



kensol



INSTALLATION, OPERATION AND USE INSTRUCTION

KENSOL Hydraulic Cabinet

Table of contents

1. THEORETICAL PRODUCT DESCRIPTION	1
1.1 Safety	1
1.2 Warranty and liability	1
1.3 Disposal	1
2. MAIN COMPONENTS OF KENSOL HYDRAULIC CABINET EQUIPMENT	1
2.1 Name plate	2
3. BASIC BENEFITS OF USING KENSOL HYDRAULIC CABINET WITH AIR-WATER HEAT PUMPS	2
4. KENSOL CABINET COMPATIBILITY	3
4.1 Monobloc pumps	3
4.2 Photovoltaics	3
5. TECHNICAL SPECIFICATIONS	4
5.1 Dimensions	4
6. INSTALLATION OF KENSOL INTERNAL MODULE	5
6.1 Description of internal module construction	5
6.2 Standard accessories	6
6.3 Transportation	6
6.4 Installation of KENSOL module	6
6.5 Removing the service lid (Figure C)	7
7. HYDRAULIC CONNECTION	7
7.1 Description of connections	8
7.3 Connection of KENSOL cabinet to a heat pump	8
7.4 Connection of KENSOL cabinet to central heating system	10
7.5 Connecting the domestic water system	10
7.6 Condensate drainage	11
7.7 Examples of hydraulic diagrams	12
7.7.1 Low temperature heating - direct connection	13
7.7.2 Low temperature heating - direct connection	14
7.7.3 Heating + cooling - connection with hydraulic coupling and zone solenoid valve	15
7.7.4 Mixed heating - two heat sources	16
8. ELECTRICAL CONNECTIONS	17
8.1 General principles	17
8.2 Power cable	17
8.3 Connecting external devices	18
9. SYSTEM START-UP	19

9.1 Filling the system and the DHW tank..... 19

9.2 Selection of heating and cooling medium..... 19

9.3 Filling and bleeding the heating system and the KENSOL module..... 20

9.4 First start-up 22

10. MAINTENANCE..... 23

11. MALFUNCTIONS..... 25

1. THEORETICAL DESCRIPTION OF THE PRODUCT

The KENSOL hydronic cabinet is an innovative product that works with air-water heat pumps of the KENSOL brand of manufacturers. The compact design of the device allows to compress almost the entire boiler room into an enclosed space with a volume of less than 1m³. The cabinet is equipped with plumbing and control fittings necessary for the proper and safe operation of the central heating system and hot water preparation in the building. Careful workmanship using high-quality materials ensures the durability and aesthetics of the product. Quiet operation and compact design allow the device to be installed in rooms such as the kitchen or hallway, from where you can easily and comfortably control the entire heating system.

1.1 SAFETY

This device should not be used by persons (especially children) with limited mobility or mental capacity, and by persons without appropriate experience or knowledge, unless, for safety, they use this device under the supervision of appropriate persons or receive instructions from them on how to use this device. Children should use the device under adult supervision to ensure that they do not play with this product.

1.2 WARRANTY AND LIABILITY

The manufacturer is not responsible for damage caused by misuse, improper transportation or handling. **Note!** Please check that the delivered goods were not damaged during transport, later claims will not be accepted! The manufacturer reserves the right to make technical and color changes! All dimensions are given in mm!

The manufacturer is not responsible for damages that may be the result:

- x failure to follow the operation, safety and maintenance instructions listed in this manual,**
- x installation that does not comply with the art of construction, the regulations in force in Poland and the guidelines contained in the instruction manual**
- x the use of spare parts that are not supplied or recommended by the manufacturer,**

1.3 DISPOSAL



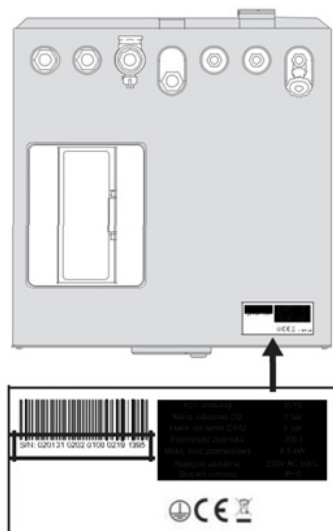
Do not dispose of the decommissioned products with ordinary household waste. They should be taken to a special waste disposal facility or a dealer that provides this type of service. Improper disposal of the product by the user risks administrative penalties in accordance with applicable regulations.

