BIODOM

Installation and user manual for the **heat pump Vulkan**

6.0P, 8.3P, 11.4P, 14.8P, 22P, 18.2P, 24.0P



Instructions for installation, configuration and first start-up

This document contains all the information required for the intended use of the supplied system or product. Read this document and any associated safety data sheets carefully before the first start-up and use of the components.

This document describes the installation, connection, configuration and first start-up of the Vulkan heat pump. Installation and maintenance may only be carried out by qualified personnel. Read the manual carefully before installation. If you have any problems or questions regarding the documentation, or need further information about your heat pump, contact our customer support or an authorised service technician.

- Observe the safety regulations as well as the occupational health and safety and environmental protection regulations.
- Only use the system if it is in perfect technical condition.
- Observe the technical data and ambient conditions specified in this document.
- Observe all markings and safety warnings on the system.
- Never remove safety labels; replace or clean them if they are no longer legible.
- Persons installing, operating, dismantling or maintaining the system must not be under the influence of alcohol, other drugs or medication that impair their ability to react.
- Only use approved spare parts and accessories to prevent damage caused by unsuitable spare parts or accessories.

After installation, the manual must be handed over to the end user.

Biodom reserves the right to change the content of this document. The illustrations in this document are intended for basic understanding and may differ from the actual system. This manual or any part of it may not be copied, modified, distributed or reproduced without the prior written consent of Biodom 27 d.o.o.

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COMPLIANCE AND STANDARDS

Heating systems manufactured by Biodom 27 d.o.o. (hereinafter: Biodom) are manufactured and tested in accordance with, and comply with, the safety requirements of the applicable European directives.

- Radio Equipment Directive (RED) 2014/53/EU
- Electromagnetic Compatibility Directive (EMC) 2014/30/EU
- Low Voltage Directive (LVD) 2014/35/EU
- Machinery Directive 2006/42/EC
- RoHS Directive 2011/65/EU, (EU) 2015/863 and (EU) 2017/2102 on the restriction of the use of certain hazardous substances

The products also comply with the following technical standards:

- EN 60335-1:2012+A11:2014+A13:2017+A1:2019+A14:2019+A2:2019+A15:2021+A16:2023
- EN IEC 60335-2-40:2023+A11:2023
- EN 62233:2008
- EN IEC 62311:2020
- ETSI EN 301 489-1 V2.2.3 (2019-11)
- ETSI EN 301 489-17 V3.2.4 (2020-09)
- EN IEC 55014-1: 2021;
- EN IEC 61000-3-2: 2019+A1:2021;
- EN 61000-3-3:2013+A2:2021;
- EN IEC 55014-2: 2021
- ETSI EN 300 328 V2.2.2 (2019-07)
- EN ISO 12100:2010
- EN 60204-1:2018
- IEC 62321-3-1:2013
- IEC 62321-5:2013
- IEC 62321-4:2013+AMD1:2017

- IEC 62321-7-1:2015
- IEC 62321-7-2:2017
- IEC 62321-6:2015
- IEC 62321-8:2017
- EN IEC 63000:2018
- EN 14825:2022
- EN 14511-3:2022
- EN 12102-1:2022
- EN 14511-4:2022 Clause 4

SYMBOLS AND LIMITATION OF LIABILITY

The system may only be installed and configured by a qualified installer. Biodom accepts no liability for injury or damage resulting from:

- Failure to observe this document
- Improper use of the system
- Unauthorised modifications or technical interventions
- Improper maintenance
- Use of spare parts not approved by Biodom

Any unauthorised interference with, modification or replacement of original system components voids the manufacturer's guarantee of safe and correct operation. In the event of improper or incorrect use of the system, Biodom is not liable for the consequences and does not accept any claims for damages in such cases. The user is solely responsible for injury and damage to the system or property resulting from improper or incorrect use of the system and its components.

ABBREVIATIONS

Notes and warning messages in this document indicate hazards and risks. The messages are classified and marked with the following signal words:

- WARNING: a warning message indicates a hazard that may result in personal injury or material damage if it is not avoided.
- IMPORTANT: an important message contains important information and indicates a risk or situation that may result in damage to or malfunction of the system.
- NOTE: a note provides useful information or special knowledge.

Safety messages are designed to explain the type and source of the hazard, the consequences of non-compliance and the measures to prevent the hazard.

Abbreviation/term	**Explanation**
VULKAN	Heat pump
VULKAN	Hydraulic control cabinet
PZ	Frost protection mode
COP	Coefficient of performance
SCOP	Seasonal coefficient of performance
ROKO	Wireless room thermostat (Wi-Fi)
DHW	Domestic hot water
STC	Solar collector
TČ	Heat pump

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GENERAL INFORMATION

GENERAL SAFETY

This chapter provides an overview of all important safety aspects for the protection of persons and for the safe and trouble-free operation of the system.

The Vulkan heat pump is used for heating and cooling. Optionally, it can also be used to heat domestic hot water. It enables the heating and cooling of indoor spaces in buildings, residential houses or commercial premises, as well as the heating of domestic hot water. It is intended for domestic use.

Any other use is considered improper use. The manufacturer is not liable for damage resulting from such use; the risk is borne entirely by the user. Intended use also includes observing the safety instructions in this user manual regarding the operation and maintenance of the system. Improper use, unauthorised maintenance or servicing of the Vulkan heat pump may result in serious personal injury or material damage.

IMPORTANT

For other components installed together with the system, such as a boiler or stove, whether made by Biodom or by other manufacturers, that are not covered in this manual, the documentation supplied with each component must be observed.

In addition to the safety measures in this manual, also check and observe the safety recommendations for each individual component.

The installer is responsible for installing the appliance in accordance with the following requirements:

- Before installation, the installer must thoroughly study the operating and installation instructions supplied with the appliance,
- The installer must observe the instructions and safety guidelines in the documentation of other additional system components,
- The installer must install the system in accordance with the instructions and the applicable national legislation, regulations and standards.

DANGER TO LIFE FROM ELECTRIC SHOCK!

Touching live parts poses an immediate danger to life due to electric shock. Damaged insulation or damaged individual parts can be life-threatening.

- Electrical equipment, i.e. cables and connections, must be inspected regularly. Electrical equipment may only be maintained by an authorised and qualified electrician.
- All work on live parts of the system must be carried out by a qualified electrician.
- If the insulation is damaged, switch off the power supply immediately and have it repaired.
- Before starting work on the system or equipment, switch off all live components. Make sure that the system or equipment remains de-energised for the entire duration of the work.
- Use a voltmeter to check that the system is de-energised.
- Earth the system and short-circuit the capacitors.
- Never bridge or disable fuses.
- Cover and/or insulate live parts.
- Always keep moisture away from live parts, as it can cause a short circuit.

RISK OF INJURY FROM LOSS OF STABILITY AND FALLING!

Loss of stability due to an unsuitable installation location can cause a system component to move, tilt or fall in an uncontrolled manner. This can result in serious personal injury or material damage.

- Make sure that the installation location has sufficient load-bearing capacity.
- Install the system components correctly so that they cannot slip or fall.

FIRE HAZARD!

The heating system and its components can pose a fire hazard due to open flames, sparks, electrical fire or gas explosion. Install the system components in a suitably protected location, protect the surrounding surfaces, ensure a sufficient distance from combustible objects and ensure proper ventilation and chimney maintenance.

- Ensure correct electrical connections with suitably rated fuses.
- The Vulkan unit must be installed outdoors, in the open air.
- The Vulkan unit contains flammable gas. Do not dismantle or modify the unit in any way. The unit may only be opened or repaired by a qualified technician.

The heating system is intended for domestic use. The operator of the system must therefore comply with the legal obligations regarding occupational health and safety. In addition to the safety instructions in this document, the regulations on safety, accident prevention and environmental protection applicable at the place of use must also be observed. The following preventive measures are recommended:

- Always be prepared for the possibility of a fire or accident.
- Keep first-aid equipment, such as a first-aid kit, blankets and the like, as well as fire extinguishers accessible and in perfect condition.

SAFETY ASPECTS AND RECOMMENDATIONS

Installation must be carried out in accordance with national regulations and the manufacturer's instructions. It must be carried out by a qualified and competent contractor.

The appliance may only be connected to the mains by a suitably qualified and authorised person. The connection must be made in accordance with the applicable regulations.

The electrical installation must be inspected by an electrical contractor in accordance with the regulations on requirements for low-voltage electrical installations in buildings.

Before opening the appliance, disconnect all electrical circuits and make sure that the appliance is de-energised.

The appliance must not be installed in a room from which it cannot be removed. Subsequently walling in the appliance or placing other obstacles next to it is not permitted.

The system must be connected to the mains in accordance with the standards for connecting appliances to the mains. Connect the system to the mains via a power isolating switch installed in the electrical installation in accordance with the applicable regulations.

If original parts are replaced or modified, the manufacturer is not liable for any defects and does not accept any claims for damages. The manufacturer also does not grant a warranty if the installation instructions are not observed.

Do not touch the appliance while it is live. Disconnect it from the power supply before any maintenance or repair.

This appliance is not intended for use by persons, including children, with reduced physical, motor or mental capabilities, or by persons lacking knowledge and experience, unless they are supervised by persons responsible for their safety or care.

The appliance is not a toy. Children must not be left unsupervised near the appliance.

When connecting and inspecting electrical components, observe all regulations for safe handling.

Maintenance, servicing and start-up may only be carried out by our authorised service technician. If the appliance does not work properly, contact an authorised service centre.

Improper handling of the appliance may cause permanent damage to the appliance or give rise to future risks and damage. Any replacement or modification of appliance components may result in incorrect operation or failure. In the event of negligence or improper handling of the appliance, the manufacturer does not provide a warranty and is not liable for the resulting damage.

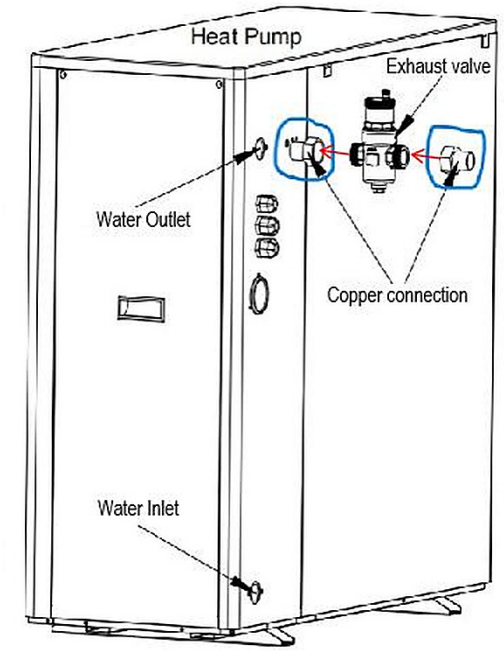
Regulations and standards

The DC inverter air/water heat pump must be installed in accordance with local building and installation regulations and the requirements of the competent authorities or utilities. Local regulations take precedence over national regulations. If there are no local regulations, the applicable national regulations and standards for electrical installations must be observed during installation.

! WARNING !

A micro-bubble air vent valve must be installed on the outlet pipe of the unit, as shown in the diagram below. If the heat exchanger fails, refrigerant gas may enter the water or domestic heating system. The valve is required to remove gas bubbles from the hydraulic circuit and to reduce the risk of fire or explosion due to gas accumulation.





The heat pump is factory-fitted with a dedicated R290 refrigerant leakage sensor that ensures safe and efficient operation of the system. When the leakage concentration exceeds 15 % of the lower flammability limit (LFL), the system triggers an alarm and displays error code Er75, warning the user to take timely action to ensure safe use. At the same time, the compressor and the electric heating are switched off and the fan runs at the lowest speed.

The built-in explosion-proof components include a relay and a ceramic fuse.

ADDITIONAL COMPONENTS, SPARE PARTS AND WEAR PARTS

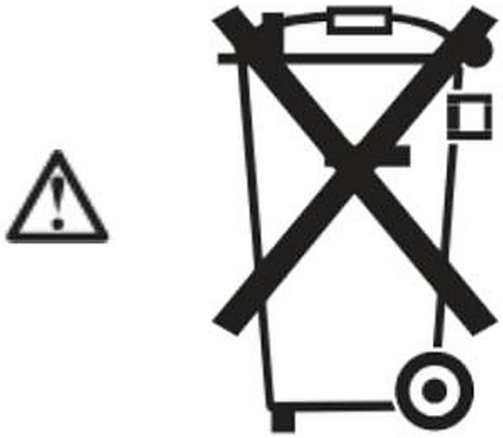
Please note:

Spare and wear parts that have not been tested together with the system may impair its operation. Installing unauthorised components and making unapproved changes or modifications may compromise safety and void the warranty. For replacements, contact the manufacturer and only use original spare parts supplied or approved by Biodom.

NOTICE ON RECYCLING AND DISPOSAL OF THE UNIT

This marking indicates that the product must not be disposed of with other household waste within the EU. To prevent possible harm to the environment or human health from uncontrolled waste disposal, the materials must be recycled responsibly and reused. To return your used appliance, use the waste collection and recycling system or contact the retailer from whom you purchased the product. The retailer can arrange for environmentally friendly and safe recycling of the product.

1. When the unit is disposed of, the appliance must be disposed of in accordance with the EU WEEE Directive, and the refrigerant must be recycled by an authorised organisation. Releasing refrigerant directly into the environment is prohibited.
2. Before dismantling, the system must be thoroughly emptied or evacuated so that no refrigerant remains in it.



This product complies with the Machinery Directive 2006/42/EC and the Low Voltage Directive 2014/35/EU.

WORK ON THE REFRIGERANT CIRCUIT

R290 refrigerant (propane) is a colourless, odourless, flammable gas that forms explosive mixtures with air. Released or recovered refrigerant must be properly disposed of by authorised contractors.

Before starting work on the refrigerant circuit, take the following measures:

- Check the refrigerant circuit for leaks.
- Ensure very good ventilation, especially at floor level, and maintain it throughout the work.

- Secure the area around the workplace.
- Inform all maintenance personnel and all persons near the system of the type of work to be carried out.
- Inspect the area immediately around the heat pump and remove all flammable materials and ignition sources.
- Before, during and after the work, check the surroundings for refrigerant leakage using an explosion-proof refrigerant detector suitable for R290. The refrigerant detector must not produce sparks and must be properly sealed.

A CO_2 OR DRY POWDER FIRE EXTINGUISHER MUST BE AVAILABLE NEARBY IN THE FOLLOWING CASES:

- When refrigerant is being removed from the system,
- When refrigerant is being topped up,
- When brazing or welding work is being carried out
- Put up no-smoking signs in the work area.

