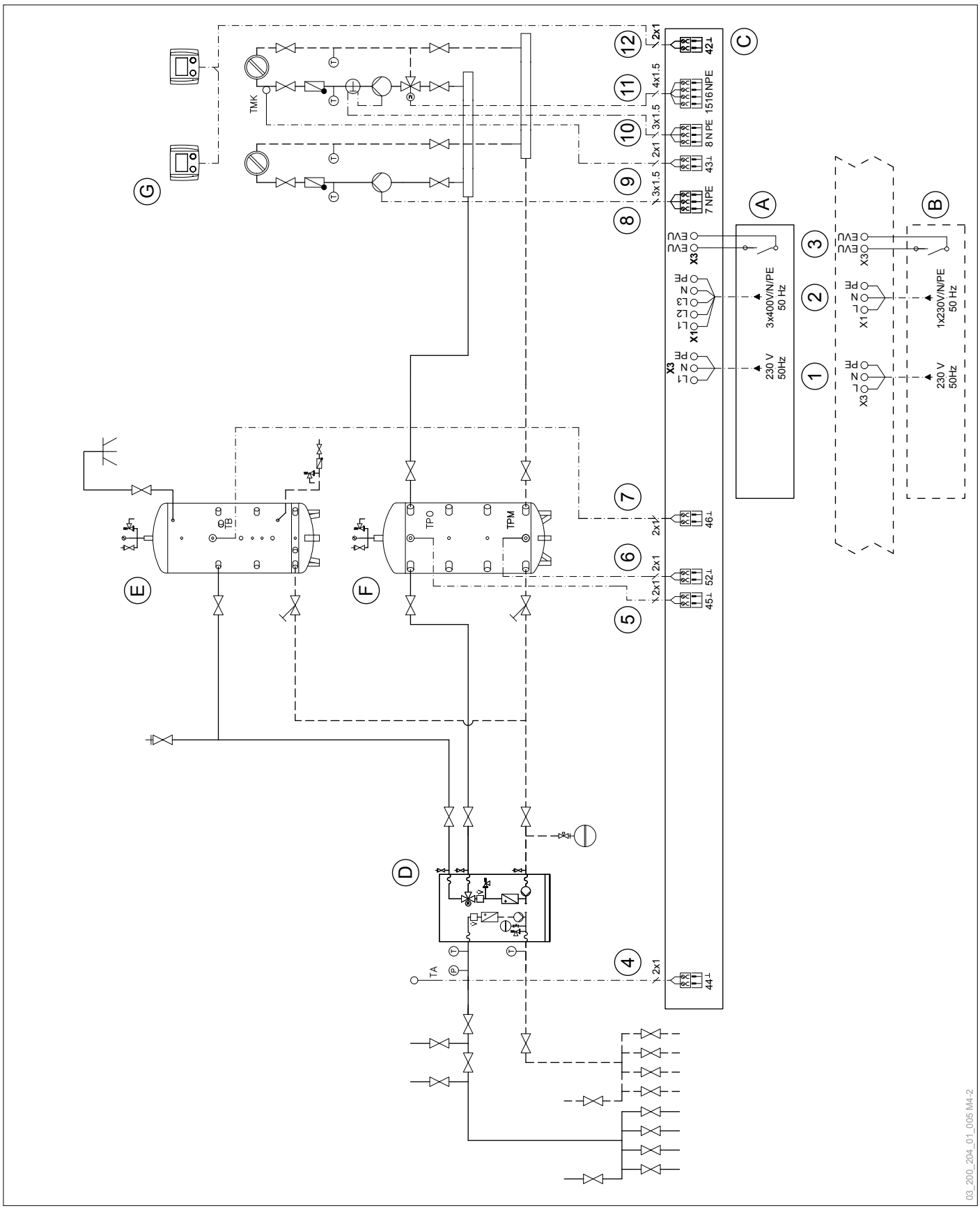


Key to system principle schematic for TERRA 18, TERRA 22 and TERRA 27 (M4-1)

A Main distributor for 3-phase alternating current
B Main distributor for single phase alternating current
C Indoor unit control box
D Indoor unit
E DHW tank
F Heat pump separating cylinders
G Remote controller

1 Electric booster heater
2 Control circuit (OTE controller)
3 Main power circuit (compressor)
4 PSU signal contact
5 Outdoor temperature sensor (TA)
6 Top buffer sensor (TPO)
7 Bottom buffer sensor (TPM)
8 DHW sensor (TB)
9 Heating circuit circulation pump 1, direct (HCP 1)
10 Mixer sensor (TMK)
11 Heating circuit circulation pump 2, mixed (HCP 2)
Power supply via high limit safety cut-out
12 Heating circuit mixing valve (MVH)
13 Control elements (eBus)

TERRA 18, TERRA 22 and TERRA 27 (M4-2)