2. MAIN ELEMENTS OF KENSOL HYDRAULIC CABINET

- 190-liter hot water tank;
- central heating safety group; DHW safety group; high-efficiency circulating pump with PWM control;
- emergency circulating pump with UPS protection system;
- circulator (optional);
- flow heater;
- water filter with softener;
- service and vent valves;
- rubber pipe insulation;
- advanced control set;

2.1 NAME PLATE

The name plate is located on the top of the wall of the housing next to the electrical connections (figure below). It is used to identify the product. The information on it is needed for safe use of the product and service issues. The name plate should not be obscured or removed from the device.



3.3. BASIC BENEFITS OF USING KENSOL HYDRAULIC CABINET WITH AIR-WATER HEAT PUMPS

For the user:

- aesthetic appearance and modern design; compact design;
- saving floor space - no need for a classic boiler room;
- compatibility with KENSOL KTM6KW, KTM10KW models;
- warranty of product quality and durability due to the use of the highest grade materials (316L stainless steel);
- lower investment costs compared to split systems;
- maintenance-free operation;
- advanced control capabilities, including via Wi-Fi;

For the installer:

- easy to install by any qualified plumber;
- no need for f-gas certification;
- reducing the time of complex heat pump installation to just a few hours;

- no need for antifreeze solutions as a medium in the heating circuit;
- comprehensive hydraulic equipment of the KENSOL cabinet; additional junction box - the possibility to connect power and communication cables without interfering with the automation of the control set.

4. KENSOL CABINET COMPATIBILITY

Note: KENSOL manufacturer is not responsible for installation of the outdoor unit not in accordance with the installation instructions of the outdoor unit manufacturer's guidelines.

4.1 MONOBLOC PUMPS

KENSOL hydraulic modules work with KENSOL's KTM6KW and KTM10KW pumps.

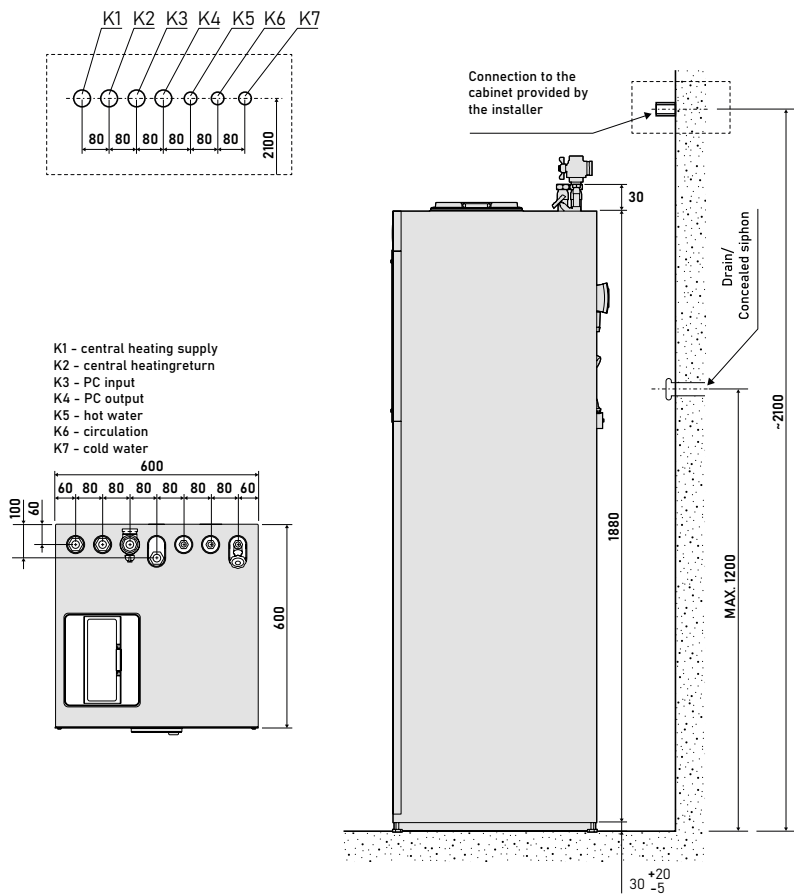
4.2 PHOTOVOLTAIKA

The KT-Multi controller located in the hydraulic cabinet has the ability to work with the photovoltaic system through the SG Ready system.

