Original operating instructions

WP Max-HiQ pF10 & WP Max-LoQ pF10

As of 2025-09

ratiotherm
Smart Energy Systems

INFORMATION

These operating instructions are part of the technical documentation for the device in accordance with:

- Directive 2014/35/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits
- Directive 2014/68/EU of the European Parliament and of the Council of 15 May 2014 on the harmonisation of the laws of Member States relating to the making available on the market of pressure equipment

These operating instructions are intended for the operator and must be handed over to personnel who come into contact with the device. The operator must ensure that the information contained in the operating instructions and the accompanying documents is read and understood.

NOTE

If in any doubt, consult the operating instructions, which must be kept in a known and easily accessible place.
The manufacturer accepts no liability for damage to persons, animals, objects or the device itself caused by:

- improper use,
- non-compliance,
- insufficient attention

the safety criteria contained herein or by:

- modification of the device,
- use of unsuitable spare parts.

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For better readability, the generic masculine form is used in this original operating manual. The personal designations used refer to all genders.

As of: 7 October 2024

TABLE OF CONTENTS

1. INFORMATION ABOUT THE DOCUMENT

The following notes serve as a guide through the entire documentation. Other documents are also valid in conjunction with these operating instructions. These operating instructions for specialist tradesmen are an integral part of the ratiotherm WP Max-HiQ/LoQ pF10 heat pump. The ratiotherm WP Max-HiQ/LoQ pF10 heat pump must not be operated without this document.
The operating instructions must be made available to the operator and the specialist technician for information at all times. If the ratiotherm WP Max-HiQ/LoQ pF10 heat pump is sold, the instructions must be included. We accept no liability for damage caused by failure to observe these instructions.

1.1 SAFETY AND WARNING NOTICES

Signal words and colours

The following signal words are based on DIN ISO 3864-2 and are used in this documentation. The safety colours have been adopted from the DIN ISO 3864-1 standard. The design complies with DIN EN 82079-1 and ANSI Z 535.4.

Signal	Explanation
DANGER	Indicates a dangerous situation which, if ignored, will result in death or serious injury.
WARNING	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
CAUTION	Indicates a hazardous situation which, if not avoided, could result in minor injury or property damage.
NOTE	Indicates operating instructions and cross-references. A note excludes the risk of property damage or injury.

1.2 SAFETY SIGNS

1.2.1 OTHER SIGNS IN ACCORDANCE WITH DIN EN ISO 7010

Some of the following special safety signs according to DIN EN ISO 7010 and DIN ISO 3864 are used in the corresponding text passages in this operating manual and require special attention depending on the combination of signal word and graphic symbol. Please note the distinction between:

- Mandatory signs ⇨ prescribe an action (e.g. use eye protection).
- Warning signs ⇨ Visually represent a source of danger and supplement a warning notice.
- Prohibition signs ⇨ prohibit certain actions.

Symbol	Explanation	Symbol	Explanation
	General warning sign		Warning of flammable substances
	Warning of electrical voltage		General prohibition sign
	Warning of hot surfaces		No entry
	Follow instructions		General mandatory sign
	Disconnect before maintenance or repair		Use hand protection

1.2.2 OTHER SIGNS IN ACCORDANCE WITH DIN ISO 7000

Symbol	Explanation	Symbol	Explanation
	Observe the operating manual (instructions for use)		Service indicator, Refer to the operating manual (instructions for use)
	Instructions for use/operating instructions (operating manual)		

1.2.3 OTHER SYMBOLS

Symbol	Explanation	Symbol	Explanation
	Recycling		Dispose of packaging material in accordance with regulations

2. IDENTIFICATION AND NOTES

2.1 PRODUCT DATA

Device name:	Heat pump (water/water) or (brine/water) Type: WP Max-HiQ pF10 and WP Max-LoQ pF10
Year of manufacture:	See type plate
Country of origin:	Germany

2.2 INTENDED USE

The WP Max-HiQ/LoQ pF10 appliance uses heat from various sources to provide direct heating support and hot water preparation. Any other or extended use of the appliance is considered improper and therefore inappropriate. In this case, the safety and protective functions of the appliance may be impaired. ratiotherm GmbH & Co. KG is not liable for any damage resulting from this. Intended use also includes:

- observing all instructions in this operating manual,
- observing all warnings and
- compliance with the inspection and maintenance conditions.

The WP Max-HiQ/LoQ pF10 device is state-of-the-art and has been constructed in accordance with recognised safety regulations. The device is intended exclusively for domestic and/or commercial use for hot water preparation (service water) and for heat and cold generation.

Improper or unintended use may result in danger to the life and limb of the user or third parties. In addition, damage to the device and other property may occur. The device is not intended for use by persons (including children) with limited physical, sensory or mental abilities, or by persons with insufficient experience and/or knowledge. The risk is borne solely by the operator and user.

2.3 TARGET GROUPS

For safety reasons, the design of the device does not permit its use by persons with disabilities (e.g. visual impairments).

DANGER Only perform tasks for which you are authorised.

2.3.1 TARGET GROUP MATRIX

Tasks	Operators and users	Specialist personnel
Transport/storage		X
Assembly/installation		X
Commissioning/adjustment		X
Automatic operation (control)	X	X
Set-up/conversion/technical modification		X
Maintenance/inspections/repairs		X
Cleaning	X	X
Troubleshooting/fault rectification		X
Decommissioning/dismantling/disposal		X

2.3.2 TARGET GROUP DEFINITION

Operators and users

A person who has purchased the device for use in an existing system for direct heating support and hot water preparation. The person must have knowledge of the necessary protective devices and protective measures.

Qualification of operators and users:

- Of legal age and physically/mentally capable of working on the device
- Knowledge of how to operate the product provided by qualified personnel and th

Qualified personnel

A person employed by a qualified specialist company for heating systems and hot water preparation. The specialist personnel must have acquired special knowledge and experience through professional training. The person must have knowledge of relevant standards, be able to assess the tasks assigned to them (e.g. instruction of personnel, switching on, programmes and switching off) and be able to identify potential hazardous situations.

Qualification of specialist personnel:

- Of legal age and physically/mentally capable of working on the device
- Knowledge and several years of experience in working on heating and hot water systems

2.4 MISUSE

2.4.1 LY FORESEEABLE MISUSE

Reasonably foreseeable misuse that poses a risk to personnel, third parties or the device includes the following for all operating modes:

- Use of the device contrary to its intended purpose
- Feeding in components that are not certified by the manufacturer
- Operating the device outside its physical operating limits
- Modifying the control software without prior consultation with ratiotherm GmbH & Co. KG
- Modi f i c a t i o n s to the device as well as additions and conversions without prior consultation with ratiotherm GmbH & Co. KG
- Operating the device contrary to the provisions of the risk assessment
- Bypassing or decommissioning protective and safety devices
- Operating the device with obvious faults
- Operation of the device by persons with limited physical, sensory or mental abilities or by children

DANGER

Unauthorised modifications to the device

Unauthorised modifications pose a risk of death or injury.

Do not make any unauthorised modifications to the device without the prior consent of ratiotherm GmbH & Co. KG.

2.4.2 UNFORESEEABLE MISUSE/ABUSE

Unforeseeable misuse may occur due to:

- disasters,
- the impact of foreign objects and/or
- force majeure.

2.5 WARRANTY, LIABILITY, GUIDELINES, STANDARDS AND LAWS

The "General Terms and Conditions of Sale and Delivery" of ratiotherm GmbH & Co. KG apply in principle. The "General Terms and Conditions of Sale and Delivery" have been available to the operator since the conclusion of the contract at the latest. Warranty and liability claims for personal injury and property damage are excluded if the damage is attributable to one or more of the following causes:

- Improper use of the device
- Improper handling of the device
- Operation of the device with defective protective devices
- Failure to observe the safety and warning instructions in the operating manual
- Unauthorised structural modifications to the device
- Failure to carry out the specified maintenance measures
- Disasters involving foreign objects or force majeure

The operating instructions must be read before using the device. The operating instructions familiarise personnel with the handling of the device and provide information on all phases of the device's life cycle.
The operating instructions must be accessible to personnel at all times. The safety and warning instructions in the operating instructions and on the device must be observed and complied with. If you have any further questions that go beyond the scope of these operating instructions, please contact ratiotherm GmbH & Co. KG.

The following guidelines, standards and laws must be observed when using the device in Germany:

- VDE and EVU regulations and provisions (in particular VDE 0100)
- Regulations and provisions of local utility companies
- DVGW worksheet W 382 "Installation and operation of pressure reducers in drinking water consumption systems"
- DIN 1988 – TRWI Technical rules for drinking water installations
- DIN 4753 – Water heating systems for drinking and service water
- DIN 8947 – Ready-to-connect heat pumps for water heating with electrically driven compressors
- Accident prevention regulations VGB 20 Accident prevention regulations "Refrigeration systems" with implementation instructions
- Energy Saving Ordinance EnEV – Ordinance on energy-saving thermal insulation and energy-saving plant technology in buildings from 2009

NOTE

Guidelines, standards and laws

Additional local guidelines, standards and laws, e.g. building regulations, may apply. As a general rule, the applicable legal guidelines, standards and laws in the respective country must be observed.

3. SAFETY INSTRUCTIONS

DANGER

Read and observe the operating instructions before you start working on and with the device.
Despite all precautions taken, there may still be some residual risks. You can reduce the existing residual risks by observing and complying with the general safety instructions and warnings as well as the intended use.

3.1 GENERAL SAFETY INSTRUCTIONS

Observe the following general safety instructions:

- The volume of water increases during the heating process. Therefore, never close the blow-off pipe of the safety valve.
- Please note that hot water may escape from the blow-off pipe.
- If there are leaks in the area of the appliance, switch off the appliance and shut off the connection to the rest of the heating system. The leaks must then be repaired immediately.
- To prevent corrosion on the device, do not use the following products: sprays, solvents, chlorine-based cleaning agents, paints, adhesives, etc.
- Components that have not been tested with the device may cause damage to the device or impair its functions. Only use original spare parts and original wear parts.
- Only allow qualified personnel to carry out the assembly/installation/commissioning/adjustment of the device.
- Observe the existing regulations, rules and guidelines as well as the local installation requirements.
- To avoid injuries of any kind, the general accident prevention regulations must be observed under all circumstances and appropriate personal protective equipment must be used.
- Technical modifications to the system are not permitted. This also applies to the retrofitting of safety devices and welding on load-bearing parts. Safety devices must not be deactivated. Only original spare parts and original accessories from the manufacturer may be used.

3.2 ADDITIONAL INFORMATION

Local accident prevention regulations apply to all work on the device. The following must also be observed:

- applicable binding regulations for accident prevention
- Recognised technical rules for safe and professional work
- existing environmental protection regulations
- other applicable regulations

The outlet temperature at the hot water taps can be up to 60 °C. Carefully check the water temperature at the hot water taps before placing your hands completely under the water jet.

Do not make any changes to the following components:

- Heat pump and pipes for water and electricity
- Safety valve
- Structural conditions that may affect the operational safety of the appliance
- Structural conditions in the vicinity of the appliance, insofar as these may affect the operational safety of the appliance

3.3 SAFETY INFORMATION REGARDING THE REFRIGERANT R290

WARNING

- This device operates with the environmentally friendly refrigerant R290 (propane, ODP of 0, GWP of 0.02), which is a flammable gas and must be serviced by an authorised person.
- Fire hazard/flammable material: In the event of a refrigerant leak or if you suspect one, switch off the appliance at the mains and contact your specialist company or ratiotherm customer service.
- Chemicals or flammable materials must not be stored or used near the device.

3.4 RESTRICTED RISK

WARNING

Measures/work carried out by unauthorised/unqualified personnel

Measures/work carried out on the device and/or its components and connections by unauthorised/unqualified personnel pose a serious risk of injury.

In the event of malfunctions, only allow qualified personnel to carry out measures/work on the device and/or its components and connections.

WARNING

Damaged insulation

Damaged insulation poses a serious risk of burns on hot and/or cold surfaces.

Protect yourself with suitable PPE (e.g. heat- and cold-resistant protective gloves). Allow hot or cold surfaces to cool down or warm up before working. Replace damaged insulation.

WARNING

Ignition sources in the danger zone

Ignition sources in the danger zone can cause flammable substances to ignite and/or explode.

Keep ignition sources away from the danger zone.