DANGER

Refrigerant leakage can cause fire or explosion, which can result in very serious injury or death.

- Do not drill into or heat a refrigerant circuit filled with refrigerant.
- Do not operate Schrader valves unless a charging valve or refrigerant recovery equipment is connected.
- Take measures to prevent electrostatic charging.
- Smoking is prohibited. Avoid open flames and sparks. Never switch lights or electrical appliances on or off.
- Components that contain or have contained refrigerant must be labelled, stored and transported in well-ventilated areas in accordance with the applicable regulations and standards.

DANGER

Direct contact with liquid or gaseous refrigerant can cause serious harm to health, e.g. frostbite and/or burns. Inhalation poses a risk of suffocation.

- Avoid direct contact with liquid and gaseous refrigerant.
- Wear personal protective equipment when handling liquid or gaseous refrigerant.
- Never inhale refrigerant vapours.

DANGER

Hot and cold metal surfaces of the refrigerant circuit can cause burns or frostbite on contact with the skin.

- Wear personal protective equipment to protect against burns or frostbite.

! NOTE

Hydraulic components may freeze when refrigerant is being removed. Drain the heating water from the heat pump beforehand.

DANGER

Damage to the refrigerant circuit may allow refrigerant to enter the hydraulic system. After completing the work, vent the hydraulic system properly.

SAFETY INSTRUCTIONS FOR STORING THE OUTDOOR UNIT

The outdoor unit is factory-filled with R290 refrigerant (propane).

DANGER

Refrigerant leakage can cause fire or explosion, which can result in very serious injury or death. Inhalation also poses a risk of suffocation.

Store the outdoor unit under the following conditions:

- An explosion prevention plan must be prepared for storage.
- Sufficient ventilation must be provided at the storage location.

EMERGENCY MEASURES IN CASE OF R290 REFRIGERANT LEAKAGE

1. Emergency response sequence

1 Leakage detected → 2 Evacuate persons immediately → 3 Switch off the power supply using an explosion-safe procedure → 4 Ensure natural ventilation

↓

5 Mark and secure the danger zone → 6 Contact qualified specialists → 7 Prohibit open flames and prevent electrostatic charging → 8 Wait for specialists to eliminate the hazard, including refrigerant recovery, evacuation and recharging of the system

↓

9 Re-entry to the area is permitted only after a successful concentration test → 10 After the incident, carry out a complete inspection of the system

WARNING: In the event of refrigerant leakage, evacuate the area immediately and contact qualified specialists.

2. Emergency response procedures

2.1 Evacuation of persons

1. Immediately evacuate the leakage area within a radius of at least 50 metres.
2. Do not switch on any electrical equipment, including switches, mobile phones and radios.
3. When moving persons with reduced mobility, use stretchers to prevent electrostatic charging caused by vigorous movement.

2.2 Ventilation

1. Open all doors and windows and ensure natural cross-ventilation. Avoid using mechanical ventilation equipment.
2. In an enclosed space, use an explosion-proof positive-pressure fan with appropriate ATEX certification.
3. Maintain ventilation for at least 1 hour per cubic metre of space.

2.3 Professional hazard elimination

1. When entering the area, specialists must wear class A protective clothing and self-contained breathing apparatus (SCBA).
2. Use an infrared leak detector to locate the leak. Never use an open flame to detect leaks.

3. Any remaining refrigerant must be recovered using explosion-proof refrigerant recovery equipment.
4. After the repair, a 24-hour pressure test of the system must be carried out.

DANGER — RISK OF ELECTRIC SHOCK OR ELECTROCUTION



The electrical supply for this product must be installed by an authorised or certified electrician in accordance with the applicable national and local regulations and ordinances. Improper installation can create a risk of electric shock, which can result in death or serious injury to heat pump users, installers or other persons, and can also cause material damage. Read and follow the specific instructions in this manual.

WARNING — To reduce the risk of injury, do not allow children to use this product unless they are closely supervised at all times.

USER INFORMATION AND SAFETY

DC inverter air/water heat pumps are designed and manufactured to provide many years of safe and reliable operation when installed, operated and maintained in accordance with the information in this manual and the applicable installation regulations referred to below. Throughout this manual,

safety warnings and precautions are marked with the symbol "⚠". Read and observe all

ENERGY-SAVING TIPS FOR HEAT PUMP OPERATION

If you do not intend to use domestic hot water for a longer period, you can switch off the heat pump or lower the set temperature by a few degrees to reduce energy consumption.

To save energy and reduce the operating costs of the heat pump without reducing comfort, we recommend the following:

1. The recommended maximum water temperature is 60 °C.
2. It is recommended to switch off the heat pump when the outdoor temperature is below –20 °C or when you are away for more than a week.
3. To save energy, it is recommended that the heat pump runs during the day, when the outdoor temperature is higher.
4. Install the heat pump in a well-ventilated outdoor location. Where possible, protect it from prevailing winds, rain and snow. Where practicable, a canopy is recommended, as it can reduce the formation of frost and ice.

GENERAL INSTALLATION INFORMATION

1. Installation and servicing must be carried out by a qualified installer or an authorised service technician in compliance with all applicable national and local regulations and safety requirements.
2. This DC inverter air/water heat pump is specially designed for domestic hot water heating and space heating in residential buildings.

INSTALLATION AND SERVICE

This chapter contains information on preparing the environment for the installation and configuration of your heating system.

WARNING

Installation, configuration and first start-up of the Vulkan heat pump may only be carried out by an authorised and qualified specialist.

The Vulkan heat pump can be integrated into a new or an existing heating system. For more information on the available options, contact the manufacturer or your dealer.

SUPPLIED COMPONENTS

List of components and parts supplied with the Vulkan heat pump system:

1. Vulkan heat pump
2. Safety air vent valve
3. Display with cable
4. Installation/user manual, i.e. this document

REQUIREMENTS AND PREREQUISITES

The owner receives instructions for preparing the environment for the installation of the Vulkan heat pump. Before installation begins, general information must be obtained from the customer:

- building/installation site data
- hydraulic connection data

Consult the customer and complete the questionnaire provided by Biodom. This will help you determine the system requirements and prepare the plan and the necessary preparations for installing the system.

Determine the configuration of the heating system with the Vulkan heat pump and the installation method for each component. Inspect the building and the installation site and gather the necessary information. Carry out in advance all preparations required by the selected heating system configuration, e.g. preparing a concrete base for the outdoor unit.

IMPORTANT

An internet connection is strongly recommended. If your system is registered on the network, Biodom can provide remote support in the event of problems or faults in system operation. This can significantly reduce the cost of a service call.

REQUIREMENTS FOR VULKAN

Choose the installation location of the outdoor unit carefully. Correct positioning, installation and connection of the unit contribute to the correct and efficient operation of the Vulkan heat pump. Too many joints and bends and excessively long connections can reduce efficiency, as the system then needs more energy to operate. Minimise heat losses with the following measures:

- adding insulation where practicable,
- fitting sealing strips to doors and windows,
- eliminating draughts.

To connect the Vulkan unit to the indoor units, an opening must be drilled through the external wall. Before drilling, observe the following:

Before drilling openings or making penetrations in the building, determine the location of existing pipes, load-bearing elements and cables.

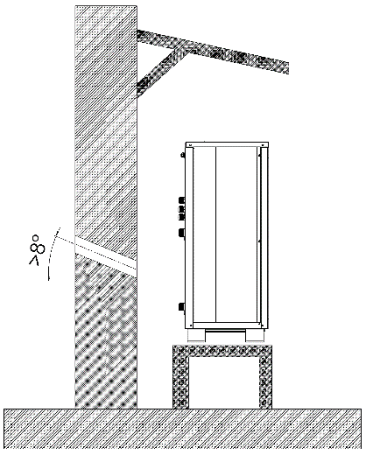
- It is recommended to drill separate openings for the pipe connections, the power cable and the signal cables.
- The diameter of each opening must suit the dimensions of the pipes and cables used.
- The opening should slope down towards the Vulkan unit at an angle of 8° to prevent water from entering the building.
- All openings, pipes and cables must be properly insulated and protected.
- When drilling into load-bearing or supporting walls to install pipes and cables, make sure that the work is carried out within the limits set by the applicable standards and regulations.

Condensate always forms during operation of the Vulkan heat pump and must be drained safely. Install and connect the condensate drainage system correctly. Install a condensate collection tray and a condensate drain pipe so that excess condensed water is drained:

- onto a lawn or planted area,
- into a drain pipe or storm-water drain,
- through a layer of stones and gravel into the ground.

IMPORTANT

Do not drain condensate where it could flow across a footpath, as the surface may become slippery or freeze in winter.



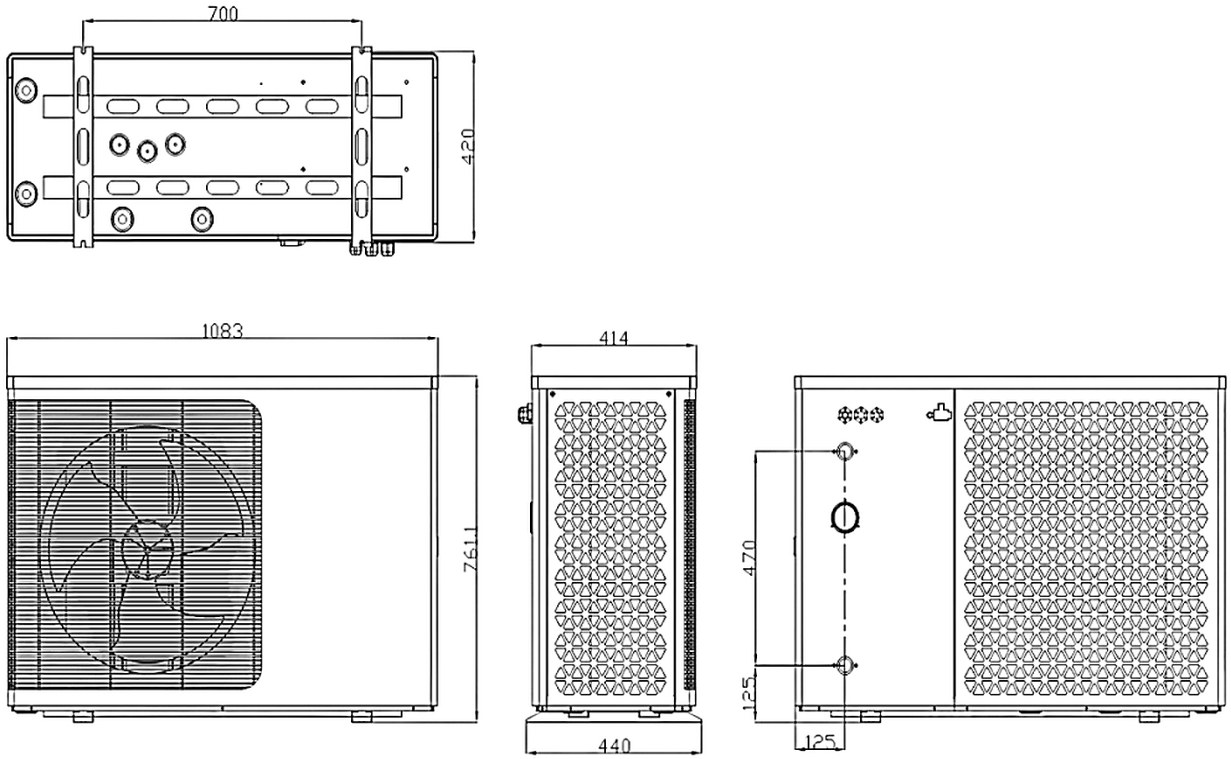
It is recommended to install a canopy over the appliance to protect it from external influences.

When drilling through the wall, a slope of at least 8 degrees is recommended to prevent water from entering the building.

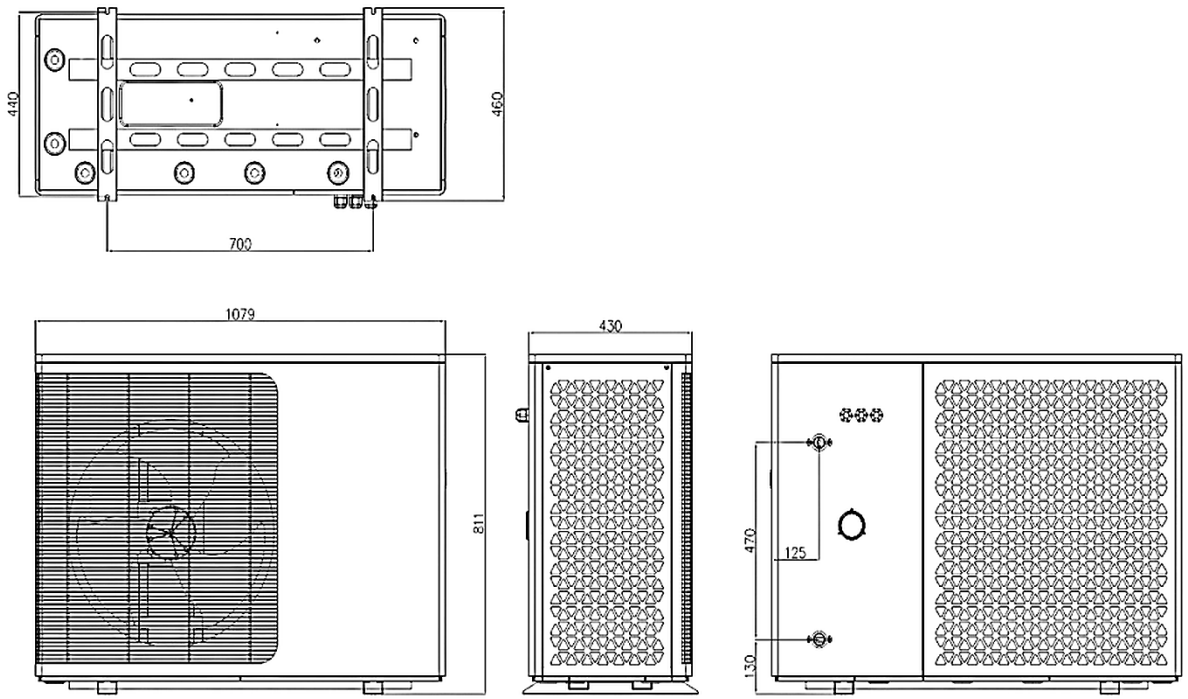
To ensure correct air circulation, observe and maintain the minimum clearances specified in the chapter “System dimensions and minimum space requirements”.