5. TECHNICAL SPECIFICATIONS

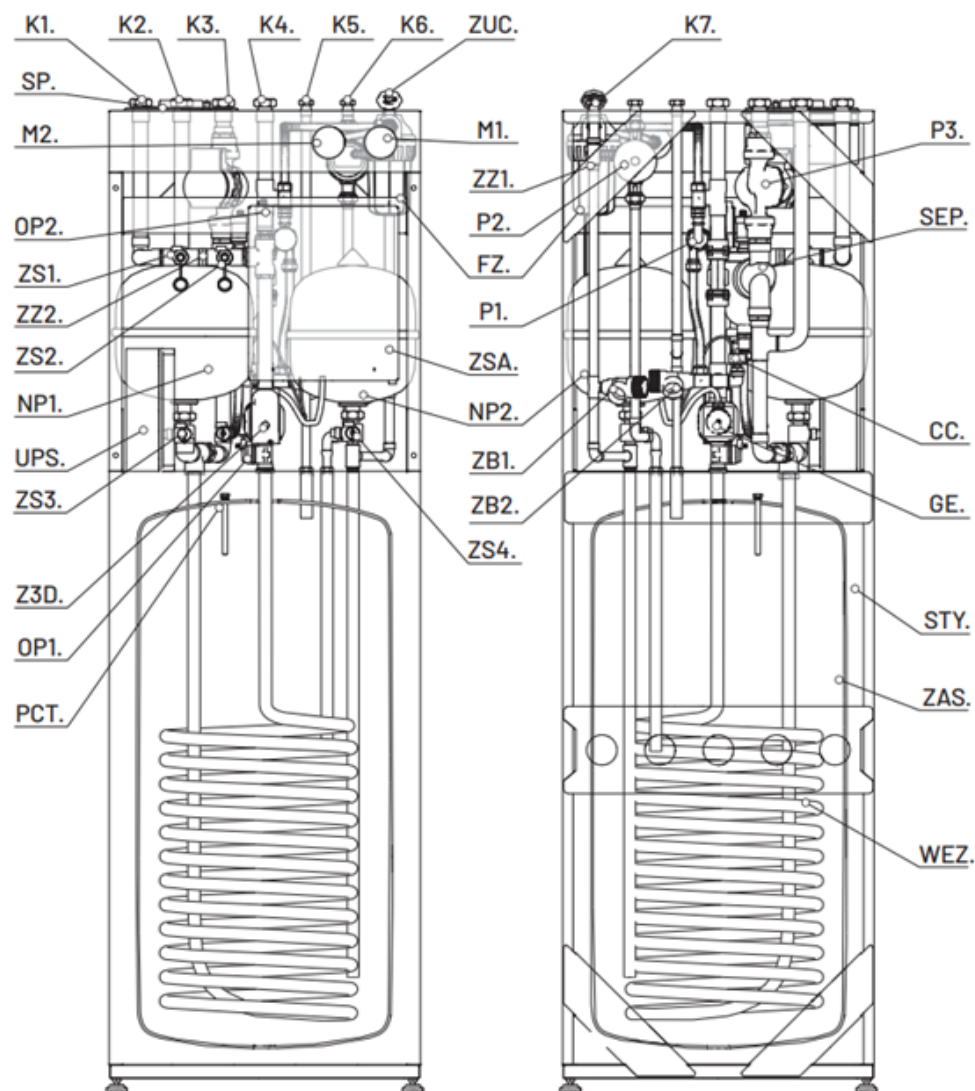
5.1 DIMENSIONS

Model		HYDRAULIC CABINET
Casing	Material	stainless steel
	Height	1880 mm (without feet)
Dimensions / net weight	Length	600 mm
	Depth	600 mm
	Weight	92 kg
	Circulating pump	YES
	Circulator	YES
	Central heating safety valve	3 bar
	DHW safety valve	6 bar
	Central heating expansion vessel	12 dm³
	DHW expansion vessel	12 dm³
	Flow heater	2/4/6 kW
	DHW pressure gauge	YES
	Central heating pressure gauge	YES
Equipment	Central heating filling filter	YES
	Central heating filling valves	YES
	Integrated filling of the central heating system	YES
	Central heating filter with magnetite	YES
	Check valve on DHW inlet.	YES
	PC anti-freeze protection	YES
	DHW Tank	Material
		Capacity
		Coil material
		Coil replacement area
Diameter of water connections	Heating system	1 cal
	DHW	3/4 cal
	Circulation	3/4 cal
Electrical specification	Operating parameters	3/380-415/50 Ø/V/Hz
	Recommended size of the overcurrent circuit breaker	25 A
	Recommended cross-section of the power supply line	5x2,5 mm²



6. INSTALLATION OF KENSOL HYDRAULIC CABINET

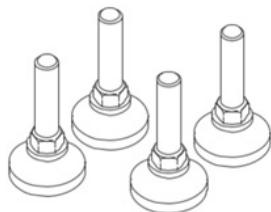
6.1 DESCRIPTION OF INTERNAL MODULE CONSTRUCTION



K1.	outlet stub - central heating system
K2.	inlet stub - central heating system.
K3.	inlet stub - heat pump
K4.	outlet stub - heat pump
K5.	outlet stub - DHW.
K6.	inlet stub - circulation
K7.	inlet stub - mains water