4. STRUCTURE AND FUNCTION

4.1 TECHNICAL DATA

	Max-HiQ pF10	Max-LoQ pF10	Unit
Performance data Heating mode			
	W10/W35	S0/W35	
Heating output	2.0 to 13.0	1.5 to 9.5	kW
Power consumption	0.3 to 2.3	0.3 to 2.4	kW
COP at rated power	5.69	4.22	
Space heating energy efficiency Low-temperature applications at average climate conditions	275.30	181.50	%
Performance data for cooling mode			
W15/W30			
Cooling capacity	2.0 to 16.0		kW
Power consumption			kW
EER at rated capacity	6.0 to 7.3 (provisional)		
Compressor			
Design	Fully hermetic, rotary piston, inverter		
Speed	940 to 5400		rpm
Max. operating current	16		A
Blocking current LRA	-		A
Oil quantity	0.84		litres
Evaporator			
Design	Copper-brazed plate heat exchanger		
Material	Stainless steel / Copper		
Volume flow	0.5 to 2.5		m^3/h
Test pressure	45		bar
Application	-196 to 200		°C
min./max. swelling temperature	-25 to 15		°C
Connection dimensions	1" AG, fd.		
Source pump	-		
Residual delivery head	-		H/m
Condenser			
Design	Copper-brazed plate heat exchanger		
Material	Stainless steel / copper		
Water flow rate	1 to 5.8		m^3/h
Pressure loss	max. 0.3		bar
Temperature difference	5 to 10		K
Test pressure	45		bar
Application	-196 to 200		°C
min./max. lowering temperature	25 to 68		°C
Connection dimensions	1" AG, fd.		
Condenser pump	Wilo Para STG 130/8-75		

Residual delivery head	4	H/m
Min. buffer volume	120	litres
Refrigeration circuit		
Working fluid	R290	
Filling quantity	0.54	kg
Max. operating pressure	28	bar
Electrical compressor		
Mains connection	230 V / 1~ / 50 Hz	
Fuse	B16	A
Fault current circuit breaker	Type B, 10 ms short-time delayed, 300 mA	
Max. operating current compressor	16	A
Max. power consumption Compressor	3.0	kW
Electrical control voltage		
Mains connection	230 V / 1~ / 50 Hz	
Fuse	B10	A
Fault current circuit breaker	Type A, 30 mA	
Max. power consumption	0.3	kW
Device data		
Sound pressure level at a distance of 5 m	35	dB(A)
Sound power level	48	dB(A)
Dimensions	400 x 1510 x 615	W x H x D (mm)
Weight	170	kg
Max. operating pressure water	3	bar
Max. VL temperature	68	°C

4.2 FUNCTION DESCRIPTION

The WP Max-HiQ pF10 and WP Max-LoQ pF10 heat pumps offer maximum efficiency in an extremely compact design. The units are designed as water/water or brine/water systems and use the natural and environmentally friendly refrigerant propane (R290). The WP Max-LoQ pF10 low-temperature heat pump allows source temperatures of -25 to +30 degrees Celsius to be used, while the WP Max-HiQ pF10 is a high-temperature heat pump and is suitable for widely varying source temperatures in the range from +10 to +55 degrees Celsius. Thanks to several patented processes, the heat pumps are always able to achieve the optimum operating point and maximum operational reliability despite changing source temperatures. This makes the devices suitable for a wide variety of sources such as geothermal probes, waste heat, groundwater or PVT (photovoltaic thermal). Thanks to speed control, they cover a wide range of outputs and can therefore be adapted to different loads or source outputs. This also makes them ideal for use with fluctuating energy quantities and enables intelligent load control across all energy ranges.

ADVANTAGES

- Use of highly fluctuating sources possible
- Maximum flexibility thanks to speed-controlled inverter operation
- Flow temperatures up to 68 °C possible
- Integrated energy management (smart grid-compatible)
- Refrigeration circuit ready for operation ex works, no refrigeration licence required
- With ratiotherm components, a completely coordinated and future-proof system

4.3 STRUCTURE AND SPARE PARTS

The ratiotherm WP Max-HiQ/LoQ pF10 heat pump has a complete refrigeration circuit and can be powered by a wide variety of energy sources. The refrigeration circuit is a hermetically sealed circuit located in its own sound-insulated housing (plug & play replaceable). It consists of a rotary piston compressor, a condenser (plate heat exchanger), an evaporator (plate heat exchanger) and an electronic expansion valve, which controls the flow of refrigerant. The natural refrigerant R290 is used as the working medium. The ratiotherm heat pump is shipped with a factory-ready refrigeration circuit and is ready for operation. The machine is controlled by the UVR 610 controller from Technische Alternativen. All parameters and operating states are shown on its display. The heat pump can be operated in combination with most electric, gas or oil boilers. A source pump is not included in the device, but can be ordered as an external pump. Furthermore, the heat pump can be ordered as an AllQ version, which extends the source temperature range. Optionally, active cooling can also be integrated into the device or an electric heating element can be added.

electric heating
rod
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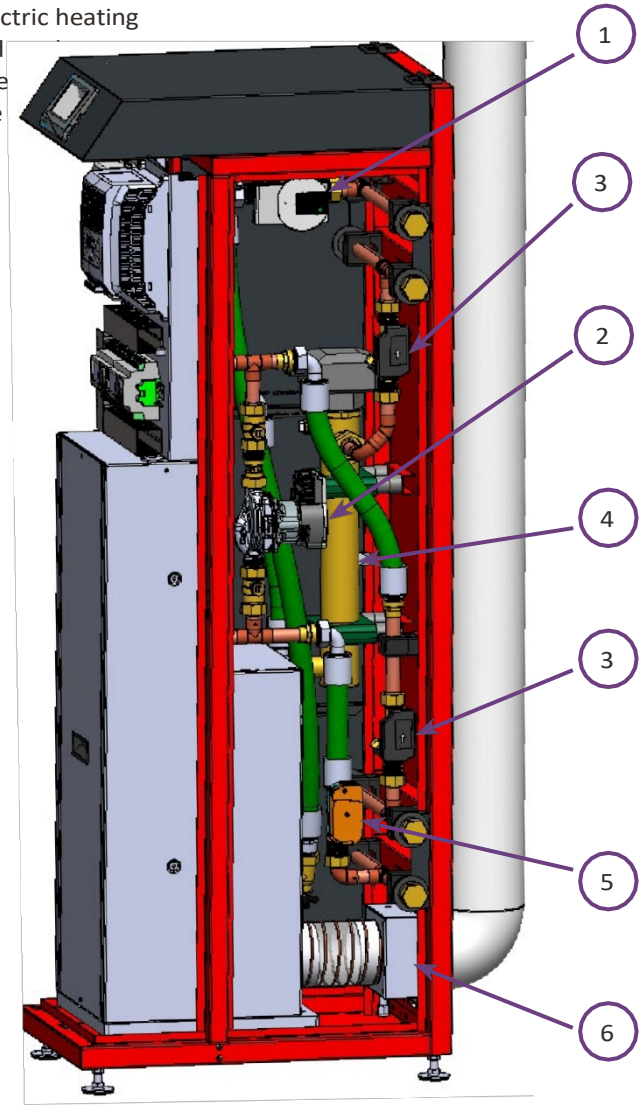
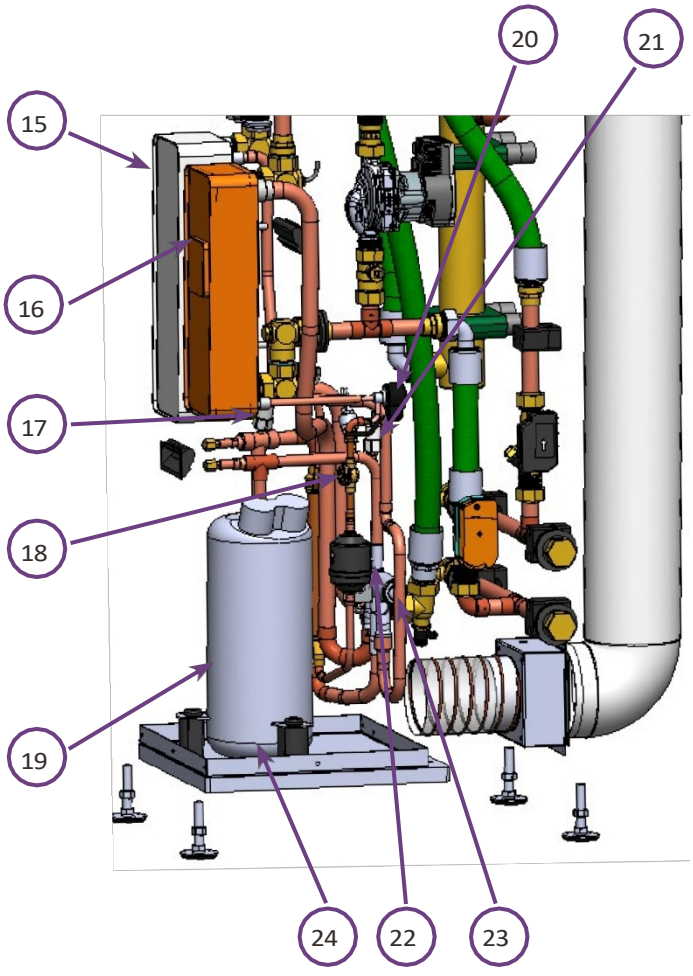
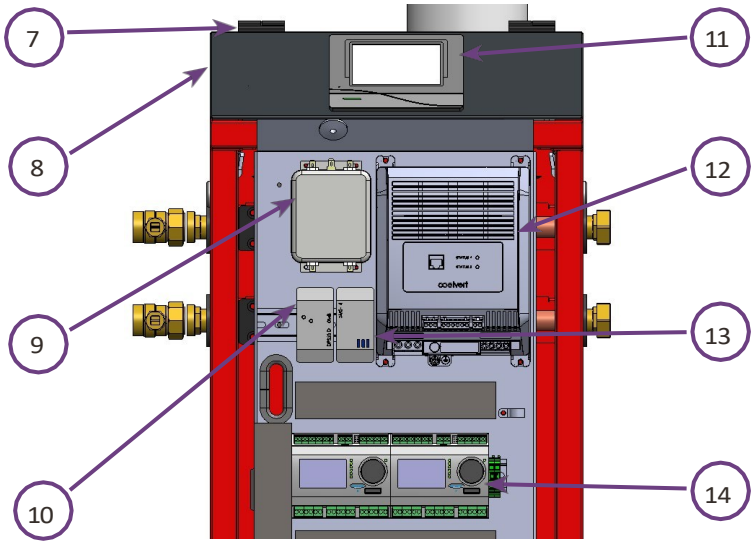
the





Housing colours

RAL 7016 Anthracite grey	RAL 3000 Fire red



Item number	Name	Item number	Quantity
1	Capacitor pump	ra/13309	1
2	Bypass pump (opt.)	ra/13309	1
3	Volume flow sensor	ra/12059	2
4	E-rod (opt.)	ra/14425	1
5	2-way zone valve (opt.)	ra/14334	1
6	Fan	ra/15040	1
7	CAN EZ3 energy meter	ra/14445	1
8	Main switch	ra/14466	1
9	Mains filter	ra/14617	1
10	Differential pressure sensor	ra/14900	1
11	UVR 16x2	ra/95.10.3212	1
12	Inverter	ra/14542	1
13	Stepper motor control	ra/13047	1
14	UVR 610S	ra/14658	1
15	Capacitor (WÜ)	ra/11122	1
16	Evaporator (WÜ)	ra/11944	1
17	Low pressure sensor (10 bar)	ra/14383	1
18	Sight glass	ra/12556	1
19	Compressor	ra/14418	1
20	Ex-valve	ra/13290	1
21	High-pressure sensor (35 bar)	ra/10922	1
22	Filter dryer	ra/14689	1
23	4-way reversing valve (opt.)	ra/12278	1
	Heating tape	ra/14561	1
	Axial fan	ra/14481	2
	Non-return valve	ra/11745	1
	Pipe contact sensor	ra/12007	1
	Pipe contact sensor	ra/12859	3
	Cable temperature sensor	ra/13612	4
	Flow sensor	ra/12059	2
	Safety group (see Chapter 4.5, Number 3)		1