SYSTEM DIMENSIONS AND MINIMUM SPACE REQUIREMENTS

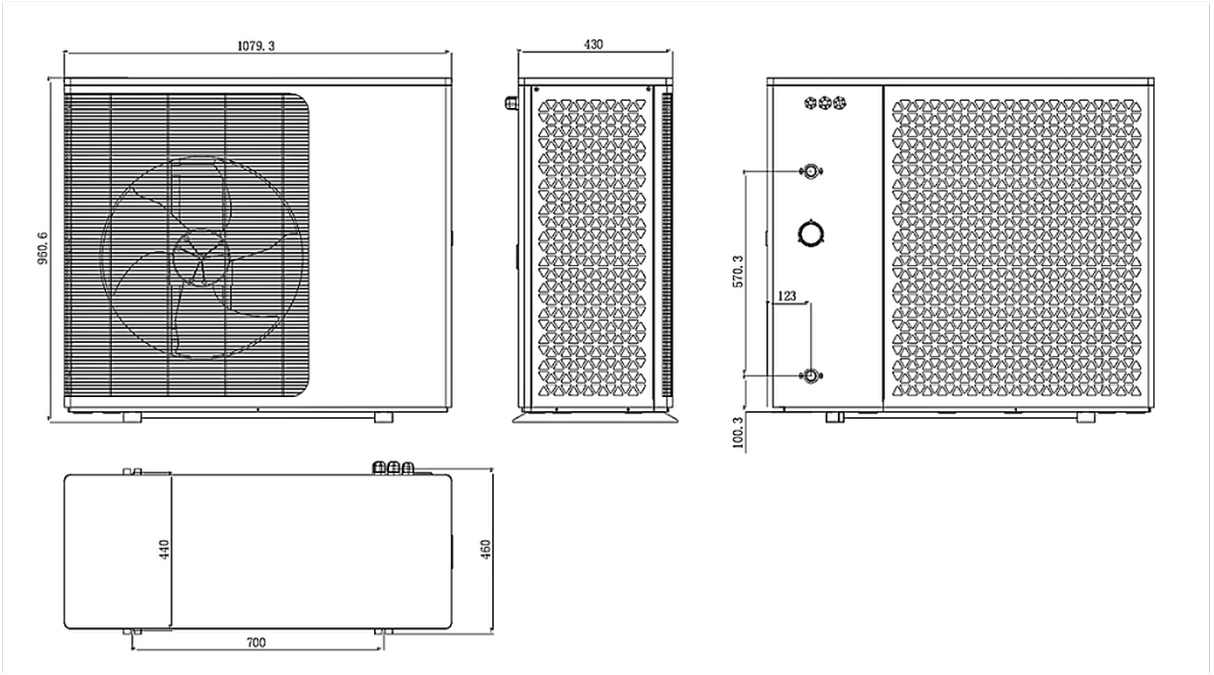
Vulkan 6.0P



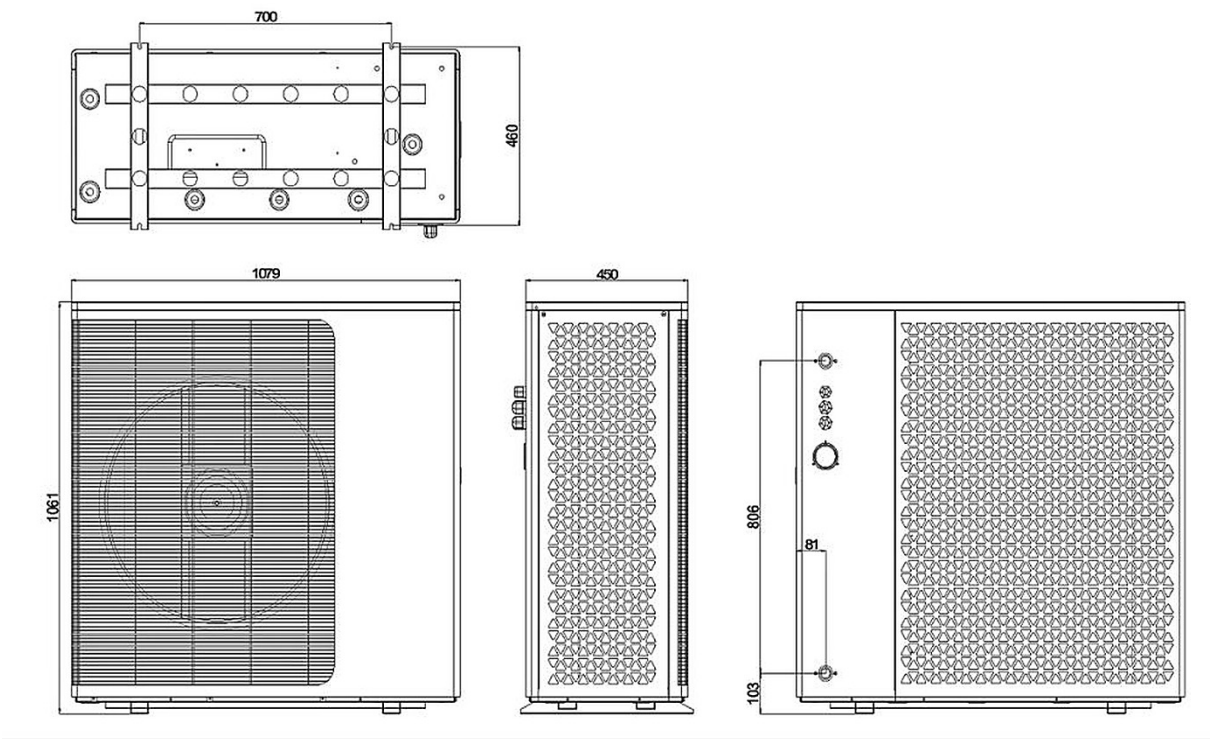
Vulkan 8.3P



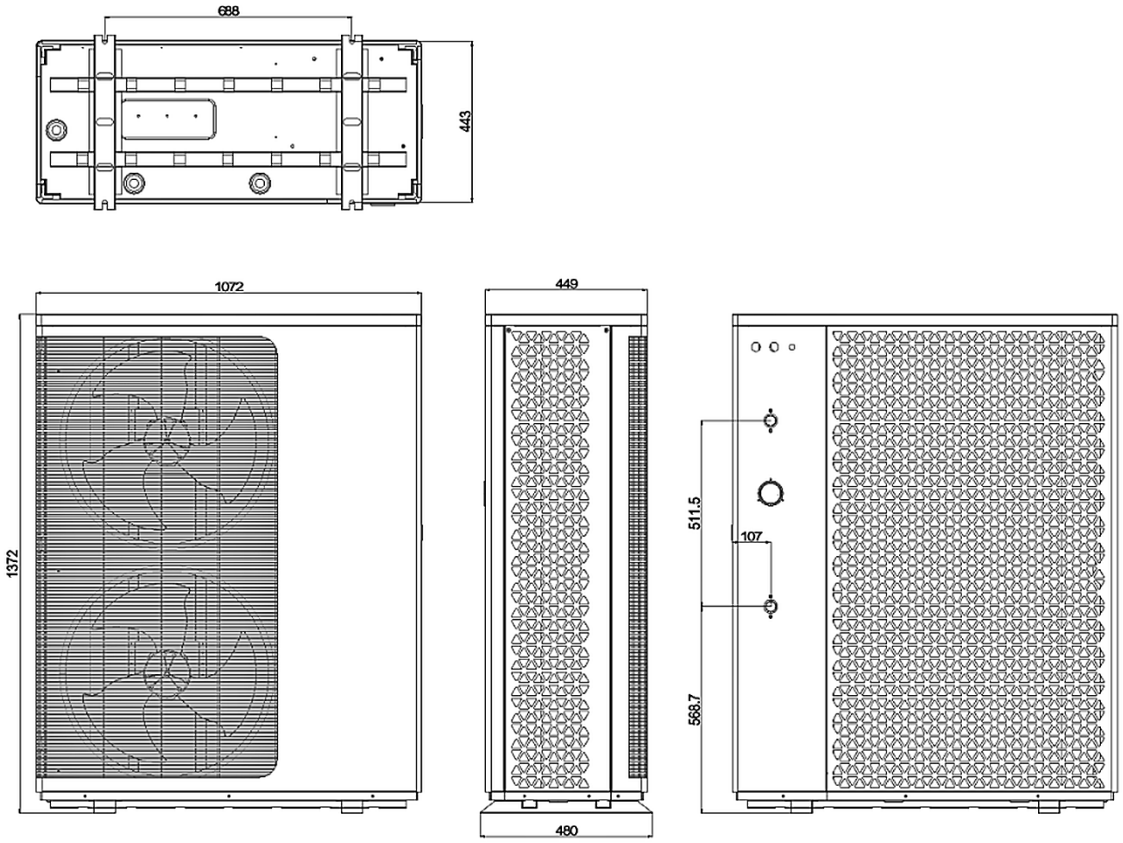
Vulkan 11.4P



Vulkan 14.8P

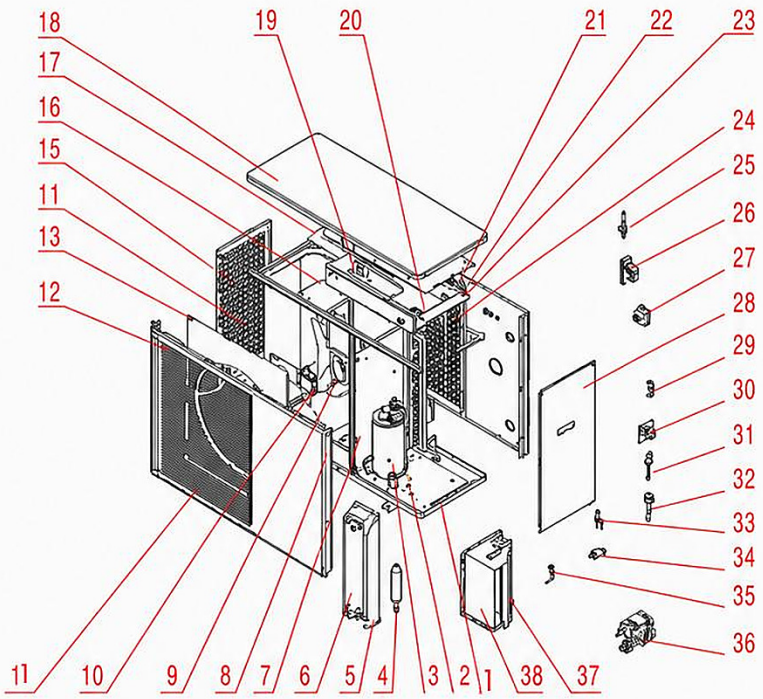


Vulkan 22P



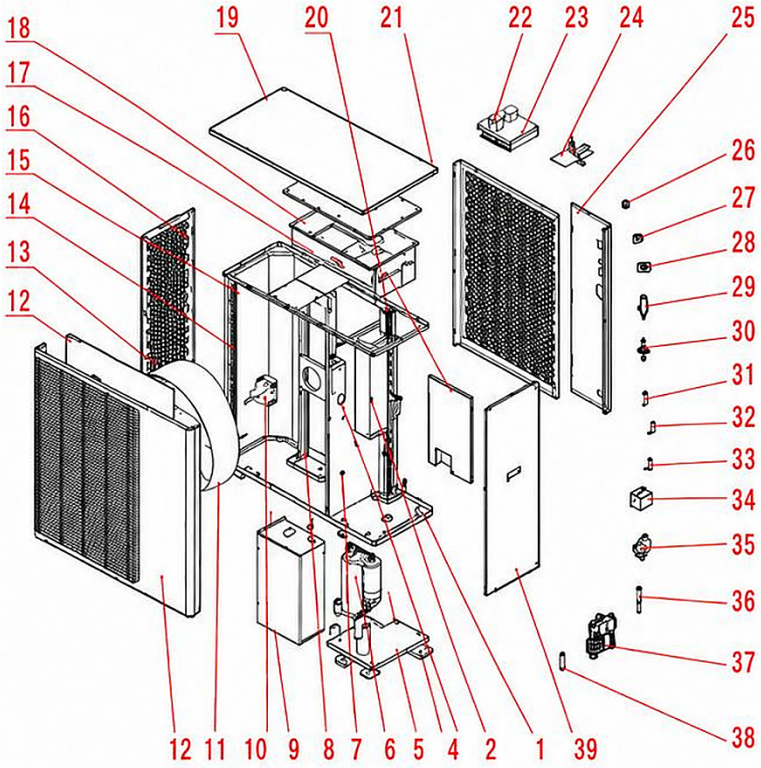
EXPLODED VIEW

Vulkan 6.0P Vulkan 8.3P Vulkan 11.4P



No.	Spare parts	No.	Spare parts
1	chassis	21	rear grille
2	compressor	22	rear side panel
3	damping plate	23	terminal clamp
4	liquid receiver	24	terminal clamp
5	plate heat exchanger bracket	25	water flow switch
6	plate heat exchanger	26	4-way valve
7	middle partition	27	pressure gauge
8	motor bracket	28	right side panel
9	motor	29	filter drier
10	fan blade	30	reactor
11	front panel	31	high-pressure switch
12	air guide panel	32	low-pressure switch
13	left grille	33	electronic expansion valve
14	finned heat exchanger	34	filter
15	top frame	35	needle valve
16	electrical box	36	water pump
17	electrical box cover	37	compressor cover 1
18	top panel	38	compressor cover 2
19	control board		
20	transit terminal block		