M1.	DHW pressure gauge
M2.	central heating pressure gauge
P1.	circulating pump (emergency)
ZS1.	service valve
NP1.	central heating expansion vessel
ZS2.	service valve
UPS.	UPS module
Z3D.	3-way valve
SP.	electrical connection box
FZ.	mains water filter with softener
P2.	Circulator (optional)
ZZ1.	check valve

6.2 STANDARD ACCESSORIES

Set of adjustable feet



6.3 TRANSPORT

- KENSOL hydraulic cabinet should be transported upright on a pallet provided by the manufacturer.
- Storage of the device should be in a dry environment.
- In order to bring the KENSOL module into the building, it is allowed to lay it horizontally on the back wall.
- Due to the weight and dimensions of the device, its handling should be carried out by at least two adults. Otherwise, there is a risk of injury.

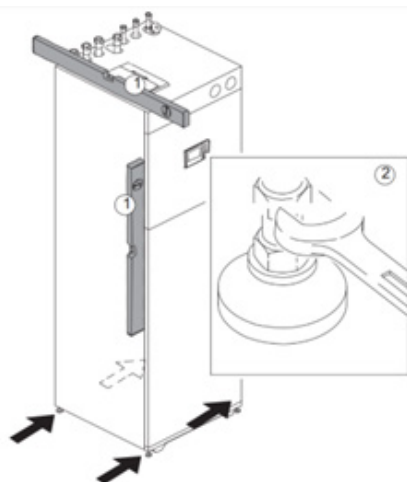
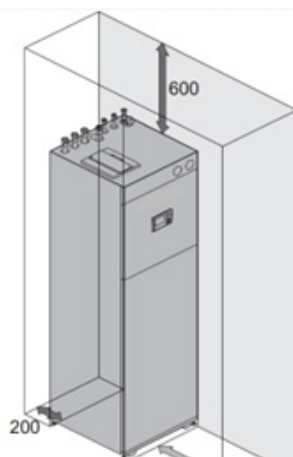
ZB1.	DHW safety valve
ZSA.	control set
ZZ2.	check valve
P3.	circulating pump (primary)
ZB2.	central heating safety valve
NP2.	DHW diaphragm vessel.
CC.	pressure sensor
GE.	flow heater
STY.	DHW tank thermal insulation
ZAS.	DWH tank
WEZ.	DHW tank coil.
OP1.	air vent (angle)
OP2.	automatic air vent (straight)
PCT.	bracket for DHW tank temperature sensor
ZUC.	pressure filling valve
ZS3.	service valve of the central heating vessel
ZS4.	service valve for DHW vessel SEP. air and dirt separator

- Ensure that the unit is not damaged by impacts during transport.