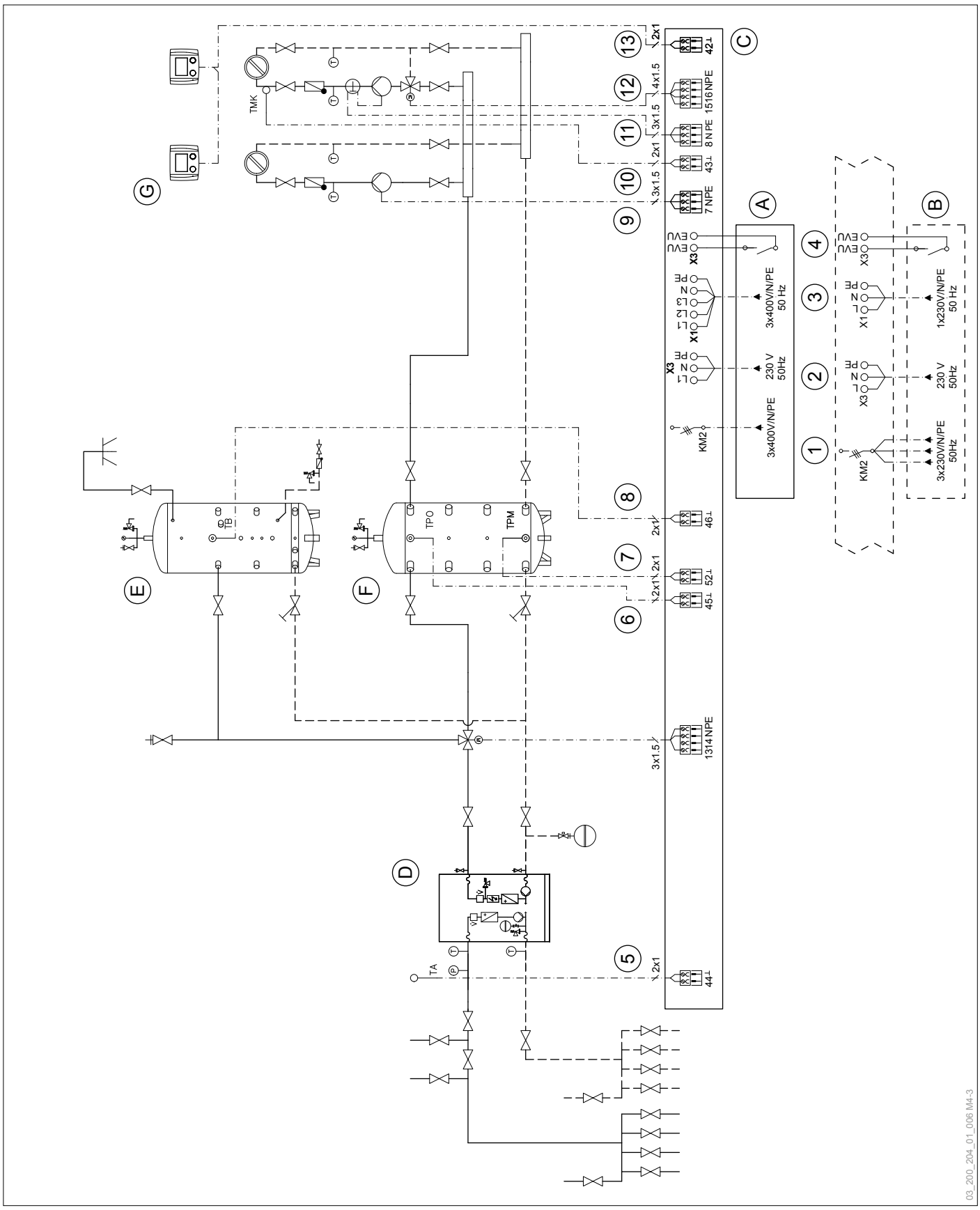


Key to system principle schematic for TERRA 18, TERRA 22 and TERRA 27 (M4-2)

A Main distributor for 3-phase alternating current
B Main distributor for single phase alternating current
C Indoor unit control box
D Indoor unit
E DHW tank
F Heat pump separating cylinders
G Remote controller

1 Control circuit (OTE controller)
2 Main power circuit (compressor and fan)
3 PSU signal contact
4 Outdoor temperature sensor (TA)
5 Top buffer sensor (TPO)
6 Bottom buffer sensor (TPM)
7 DHW sensor (TB)
8 Heating circuit circulation pump 1, direct (HCP 1)
9 Mixer sensor (TMK)
10 Heating circuit circulation pump 2, mixed (HCP 2)
Power supply via high limit safety cut-out
11 Heating circuit mixing valve (MVH)
12 Control elements (eBus)

TERRA 18, TERRA 22 and TERRA 27 (M4-3)