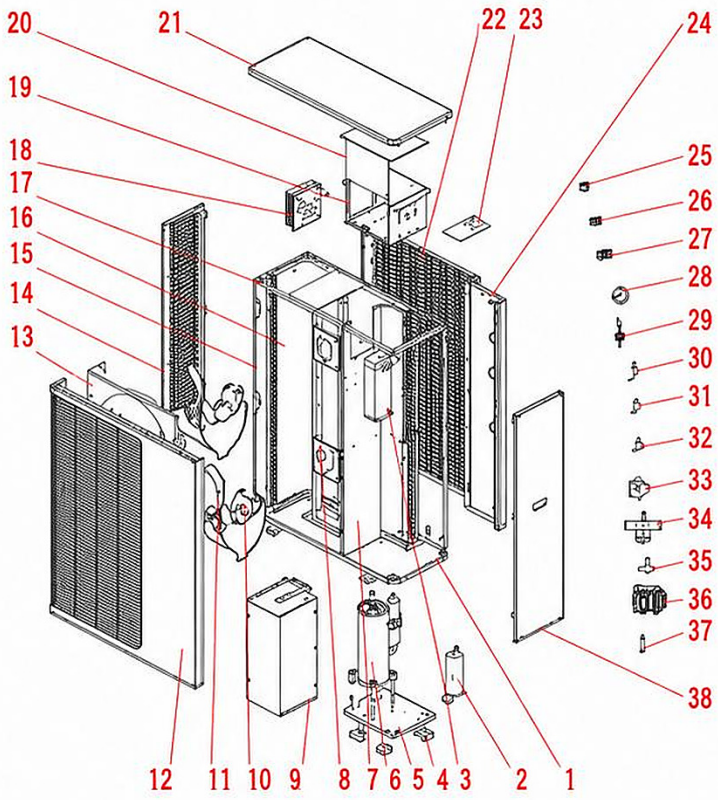
Vulkan 14.8P



NO.	Spare parts
1	chassis
2	liquid receiver
3	plate heat exchanger
4	rubber pad
5	damping plate
6	compressor
7	middle partition
8	motor bracket
9	baffle
10	motor
11	fan blade
12	front panel
13	air guide panel
14	left grille
15	finned heat exchanger
16	top frame
17	electrical box
18	electrical box cover
19	top panel
20	baffle

NO.	Spare parts
21	filter board
22	rear grille
23	control board
24	side panel
25	rear side panel
26	terminal clamp
27	terminal clamp
28	terminal clamp
29	pressure gauge
30	water flow switch
31	needle valve
32	high-pressure switch
33	low-pressure switch
34	reactor
35	4-way valve
36	electronic expansion valve
37	water pump
38	check valve
39	right side panel

Vulkan 22P



NO.	Spare parts	NO.	Spare parts
1	chassis	21	top panel
2	liquid receiver	22	rear grille
3	plate heat exchanger	23	control board
4	rubber pad	24	rear side panel
5	damping plate	25	transit terminal block
6	compressor	26	transit terminal block
7	middle partition	27	transit terminal block
8	motor bracket	28	pressure gauge
9	clamp	29	water flow switch
10	motor	30	needle valve
11	fan blade	31	high-pressure switch
12	front panel	32	low-pressure switch
13	air guide panel	33	reactor
14	left grille	34	4-way valve
15	bracket	35	electronic expansion valve
16	finned heat exchanger	36	water pump
17	top frame	37	check valve
18	control board	38	right side panel
19	electrical box		
20	electrical box cover		

TRANSPORT AND HANDLING

Improper transport and handling can cause material damage to the system.

- Transport the system carefully to the installation site.
- Observe the markings on the packaging.
- Remove the packaging only immediately before installing the system.

The packaging protects the system against transport damage, corrosion and other damage until it is installed.

- Keep the packaging in its original form.
- Only remove the packaging once the appliance is at the installation site.

Before opening the packaging, check it thoroughly for visible signs of damage. If there are signs of rough handling, do not open the packaging, but notify the carrier immediately. If transport damage is visible, proceed as follows:

- Refuse the delivery or accept it only with reservation.
- Record the extent of the damage and initiate the complaint procedure.

MOVING THE SYSTEM

When moving and handling the system, observe the safety instructions and precautions to avoid health risks associated with handling heavy loads.

WARNING

Manual handling of heavy loads carries a risk of injury. Use correct manual handling techniques when moving the system to reduce the risk of musculoskeletal injuries.

Use suitable equipment to move heavy loads and wear personal protective equipment to ensure the safety of persons and property.

Place the system components as close as possible to the installation site before removing the packaging.

When moving the system, observe the following:

- Use transport aids.
- Do not tilt the appliance more than 45 degrees in any direction.
- Do not place loads heavier than 10 kg on the appliance.
- Avoid jerky and/or sudden movements of the appliance.

UNPACKING THE SYSTEM

When unpacking the system, remove the packaging material, check the contents against the enclosed delivery list and check the general condition of the equipment. Make sure that you have removed all packaging, otherwise serious damage to the system may occur.

Dispose of the packaging material in accordance with the applicable legislation and local regulations.

NOTE: Before discarding the original packaging, consider whether you may need it again for transporting or storing the system.

SYSTEM INSTALLATION

The purchaser is solely responsible for carrying out the work at the installation site. Before starting installation, the installer must check all necessary legal and safety requirements, in particular:

- check that the installation complies with local, national and European standards,
- observe the requirements specified in this document,
- not make temporary electrical connections or use unsuitable cables,
- check the earthing of the electrical system,
- always use personal protective equipment and all protection required by law,
- always ensure sufficient space for maintenance work.

Before installation, review the instructions for preparing the installation site, the minimum clearances from walls and the base design. The system must be accessible for installation, servicing and maintenance. During installation, servicing and maintenance, observe the safety regulations and good professional practice.

WARNING

Manual handling of heavy loads carries a risk of injury. Use correct manual handling techniques when moving the system to reduce the risk of musculoskeletal injuries.

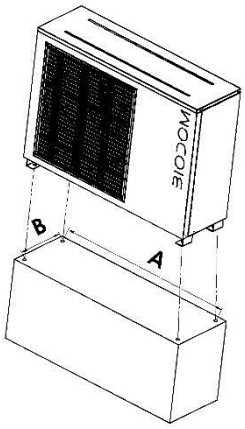
INSTALLING THE VULKAN HEAT PUMP

The outdoor unit of the Vulkan heat pump can be installed in the following ways:

- on a concrete base – to be prepared by the customer or installer before installation,
- on a wall bracket – the standard bracket for the Vulkan heat pump.

NOTE: A condensate drainage system must be provided to prevent the accumulation of water and moisture.

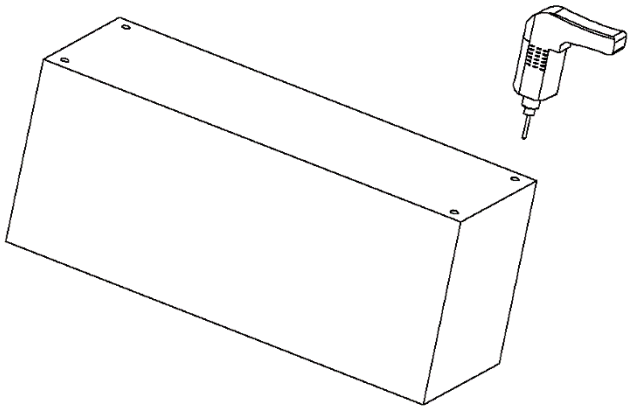
INSTALLING THE VULKAN HEAT PUMP ON A CONCRETE BASE



STEP 1

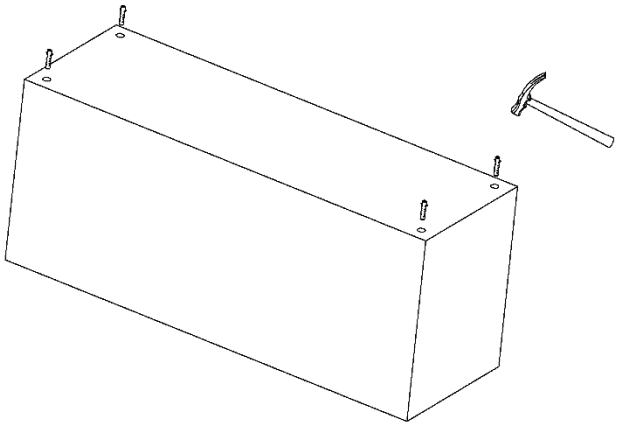
Prepare a concrete base with the following dimensions:

- Height 500 mm
- Length 1100 mm
- Width 270 mm



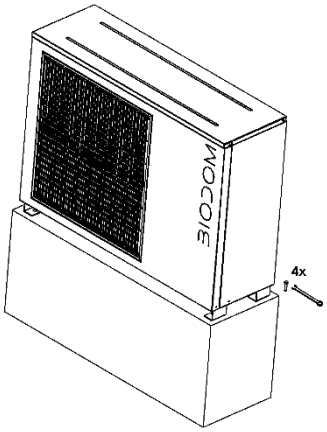
STEP 2

Measure the distances and drill holes in the base.



STEP 3

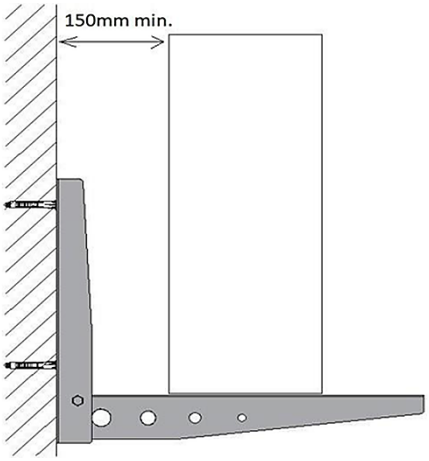
Drive the anchors into the concrete base.



STEP 4

Tighten the bolts with an open-end spanner to fix the appliance to the prepared base.

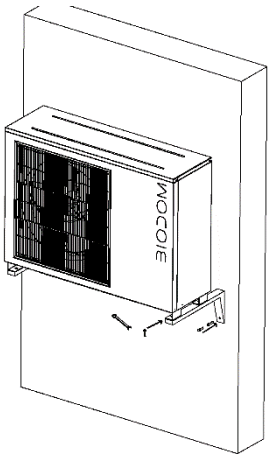
INSTALLING THE VULKAN UNIT ON A WALL BRACKET



STEP 1

Use a special bracket for installation, which must meet the following requirements:

- The unit must be supported by concrete slabs or a special bracket.
- Adequate load-bearing capacity must be ensured; the bracket must withstand at least 5 times the weight of the unit.
- The bracket material can be stainless steel, aluminium or another suitable alternative material.
- Ensure a lateral distance of at least 150 mm from the wall.



STEP 2

Place the unit on the brackets and make sure that all nuts are fully tightened.

INSTALLATION LOCATION

CAUTION!

1. Do NOT install the heat pump near hazardous materials or in hazardous locations.
2. Do NOT install the heat pump under steep roofs without gutters, as rainwater and debris may penetrate the unit.
3. Place the heat pump on a level, slightly inclined surface, e.g. a concrete or prefabricated slab. This allows condensate and rainwater to drain properly from the bottom of the unit. If possible, the slab should be at the same height as, or slightly higher than, the filter system or equipment.

INSTALLATION DETAILS

All dimensions given in the following chapters are minimum clearances. Each installation must also be assessed with regard to local conditions, such as the proximity and height of walls and the proximity of publicly accessible areas. The heat pump must be installed so that access for maintenance and inspection is provided on all sides.

1. The heat pump installation area must be well ventilated, and the air inlet and outlet must not be obstructed.
2. The installation area must have good drainage and a firm base.
3. Do not install the unit in areas where pollutants accumulate, such as aggressive gases (chlorine or acids), dust, sand, leaves, etc.
4. For easier and more efficient maintenance and troubleshooting, there must be no obstacles within 1 m of the unit. There must be no obstacles within a vertical distance of at least 2 m above the unit to ensure adequate ventilation. See Figure 1.

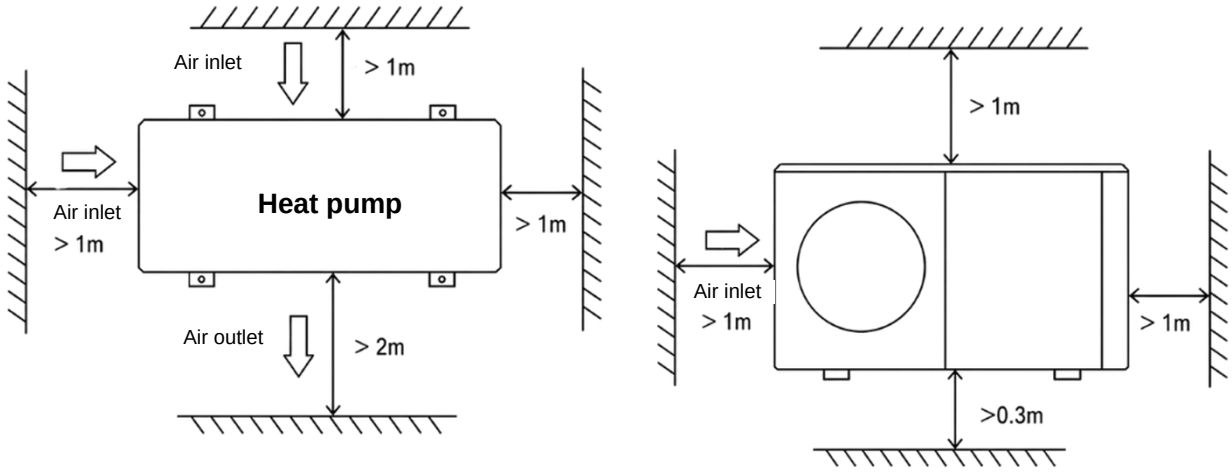


Figure 1

1. The heat pump must be installed with anti-vibration pads to prevent vibration and/or imbalance.
2. Although the controller is waterproof, it must be protected from direct sunlight and high temperatures. The heat pump should be installed so that the controller is clearly visible.
3. Water or hydraulic pipes must be adequately supported to prevent possible damage due to vibration. The water pressure in the system must be higher than 196 kPa. Otherwise, an additional circulation or booster pump must be installed.
4. The permissible operating voltage range must be within ±10 % of the rated voltage.
    - The heat pump unit must be earthed for safety reasons.

DRAINAGE AND CONDENSATE

During operation of the unit, condensate forms on the evaporator and drains steadily, depending on the temperature and humidity of the outdoor air. The higher the ambient humidity, the more condensate is produced. The bottom of the unit acts as a collecting tray for rainwater and condensate. The drain holes in the base tray of the unit must always be clean and free of debris.

SUGGESTED INSTALLATION METHODS

The DC inverter heat pump can provide heating, cooling and domestic hot water. Underfloor heating loops and radiators are used for space heating, and fan coils for space cooling. Domestic hot water is produced in a DHW tank connected to the heat pump.

The DC inverter heat pump has a built-in main circulation pump. During installation, installers must connect the heat pump to the other system elements, including the buffer tank for space heating/cooling and the DHW tank for domestic hot water production. External elements such as a safety valve, a water filling valve and a 3-way valve are also required. A temperature sensor must be installed in the DHW tank. An additional electric heater, which can receive a control signal from the heat pump, can also be installed in the DHW tank or the buffer tank.