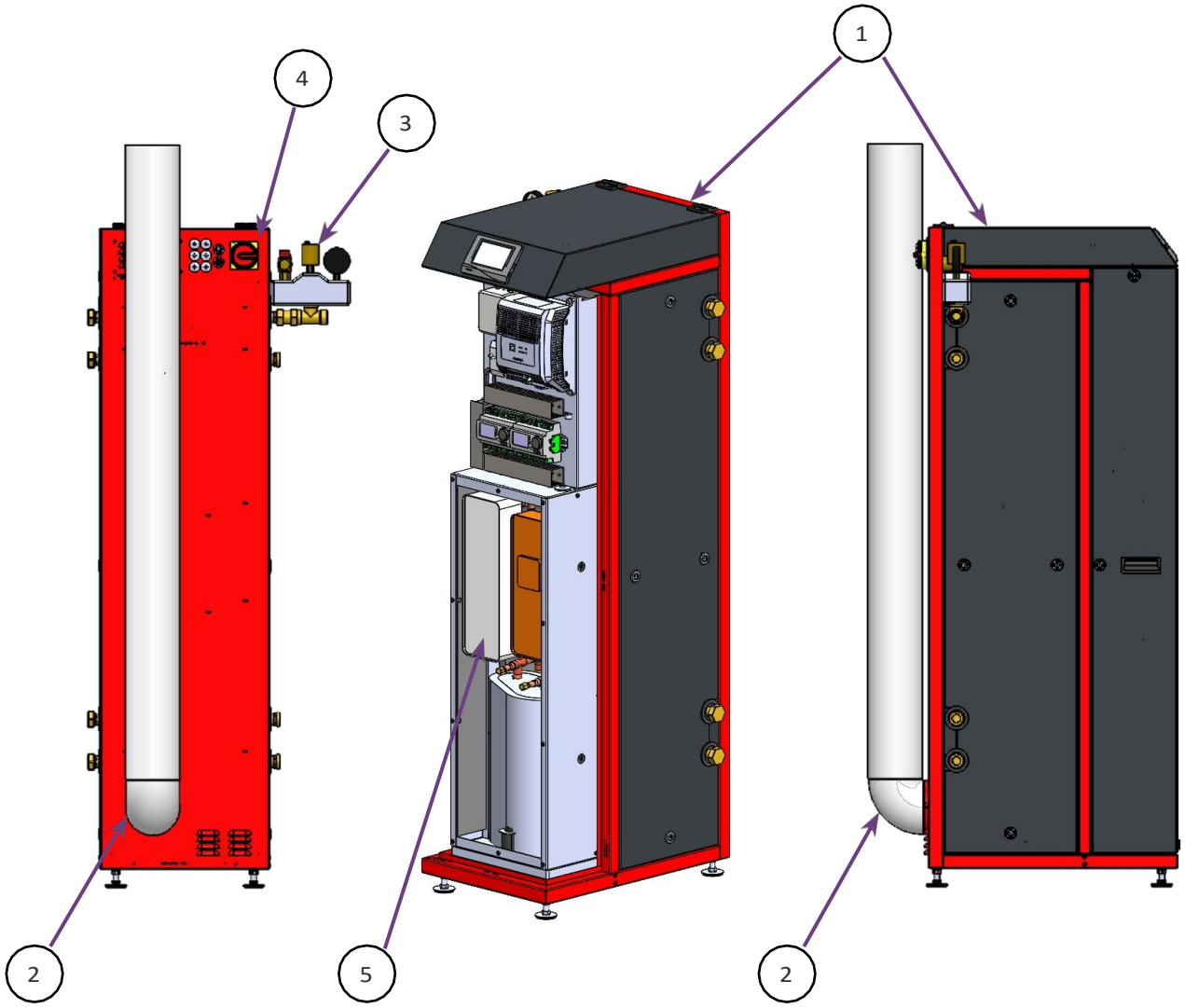
4.4 CONTROL LOGIC AND CONTROL

Control logic:

- The heat pump is activated via a potential-free digital signal. This activates the pumps and valves. After 45 seconds, the compressor starts up. From model year 20/45 onwards, the heat pump is also activated when a 0–10 V signal is applied to X3.2. This gives the user the choice of whether to activate the system digitally or via 0–10 V .
- When the system is activated, the minimum running time is 5 minutes. An error immediately switches off the system.
- The target speed of the compressor or the target outlet temperature (adjustable via a fixed value) can be specified by an external control system using a 0–10 V signal.
- If there is no 0–10 V signal, the compressor runs at a constant, adjustable speed (factory setting: 75%).
- If a 0–10 V signal lower than 1.9 V is present, the heat pump is started in cooling mode. If available, the 4-way valve is switched and the compressor speed is regulated to the target cooling temperature.
- The compressor speed is limited during the start-up phase, which is why full speed is only reached after 4 x 1.5 minutes.
- If the source temperature inside the evaporator is below an adjustable value (standard: 11 °C) for longer than one minute, the system is switched off for frost protection reasons. If the evaporator temperature is above 55 °C, start-up is also prevented. Once the temperatures return to normal, the machine starts up as usual.
- If the source temperature drops below 8 °C for water/water or an adjustable value for brine/water, a frost protection fault is triggered and the system is blocked for 7 minutes or, if this occurs repeatedly, locked.
- The condenser pump regulates the deltaT between the heating flow and return (factory setting 6 K).
- If the heating flow temperature rises above 66 °C, the pump begins to increase its speed to prevent it from switching off.
- If the heating flow temperature exceeds 69 °C, the system automatically switches off for 20 minutes. If the temperature drops during this time, the system restarts after the 20-minute waiting period.
- The evaporator pump regulates the deltaT between the source inlet and outlet (factory setting 3 K).
- If an anomaly is detected (HD, ND, antifreeze), an error is triggered and the system is blocked for 5 or 7 minutes. This cannot be acknowledged with the reset button! If the same error occurs three times within an hour, the system is locked. This can be cancelled using the reset button.
- To prevent anomalies, high pressure, low pressure and compressor temperature are monitored and, if necessary, the speed is reduced for at least 8 minutes.

4.5 SAFETY DEVICES

The device is equipped with various safety devices. The safety devices are shown in the following illustration:



1	Protective enclosure or housing	**3**	Pressure relief device for hydraulic circuit: Safety valve and blow-off line
2	Exhaust air pipe with fan and differential pressure sensor	**4**	Main safety switch
5	Safety heat exchanger on the sink side	**-**	Pressure switch for refrigeration circuit
-	Temperature monitoring of the compressor	**-**	Primary side flow monitoring

5. TRANSPORT, ASSEMBLY AND INSTALLATION

5.1 TRANSPORT AND UNPACKING

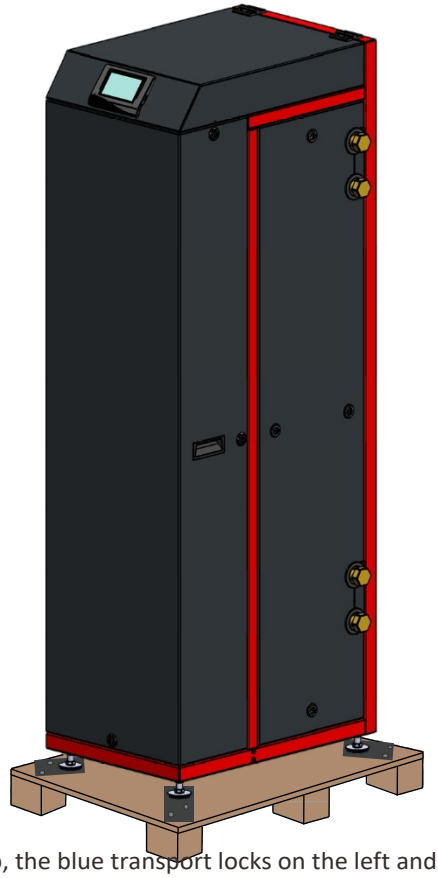
The following instructions for transporting the device must be observed:

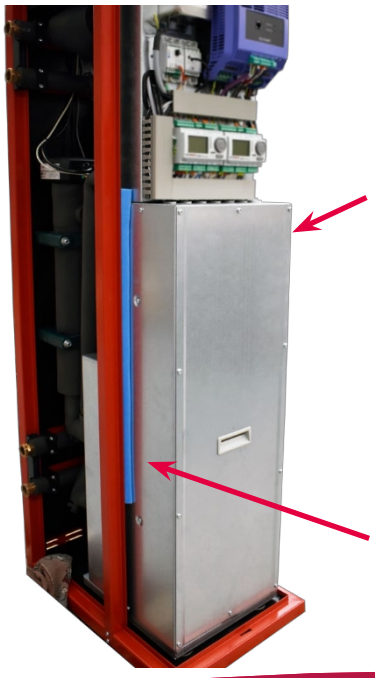
- Only allow qualified personnel to carry out the transport.
- Protect yourself with PPE (e.g. safety shoes, etc.).
- Take the weight of the device (approx. 170 kg) into account when selecting the appropriate lifting equipment (forklift, pallet truck, sack truck, etc.).
- Take the centre of gravity of the device into account.
- Remove all packaging materials.

NOTE Do not damage the device when removing the packaging materials.

- When disposing of the transport and storage packaging, comply with local disposal regulations and applicable environmental protection laws.
- When unpacking the device, check that the delivery is complete.
- Use the delivery notes and packing lists provided to check the contents.

The heat pump is secured to a pallet with 4 anchor plates and 8 screws upon delivery. The screws must be loosened and the anchor plates removed before the heat pump can be lifted off the pallet. A sack truck with stair function is recommended for transporting the heat pump to the basement. The device may be tilted for a short time if necessary to move the heat pump to its installation location. To do this, the front of the device must face upwards and the tilt angle must not exceed 45°. After tilting a heat pump, the device must be left to stand for 6 hours before it can be operated. Otherwise, the device must be stored upright and delivered upright by a shipping company.





Before starting up the heat pump, the blue transport locks on the left and right of the refrigeration circuit must be removed.

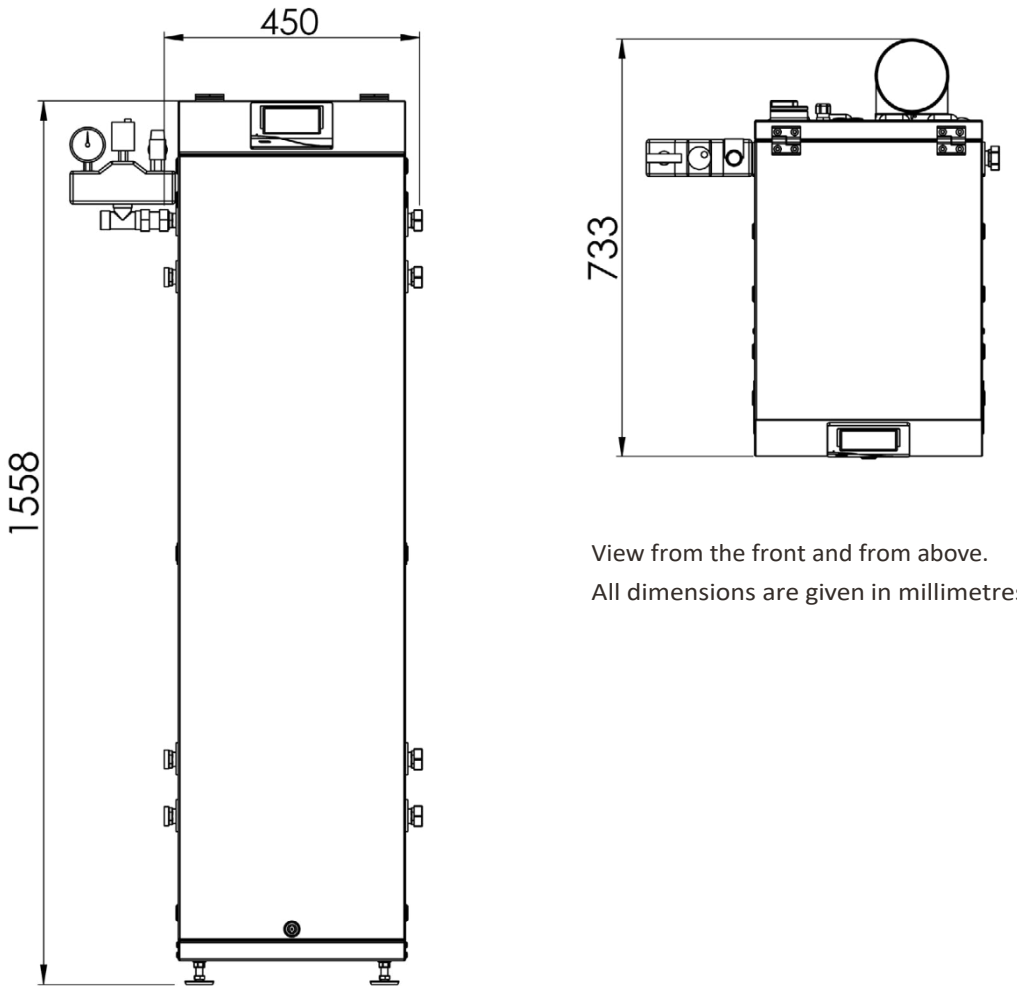
5.2 MECHANICAL INSTALLATION

Storage conditions:

- Ensure that the unit is stored in a frost-free environment.