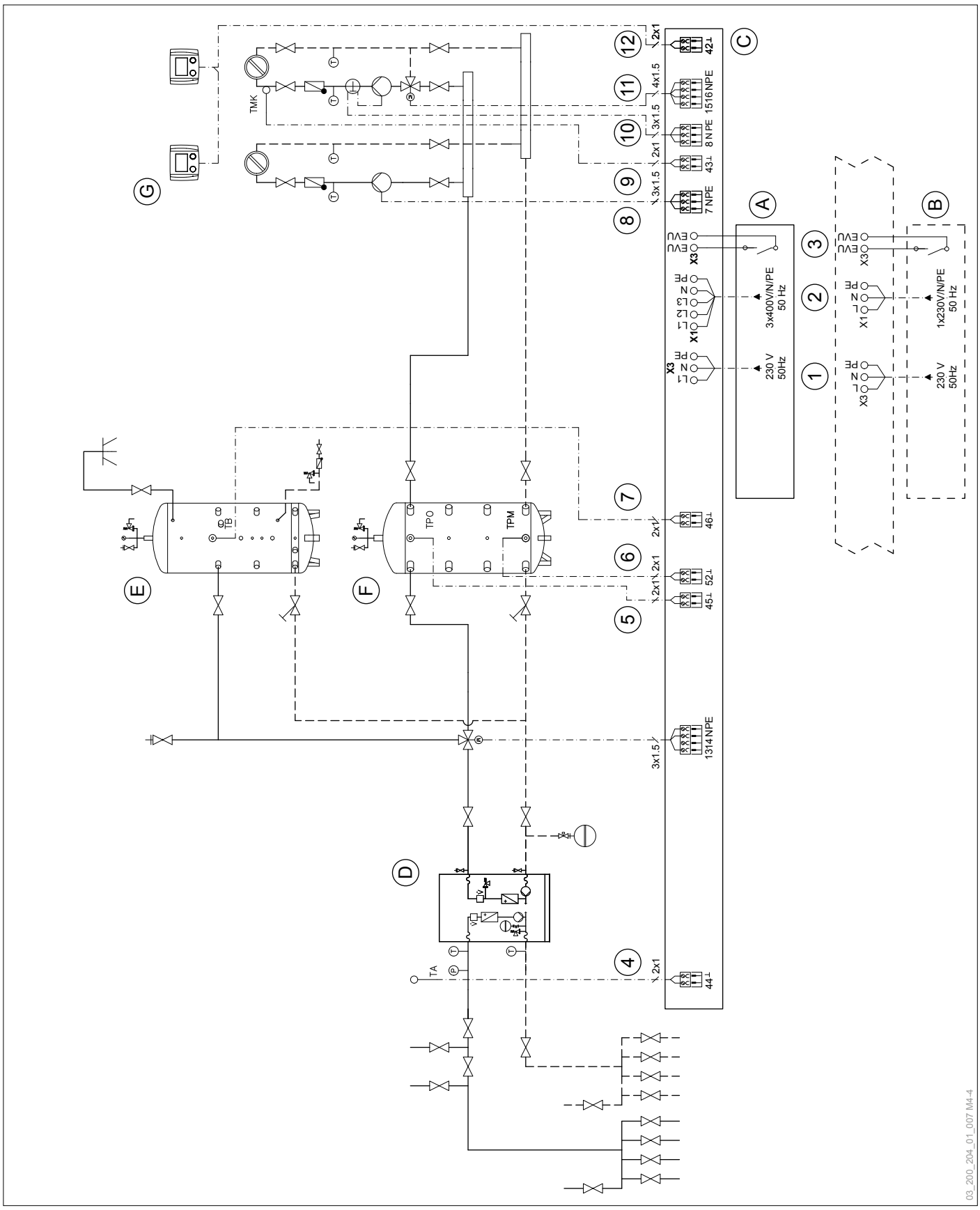


Key to system principle schematic for TERRA 18, TERRA 22 and TERRA 27 (M4-3)

A Main distributor for 3-phase alternating current
B Main distributor for single phase alternating current
C Indoor unit control box
D Indoor unit
E DHW tank
F Heat pump separating cylinders
G Remote controller

1 Electric booster heater
2 Control circuit (OTE controller)
3 Main power circuit (compressor and fan)
4 PSU signal contact
5 Outdoor temperature sensor (TA)
6 Top buffer sensor (TPO)
7 Bottom buffer sensor (TPM)
8 DHW sensor (TB)
9 Heating circuit circulation pump 1, direct (HCP 1)
10 Mixer sensor (TMK)
11 Heating circuit circulation pump 2, mixed (HCP 2)
Power supply via high limit safety cut-out
12 Heating circuit mixing valve (MVH)
13 Control elements (eBus)

TERRA 18, TERRA 22 and TERRA 27 (M4-4)



Key to system principle schematic for TERRA 18, TERRA 22 and TERRA 27 (M4-4)

A Main distributor for 3-phase alternating current
B Main distributor for single phase alternating current
C Indoor unit control box
D Outdoor unit terminal box
E Outdoor unit
F Indoor unit
G DHW tank
H Heat pump separating cylinders
I Remote controller

1 Control circuit (OTE controller)
2 Main power circuit (compressor and fan)
3 PSU signal contact
4 Outdoor temperature sensor (TA)
5 Top buffer sensor (TPO)
6 Bottom buffer sensor (TPM)
7 DHW sensor (TB)
8 Heating circuit circulation pump 1, direct (HCP 1)
9 Mixer sensor (TMK)
10 Heating circuit circulation pump 2, mixed (HCP 2)
Power supply via high limit safety cut-out
11 Heating circuit mixing valve (MVH)
12 Control elements (eBus)