1. See Figure 2 and Figure 3 for the system installation diagram.
2. 3-way valve: in DHW mode, the 3-way valve is switched on. In underfloor heating or cooling mode, the 3-way valve is switched off.
3. When neither space heating/cooling nor domestic hot water has reached the set temperature, domestic hot water production has priority.
4. The DHW tank with coil must be specifically designed for domestic hot water production.
5. The heat transfer capacity of the coil must be equal to or greater than the rated heating capacity of the heat pump.
6. The unit is supplied ready for operation and filled with R290 refrigerant.
7. R290 refrigerant is flammable and explosive. Installation in an environment where active or potential ignition sources are present is prohibited.

WATER CONNECTIONS

Water connections on the heat pump

It is recommended to fit quick couplings to the water inlet and outlet connections.

Stainless steel or PPR pipes are recommended for the hydraulic connections of the heat pump. The water inlet and outlet connections on the heat pump are suitable for stainless steel or PPR pipe fittings.

CAUTION! — Make sure that the required flow rate and adequate water exchange in the system can be ensured even when additional heat pumps and hydraulic restrictions are installed.

SYSTEM CONNECTION

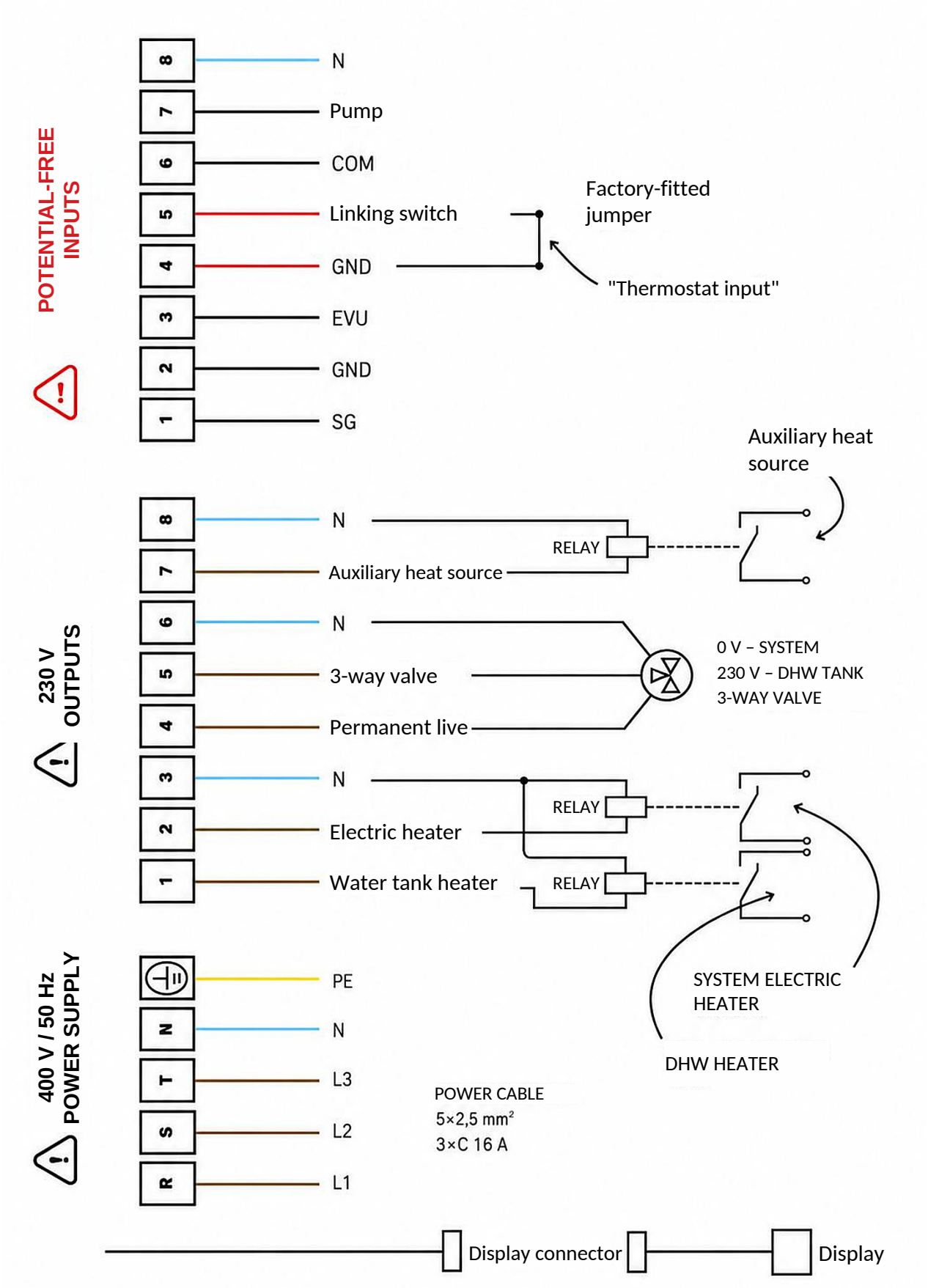
System connections must be made by a qualified technician. The connections must be made in accordance with the applicable regulations.

WARNING

Incorrect connection to the mains or other incorrectly made connections can result in serious personal injury or material damage.

The system must be connected to the mains in accordance with the applicable standards. Connect the system to the mains via a power isolating switch installed in the electrical installation in accordance with the applicable regulations.

For operation, the Vulkan unit is connected to the BioBox S3E ElectroBox, which contains the IQ2 controller and the user interface display. For configuration options and further information about the BioBox, contact the manufacturer or your dealer.


POTENTIAL-FREE INPUTS
8
7
6
5
4
3
2
1
N
Pump
COM
Linking switch
GND
EVU
GND
SG
Factory-fitted jumper
"Thermostat input"
230 V OUTPUTS
Auxiliary heat source
N
RELAY
Auxiliary heat source
N
3-way valve
Permanent live
0 V – SYSTEM
230 V – DHW TANK
3-WAY VALVE
N
RELAY
Electric heater
Water tank heater
RELAY
SYSTEM ELECTRIC HEATER
DHW HEATER
400 V / 50 Hz POWER SUPPLY
PE
N
L3
L2
L1
POWER CABLE
5×2,5 mm²
3×C 16 A
Display connector
Display

OPERATING THE VULKAN HEAT PUMP

BIONIC SYSTEM DESCRIPTION

Typical Bionic system based on the WiFly interface network

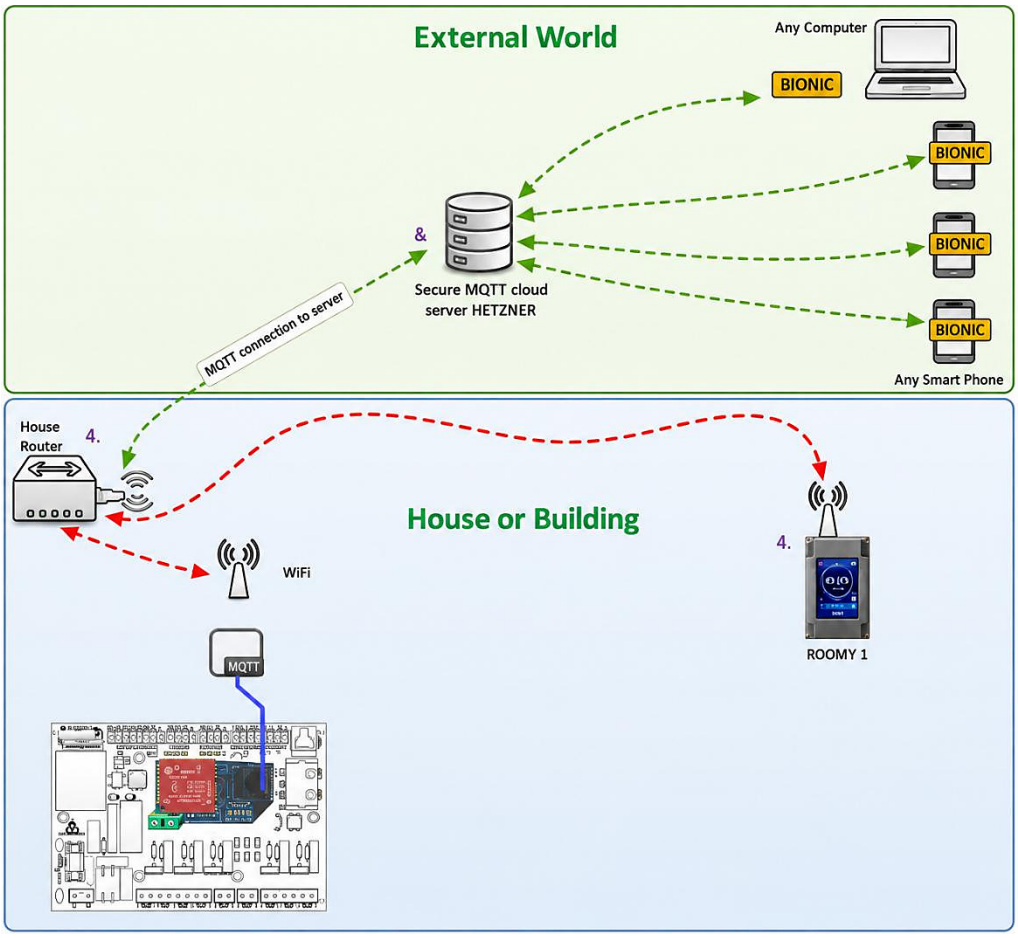


Figure 1: Schematic diagram of the BIONIC system

WI-FI CONNECTION REQUIREMENTS

NOTE: Wally must be installed within range of a stable Wi-Fi signal from the main router. If the signal at the installation location is not strong enough, a signal booster (range extender) must be installed; it must have a different network name (SSID) from the main router to prevent the device from connecting incorrectly if the main router starts up before the range extender. If the router supports dual Wi-Fi frequencies (2.4 GHz and 5 GHz), the Dual Band / Dual Frequency function must be activated, as most devices operating at 2.4 GHz may otherwise not work properly. If Wally still does not connect to the network, contact your internet service provider and check whether ports 8883 and 8884 are blocked on the router. The provider can unblock the ports if necessary.

Devices in the house

1 Adapter between the boiler controller and the WiFi MQTT network, called WiFly

2 Power supply and communication adapter installed on the LucifireM controller

3 LucifireM boiler controller

4 ROOMY I – wireless room controller that precisely regulates the living conditions in the room

5 Main household WiFi router

6 ROOMY I – wireless room controller that precisely regulates the living conditions in the room

Devices outside the house

7 Secure MQTT cloud server. It is hosted at several European locations and provides 99.99 % availability and an equally high level of data security. The server uses MCZ's own version of the LINUX-based MQTT server, with an Influx database and the Node-RED graphical IoT application builder, together with the BIONIC web application for mobile devices. All data from all devices is stored on this server and is accessible only via secure protocols and only to registered users.

8 The BIONIC app for smartphones or tablets enables easy remote control from anywhere. It is a web application that runs in a web browser, so it is device-independent and does not need to be downloaded separately from the Apple App Store or Google Play.

Each device connected to the BIONIC system publishes messages containing the operating data of its subsystem. For example, the WinIot tablet publishes all data collected from the Lucifire and IQ2 controllers. The server collects this data, which is then available to all subscribed devices in the system. The same applies to the WiFly interface for boilers and heat pumps. It connects to the MQTT server in the same way as the tablet, but it is a simpler, universal device that can connect to Biodom heat pumps and pellet boilers.

NOTE

If the Wi-Fi signal at the display location is weak due to thick walls or a large distance between the router and the boiler room, we recommend using a Wi-Fi signal booster. It provides a more stable connection between the display and the local network and helps prevent communication interruptions.

We recommend the **Tender Wi-Fi signal booster, available from Biodom.** Clear instructions for connecting the display and the booster are available via the QR code:

GENERAL OPERATING INSTRUCTIONS

Precautions for the first start-up

Checking the first start-up and the operating status:

1. Check that the power supply meets the requirements stated on the product rating plate.
2. Electrical connections of the unit: check that the power cable and its connection are correct; check that the earth conductor is correctly connected; check that the water pump and other connected devices are correctly connected.
3. Flush the water or hydraulic pipes two to three times before use to ensure that the system is clean and to remove any dirt.
4. Check the water system: check that there is enough water in the system, that the system has been vented and that it does not leak.
5. At the first start-up, or when restarting after a long shutdown, make sure that the power supply is switched on in advance and that the compressor crankcase has been preheated for at least 12 hours when the local circuit temperature is zero. The water pump starts first, then the fan after a certain time, then the compressor, after which the unit switches to normal operation.
6. Operational check: use the following data to check that the unit is working correctly.

When the unit is operating normally, check the following:

a. water inlet and outlet temperature,
b. water flow in the circuit,
c. operating current of the compressor and the fan,
d. high and low pressure values during operation in heating mode.

CAUTION — Do not use the heat pump if any electrical components have been in contact with water. Immediately call a qualified service technician to inspect the heat pump.

CAUTION — There must be no objects above the heat pump. Blocking the airflow can damage the unit and may void the warranty.

TROUBLESHOOTING

Use the following information to troubleshoot the DC inverter heat pump.



WARNING — RISK OF ELECTRIC SHOCK OR ELECTROCUTION

Before starting installation of the heat pump, make sure that all high-voltage circuits are switched off. Contact with these circuits can result in death or serious injury to users, installers or other persons due to electric shock, and can also cause material damage.

Do NOT open any part of the heat pump, as this may cause electric shock.

1. Keep hands and hair away from the fan blades to prevent injury.
2. If you are not sufficiently familiar with the appliance:
   a) Do NOT attempt to adjust or service the unit without consulting an authorised installer or service technician.
   b) READ the entire installation and/or user manual before using, servicing or adjusting the appliance.

IMPORTANT

Switch off the main power supply to the DC inverter heat pump before any servicing or repair.

COMMON FAULTS AND TROUBLESHOOTING

If problems occur during operation of the unit, the user must call qualified service personnel to rectify the fault. Service personnel can use the table below to help diagnose and rectify faults.