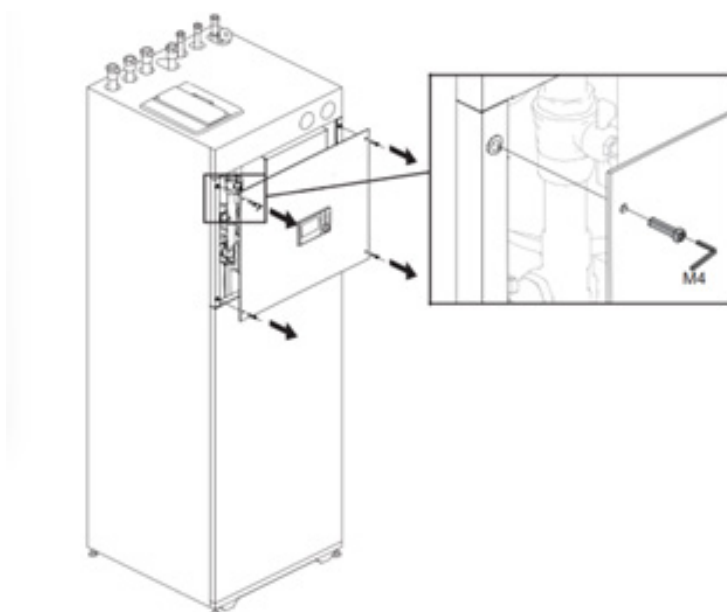
6.4 INSTALLATION OF KENSOL HYDRAULIC CABINET

- KENSOL hydraulic cabinet should be installed in a closed room, protected from frost and excessive moisture;
- Place the device on a flat, solid surface;
- The installed device should be leveled and stand firmly on the ground. Use the adjustable feet provided by the manufacturer for this purpose (Figure A).
- The KENSOL module should be installed in a room with a possibility of gravitational draining of the heating medium from the safety valves to the sewage system or grid;
- The device should be set up in such a way as to provide service space and free installation of hydraulic and electrical wires.

The required mounting distances are shown in the figure below (Figure B).

FIGURE A**FIGURE B**

6.5 REMOVING THE SERVICE LID (FIGURE C)

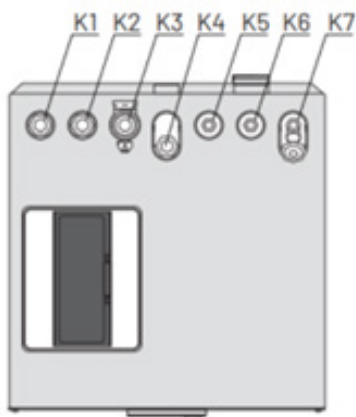


7. HYDRAULIC CONNECTION

7.1 DESCRIPTION OF CONNECTIONS

The KENSOL hydraulic cabinet, together with the monobloc air-water heat pump and the indoor central heating system, creates a highly efficient, closed system for heating the building, as well as enabling the preparation and accumulation of domestic hot water. Thanks to the compressed design and rich equipment, the installation of the heating system is definitely simplified and less time-consuming than in the case of traditional boiler rooms.

Inside the unit itself, copper piping was used in a soldered connection system. From the top lip there is a set of seven water connections terminated with threaded couplings is brought out to which the appropriate sections of the heating and water system should be led. Details are shown in the figure below.



No.	Description	Thread [CAL]
K1	Central heating power	1"
K2	Central heating return.	
K3	Outdoor inlet unit	
K4	Outlet outdoor unit	3/4"
K5	Hot Water	
K6	Circulation	
K7	Cold Water	

7.2 GENERAL PRINCIPLES

The hydraulic installation should be installed by a qualified installer in accordance with current standards and regulations;