14.6 Voltage quality in island mode

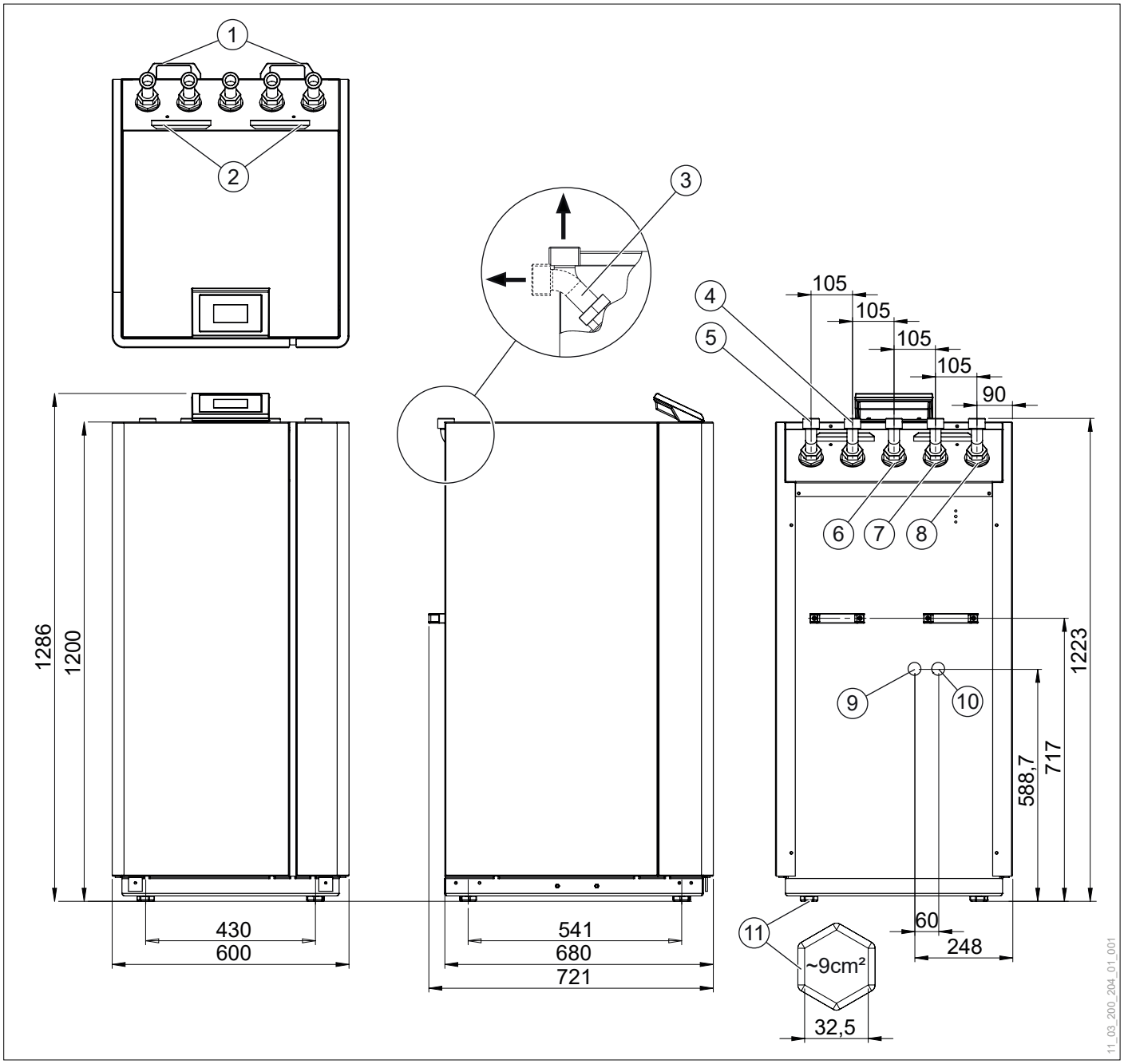
The following table shows voltage quality requirements in standalone mode (in mains mode, the relevant standards apply):

Harmonic	Maximum proportion
2	2.00%
3	5.00%
4	1.00%
5	6.00%
6	0.50%
7	5.00%
8	0.50%
9	1.50%
10	0.50%
11	3.50%
12	0.50%
13	3.00%
14	0.50%
15	0.50%
16	0.50%
17	2.00%
18	0.50%
19	1.50%
20	0.50%
21	0.50%
22	0.50%
23	1.50%
25	1.50%
>25	0.50%

- Total harmonic content (THC) 8%
- Frequency 49.5 Hz to 50.5 Hz
- Slow voltage changes 230 VAC ± 10% (integration interval 10 min)
- Rapid voltage changes 230 VAC ± 5% (integration interval 10 ms)
- Voltage asymmetry 2%

14.7 Dimensions and connections

14.7.1 Indoor unit



1 Carrying handles (removable)
2 Cable entries
3 Connections (optionally vertical with exit at top or horizontal with exit at rear)
4 Heat source flow (brine)
5 Heat source return (brine)
6 Heating water/DHW return
7 DHW flow
8 Heating water flow
9 Safety valve drain (heat sink side)
10 Safety valve drain (heat source side)
11 Plastic glide (height-adjustable, 4 pcs)

15. Environment and recycling

Disposal of transport packaging

Your appliance has been carefully packed for transportation. Please help to protect the environment by ensuring that transport packaging is disposed of properly and professionally. The transport packaging for this appliance consists of recyclable raw materials. Waste transport packaging should be sorted and recycled. Leave disposal of transport packaging to the contractor or system installer who has installed the appliance.

Disposal of the appliance

WARNING: Electrocution
Work on electrical connections and installation may be conducted only by qualified contractors.