Fault	Possible cause	Solution
Heat pump does not work.	Power supply fault Loose wiring Blown fuse Thermal overload trip Pressure too low	Switch off the power supply and check the power source. Determine the cause and carry out the repair. Replace the blown fuse. Check the voltage and current.
Water pump runs, but there is no water flow, or the pump is very noisy.	Insufficient water in the system Air in the water system Not all valves are open Filter is dirty and clogged	Check the system filling device and fill the system Vent the air from the water system Open the water system valve Clean the water filter
Low heating capacity	Insufficient refrigerant Poor thermal insulation of the water system Clogged filter drier Poor heat dissipation at the air-side heat exchanger Insufficient water flow	Check for leaks and charge with refrigerant Improve the thermal insulation of the water system Replace the filter drier Clean the air-side heat exchanger Clean the water filter
Compressor does not run	Power failure; Damaged compressor contactor; Loose electrical connection Compressor Overheating protection Outlet water temperature too high; Insufficient water flow Compressor overload protection tripped	Determine the cause and eliminate the power failure Replace the compressor contactor Locate and eliminate the poor contact Check the unit pressure and the discharge gas temperature Reset the outlet water temperature Clean the water filter and vent the air from the system Check the operating current and whether the overload protection is damaged

Compressor operating noise is too high.	Liquid refrigerant entering the compressor Damage to internal parts of the compressor Voltage too low	Check whether the expansion valve is faulty. Replace the compressor. Check the supply voltage.
Fan does not run	Fan fixing screw loose Fan motor damaged Contactor damaged	Tighten the screw Replace the fan motor Replace the contactor
Compressor runs, but the heat pump does not heat.	Complete refrigerant leakage Compressor fault Reverse compressor rotation	Check for leaks and charge with refrigerant Replace the compressor Correct the compressor phase sequence
Low water flow protection	Insufficient water flow in the system Water flow switch fault	Clean the water filter and vent the air from the system. Check the water flow switch and replace it.

WI-FI CONNECTION AND CONTROL

To connect the Roomy device to the Wi-Fi network, scan the QR code below and follow the instructions.

Before scanning, make sure that your mobile device is connected to the internet.

Select the Wi-Fi network you want to connect to. Choose a stable and reliable router with a strong signal and a permanent internet connection.

When connecting to a Wi-Fi network, make sure you select a network operating in the 2.4 GHz frequency band. The device will not connect to a 5 GHz wireless network. If the signal is weak, use a Wi-Fi signal booster, available from any electronics shop or online.

TECHNICAL DATA

Model	Vulkan 6.0P	Vulkan 8.3P	Vulkan 11.4P	Vulkan 14.8	Vulkan 18.2	Vulkan 22	Vulkan 24.0
Heating conditions – ambient temperature (DB/WB): 7/6 °C, water temperature (inlet/outlet): 30/35 °C							
Heating capacity range (kW)	2.5~6.0	3.3~8.3	4.5~11.4	5.9~14.8	7.2~18.2	8.8~22.0	9.6~24.0
Power input range in heating (kW)	0.48~1.44	0.64~2.18	0.85~2.95	1.13~3.83	1.38~4.65	1.68~5.77	1.83~6.30
COP range	4.16~5.21	3.81~5.17	3.86~5.29	3.86~5.22	3.91~5.22	3.81~5.24	3.81~5.24
DHW conditions – ambient temperature (DB/WB): 7/6 °C, water temperature (inlet/outlet): 15/55 °C							
Heating capacity range (kW)	2.6~5.3	3.7~7.4	5.2~10.2	6.6~13.2	7.2~16.2	7.8~17.6	8.8~19.6
Power input range in heating (kW)	0.56~1.50	0.79~2.10	1.10~2.87	1.41~3.73	1.54~4.58	1.67~5.01	1.89~5.60
COP range	3.53~4.64	3.52~4.69	3.55~4.71	3.54~4.67	3.54~4.67	3.51~4.66	3.50~4.66
Cooling conditions – ambient temperature (DB/WB): 35/24 °C, water temperature (inlet/outlet): 12/7 °C							
Cooling capacity range (kW)	1.7~4.2	2.4~5.8	3.3~8.2	4.3~10.8	5.6~14.1	6.2~15.3	6.9~17.0
Power input range in cooling (kW)	0.53~1.37	0.79~2.19	1.08~3.07	1.39~3.99	1.80~5.38	1.99~5.60	2.21~6.49
EER range	3.06~3.20	2.65~3.04	2.67~3.06	2.71~3.10	2.62~3.11	2.73~3.12	2.62~3.12
ErP class (35 °C)	A+++	A+++	A+++	A+++	A+++	A+++	A+++
Refrigerant	R290/0.5kg	R290/1.0kg	R290/0.95kg	R290/1.45kg	R290/1.3kg	R290/1.5kg	R290/1.6kg
Power supply	230V/1Ph/50Hz/60Hz						
Maximum power input (kW)	2.5	3.1	4.1	5.2	7.1	7.6	7.8
Maximum current (A)	11.5	14.2	18.8	23.8	32.5	34.8	35.7
Fuse or circuit breaker (A)	16	20	25	32	40	40	40
Cable cross-section (mm^2)	2.5mm^2	2.5mm^2	4mm^2	6mm^2	6mm^2	6mm^2	6mm^2

Pipe diameter (mm)	DN25	DN25	DN25	DN25	DN25	DN25	DN32
Maximum pump head (m)	7.5	9	9	9	12	12	12
Noise level dB(A)	≤46	≤47	≤50	≤52	≤53	≤53	≤55
Net weight (kg)	95	112	120	138	165	170	220
Net dimensions (L/W/H) mm	1083×440×761	1080×460×820	1080×460×960	1080×480×1060	1080×480×1372	1080×480×1372	1160×480×1580
Operating ambient temperature	-25~43℃						
Operating water temperature (°C)	28~65℃（DHW）						
Operating water temperature (°C)	15~70℃（Heating）						
Operating water temperature (°C)	7~35℃（Cooling）						

Model	Vulkan 6.0P	Vulkan 8.3P	Vulkan 11.4P	Vulkan 14.8	Vulkan 18.2
Heating conditions – ambient temperature (DB/WB): 7/6 °C, water temperature (inlet/outlet): 30/35 °C					
Heating capacity range (kW)	4.5~11.4	5.9~14.8	7.2~18.2	8.8~22.0	9.6~24.0
Power input range in heating (kW)	0.85~2.95	1.13~3.83	1.38~4.65	1.68~5.77	1.83~6.30
COP range	3.86~5.29	3.86~5.22	3.91~5.22	3.81~5.24	3.81~5.24
DHW conditions – ambient temperature (DB/WB): 7/6 °C, water temperature (inlet/outlet): 15/55 °C					
Heating capacity range (kW)	5.2~10.2	6.6~13.2	7.2~16.2	7.8~17.6	8.8~19.6
Power input range in heating (kW)	1.10~2.87	1.41~3.73	1.54~4.58	1.67~5.01	1.89~5.60
COP range	3.55~4.71	3.54~4.67	3.54~4.67	3.51~4.66	3.50~4.66
Cooling conditions – ambient temperature (DB/WB): 35/24 °C, water temperature (inlet/outlet): 12/7 °C					
Cooling capacity range (kW)	3.3~8.2	4.3~10.8	5.6~14.1	6.2~15.3	6.9~17.0
Power input range in cooling (kW)	1.08~3.07	1.39~3.99	1.80~5.38	1.99~5.60	2.21~6.49
EER range	2.67~3.06	2.71~3.10	2.62~3.11	2.73~3.12	2.62~3.12

ErP class (35 °C)	A+++	A+++	A+++	A+++	A+++
Refrigerant	R290/1.1kg	R290/1.45kg	R290/1.3kg	R290/1.4kg	R290/1.6kg
Power supply	380V/3Ph/50-60Hz				
Maximum power input (kW)	4.1	5.2	7.1	7.6	8.8
Maximum current (A)	7.8	9.8	13.5	14.3	14.8
Fuse or circuit breaker (A)	16	16	20	20	20
Cable cross-section (mm^2)	2.5mm^2	2.5mm^2	4mm^2	4mm^2	4mm^2
Pipe diameter (mm)	DN25	DN25	DN25	DN25	DN32
Maximum pump head (m)	9	9	12	12	12
Noise level dB(A)	≤50	≤52	≤53	≤53	≤55
Net weight (kg)	120	138	165	170	220
Net dimensions (L/W/H) mm	1080×460×960	1080×480×1060	1080×480×1372	1080×480×1372	1160×480×1580
Operating ambient temperature	-25~43℃				
Operating water temperature (°C)	28~65℃（DHW）				
Operating water temperature (°C)	15~70℃（Heating）				
Operating water temperature (°C)	7~35℃（Cooling）				

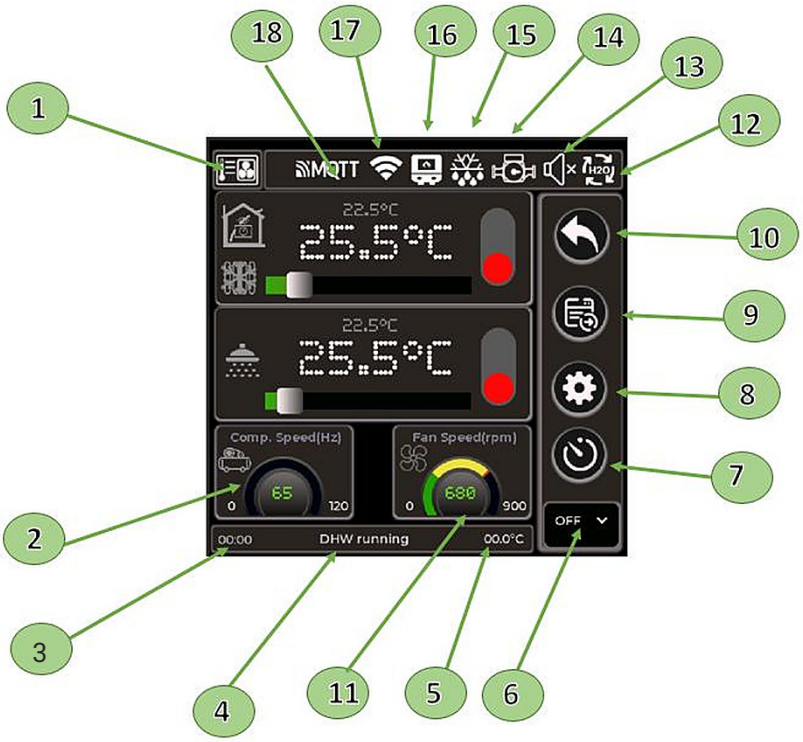
Note:

The design and technical data given above are subject to change without prior notice due to product improvements.

For detailed technical data of the appliances, refer to the rating plate on the appliances themselves.

USER INSTRUCTIONS

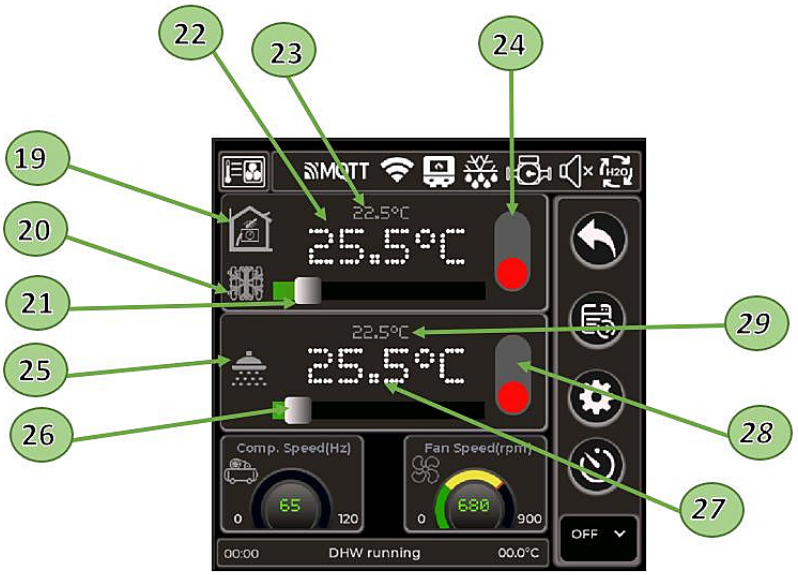
WALLY MAIN SCREEN (STATUS, COMMAND BUTTONS, GAUGES AND BOTTOM STATUS BAR)



Item	Function	Comment
1	Selected device icon: heat pump, DUCA, Biodom pellet boiler or IQ2, IQ3 Biodom	Depending on the display version, one or more devices can be connected and selected. In this case the heat pump is selected.
2	Heat pump compressor speed in Hz	Depending on the heat pump, the compressor speed can range from 20 to 110 Hz. The higher the speed, the higher the heat pump
3	Current time	output.
4	Dynamic status and actions of the device	This section shows the dynamic status of the device and any actions to be taken ...
5	Temperature measured by the internal sensor of the Wally Display	
6	Heat pump operating mode: OFF, heating or cooling	The main operating mode of the heat pump is selected here.
7	Weekly timer settings button	Press this button to set the weekly timer periods and temperatures
8	Settings button	When weather-curve heating mode is selected, this button opens the weather curve setting screen. If another heating mode is selected, you can change the device parameters.

9	Additional information screens selection button.	Use this button to select additional information screens. Depending on the device, one or more screens are available.
10	Button for returning from any selected function	Use this button to return from any sub-screen to the main screen. It also serves as an exit button if any function needs to be cancelled.
11	Heat pump fan speed in rpm	Heat pump main fan speed indicator
12	Flow switch is closed, flow is OK	When this icon is displayed, the water flow switch has detected correct flow and pressure.
13	Silent mode is on	Silent mode is active, which means that the heat pump operates with lower energy consumption and less noise.
14	Heat pump water pump is running	This icon is displayed when the heat pump water pump is activated
15	Defrost mode is active	The heat pump is defrosting (de-icing) Due to
16	Additional electric heater or backup boiler activated	weather conditions, the efficiency of the heat pump has dropped below a certain limit, so the auxiliary heat source has been activated.
17	Wally is connected to the home wireless internet.	If all home WiFi parameters have been set correctly, this icon is present at all times. The
18	MQTT data server is confirmed and connected. Data streams are running.	Biodom BIONIC server is connected and working.