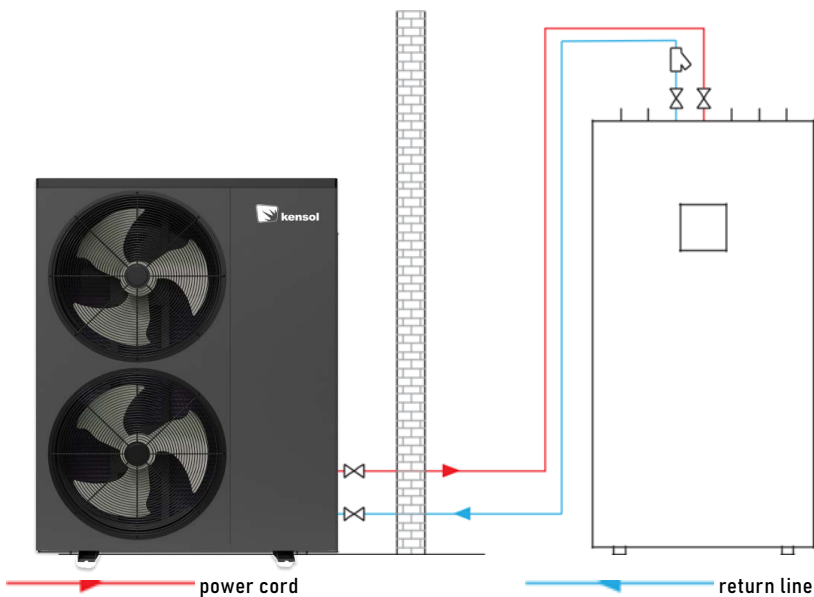
- Use only new and clean piping for installation;
- Ensure that no solid contaminants remain inside the pipe when cutting and deburring it;
- When routing a pipe through openings in the wall barriers, plug one end of the pipe to prevent dust and other dirt from entering the pipe;
- When tightening or loosening threaded connections, it is essential to use two wrenches;
- Choose a seal that can withstand the temperatures and pressures in the system;
- All components installed in the heating system must be suitable for closed-loop circulation and withstand the pressure of the medium during operation;
- All highly localized sections of the heating system should be equipped with automatic vent valves;
- The quality of water used in the heating system should be in accordance with current directives;
- If the heat pump is planned to operate in cooling mode, all connections and pipes of the heating system should be tightly sealed with anti-corrosion (rubber) insulation;
- For easier servicing and possible draining of the heating system, it is recommended to use shut-off valves directly above the K1-K7 water connections of the KENSOL module.

7.3 COMBINATION OF KENSOL CABINET AND HEAT PUMP

- Connect the supply line from the heat pump to inlet connector K4 on the hydraulic cabinet;
- Connect the heat pump return line to the K3 outlet connector on the hydraulic cabinet;
- Incorrect wiring may result in damage to the KENSOL module and/or monoblock outdoor unit;

- Install the magnetite mesh filter supplied with the hydraulic module on the return line of the primary circuit. When installing the filter, pay special attention to maintaining the correct direction of flow (the arrow on the filter indicates the direction of flow of the medium in the heating circuit);
- It is necessary to maintain a sufficiently large cross-sections of internal hydraulic lines to ensure the required fluid flow needed to transfer a given heat output with the lowest possible pressure loss. The following table contains the recommended minimum diameters of pipes depending on their type (material of manufacture).
- All pipe sections located outside the building should be insulated with a minimum of 20 mm of pipe insulation.

Recommended nominal size of hydraulic lines depending on the heating power of the heat source:



Type of heat pump	KTM 6kW	KTM 10kW
PP	32mm	32mm
Clamping steel	28mm	28mm
PeX	32mm	32mm

7.4 CONNECTION OF THE KENSOL CABINET TO CENTRAL HEATING SYSTEM

- Connect the power line of the internal heating system of the building to the K1 outlet connector on the hydraulic cabinet
- Connect the return line from the building's internal heating system to the K2 inlet connector on the hydraulic cabinet
- Incorrect connection may result in incorrect operation of the heating system, as well as damage to the KENSOL unit
- The diameter of the piping should be selected taking into account the local and linear losses along the entire length of the heating system (the calculations must take into account the most unfavorable circulation) and the flow requirements.

The following table shows the amounts of over-flow to be provided when considering the operation of the heat pump at nominal capacity.