Installation conditions:

- A floor drain must be provided to protect against water damage.
- The ratiotherm WP Max-HiQ/LoQ pF10 heat pump must be installed in a clean, ventilated and dry location. The ambient temperature must be permanently > 10 °C and < 35 °C.
- The minimum distances must be observed for maintenance reasons.
- In installation rooms with sound-reflecting walls, the operating noise can be significantly amplified. Acoustic insulation on the affected surfaces can remedy this.
- To prevent vibration transmission, we recommend installing the device on raw concrete. If this is not possible, the screed should be removed at the installation site and a concrete base should be created on the raw concrete. If this is also not possible, we recommend using a sound-insulated base.
- After installation, the device must be aligned in a horizontal position (the levelling feet are adjustable).

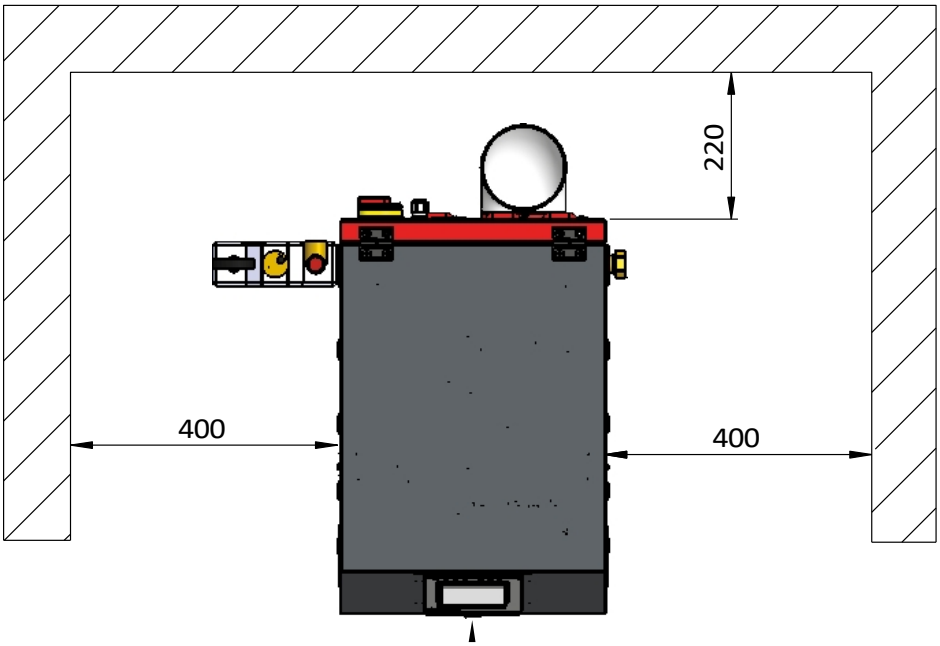


View from the front and from above.
All dimensions are given in millimetres.

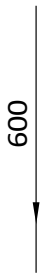
The responsible specialist tradesman (qualified personnel) must ensure the following measures are taken:

- Illuminate the danger zone for assembly and installation with additional lighting units if necessary.
- The personnel have the necessary qualifications and receive the necessary training.
- The personnel have read and understood the operating instructions.
- The operating instructions are available to personnel at all times.
- Local accident prevention and environmental regulations are implemented and complied with.
- The personnel are instructed by the responsible supervisor and unauthorised persons are kept away from the device.
- The device is only handed over and operated in a safe and functional condition, and damage to the heat pump is repaired immediately or the damaged heat pump is shut down immediately.

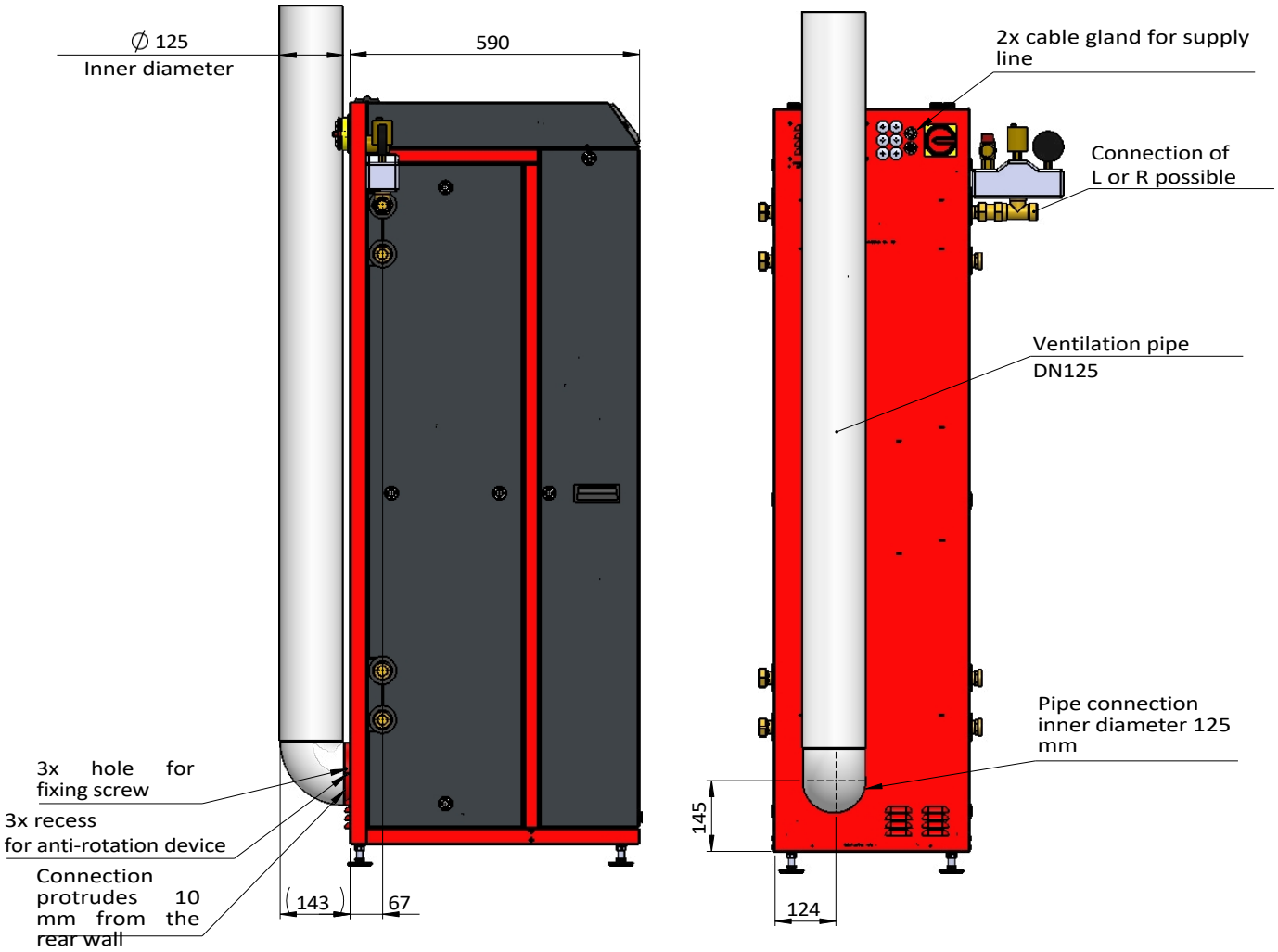
5.2.1 MAINTENANCE AREA



All dimensions are given in millimetres.



5.2.2 INSTALLATION OF THE EXHAUST PIPE

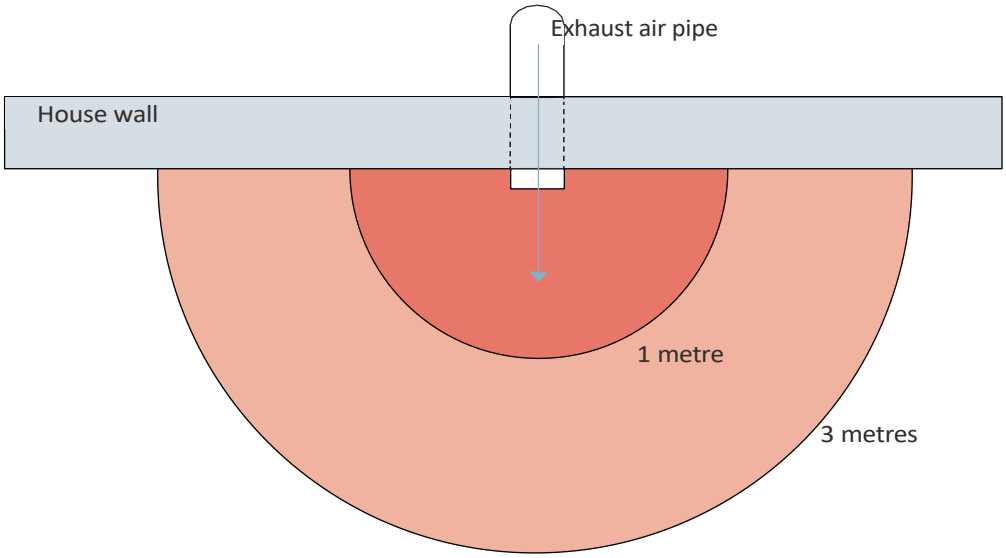


All dimensions are given in millimetres.

- Designed for the 125 round pipe system from Upmann, available from Weinmann and Schanz, among others. Spiral ducts from other manufacturers can also be used. A maximum of 3 elbows and 6 metres of straight pipe may be used. A telescopic duct fan can be installed as the end piece.

Protective area of the housing ventilation

For safety reasons, the WP Max-HiQ/LoQ pF10 heat pump requires an exhaust pipe to the outside. A hemispherical protection area must be maintained at all times around the pipe outlet.

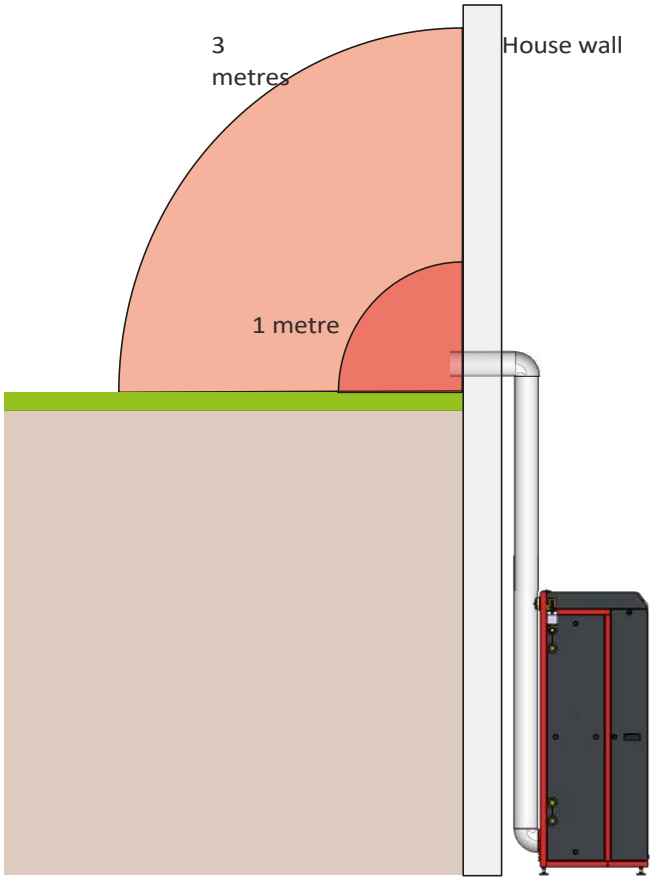


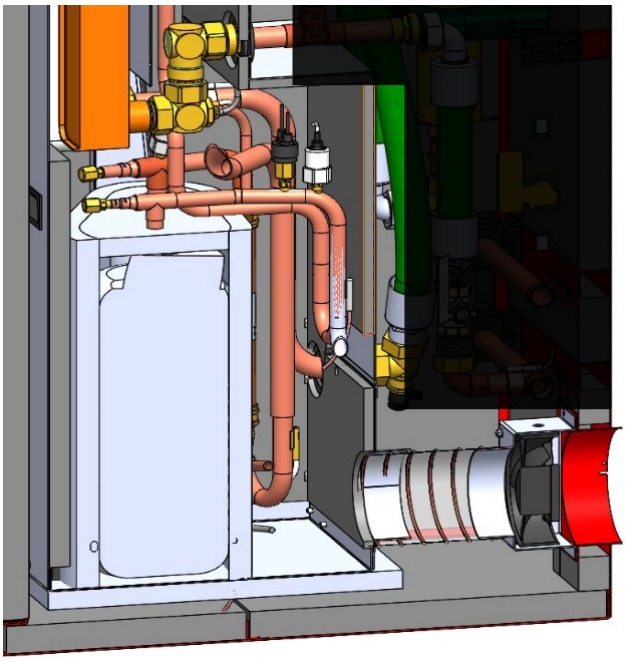
A safety distance of at least 3 metres must be maintained for:

- Open flames or sources of sparks (fires, ashtrays, barbecues)

A safety distance of at least 1 metre must be maintained from:

- Building openings, windows, doors, light wells, flat roof windows
- Openings in ventilation systems
- Recesses such as light wells, sewer shafts
- Recreation areas, terraces
- Electrical installations, sockets, lamps, light switches, electrical house connections
- Walkways and driveways

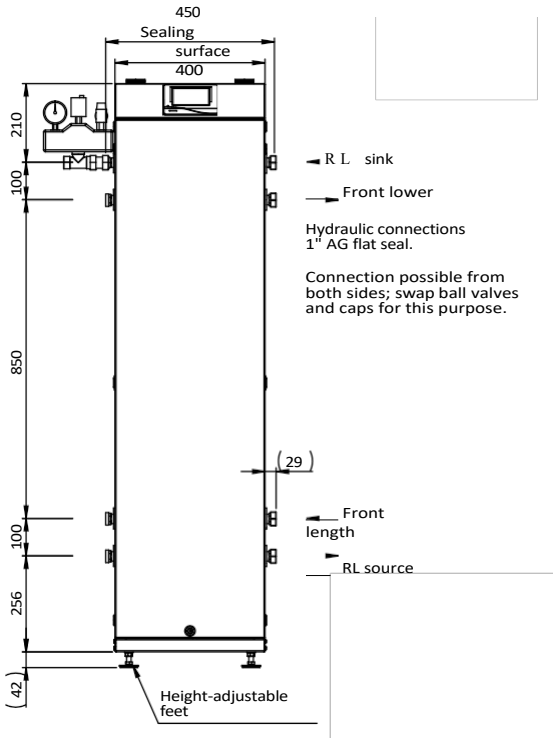




The extraction system inside the device consists of a pipe section connected to the otherwise hermetically sealed part of the heat pump, which contains the refrigeration circuit. The pipe section contains an axial fan, which periodically generates a slight negative pressure in the unit, and a differential pressure sensor for monitoring. If a leak occurs and refrigerant escapes, it is transported into the exhaust pipe and outside by the negative pressure in the heat pump. The negative pressure in the unit can also be generated when the heat pump is switched off.

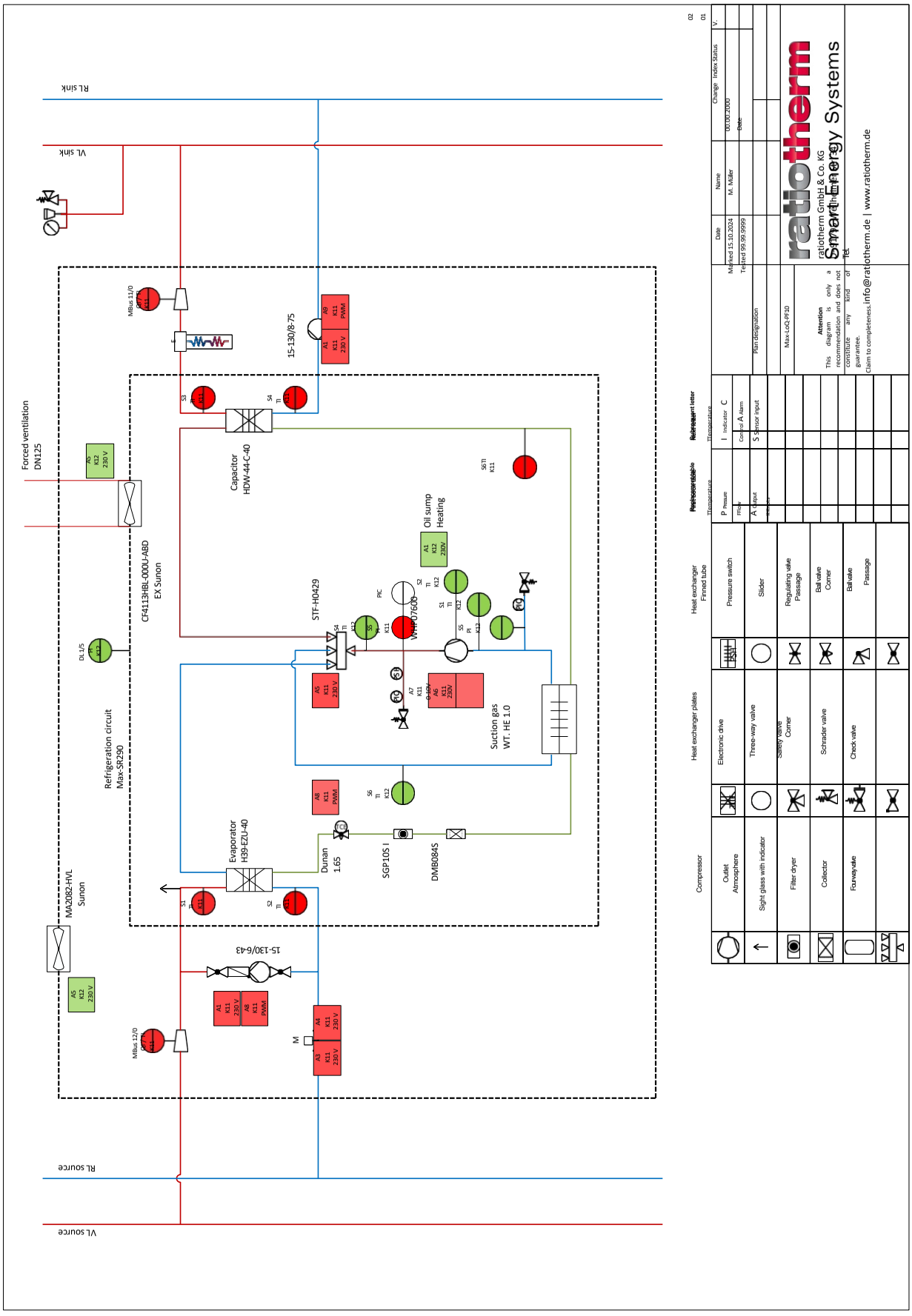
5.3 HYDRAULIC INSTALLATION

5.3.1 CONNECTION DIMENSIONS AND DIMENSIONS



- A reciprocal connection is possible as desired.
- Barriers and vents must be provided on site.
- Sludge separators and magnetite separators must also be provided on site.
- A vibration-decoupled connection via hoses must be installed. Recommendation: Cornerstone TWS 25
- The condenser/sink pump is integrated into the device. The source pump is not integrated into the device.
- Please fill the system via the return flow.
- Drain taps are installed in the system.
- When tightening, please hold the connections in place!

5.3.2 HYDRAULIC DIAGRAM WITH COOLING CIRCUIT



5.3.3 REQUIREMENTS FOR GROUNDWATER

Parameters	Unit	Concentration	Copper soldered	Stainless steel	Screwed
pH value	/	< 6.0	-	∘	∘
		6.0 - 7.5	∘	+	+
		7.5 - 8.5	+	+	+
		8.5 - 10.0	∘	+	+
		> 10	∘	+	+
Conductivity	µS/cm	< 10	+	+	+
		10 - 500	+	+	+
		500 - 1,000	∘	+	+
		> 1,000	-	+	+
Chloride	mg/L	< 10	+	+	+
		10 - 50	+	+	+
		50 - 80	+	+	+
		80 - 100	+	+	∘
		100 - 1,000	∘	∘	-
		> 1,000	-	∘	-
Free chlorine	mg/L	< 0.5	+	+	+
		0.5 - 1.0	+	+	∘
		1.0 - 5.0	∘	∘	-
		> 5.0	-	-	-
Total hardness	°dH	< 5	+	+	+
		5 - 15	+	+	+
		15 - 30	∘	+	+
		> 30	-	+	+
Ammonia (NH_3 , NH^+_4)	mg/L	< 2	+	+	+
		2 - 20	∘	+	+
		> 20	-	+	+
Alkalinity (HCO_3)	mg/L	< 60	+	+	+
		60 - 300	+	+	+
		> 300	∘	+	+
Sulphate (SO_4^{2-})	mg/L	< 100	+	+	+
		100 - 300	∘/-	+	+
		> 300	-	+	+
HCO_3 / SO_4^{2-}	mg/L	> 1.5	+	+	+
		< 1.5	∘/-	+	+
Nitrates (NO_3)	mg/L	<100	+	+	+
		> 100	∘	+	+
Hydrogen sulphide (H_2S)	mg/L	< 0.05	+	+	+
		> 0.05	∘/-	+	+
Free carbon dioxide (CO_2)	mg/L	< 5	+	+	+
		5- 20	∘	+	+
		> 20	-	+	+
Manganese	mg/L	< 0.1	+	+	+
		> 0.1	∘	+	+
Iron (Fe)	mg/L	< 0.2	+	+	+
		> 0.2	∘	+	+
Aluminium	mg/L	< 0.2	+	+	+
		> 0.2	∘	+	+

Depending on the water quality of the well, the use of a safety heat exchanger is recommended. Based on the water quality found, the table can be used to decide whether and which safety heat exchanger should be used. If the properties are not optimal (°) for more than two criteria or if a criterion does not meet the minimum requirement (-), the respective type should not be used.

5.3.4 REQUIREMENTS FOR SYSTEM WATER

Parameter	Unit	Concentration	Copper
pH	/	< 6.0 6.0 - 7.5 7.5 - 8.5 8.5 - 10.0 > 10	- ◦ + ◦ ◦
Conductivity	µS/cm	< 10 10 - 500 500 - 1,000 > 1,000	+ + ◦ -
Chloride	mg/L	< 10 10 - 50 50 - 80 80 - 100 100 - 1,000 > 1,000	+ + + + ◦ -
Free chlorine	mg/L	< 0.5 0.5 - 1.0 1.0 - 5.0 > 5.0	+ + ◦ -
Total hardness	°dH	< 5 5 - 15 15 - 30 > 30	+ + ◦ -
Ammonia (NH_3 , NH_4^+)	mg/L	< 2 2 - 20 > 20	+ ◦ -
Alkalinity (HCO_3)	mg/L	< 60 60 - 300 > 300	+ + ◦
Sulphate (SO_4^{2-})	mg/L	< 100 100 - 300 > 300	+ ◦/- -
HCO_3 / SO_4^{2-}	mg/L	> 1.5 < 1.5	+ ◦/-
Nitrates (NO_3)	mg/L	< 100 > 100	+ ◦
Hydrogen sulphide (H_2S)	mg/L	< 0.05 > 0.05	+ ◦/-
Free carbon dioxide (CO_2)	mg/L	< 5 5 - 20 > 20	+ ◦ -
Manganese	mg/L	< 0.1 > 0.1	+ ◦
Iron (Fe)	mg/L	< 0.2 > 0.2	+ ◦
Aluminium	mg/L	< 0.2 > 0.2	+ ◦

NOTE

- The system water may contain a maximum of 50% glycol.
- Ensure that the device water meets all requirements. If the properties are not optimal (°) for more than two criteria or if one criterion does not meet the minimum requirement (-), no warranty claim can be made.

5.4 ELECTRICAL INSTALLATION

DANGER

- The power supply to the heater comes from the building distribution system and must be protected by a separate type B residual current device with a tripping current of 300 mA (RCD), 10 ms short-time delay and with the appropriate power rating. Recommendation: ABB F204B-40/0.3
- A separate RCD must be provided for each outdoor or indoor unit!
- The RCD must be marked separately for the heater, e.g. as "WP". Please ensure that the phase/neutral conductor is correctly assigned during wiring.
- The power supplies for the control system, the compressor and the heating element must go through the same RCD, but must be protected individually by circuit breakers (LS switches).
- Ensure that the rotating field is clockwise.
- The device must be earthed.
- Use cable cross-sections that are suitable for the power rating of the heater.
- The electrical installation must comply with the applicable standards and generally accepted rules of technology.
- Never work on the hydraulics or mechanics of the device while it is live.
- The same applies when filling or subsequently pressurising.
- Even if the main switch of the device is switched off, the cable terminal is still live.
- To completely disconnect the device from the mains, the RCD circuit breaker in the control cabinet must be switched off.
- Maintenance work may only be carried out by an authorised person.
- Never short-circuit the safety pressure limiter of the heat pump.