WALLY MAIN SCREEN (MODE SETTING, TEMPERATURE SETTINGS, TEMPERATURE DISPLAY)

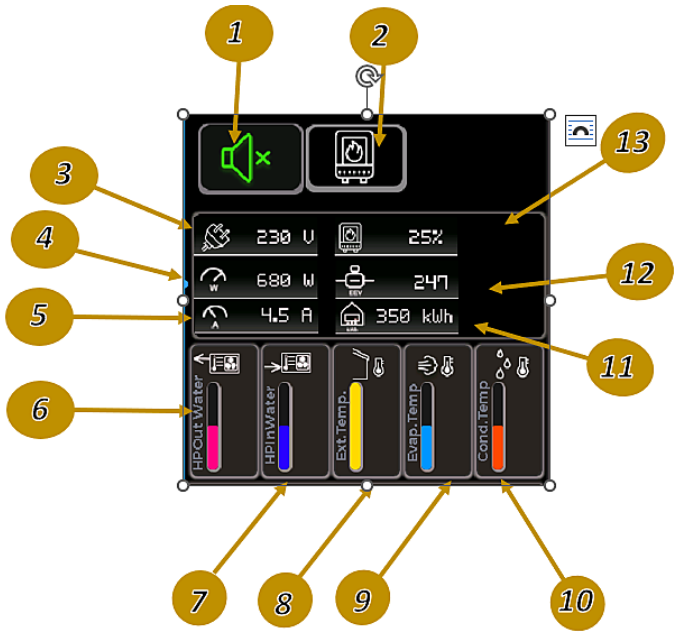


Item	Function	Comment
19	Click to select the water temperature control mode: - Fixed water temperature - Weather curve control - Weekly timer control - Roomy control mode	Clicking the described icons changes the temperature control mode. -The fixed temperature is set with the 21 slider. The heat pump will try to heat the water to the desired temperature. -The weather curve changes the water temperature according to the outdoor temperature using a curve defined by pressing the button . LINK -The weekly timer controls the day and night temperatures. The periods are defined by pressing the button . LINK -Roomy mode uses the Roomy WiFi room thermostat to control the water temperature according to the room temperature. LINK
20	Select heating or cooling mode - Cooling - Heating	When heating mode is selected, the heat pump heats the water; when cooling mode is selected, it cools it. Note that only a fixed temperature can be used in cooling mode. This icon flashes when the ON/OFF button is in the ON position; when the function is in standby, the icon is dimmed; when it is 6 in the OFF position, the icon disappears, so heating is not available.
21	Temperature setting slider 	The desired water temperature is set with this slider when fixed temperature mode is selected. The temperature range varies depending on whether the heat pump is in cooling or heating mode. The slider disappears in WeatherCurve, Timer and Roomy modes. The number above the slider shows the set temperature.
22	Currently set temperature.	The displayed temperature corresponds to the desired water temperature set in fixed mode, weather curve mode, timer mode or room temperature mode The actual temperature of
23	Actual heat pump outlet temperature	the water leaving the heat pump is shown here
24	ON/OFF button for starting space heating/cooling	The heat pump starts in heating/cooling mode, depending on the status of icon 20. If the domestic hot water heating function is also enabled, the heat pump operates in combined mode.
25	Domestic hot water (DHW) icon. When it flashes, the function is active (the ON/OFF button is in the ON position).	This icon flashes when the ON/OFF button is in the ON position; when the function is in standby, the icon is dimmed; when it is 6 in the OFF position, the icon disappears, so hot water heating is not available.
26	DHW temperature slider 	The desired hot water temperature is selected with this slider. The number above the slider shows the desired hot water temperature setting.

27	Desired DHW temperature	Desired DHW temperature set with the slider
28	DHW ON/OFF button	When the button is in the ON position, the hot water heating function is activated.
29	Actual domestic hot water temperature in the DHW tank	The temperature shown on the display comes from the temperature sensor in the DHW tank.

WALLY ADDITIONAL INFORMATION SCREEN

Pressing the button displays additional data screens. Several screens are available, depending on the heat pump type.



Item	Function	Comments
1	Silent mode button	When the button is green, pressing it activates silent mode and the button turns red. Pressing it again disables silent mode and the button turns green.
2	Electric heater/backup device button	When pressed, the additional electric heater or backup device is switched on. The button turns red and the backup device is activated according to the internal logic of the heat pump. If you press the button again, the additional backup device is disabled and the
3	Mains voltage	button turns green. The mains voltage is
4	Instantaneous electrical power of the heat pump	shown in volts The current heat pump power is shown in watts.
5	Total electrical current drawn from the	Current drawn from the mains, in amperes
6	mains Heat pump outlet water temperature	Heat pump outlet water temperature indicator in °C
7	Heat pump return water temperature	Return water temperature indicator in °C
8	Outdoor ambient temperature	Outdoor ambient temperature indicator in °C
9	Evaporator temperature	Evaporator temperature indicator in °C

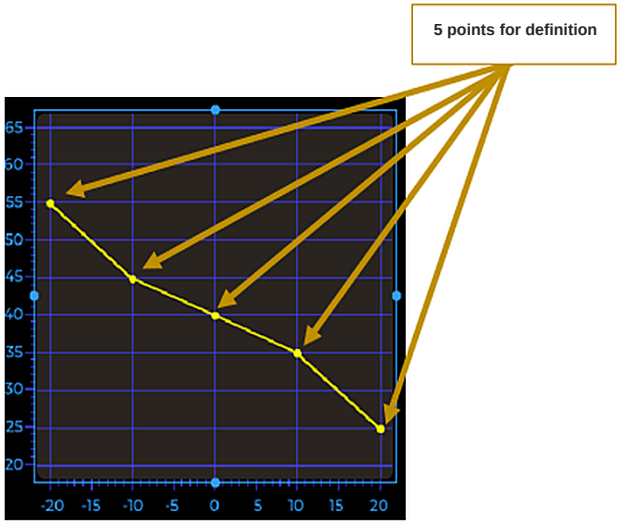
10	Condenser temperature	Condenser temperature indicator in °C Total
11	Total energy consumed	energy consumption of the heat pump in kWh
12	Expansion valve position	Expansion valve position in steps. Shows the
13	Electric heater operating time share relative to total operating time	ratio [%] of electric heater on-time to the heat pump operating hours.

WEATHER CURVE SETTING SCREEN

The weather curve is a simple set of points that defines the relationship between the outdoor ambient temperature and the water temperature required to heat the house. Because different houses have different insulation and thermal inertia and are located in sunny or shady areas, weather curves must be adjusted accordingly. In the Biodom system, the weather curve is defined by selecting 5 water temperature values corresponding to 5 outdoor ambient temperatures. For example, when it is very cold outside, -10 degrees, we set the water temperature to 45 degrees to compensate for the higher heat losses of the house. When the outdoor temperature rises to 0 degrees, the same indoor temperature can be achieved with a water temperature of only 40 degrees.

In the Biodom system, to enter the weather curve setting screen, heating must be in weather curve control mode. The icon:  must be present on the screen. The user then presses:  to enter the weather curve setting screen.

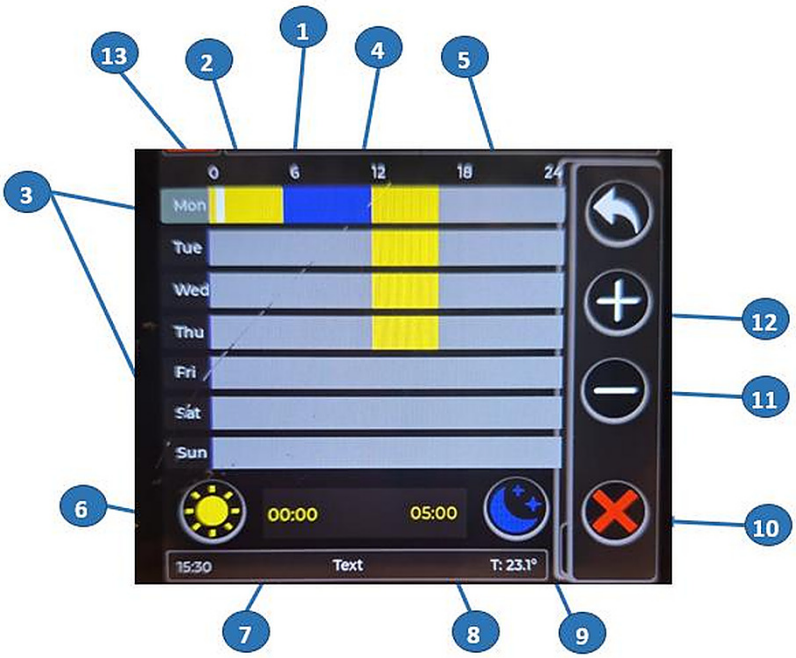
Then simply click one of the five points on the graph and move the points to the desired values. The system automatically interpolates the other values and ensures smooth temperature control. When the setting is complete, simply press  to return to the main screen.



WEEKLY TIMER SETTING SCREEN

The weekly timer setting is used to define the weekly operation of the heat pump. Different day and night temperature periods, as well as periods when the heat pump is inactive, can be defined for each day. The settings have a resolution of 30 minutes. The setting procedure is described below:

In the right panel, click  to access the weekly timer setting screen:



Item	Functions	Comments
1	Time of day, as a reference during setting	
2	Yellow: day period: the day temperature refers to the water	Click 6 and the day temperature moves by one 30-minute slot. Items 7 and 8 show the start and end times for the currently selected segment.
3	Days of the week	The days of the week are shown on the left. By dragging across the names of the days of the week, you can select and set several days at once.
4	Blue: night period: the night temperature refers to the water	Click 9 and the night temperature moves by one 30-minute slot. Items 7 and 8 show the start and end times for the currently selected segment.
5	Grey: OFF period: the heat pump is OFF/in standby.	Click 10 and the OFF period (the heat pump will be OFF) moves by one

		30-minute slot. Items 7 and 8 show the start and end times for the currently selected segment.
6	Selecting day time slots	Clicking this button moves the day slot to the next 30-minute slot. Day slots are marked in yellow. Pressing this button for more than 2 seconds allows you to set the day temperature.
7	Start time of the selected slot	Indicates the start time of the currently selected
8	Stop time of the selected slot	slot Indicates the stop time of the selected slot
9	Selecting night time slots	Clicking this button moves the night time interval to the next 30-minute interval. Night time intervals are marked in blue. Pressing this button for more than 2 seconds allows you to set the night temperature.
10	Selecting OFF time intervals	Clicking this button moves the OFF time interval to the next 30-minute interval. OFF time intervals are marked in grey. During the OFF interval, the heat pump switches to standby.
11	Move the white cursor one slot to the left	Clicking this button moves the cursor to the left to the desired position.
12	Move the white cursor one slot to the right	Clicking this button moves the cursor to the right to the desired position.

The weekly timer setting is useful when the heat pump is to operate at two fixed temperatures, day and night, and when it needs to be switched off for certain periods. When weekly-timer heating mode is selected, it is not possible to select the water temperature manually or to use the weather curve.

If several days of the week are to have the same programmed time intervals, simply drag slowly across the names of the days of the week. When all the desired days are highlighted, start defining the time intervals. The time intervals are automatically displayed for all selected days of the week.

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ECO HYBRID OPERATING MODE

The eco hybrid operating mode uses the COP of the heat pump for its calculation and gives priority to the most cost-effective operating mode. If operating the heat pump does not bring any savings, the heat pump is stopped.

Three eco hybrid operating modes are available:

- H03 = 1: fixed energy price mode,
- H03 = 2: high and low tariff mode,
- H03 = 3: ambient temperature mode.

1) Fixed energy price mode

Every hour, the system calculates the cost of using the heat pump and gas. When the cost of using the heat pump is lower than the cost of the auxiliary heat source, the heat pump is switched on and the auxiliary heat source is switched off. When the cost of using the heat pump is higher than the cost of the auxiliary heat source, the auxiliary heat source is switched on and the heat pump is switched off.

H14 — change in ambient temperature for restarting the heat pump

Based on the ambient temperature at the time the auxiliary heat source was first switched on, the heat pump restarts when the ambient temperature has changed by a total of H14 degrees. The default value is 5 °C. The heat pump then runs for one hour, and the system recalculates and compares the cost of electricity and gas based on the COP and decides whether the heat pump or the gas boiler will operate.

2) High and low tariff mode

The system calculates the electricity price according to the time, once an hour. Time is divided into working days and days off, which are further divided into the standard electricity tariff and the low electricity tariff.

The low electricity tariff is defined by parameter H08 and the standard electricity tariff by parameter H07.

The low electricity tariff period on working days is from H10 to H11.

The low electricity tariff period on days off is from H12 to H13.

Enabling condition: H03 = 2, high and low tariff mode.

HEATING SWITCH-ON CONDITIONS
All conditions must be met. The auxiliary heat source is switched on and the compressor is switched off.

Switch-on conditions:

1. Total system water temperature < [P05] – [H06]
2. Time since the auxiliary heat source was switched off > 5 minutes
3. Cost of using gas < cost of using the heat pump

Switch-off condition: one of the following conditions must be met:

1. Total system water temperature > [P05] + 2
2. Heating mode is switched off
3. Cost of using gas ≥ cost of using the heat pump

DHW SWITCH-ON CONDITIONS
All conditions must be met. The auxiliary heat source is switched on and the compressor is switched off.

Switch-on conditions:

1. DHW tank temperature < [P03] – [P02]
2. Time since the auxiliary heat source was switched off > 5 minutes
3. Cost of using gas < cost of using the heat pump

Switch-off condition: one of the following conditions must be met:

1. DHW tank temperature ≥ [P03]
2. Total system outlet water temperature ≥ 70 °C
3. DHW mode is switched off
4. Cost of using gas ≥ cost of using the heat pump

3) Ambient temperature mode

HEATING SWITCH-ON CONDITIONS
All conditions must be met. The auxiliary heat source is switched on and the compressor is switched off.

Switch-on conditions:

1. Total system outlet water temperature < [P05] – [H06]
2. Time since the auxiliary heat source was switched off > 5 minutes

3. Ambient temperature TA < H04 – 2

Switch-off condition: one of the following conditions must be met:

1. Total system outlet water temperature > [P05] + 2
2. The appliance switches off after heating
3. Ambient temperature ≥ H04

DHW SWITCH-ON CONDITIONS
All conditions must be met. The auxiliary heat source is switched on and the compressor is switched off.

Switch-on conditions:

1. DHW tank temperature < [P03] – [P02]
2. Time since the auxiliary heat source was switched off > 5 minutes
3. Ambient temperature < H04 – 2

Switch-off condition: one of the following conditions must be met:

1. DHW tank temperature ≥ [P03]
2. Total outlet water temperature ≥ 70 °C
3. DHW mode is switched off
4. Ambient temperature ≥ H04

USER INSTRUCTIONS

RIGHTS AND RESPONSIBILITIES

1.1 To keep the warranty valid, the unit may only be installed and repaired by professionally qualified service and technical personnel. The company accepts no liability for damage or injury resulting from failure to observe this instruction.
1.2 On receipt of the unit, check whether it has been damaged during transport and whether all parts are included. Notify the seller in writing of any damage or missing parts.