Material damage
Incorrect disposal of refrigerant or heat transfer medium (brine) can cause significant environmental pollution.

Appliances containing refrigerant or heat transfer medium (brine) should only be decommissioned by an authorised contractor. The refrigerant or heat transfer medium (brine) should be emptied/removed and recycled or disposed of by a specialist.

Dispose of the appliance properly and professionally at a regional waste collection facility. Observe environmental regulations and standards applicable to your region.

Information
The heat pump must not be put into the household waste.

The appliance is not covered by the Electrical and Electronic Appliances Act [Austria]. The appliance is not intended for disposal free of charge at a local collection facility.

Refrigerant R410A

The refrigerant circuit of this appliance is filled with R410A refrigerant. R410A refrigerant is a fluorinated greenhouse gas listed in the Kyoto Protocol. R410A refrigerant must not be discharged into the atmosphere.

16. Declaration of conformity

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

DE	Produktmodell/Produkt:		D-A	CH	EXP	UK		D-A	CH	EXP	UK
EN	Product model / product:	TERRA 6 HPLA	265010	265010	265010	-	GMSW 7 HK PLUS	264558	-	264558	-
FR	ModèleModèle / Produit :	TERRA 8 HPLA	265020	265020	265020	-	GMSW 10 HK PLUS	264608	-	264608	-
PL	Model produktu/produkt:	TERRA 11 HPLA	265030	265030	265030	-	GMSW 15 HK PLUS	264708	-	264708	-
IT	Modello/prodotto:	TERRA 14 HPLA	265040	265040	265040	-	GMSW 17 HK PLUS	264758	-	264758	-
ES	Modelo de producto/producto:	TERRA 18 HPLA	265050	265050	265050	-	GMSW 12 HK PLUS	264658	-	264658	-
PT	Modelo de produto/produto:	GMSW 7 PLUS VX	-	-	-	264551	GMSW 7 HK PLUS VX	-	-	264559	-
NL	Productmodel/product:	GMSW 10 PLUS	-	-	-	264601	TERRA 6 HPLB	-	-	265012	-
CS	Model výrobku/výrobek:	GMSW 15 PLUS	-	-	-	264700	TERRA 8 HPLB	-	-	265022	-
		GMSW 17 PLUS	-	-	-	264750					

DE	Name und Anschrift des Herstellers oder seines Bevollmächtigten:
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:

OCHSNER Wärmepumpen GmbH
Krackowizerstraße 4
A 4020 Linz
Werk A-3350 Haag

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:	Sole-Wasser–Wärmepumpe	TERRA 6 HPLA	GMSW 7 HK PLUS
EN	Object of the declaration:	Brine/water heat pump	TERRA 8 HPLA	GMSW 10 HK PLUS
FR	Objet de la déclaration :	Pompe à chaleur eau glycolée/eau	TERRA 11 HPLA	GMSW 15 HK PLUS
PL	Przedmiot deklaracji:	Pompa ciepła typu solanka-woda	TERRA 14 HPLA	GMSW 17 HK PLUS
IT	Oggetto della dichiarazione:	Pompa di calore–geotermica	TERRA 18 HPLA	GMSW 12 HK PLUS
ES	Objeto de la declaración:	Bomba de calor de mezcla de agua-glicol/agua	GMSW 7 PLUS VX	GMSW 7 HK PLUS VX
PT	Objeto da declaração:	Bomba de calor de salmoura/água	GMSW 10 PLUS	TERRA 6 HPLB
NL	Voorwerp van de verklaring:	Brine-water-warmtepomp	GMSW 15 PLUS	TERRA 8 HPLB
CS	Předmět prohlášení:	Tepelné čerpadlo nemrznouci směs-voda	GMSW 17 PLUS	

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.

Machinery (MD) Directive 2006/42/EC	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)
Pressure equipment (PED) Directive 2014/68/EU	Regulation (EU) 2017/1369 (energy consumption labelling)
Restriction of Hazardous Substances (RoHS) Directive 2011/65/EU	

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 61000-3-2: 2015-04	EN ISO 12100: 2013-10
EN 378-2: 2018-07	EN 61000-3-3: 2014-04	DIN 8901:2002-12
EN 14825: 2016-09	EN 61000-6-2 2006-05+AC 2011-08	
EN 12102: 2018-01	EN 61000-6-3 2011-10	
	EN 60204-1: 2009-12	

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**

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

DE	Produktmodell/Produkt:		D-A	CH	EXP	UK		D-A	CH	EXP	UK
EN	Product model / product:	TERRA 27 HPLA	265070	265070	265070	-	TERRA 40 CPLA	221618	221618	221618	-
FR	ModèleModèle / Produit :	TERRA 40 HPLA	221610	221610	221610	-	TERRA 61 CPLA	221628	221628	221628	-
PL	Model produktu/produkt:	TERRA 61 HPLA	221620	221620	221620	-	TERRA 76 CPLA	221638	221638	221638	-
IT	Modello/prodotto:	TERRA 76 HPLA	221630	221630	221630	-					
ES	Modelo de producto/producto:	GMSW 28 HK	264358	-	264358	-					
PT	Modelo de produto/produto:	GMSW 38 HK	264458	-	264458	-					
NL	Productmodel/product:	GMSW 10 HK PLUS VX	-	-	264609	-					
CS	Model výrobku/výrobek:	TERRA 11 HPLB	-	-	265032	-					
		TERRA 14 HPLB	-	-	265042	-					