5.4.1 ELECTRICAL CONNECTION POWER

	Type	pF10
Control voltage	Fuse	B10A 1-pole
	Cable cross-section	3G 1.5 mm²
Compressor	Fuse	B16 1-pole
	Cable cross-section	3G 2.5 mm²
Heating element	Fuse	B16 1-pole
	Cable cross-section	3G 2.5 mm²

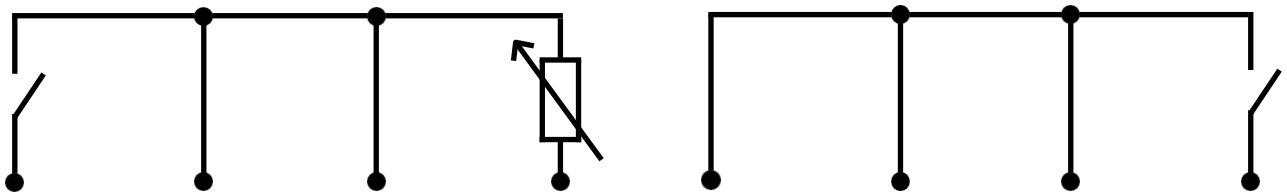
- All information, images and drawings are subject to change without notice.
- Attention! Installation and wiring may only be carried out by authorised specialist personnel.
- The generally applicable and recognised rules of technology and any local regulations must be observed.
- Values apply to installation in conduits up to 100 m in length.

5.4.2 TERMINAL DIAGRAM AND DESCRIPTION

- Terminal range X1 is intended for the compressor, control voltage and heating element. A 3-phase supply line can also be used, allowing the electric heating element and heat pump to be operated in parallel.
- X3.3 and X3.4 are used to process a signal from the network operator/energy supplier. X3.3 is backwards compatible with the EVU contact.
- Please wire the EVU contact as a normally open contact (closed when EVU lock is active).

X1								
L1	L1	L1	N	N	N	PE	PE	PE
Compressor	Heating element	Control	Compressor	Heating element	Control	Compressor	Heating element	Control
	Bridged, with separate supply line Remove bridge!			Bridged together, with separate supply line Remove the bridge!				
230 V mains supply cable								

X2					
1	N	PE	2	N	PE
230 V Fault output			230 V Source pump output		

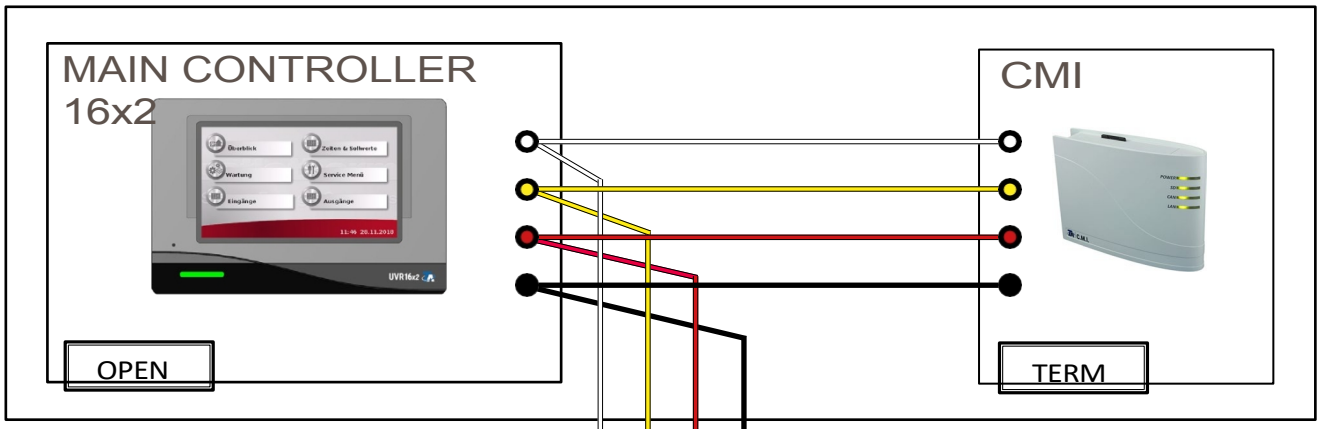


X3							
1	GND	GND	2	3	GND	GND	4
Request contact (potential-free)		Speed signal (0 - 10 V)		Smart Grid 1 / EVU		Smart grid 2	

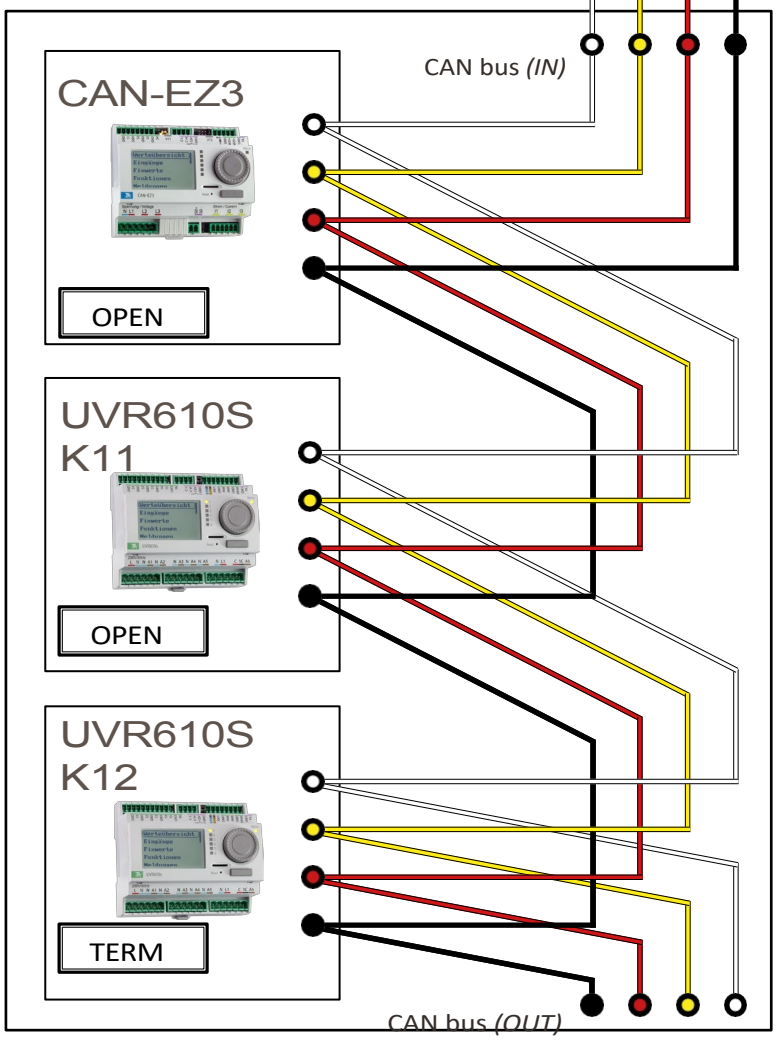
X3							
GND	12 V	CAN-H	CAN-L	GND	12 V	CAN-H	CAN-L
CAN bus *(IN)* (Connection to RT-GLT)				CAN bus *(OUT)* (Connection to RT-GLT)			

5.4.3 CAN BUS PLAN (STANDARD)

WALL CONTROLLER



HEAT PUMP



CAN-L CAN-H 12 V GND

NOTES

Ensure that the CAN bus is wired correctly. No star-shaped network!
Set up the network as a chain.

The total load of all devices must not exceed 6 watts.

The jumper for the termination must be set to TERM on the first and last CAN bus participants. Participants in between must be set to OPEN.

Use shielded, 4-pin cable!

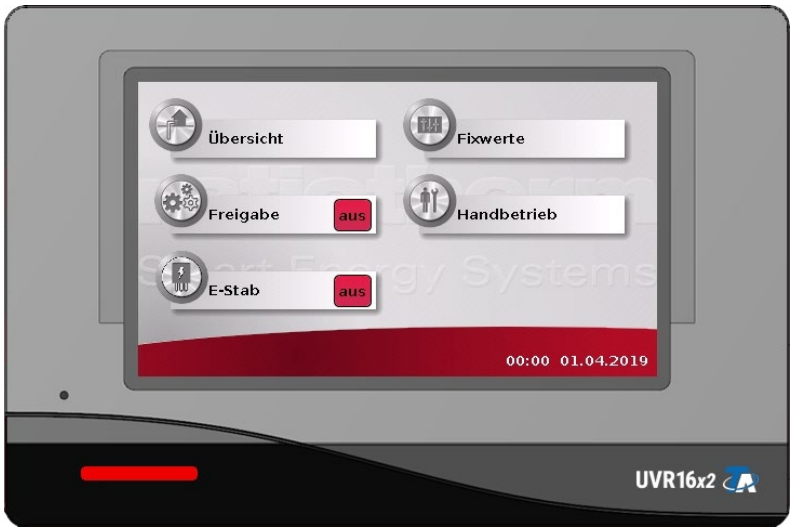
Follow the instructions for the technical alternative.

Non-binding cable recommendation:
Unitronic Bus CAN FD P 2x2x0.5

CAN bus terminal (OUT) if the heat pump is not the last participant. Schematic representation! In reality, the CAN bus (IN) and CAN bus (OUT) are located next to each other.

6. OPERATION

6.1 CONTROLLER OPERATION



- The rZR16x2 is operated via a 4.3" touch screen (= touch-sensitive screen).
- For easier handling, a stylus is provided, which is inserted above the control (under the cover).
- The stylus can be used to tap on control surfaces and scroll through the display view by sliding the scroll bar.
- Selecting one of the windows takes you to the corresponding submenu.

The indicator light can display different statuses:

- Red steady light - The controller is booting up (=start-up routine after switching on, a reset or update) or displaying a message that has not yet been deleted.
- Orange steady light - Hardware initialisation after booting.
- Green steady light - Normal operation of the controller.
- Green "flashing" - After hardware initialisation, the controller waits approx. 30 seconds to obtain all the information necessary for operation (sensor values, network inputs).

Control elements:

Previous page

Main menu

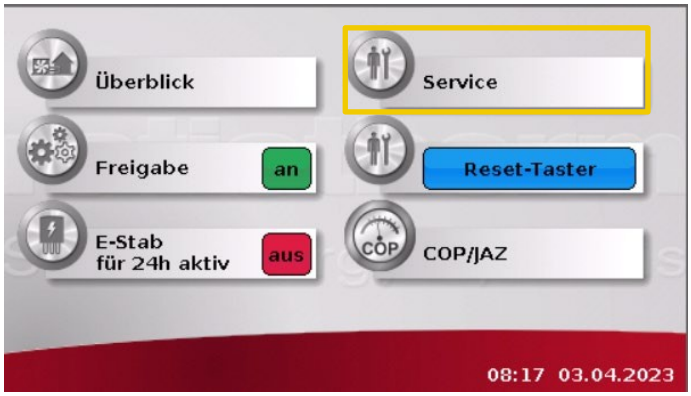
Next page

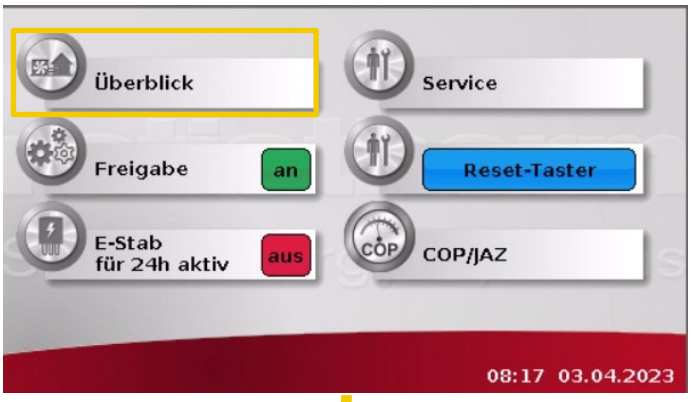
Main switch:

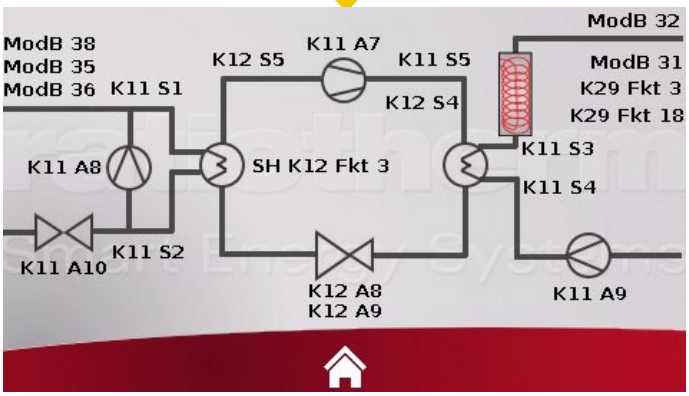
ON/OFF switch

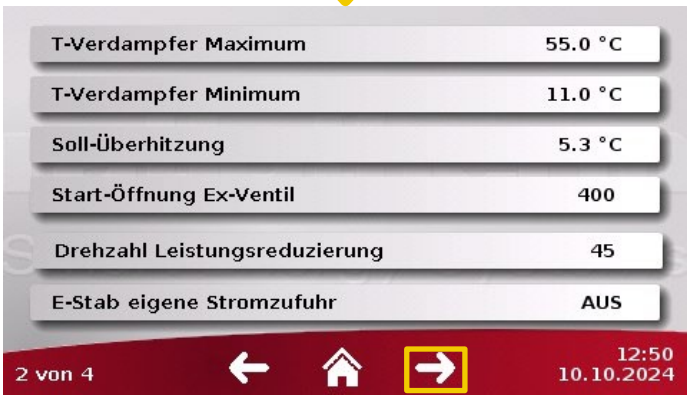
6.1.1 MENU STRUCTURE

Designation	Symbol		Description
On this surface Press			Yellow frame/ Red frame
Shows the path			Yellow arrow/ Red arrow
Shows the path on the next page on			Yellow line/red line










Durchflusskontrolle AUS
Grenze Hochdruck 24.30 bar
Grenze Niederdruck 0.20 bar
Grenze Frostschutz 8.0 °C
3 von 4
12:50
10.10.2024


Überblick
Service
Freigabe an
Reset-Taster
E-Stab für 24h aktiv aus
COP/JAZ
08:17 03.04.2023

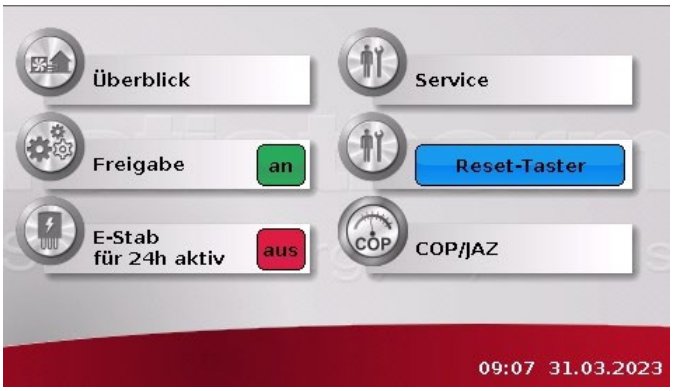

ND Notlauf 0.30 bar
HD Notlauf 23.10 bar
T-Verd.-Austritt Notlauf 110.0 °C
Zeit ND/HD-Fehler 05m 00s
Zeit Frostschutz-Fehler 07m 00s
Zeit bis Störung 01h 00m
4 von 4
12:51
10.10.2024


COP/JAZ - Heizbetrieb
Zähler-Historie
aktueller COP
aktuelle Jahresarbeitszahl
Jahresarbeitszahl Vorjahr
Jahresarbeitszahl Gesamt
Wärmemengenzähler
Stromzähler
1 von 3
12:52
10.10.2024

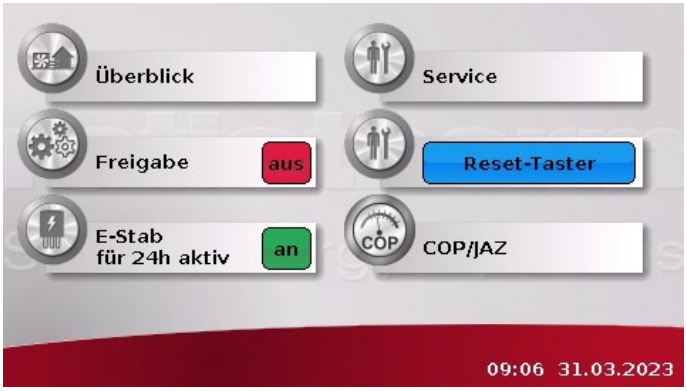

COP/JAZ - Warmwasser
Zähler-Historie
aktueller COP
aktuelle Jahresarbeitszahl
Jahresarbeitszahl Vorjahr
Jahresarbeitszahl Gesamt
Wärmemengenzähler
Stromzähler
2 von 3
12:53
10.10.2024


COP/JAZ - Kühlbetrieb
aktueller COP
aktuelle Jahresarbeitszahl
Jahresarbeitszahl Vorjahr
Jahresarbeitszahl Gesamt
Wärmemengenzähler
Stromzähler
3 von 3
12:54
10.10.2024

6.1.2 MENU DESCRIPTION

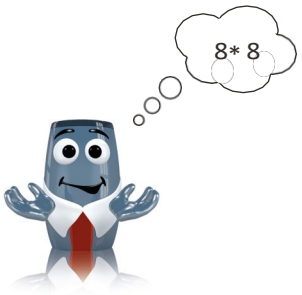


- Enable: ON
- Heat pump may start when required.



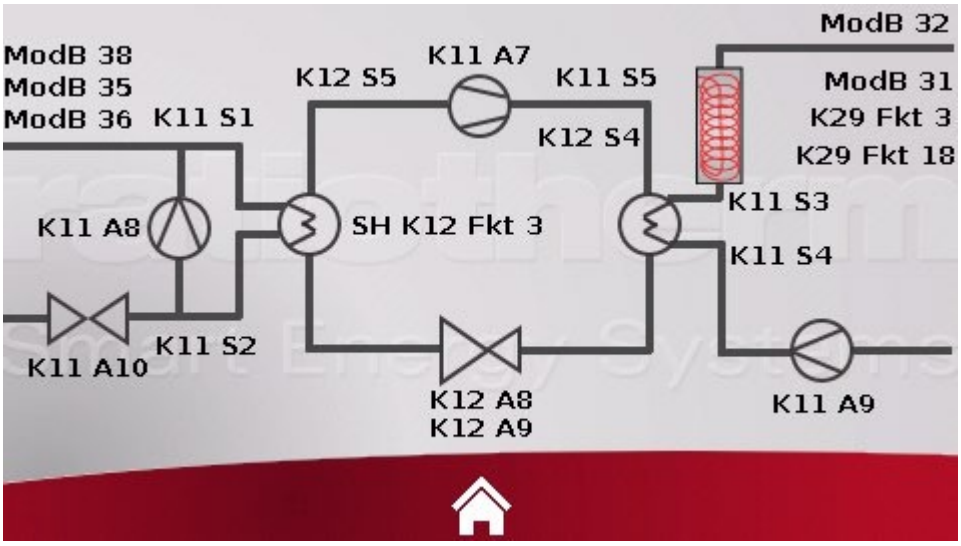
- Electric rod active for 24 hours: ON
- The E-rod can be switched on independently of the bivalence temperature.

- Enter password
- Enter the specialist password to access the specialist menu.

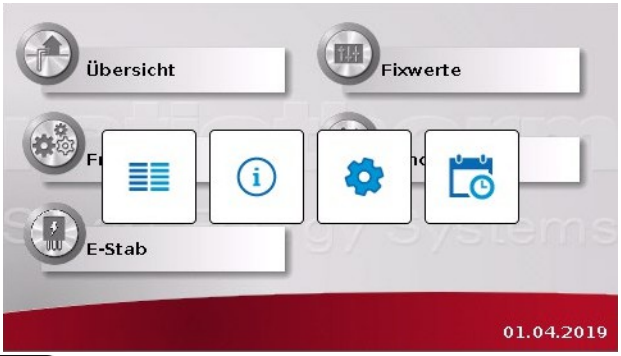


- Manual mode: OFF
- Start the heat pump only after a request signal.

- Manual mode: ON
- Forced start of the heat pump regardless of the request signal.

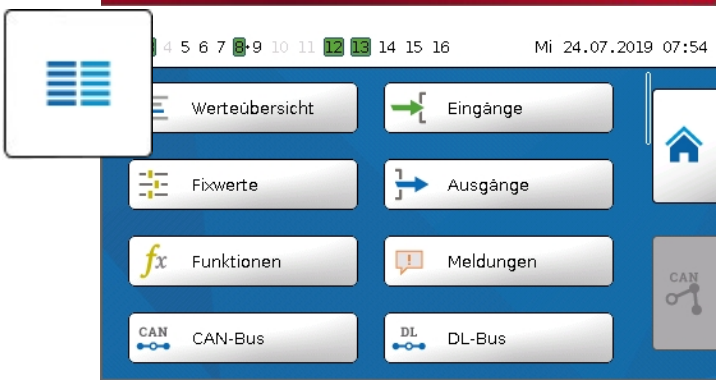


K11 S1	Temperature – evaporator Inlet	K12 S5	Low pressure
K11 S2	Temperature – evaporator Outlet	SH K12 Fkt 3	Actual superheat
K11 S3	Temperature - heat pump Flow	K12 A8	Ex valve PWM 1
K11 S4	Temperature - heat pump Return/reset	K12 A9	Ex valve PWM 2
K11 S5	High pressure	K29 Function 3	WMZ Heating mode
K11 A7	Compressor 0-10 V	K29 Fkt 18	WMZ Hot water mode
K11 A8	Evaporator pump PWM	ModB 31	Secondary flow
K11 A9	Condenser pump PWM	ModB 32	Temperature - heat pump Flow
K11 A10	District heating valve 0-10 V	ModB 35	Primary flow
K12 S4	Temperature – compressor outlet	ModB 36	Temperature – primary circuit Flow
		ModB 38	System pressure primary



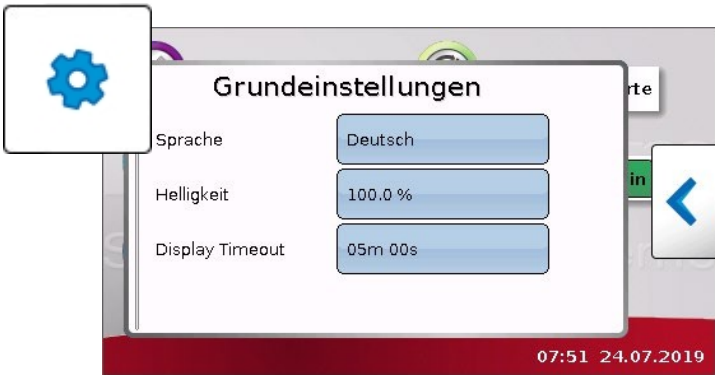
Intermediate menu

Press and hold the display for 5 seconds to access the intermediate menu, which allows you to configure basic settings or switch to the controller menu.