OPERATING INSTRUCTIONS

2.1 All safety protection devices are set before the unit leaves the factory. Do not adjust them yourself.
2.2 The unit contains the correct amount of refrigerant and lubricating oil. Do not add or replace them yourself. If recharging is required due to a leak, observe the quantity stated on the rating plate. When recharging refrigerant, the system must be evacuated again.
2.3 The external water pump must be connected to the unit control, otherwise various water shortage alarms may occur frequently.
2.4 Clean the water system regularly in accordance with the maintenance requirements.
2.5 In winter, pay attention to frost protection when the ambient temperature is below 0 °C.
2.6 Safety measures

A. The user must not install the unit. Installation must be carried out by an authorised representative or a specialised installation company, otherwise safety risks and poorer performance of the appliance may result.
B. When installing or using the unit, check that the power supply meets the requirements of the unit.

C. The main power switch of the unit must be fitted with a residual current device. The power cable must meet the requirements of the unit, national standards and local fire and safety regulations.
D. The unit must be earthed. Do not use the unit if it is not earthed. The earth conductor must not be connected to the neutral conductor or the water pump.
E. The main power switch of the unit must be installed at a height of more than 1.4 m so that children cannot reach it and cause a hazard.
F. Water above 52 °C can cause scalding. Hot and cold water must be properly mixed before use.
G. If the unit has been exposed to water or flooded, contact the manufacturer or the service department. The unit may only be used again after it has been inspected or serviced.
H. Do not insert any tools or objects into the fan guard. The fan is dangerous. Pay particular attention to children.
I. Do not use the unit if the fan guard is not fitted.
J. To prevent electric shock or fire, do not store or use flammable gases or liquids, such as thinners, oil paints, petrol and similar substances, near the unit. Do not pour water or other liquids over the unit and do not touch it with wet hands.
K. Switches, valves, the controller and internal settings must not be adjusted by anyone other than an authorised service technician or other authorised personnel of the manufacturer.
L. If a safety protection device trips frequently, contact the manufacturer or your local dealer.

OWNER INSPECTION

We recommend that the heat pump is inspected regularly, especially after unusual weather conditions. Follow these basic instructions during the inspection:

1. Make sure that the front of the unit is accessible for any future servicing.
2. Keep the top of the heat pump and the area around it clean and free of debris, leaves or other objects at all times.
3. Keep plants and shrubs trimmed and at a sufficient distance from the heat pump, especially in the area above the fan.
4. Prevent lawn sprinklers from spraying the heat pump, as this can cause corrosion and damage.
5. Make sure that the earth conductor is always correctly connected.
6. The filter must be maintained regularly to ensure clean water and to protect the heat pump from damage.
7. Regularly check the power supply and electrical connections of the components and make sure that they work correctly.
8. All safety protection devices have already been set. Do not change these settings. If changes are necessary, contact an authorised installer or service technician.
9. If the heat pump is installed under a roof without a gutter, take appropriate measures to prevent excessive water running onto the unit.
10. Do not use the heat pump if any electrical part has been in contact with water. Contact an authorised installer or service technician.
11. If increased electricity consumption is not due to colder weather, consult your local authorised installer or service technician.

12. If you will not be using the heat pump for a long period, switch it off and disconnect it from the mains.

CLEANING AND MAINTENANCE

The Vulkan heat pump requires an annual visual inspection of the electrical and mechanical installation. If any irregularities are found, contact an authorised service technician.

It is strongly recommended to have the system components serviced every year.

PRECAUTIONS FOR THE MAINTENANCE OF UNITS FILLED WITH FLAMMABLE REFRIGERANT

- When working with flammable materials, the area where the appliance is installed must be properly secured to ensure a safe working environment.
- A dry powder or carbon dioxide fire extinguisher must also be available nearby.
- When electrical components are replaced, the new components must be installed in accordance with the applicable regulations.
- Service tools that come into contact with R290 refrigerant must be stored separately to prevent contamination of other tools.

PRE-SEASON AND POST-SEASON MAINTENANCE

Proper handling and regular maintenance of the heat pump extend its service life and ensure better energy efficiency. The savings achieved with well-maintained appliances far exceed the cost of adjustment and cleaning. Regular maintenance and cleaning also benefit the environment, as significantly fewer emissions and pollutants are released.

Pre-season and post-season maintenance of heating appliances and heat pumps requires you to:

- check the condition and operation of the heating system,
- thermally insulate uninsulated pipes,
- check the condition of the outdoor unit evaporator and clean it if necessary; do not use a high-pressure cleaner, as it may damage the fins,
- check the condition of the condensate tray under the evaporator and clean it, e.g. of leaves and other debris,
- clean the filters installed in the system.

MAINTENANCE OF THE VULKAN UNIT

The Vulkan heat pump is an outdoor unit and is therefore exposed to the weather and other factors that affect its durability and correct operation. The appliance must be inspected regularly and any hazards that could cause faults or malfunctions must be eliminated. Keep the heat pump in good condition to ensure high-quality, reliable and long-lasting operation and to avoid high repair and replacement costs.

Scope of the annual service:

- visual inspection of the appliance and the installation,
- cleaning of the flow switch and the outdoor unit heat exchanger,
- inspection and flushing of the condensate drain,
- checking the refrigerant pressure,
- inspection and testing of the electrical components,
- checking the operation of electric motors such as the compressor, fans and louvres,
- functional inspection and testing of the appliance,
- checking the system pressure,
- checking the tightness of joints in the installation,
- checking the operation of the water heater or DHW tank,
- inspection of the built-in heaters in the indoor unit and the boiler,
- inspection and adjustment of the software settings.

DISMANTLING AND DISPOSAL

This chapter contains information on dismantling and disposing of the Vulkan heat pump.

Before dismantling the system:

- switch off the system,
- disconnect the power supply to the system and discharge any residual energy,
- disconnect all external components and discharge any residual energy,
- disconnect all other system connections,
- remove all operating materials, auxiliary materials and consumables and dispose of them in an environmentally friendly manner.

If there is no agreement on the return of goods or on the disposal of the system, the owner is obliged to dispose of the heating system components at their own expense in accordance with the applicable legislation and local regulations.

WARRANTY

OVERVIEW

For the warranty to be fully valid, the user must, in accordance with Directive 1999/44/EC or the applicable regulations, carefully follow the instructions in this document, in particular:

- use the appliance in accordance with its intended purpose and the conditions specified in the operating instructions in this document,
- maintain the appliance regularly, continuously and carefully,
- observe all safety measures in accordance with the applicable legislation,
- prevent any unprofessional interference with the appliance,
- use only original spare parts.

WARRANTY PERIOD AND CONDITIONS

The warranty is valid for 36 months from the date of first start-up, provided that the regular service inspection is carried out no later than
12 months after the date of first start-up.

GENERAL WARRANTY CONDITIONS

1. We declare:

- that the product will operate faultlessly during the warranty period if it is used for its intended purpose and the enclosed operating and maintenance instructions are strictly observed,
- that during the warranty period Biodom will, through authorised service companies, rectify all faults or defects that prevent the appliance from operating as intended, no later than 45 days after written notification of the fault or defect,
- that a product not repaired within this period will be replaced with a new one at the request of the warranty holder, and the warranty period will be extended by the duration of the repair,
- that the authorised service company confirms the warranty conditions with its signature and stamp on the issued warranty.

2. Warranty claims

The warranty is valid under the following conditions:

- the purchaser holds a valid document, i.e. an invoice issued by the seller,
- the heating appliance has been installed by a qualified or professionally competent person who determines whether the appliance meets all the technical characteristics of the system in which it is installed and whether it complies with the requirements specified in the instructions.

Warranty claims must be made to the seller from whom you purchased the appliance. When reporting a fault, provide an exact description of the fault or the error codes.

3. Service and spare parts availability period

- The period during which we provide service repairs and spare parts for the trouble-free operation of the product is 7 years from the first start-up.

4. The warranty does not cover or apply to damage caused by:

- weather, chemical or electrochemical effects, lightning, natural disasters, improper use of the product, poor maintenance, modifications to the product, non-conformities and other causes unrelated to the product, such as incorrect or improper installation,
- damage occurring during transport; received goods must therefore be carefully inspected on delivery. If the product is damaged, the seller must be notified immediately and the damage recorded on the acceptance document or delivery note,
- interventions in or repairs to the product carried out by an unauthorised person,
- failure by the user to observe the operating and maintenance instructions,
- faults or malfunctions of the Biodom heating appliance caused by defects in equipment from other manufacturers.

The liability of Biodom 27 d.o.o. is limited to the supply of the appliance. The unit must be installed correctly in accordance with the manufacturer's instructions and the applicable legislation. Installation must be carried out by qualified personnel designated by the manufacturer or the agent/dealer A1/A2, or under their supervision and responsibility. These personnel assume full responsibility for the final installation and, consequently, for the correct operation of the installed product. If the conditions of Biodom 27 d.o.o. are not observed, the company accepts no liability whatsoever.

LIABILITY

Biodom 27 d.o.o. does not guarantee reimbursement of costs for direct or indirect damage caused by or related to the product.

SERVICE REPAIRS DURING THE WARRANTY PERIOD

Biodom 27 d.o.o. responds to warranty claims exclusively through its authorised persons.

PLACE OF JURISDICTION

The court in Koper has jurisdiction to settle disputes. The replacement of spare parts does not extend the warranty period. Biodom 27 d.o.o. does not guarantee reimbursement of costs for the period during which the heating appliance is out of operation.

APPENDIX A: CUSTOMER QUESTIONNAIRE

CUSTOMER DATA:
Name:
Address:
Telephone:

SYSTEM DATA:
Model:
Year of manufacture:
Serial number:

BUILDING DATA:
Heated area (m^2):
Underfloor heating (m^2):
Radiator heating (m^2):
Wall insulation (cm):
Insulation type (EPS/wool/AAC …):
Roof insulation (cm):
Windows (type, glazing):
Balcony (m^2):
Number of floors:
Own electricity source: Connected load (kW):
Main fuses (A): • single-phase: • three-phase:

HYDRAULIC CONNECTIONS:
Heating system configuration (circuit): HEATING ONLY HEATING + DOMESTIC HOT WATER MULTI-SYSTEM HEATING
Water tank (type, volume):
Solar/water collectors (type, kW):
Additional system control (type, description):

CUSTOMER SIGNATURE:

APPENDIX B: FIRST START-UP REPORT

CUSTOMER DATA:
Name:
Address:
Telephone:

SYSTEM DATA:
Model:
Year of manufacture:
Serial number:

BUILDING DATA:
Heated area (m^2):
Underfloor heating (m^2):
Radiator heating (m^2):
Wall insulation (cm):
Insulation type (EPS/wool/AAC …):
Roof insulation (cm):
Windows (type, glazing):
Balcony (m^2):
Number of floors:
Own electricity source: Connected load (kW):
Main fuses (A): • single-phase: • three-phase:

HYDRAULIC CONNECTIONS:
Heating system configuration (circuit): HEATING ONLY HEATING + DOMESTIC HOT WATER MULTI-SYSTEM HEATING Return line protection: YES / NO 3-way thermostatic valve: YES/NO Hydraulic separator: YES/NO Water tank (type, volume):
Solar/water collectors (type, kW):
3-way DHW diverter valve: YES / NO Mixing valve HC1:
Mixing valve HC2:
Circulation pump HC1:
Circulation pump HC2:
DHW production: YES /NO DHW tank (type, volume, exchanger surface area):

ADDITIONAL SYSTEM CONTROL:
Additional system control (type, description):
Remote access by the manufacturer:
By signing this report, the purchaser or owner of the equipment confirms that, in the event of problems, the manufacturer may connect to the appliance remotely and rectify the problem accordingly.
Customer signature:
Notes:

INSTALLER DATA:
Company:
Name:
Address:
Telephone:
Installation date:
Signature:
Notes:

START-UP CONTRACTOR/SERVICE PROVIDER:
Company:
Name:
Address:
Telephone:
First start-up date:
The system has been installed and configured in accordance with the system requirements.
Signature:
Notes:

CUSTOMER: By signing, I confirm that the start-up contractor has shown me how the system works and what to do in case of a fault. I have received the enclosed operating instructions. The warranty is valid if the warranty record and warranty card are completed.

CUSTOMER SIGNATURE:

Please return this completed and signed start-up (warranty) form to Biodom 27 d.o.o. (a condition for the validity of the warranty)

APPENDIX B: FIRST START-UP REPORT

CUSTOMER DATA:
Name:
Address:
Telephone:

SYSTEM DATA:
Model:
Year of manufacture:
Serial number:

BUILDING DATA:
Heated area (m^2):
Underfloor heating (m^2):
Radiator heating (m^2):
Wall insulation (cm):
Insulation type (EPS/wool/AAC …):
Roof insulation (cm):
Windows (type, glazing):
Balcony (m^2):
Number of floors:
Own electricity source: Connected load (kW):
Main fuses (A): • single-phase: • three-phase:

HYDRAULIC CONNECTIONS:
Heating system configuration (circuit): HEATING ONLY HEATING + DOMESTIC HOT WATER MULTI-SYSTEM HEATING Return line protection: YES / NO 3-way thermostatic valve: YES/NO Hydraulic separator: YES/NO Water tank (type, volume):
Solar/water collectors (type, kW):
3-way DHW diverter valve: YES / NO Mixing valve HC1:
Mixing valve HC2:
Circulation pump HC1:
Circulation pump HC2:
DHW production: YES /NO DHW tank (type, volume, exchanger surface area):

ADDITIONAL SYSTEM CONTROL:
Additional system control (type, description):
Remote access by the manufacturer:
By signing this report, the purchaser or owner of the equipment confirms that, in the event of problems, the manufacturer may connect to the appliance remotely and rectify the problem accordingly.
Customer signature:
Notes:

INSTALLER DATA:
Company:
Name:
Address:
Telephone:
Installation date:
Signature:
Notes:

START-UP CONTRACTOR/SERVICE PROVIDER:
Company:
Name:
Address:
Telephone:
First start-up date:
The system has been installed and configured in accordance with the system requirements.
Signature:
Notes:

CUSTOMER: By signing, I confirm that the start-up contractor has shown me how the system works and what to do in case of a fault. I have received the enclosed operating instructions. The warranty is valid if the warranty record and warranty card are completed.

CUSTOMER SIGNATURE:



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