DE	Name und Anschrift des Herstellers oder seines Bevollmächtigten:
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:

OCHSNER Wärmepumpen GmbH
Krackowizerstraße 4
A 4020 Linz
Werk A-3350 Haag

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:	Sole-Wasser–Wärmepumpe	TERRA 27 HPLA	TERRA 40 CPLA
EN	Object of the declaration:	Brine/water heat pump	TERRA 40 HPLA	TERRA 61 CPLA
FR	Objet de la déclaration :	Pompe à chaleur eau glycolée/eau	TERRA 61 HPLA	TERRA 76 CPLA
PL	Przedmiot deklaracji:	Pompa ciepła typu solanka-woda	TERRA 76 HPLA	
IT	Oggetto della dichiarazione:	Pompa di calore–geotermica	GMSW 28 HK	
ES	Objeto de la declaración:	Bomba de calor de mezcla de agua-glicol/agua	GMSW 38 HK	
PT	Objeto da declaração:	Bomba de calor de salmoura/água	GMSW 10 HK PLUS VX	
NL	Voorwerp van de verklaring:	Brine-water-warmtepomp	TERRA 11 HPLB	
CS	Předmět prohlášení:	Tepelné čerpadlo nemrznoucí směs-voda	TERRA 14 HPLB	

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.

Machinery (MD) Directive 2006/42/EC	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)
Pressure equipment (PED) Directive 2014/68/EU	Regulation (EU) 2017/1369 (energy consumption labelling)
Restriction of Hazardous Substances (RoHS) Directive 2011/65/EU	

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	DIN 8901:2002-12
EN 14825: 2016-09	EN 61000-6-2:2006-05+AC:2011-08	
EN 12102: 2018-01	EN 61000-6-3:2011-10	
	EN 60204-1: 2009-12	

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:	**Karl Ochsner**	**Clemens Birklbauer**
EN	Name, position, signature:	**CEO - Chief Executive Officer**	**CTO – Chief Technology Officer**
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:		