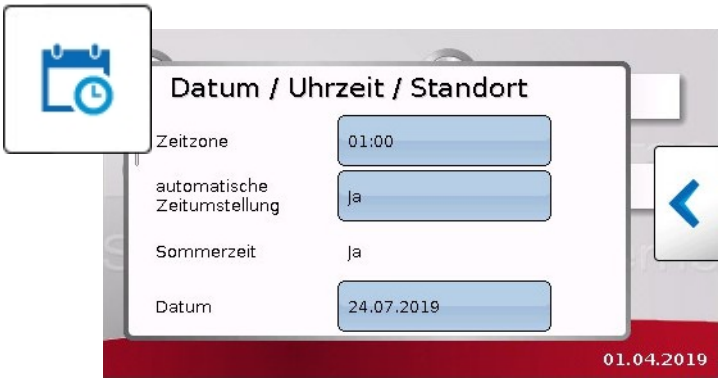
Controller menu

Link to the controller menu



Basic settings

Language, brightness and display timeout can be adjusted



Date/time/location

Time zone and date can be set

6.2 SETTINGS

Fixed values	Description	Setting options	preset Settings
User			
Target T-Diff Condenser	Target temperature difference at the condenser	1 °C to 10 °C	8 °C
Target speed Verdi. Fix	Target speed of the compressor when no external speed signal is present.	0% to 100	75
Target T-Diff evaporator	Setpoint temperature difference between evaporator inlet and outlet	1 °C to 8 °C	3.5 °C
T-set evaporator inlet temperature	Target evaporator inlet temperature (mixing injection circuit)	10 °C to 30 °C	30
0 - 10 V temperature setting	Setting for processing the 0 - 10 V signal: OFF: 0 - 10 V signal is evaluated as target speed 0 V = 0 % 10 V = 100% Use for power-to-heat: ON: 0 - 10 V signal is evaluated as target temperature 0 V = 0 °C 10 V = 100 °C	OFF/ON	OFF
Specialist			
T evaporator maximum	Maximum permissible evaporator temperature	35 °C to 70 °C	55
T-evaporator minimum	Minimum permissible evaporator temperature	8 °C to 20 °C	11 °C
Target superheat outdoor section	Setpoint superheat of the expansion valve in the during normal operation	0 °C to 10 °C	5.3 °C
Start opening of expansion valve unit	Start opening of the expansion valve in the outdoor	Levels 0 to 500	Step 280
Speed reduction	Compressor speed while power reduction is active.	Stages 0 to 100	Level 45
~~E-rod separate power supply~~	~~Enabling parallel operation of electric rod and~~ compressor. Only possible if the E-rod has its own power supply.	OFF / ON	OFF
Flow control rate falls below a	When ON, the heat pump is deactivated if the flow minimum flow rate.	OFF / ON	OFF
High pressure limit	Maximum pressure at which a high-pressure fault or HD fault is triggered.	20 bar to 26 bar	24 bar
Low pressure limit	Minimum pressure at which an LP error or LP fault is triggered.	0.8 bar to 5 bar	1 bar
Frost protection limit	Minimum temperature at which a frost protection error or a frost protection malfunction is triggered.	4 °C to 12 °C	8 °C
ND Emergency operation	Minimum pressure at which a temporary reduction in performance is triggered.	1 bar to 10 bar	1.5 bar
HD emergency mode	Maximum pressure at which a temporary reduction in performance is triggered.	15 bar to 25 bar	22 bar

Fixed values	Description	Setting options	preset Setting
Specialist			
T. distribution outlet Emergency operation	Maximum discharge temperature of the compressor, at which a temporary reduction in performance is triggered.	80 °C to 130 °C	110 °C
ND/HD error time	Time lock for restart if ND/HD error has occurred.	0 to 24 hours	5 min
Frost protection error time	Time lock for restart if frost protection error has occurred.	0 to 24 hours	7 min
Time until malfunction	If three faults occur within one hour, the machine switches off.	0 to 24 hours	60 min

7. MAINTENANCE

Regular inspection of the appliance by a recognised, qualified and ratiotherm-authorised specialist is essential to ensure long-term operational readiness, operational safety, reliability and a long service life. We recommend having maintenance carried out annually.

NOTE We recommend taking out a maintenance contract.

⚠ WARNING

Improper handling

Improper handling of the appliance can result in serious injury. Never attempt to carry out maintenance work and/or repairs on the appliance yourself.

For maintenance work, commission a recognised, qualified specialist tradesman (specialist personnel) authorised by ratiotherm GmbH & Co. KG.

7.1 TROUBLESHOOTING

7.1.1 HIGH PRESSURE

Error message	HD error	HD fault
Error description	High pressure protection of the refrigeration circuit has been triggered	
Behaviour of the heat pump	• System locked for 5 minutes • If 3 errors occur within 60 minutes, switch to HD fault	• Lock the system • Unlock by pressing the reset switch
Cause of error	• Lack of heat dissipation • Heat sink too hot	
Troubleshooting	• Check the sink temperature or target temperatures • Temperatures below max. water temperature according to type plate • Check heat dissipation to the medium (pump, heat exchanger) • Vent and check the heating pressure	

7.1.2 LOW PRESSURE

Error message	ND error	ND fault
Fault description	Low pressure protection of the refrigeration circuit has been triggered.	
Heat pump behaviour	• System locked for 5 minutes • If 3 faults occur within 60 minutes, switch to ND fault	• System lockout • Unlock by pressing the reset switch
Cause of error	• Heat absorption too cold • Insufficient refrigerant charge • Blockage of the refrigeration circuit	
Troubleshooting	• Check the sink temperature or target temperatures • Temperatures below max. water temperature according to type plate • Check the heat output to the medium (pump, heat exchanger) • Vent and check the heating pressure • Refrigeration check	

7.1.3 FAN

Error message	Fan malfunction
Fault description	Fan fault contact does not close.
Behaviour of the Heat pump	• Locking of the system • Unlock by pressing the reset button
Cause of fault	• No power supply • Blockage of the fan wheel • Other fan malfunction
Troubleshooting	• Check the power supply • Check that the fan wheel is free to move • Replace the fan

7.1.4 INVERTER

Error message	Inverter malfunction
Fault description	Inverter fault contact does not close.
Behaviour of the heat pump	• System lock • Unlocking by pressing the reset switch
Cause of error	• No power supply • Other inverter malfunction
Troubleshooting	• Check the power supply (right-hand rotating field, phase failure) • Check the error code (see appendix)

7.1.5 HOT GAS

Error message	Hot gas
Error description	Compressor outlet temperature is too high for 20 minutes.
Behaviour of the heat pump	• System lockout • Unlocking by pressing the reset switch
Cause of error	• Compressor outlet temperature too high for 20 minutes
Troubleshooting	• Check sensor plausibility • Refrigeration check

7.1.6 FROST PROTECTION

Error message	Frost protection error	Frost protection malfunction
Error description	Frost protection limit of the hydraulic circuit has been [illegible]	
Behaviour of the heat pump	• System locked for 10 minutes • If 3 faults occur within 60 minutes, switch to frost protection malfunction	• Lock the system • Unlock by pressing the reset switch
Cause of error	• Lack of heat absorption in the inner section • Heat source too cold	
Troubleshooting	• Check the heat source (temperatures, pumps, heat exchangers) • Vent	

7.2 CLEANING

7.2.1 CLEANING THE HEATING SIDE

- Cleaning: to be carried out by an installer
- Flushing device: Connection to the condenser's supply and return lines
- Condenser: Flush against the normal flow direction (note gravity brake)

7.2.2 CLEANING THE HEAT PUMP

- The units can be cleaned with a standard household cleaner (see below for exceptions).
- Check the air inlets and outlets (regularly check the intake and exhaust hood grilles for adhering leaves and other dirt).
- Sweep away any dirt. The fan should not be running while sweeping, as otherwise the dirt could be sucked into the device.

NOTE

Improper cleaning

Using the wrong cleaning agents can damage the appliance surfaces. Please note the following:

- Do not use abrasive or cleaning agents that could damage the plastic casing, fittings or controls.
- Do not use sprays, solvents or chlorine-based cleaning agents.
- Clean the heat pump casing with a damp cloth and a little soap.
- Avoid placing or leaning objects on or against the heat pump.

NOTE

Limescale

Limescale deposits can cause the safety valve to stick.

Operate the safety valve of the heating system manually once a month.

7.3 LEAK TEST OF THE HEAT PUMP

In accordance with Regulation (EC) No. 842/2006 on certain fluorinated greenhouse gases, the heat pump must be checked regularly for leaks. This check can be carried out by a recognised and qualified specialist (with certification as a refrigeration engineer or state-certified technician specialising in refrigeration technology). The following must be observed:

- DIN EN 378:2000 "Refrigerating systems and heat pumps - Safety and environmental requirements"
- VDMA Standard Sheet 24243 (August 2005) "Refrigerating machines and systems - Leak tightness of refrigeration systems and heat pumps - Leak detection/leak testing"

NOTE

Leak test

The test must be carried out in accordance with the system logbook. The results of the test must be documented in accordance with regulations and kept for at least 5 years. A system log can be found in the "System logbook for heat pumps".

7.4 SYMBOLS ON THE DEVICE

In order to provide staff with important information and warnings, standardised safety symbols based on the DIN EN ISO 7010, DIN ISO 3864 and DIN ISO 7000 standards were used.
These safety signs are clearly visible to everyone, must be kept in a recognisable and legible condition and must be replaced if necessary.
As the design of the device and the complexity of the production processes do not allow the use of persons with disabilities (e.g. with visual impairments) for safety reasons, the manufacturer has decided not to affix tactile symbols. The requirements for personnel and the technical qualifications required to operate the device are described in chapter "2.3 Target groups" on page 6.

7.5 MAINTENANCE PLAN

DANGER! Do not operate the device if there are any defects.

Maintenance work	Measures	Interval
Operators and users		
Visual and functional inspection	• Check the device for visible defects and mechanical damage. • Perform a visual inspection of the operating elements. • Perform a visual and functional inspection of all safety devices.	Monthly
Cleaning the device	• Observe the information in section "7.2 Cleaning".	As required
Qualified personnel		
Inspection of electrical components Inspection of	• Check the electrical components for damage. • Carry out repairs if necessary.	Annuall
hydraulic components Inspection of refrigeration	• Check the hydraulic components for damage. • Carry out repairs if necessary.	y
components Inspection of safety devices	• Check the refrigeration components for damage. • Carry out repairs if necessary.	Annuall
	• Perform a visual and functional inspection of all safety devices.	y
Checking symbols on the device	• Document these checks.	Annuall
Checking purchased components	• Check the symbols on the device. • Renew the symbols if necessary.	y
	• Observe the manufacturer's documentation for purchased components.	Annually
		Annually
		Annually

8. DECOMMISSIONING

When the heat pump is taken out of service, it must only be dismantled by qualified personnel. Hazardous materials and waste must be disposed of properly. When dismantling the heat pump, observe the instructions at the beginning of the original operating manual and the safety instructions listed below.

DANGER

Fatal electric shock

There is a risk of fatal electric shock from electrical equipment.

Disconnect the device from the power supply before decommissioning/dismantling.

Secure the device against being switched back on.

8.1 TEMPORARY DECOMMISSIONING

NOTE

Improper decommissioning

Improper decommissioning of the device may result in damage to components and functional impairments.

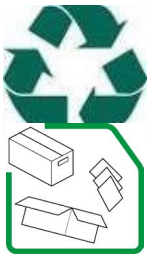
Switch off the device at the main switch.

Please note the following information:

- Frost can cause damage to the device.
- Water freezes at outdoor temperatures below 0 °C.
- Decommissioning without draining the heating circuit is only permitted at temperatures above 0 °C.

8.2 FINAL DECOMMISSIONING AND DISPOSAL

Only a specialist company may carry out the final decommissioning/disposal. Environmental requirements regarding the recovery, reuse and disposal of operating materials and components in accordance with current standards must be observed.



NOTE

Improper disposal

Improper disposal of the device can cause environmental pollution and/or damage.

Dispose of electrical and electronic components and the refrigerant from the heat pump properly and in accordance with applicable local regulations.

9. EU DECLARATION OF CONFORMITY

In accordance with the Low Voltage Directive 2014/35/EU, Annex IV, and the Pressure Equipment Directive (2014/68/EU), Annex IV, we hereby declare under our sole responsibility:

Manufacturer		
ratiotherm GmbH & Co. KG	Email	info@ratiotherm.de
Wellheimer Straße 34	Telephone:	+49 (0) 8422/9977-0
91795 Dollnstein	Website	www.ratiotherm.de

that the device:

Device name: **WP Max-HiQ pF10 and WP Max-LoQ pF10**

Year of manufacture: see type plate

Intended use: The heat pump uses heat from various sources to provide direct heating support and hot water.

in the delivered version complies with the directives

- Directive 2014/35/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits
- Directive 2014/68/EU of the European Parliament and of the Council of 15 May 2014 on the harmonisation of the laws of Member States relating to the making available on the market of pressure equipment

and with the harmonised standards and directives listed below, to which this declaration refers:

Technical documentation is available. Name and address of the person authorised to sign the technical documentation

Applied harmonised standards:	Applicable EC directives
• DIN EN 378-1-4	• Directive 2014/30/EU
• DIN EN ISO 12100	• Directive 2014/35/EU
• DIN EN 60204-1	• Directive 2014/68/EU
• DIN EN 60335-1	• Directive 2009/125/EC
• DIN EN 60335-2-40	• Directive 2011/65/EU

Documents to be compiled:

Name: Julian Kruck, Head of Heat Pump Technology

Address: ratiotherm GmbH & Co. KG, Wellheimer Straße 34, 91795 Dollnstein

We hereby certify that the certification procedure has been carried out in accordance with the Low Voltage Directive 2014/35/EU, Annex IV and the Pressure Equipment Directive (2014/68/EU), and that the provisions of the standard DIN EN ISO/IEC 17050-1 "Conformity assessment – Declaration of conformity by suppliers – Part 1 : General requirements" have been observed in issuing this declaration of conformity. This declaration shall cease to be valid if any changes are made to the device without our consent. Any unauthorised changes in this sense shall exclude any liability on our part.

Dollnstein, _____ Signature of authorised representative: _____ Details of the person authorised to issue this declaration on behalf of the manufacturer or its authorised representative:

Name: _____ Position: _____

Address: ratiotherm GmbH & Co. KG, Wellheimer Straße 34, 91795 Dollnstein

You can find us here

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