17. ERP-Data

Model:	TERRA 6
Air-to-water heat pump:	no
Water-to-water heat pump:	no
Brine-to-water heat pump:	yes
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	5	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T_j			
T_j = -7 °C	Pdh	5.3	kW
T_j = +2 °C	Pdh	5.5	kW
T_j = +7 °C	Pdh	5.6	kW
T_j = +12 °C	Pdh	5.7	kW
T_j = bivalent temperature	Pdh	5.2	kW
T_j = operation limit temperature	Pdh	5.2	kW
For air-to-water heat pumps: T_j = -15 °C (if TOL < - 20 °C)	Pdh	5.2	kW
Bivalent temperature	T_{biv}	-10	°C
Power input „compressor off“		0	W
Power consumption in modes other than active mode			
Off mode	P_{OFF}	20	kW
Thermostat-off mode	P_{TO}	20	kW
Standby mode	P_{SB}	20	kW
Crankcase heater mode	P_{CK}	0	kW
Other items			
Capacity control	fixed		
Sound power level indoors	L_{WA}	43	dB
Sound power level outdoors	L_{WA}	—	dB
Annual energy consumption	Q_{HE}	3087	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	131	%
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	2.95	
T_j = +2 °C	COPd	3.50	
T_j = +7 °C	COPd	3.92	
T_j = +12 °C	COPd	4.44	
T_j = bivalent temperature	COPd	2.81	
T_j = operation limit temperature	COPd	2.81	
For air-to-water heat pumps:For air-to-water heat pumps: T_j = -15 °C (if TOL < - 20 °C)	COPd	2.81	
For air-to-water heat pumps: Operation limit temperature	TOL	-10	°C
Heating water operating limit temperature	WTOL	65	°C
Supplementary heater			
Rated heat output (*)	Psup	0.00	kW
Type of energy input	electricity		
For air-to-water heat pumps: Rated air flow rate, outdoors	—	—	m^3/h
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	—	1.41	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:	TERRA 8
Air-to-water heat pump:	no
Water-to-water heat pump:	no
Brine-to-water heat pump:	yes
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	7	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T_j			
T_j = -7 °C	Pdh	6.8	kW
T_j = +2 °C	Pdh	7.1	kW
T_j = +7 °C	Pdh	7.2	kW
T_j = +12 °C	Pdh	7.4	kW
T_j = bivalent temperature	Pdh	6.8	kW
T_j = operation limit temperature	Pdh	6.8	kW
For air-to-water heat pumps: T_j = -15 °C (if TOL < - 20 °C)	Pdh	6.8	kW
Bivalent temperature	T_{biv}	-10	°C
Power input „compressor off“		0	W
Power consumption in modes other than active mode			
Off mode	P_{OFF}	20	kW
Thermostat-off mode	P_{TO}	20	kW
Standby mode	P_{SB}	20	kW
Crankcase heater mode	P_{CK}	0	kW
Other items			
Capacity control	fixed		
Sound power level, indoors	L_{WA}	44.0	dB
Sound power level, outdoors	L_{WA}	—	dB
Annual energy consumption	Q_{HE}	4125	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	127	%
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	2.74	
T_j = +2 °C	COPd	3.36	
T_j = +7 °C	COPd	3.86	
T_j = +12 °C	COPd	4.52	
T_j = bivalent temperature	COPd	2.60	
T_j = operation limit temperature	COPd	2.60	
For air-to-water heat pumps:For air-to-water heat pumps: T_j = -15 °C (if TOL < - 20 °C)	COPd	2.60	
For air-to-water heat pumps: Operation limit temperature	TOL	-10	°C
Heating water operating limit temperature	WTOL	65	°C
Supplementary heater			
Rated heat output (*)	Psup	0.00	kW
Type of energy input	electricity		
For air-to-water heat pumps: Rated air flow rate, outdoors	—	—	m^3/h
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	—	2	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:	TERRA 11
Air-to-water heat pump:	no
Water-to-water heat pump:	no
Brine-to-water heat pump:	yes
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	9	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T_j			
T_j = -7 °C	Pdh	9.2	kW
T_j = +2 °C	Pdh	9.6	kW
T_j = +7 °C	Pdh	9.9	kW
T_j = +12 °C	Pdh	10.1	kW
T_j = bivalent temperature	Pdh	9.1	kW
T_j = operation limit temperature	Pdh	9.1	kW
For air-to-water heat pumps: T_j = -15 °C (if TOL < - 20 °C)	Pdh	9.1	kW
Bivalent temperature	T_{biv}	-10	°C
Power input „compressor off“		0	W
Power consumption in modes other than active mode			
Off mode	P_{OFF}	20	kW
Thermostat-off mode	P_{TO}	20	kW
Standby mode	P_{SB}	20	kW
Crankcase heater mode	P_{CK}	0	kW
Other items			
Capacity control	fixed		
Sound power level, indoors	L_{WA}	48.0	dB
Sound power level, outdoors	L_{WA}	—	dB
Annual energy consumption	Q_{HE}	5262	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	134	%
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	2.89	
T_j = +2 °C	COPd	3.52	
T_j = +7 °C	COPd	4.02	
T_j = +12 °C	COPd	4.65	
T_j = bivalent temperature	COPd	2.74	
T_j = operation limit temperature	COPd	2.74	
For air-to-water heat pumps:For air-to-water heat pumps: T_j = -15 °C (if TOL < - 20 °C)	COPd	2.74	
For air-to-water heat pumps: Operation limit temperature	TOL	-10	°C
Heating water operating limit temperature	WTOL	65	°C
Supplementary heater			
Rated heat output (*)	Psup	0.00	kW
Type of energy input	electricity		
For air-to-water heat pumps: Rated air flow rate, outdoors	—	—	m^3/h
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	—	2.8	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:	TERRA 14
Air-to-water heat pump:	no
Water-to-water heat pump:	no
Brine-to-water heat pump:	yes
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	12	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T_j			
T_j = -7 °C	Pdh	11.7	kW
T_j = +2 °C	Pdh	12.3	kW
T_j = +7 °C	Pdh	12.6	kW
T_j = +12 °C	Pdh	13.0	kW
T_j = bivalent temperature	Pdh	11.6	kW
T_j = operation limit temperature	Pdh	11.6	kW
For air-to-water heat pumps: T_j = -15 °C (if TOL < - 20 °C)	Pdh	11.6	kW
Bivalent temperature	T_{biv}	-10	°C
Power input „compressor off“		0	W
Power consumption in modes other than active mode			
Off mode	P_{OFF}	20	kW
Thermostat-off mode	P_{TO}	20	kW
Standby mode	P_{SB}	20	kW
Crankcase heater mode	P_{CK}	0	kW
Other items			
Capacity control	fixed		
Sound power level, indoors	L_{WA}	50.0	dB
Sound power level, outdoors	L_{WA}	—	dB
Annual energy consumption	Q_{HE}	6862	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	131	%
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	2.86	
T_j = +2 °C	COPd	3.44	
T_j = +7 °C	COPd	3.90	
T_j = +12 °C	COPd	4.45	
T_j = bivalent temperature	COPd	2.72	
T_j = operation limit temperature	COPd	2.72	
For air-to-water heat pumps:For air-to-water heat pumps: T_j = -15 °C (if TOL < - 20 °C)	COPd	2.72	
For air-to-water heat pumps: Operation limit temperature	TOL	-10	°C
Heating water operating limit temperature	WTOL	65	°C
Supplementary heater			
Rated heat output (*)	Psup	0.00	kW
Type of energy input	electricity		
For air-to-water heat pumps: Rated air flow rate, outdoors	—	—	m^3/h
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	—	3.5	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:	TERRA 18
Air-to-water heat pump:	no
Water-to-water heat pump:	no
Brine-to-water heat pump:	yes
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	16	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T_j			
T_j = -7 °C	Pdh	15.9	kW
T_j = +2 °C	Pdh	16.4	kW
T_j = +7 °C	Pdh	16.6	kW
T_j = +12 °C	Pdh	16.9	kW
T_j = bivalent temperature	Pdh	15.8	kW
T_j = operation limit temperature	Pdh	15.8	kW
For air-to-water heat pumps: T_j = -15 °C (if TOL < - 20 °C)	Pdh	15.8	kW
Bivalent temperature	T_{biv}	-10	°C
Power input „compressor off“		0	W
Power consumption in modes other than active mode			
Off mode	P_{OFF}	20	kW
Thermostat-off mode	P_{TO}	20	kW
Standby mode	P_{SB}	20	kW
Crankcase heater mode	P_{CK}	0	kW
Other items			
Capacity control	fixed		
Sound power level, indoors	L_{WA}	53	dB
Sound power level, outdoors	L_{WA}	—	dB
Annual energy consumption	Q_{HE}	9210	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	134	%
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	3.04	
T_j = +2 °C	COPd	3.51	
T_j = +7 °C	COPd	3.87	
T_j = +12 °C	COPd	4.28	
T_j = bivalent temperature	COPd	2.93	
T_j = operation limit temperature	COPd	2.93	
For air-to-water heat pumps:For air-to-water heat pumps: T_j = -15 °C (if TOL < - 20 °C)	COPd	2.93	
For air-to-water heat pumps: Operation limit temperature	TOL	-10	°C
Heating water operating limit temperature	WTOL	65	°C
Supplementary heater			
Rated heat output (*)	Psup	0.00	kW
Type of energy input	electricity		
For air-to-water heat pumps: Rated air flow rate, outdoors	—	—	m^3/h
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	—	4.2	m^3/h
Water heating energy efficiency	η_{wh}	—	%
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).

Model:	TERRA 22
Air-to-water heat pump:	no
Water-to-water heat pump:	no
Brine-to-water heat pump:	yes
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	21	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T_j			
T_j = -7 °C	Pdh	20.9	kW
T_j = +2 °C	Pdh	21.6	kW
T_j = +7 °C	Pdh	22.0	kW
T_j = +12 °C	Pdh	22.5	kW
T_j = bivalent temperature	Pdh	20.7	kW
T_j = operation limit temperature	Pdh	20.7	kW
For air-to-water heat pumps: T_j = -15 °C (if TOL < - 20 °C)	Pdh	20.7	kW
Bivalent temperature	T_{biv}	-10	°C
Power input „compressor off“		0	W
Power consumption in modes other than active mode			
Off mode	P_{OFF}	20	kW
Thermostat-off mode	P_{TO}	20	kW
Standby mode	P_{SB}	20	kW
Crankcase heater mode	P_{CK}	0	kW
Other items			
Capacity control	fixed		
Sound power level, indoors	L_{WA}	59.3	dB
Sound power level, outdoors	L_{WA}	—	dB
Annual energy consumption	Q_{HE}	11972	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	135	%
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	3.00	
T_j = +2 °C	COPd	3.53	
T_j = +7 °C	COPd	3.93	
T_j = +12 °C	COPd	4.41	
T_j = bivalent temperature	COPd	2.88	
T_j = operation limit temperature	COPd	2.88	
For air-to-water heat pumps:For air-to-water heat pumps: T_j = -15 °C (if TOL < - 20 °C)	COPd	2.88	
For air-to-water heat pumps: Operation limit temperature	TOL	-10	°C
Heating water operating limit temperature	WTOL	68	°C
Supplementary heater			
Rated heat output (*)	Psup	0.00	kW
Type of energy input	electricity		
For air-to-water heat pumps: Rated air flow rate, outdoors	—	—	m^3/h
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	—	6	m^3/h
Water heating energy efficiency	η_{wh}	—	%
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).

Model:	TERRA 27
Air-to-water heat pump:	no
Water-to-water heat pump:	no
Brine-to-water heat pump:	yes
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	23	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T_j			
T_j = -7 °C	Pdh	23.1	kW
T_j = +2 °C	Pdh	24.1	kW
T_j = +7 °C	Pdh	24.7	kW
T_j = +12 °C	Pdh	25.3	kW
T_j = bivalent temperature	Pdh	22.8	kW
T_j = operation limit temperature	Pdh	22.8	kW
For air-to-water heat pumps: T_j = -15 °C (if TOL < - 20 °C)	Pdh	22.8	kW
Bivalent temperature	T_{biv}	-10	°C
Power input „compressor off“		0	W
Power consumption in modes other than active mode			
Off mode	P_{OFF}	20	kW
Thermostat-off mode	P_{TO}	20	kW
Standby mode	P_{SB}	20	kW
Crankcase heater mode	P_{CK}	0	kW
Other items			
Capacity control	fixed		
Sound power level, indoors	L_{WA}	60.1	dB
Sound power level, outdoors	L_{WA}	—	dB
Annual energy consumption	Q_{HE}	13947	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	127	%
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	2.85	
T_j = +2 °C	COPd	3.34	
T_j = +7 °C	COPd	3.70	
T_j = +12 °C	COPd	4.12	
T_j = bivalent temperature	COPd	2.73	
T_j = operation limit temperature	COPd	2.73	
For air-to-water heat pumps:For air-to-water heat pumps: T_j = -15 °C (if TOL < - 20 °C)	COPd	2.73	
For air-to-water heat pumps: Operation limit temperature	TOL	-10	°C
Heating water operating limit temperature	WTOL	68	°C
Supplementary heater			
Rated heat output (*)	Psup	0.00	kW
Type of energy input	electricity		
For air-to-water heat pumps: Rated air flow rate, outdoors	—	—	m^3/h
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	—	7	m^3/h
Water heating energy efficiency	η_{wh}	—	%
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).

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