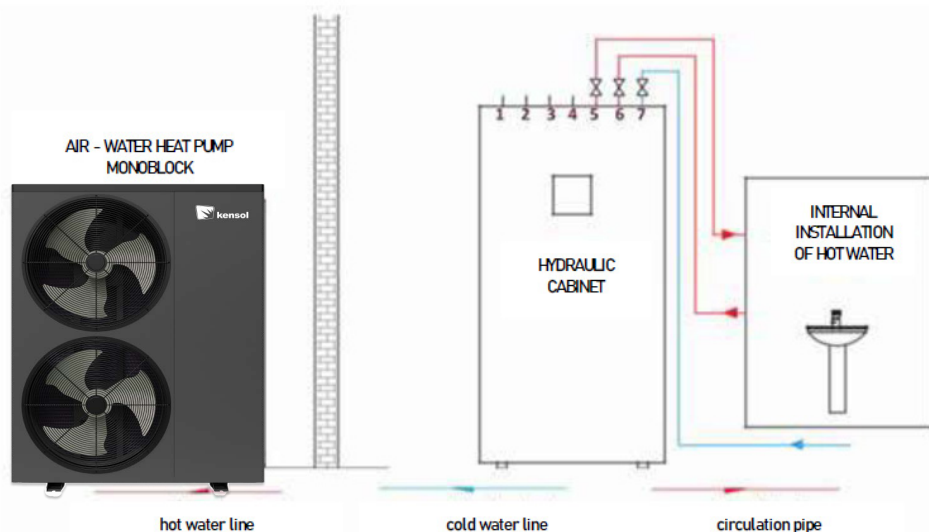
Heat pump type	KTM 6kW	KTM 10kW
Minimum flow [liter/minute]	23,3	36,6

- Pipes should be provided with thermal insulation in accordance with applicable regulations;
- KENSOL hydronic module is factory equipped with a safety group for the central heating system and a NP1 equalizing tank with a capacity of 12 l and initial pressure of 1.7 bar. For standard installations in single-family buildings there is no need to add an additional expansion vessel or to adjust its initial pressure;
- To ensure reliable operation, the total volume of the heating medium in the heating system should be 15l for each kW of heat pump power. Otherwise, use a buffer tank to increase the system's charge;
- For a direct connection between the KENSOL hydraulic cabinet, and the intake unit (without separation of circuits through a buffer, hydraulic coupling, bypass or additional exchanger), it is necessary to make sure that the circulating pump used in the hydraulic cabinet will

allow to provide the required flow, taking into account the resistance of the installation and losses on the heat pump plate heat exchanger. If this is not the case, an additional circulation pump should be used in series and parallel with the built-in one.

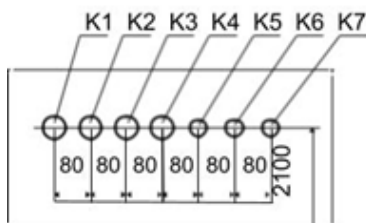
7.5 CONNECTION OF DOMESTIC WATER SYSTEM

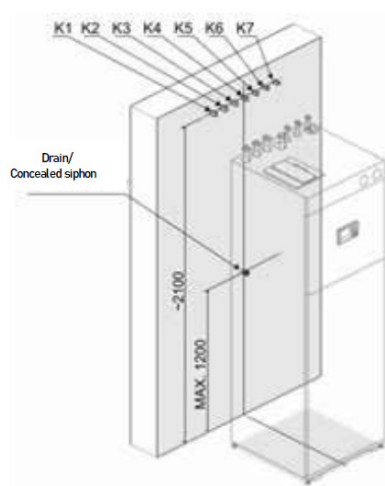
- Connect the hot water line to the K5 outlet connector on the hydraulic cabinet;
- Connect the cold water line to inlet connector K7 on the hydraulic cabinet;
- If there is a circulation line, connect it to inlet connector K6 on the hydraulic cabinet. For the above-mentioned connections of the KENSOL module to the internal hot water system, black or galvanized steel pipes and fittings must not be used due to contact with potable water;
- The KENSOL plumbing cabinet is factory-equipped with a stainless steel ZAS coil tank with a capacity of 190 l, a safety group for the hot water system, an NP2 expansion tank with a capacity of 12 l and a pre-pressure of 3.0 bar;
- If the rest pressure in the mains water line exceeds 5.0 bar, it is absolutely necessary to use a pressure regulator;
- To ensure correct and safe operation, the hot water installation should meet normative requirements and be carried out by an experienced plumber.



7.6 CONDENSATE DRAIN

- Ensure that condensate can drain freely from the pressure safety valves located inside the hydraulic module;
- Connect the flexible drain hose or bring the discharge pipe independently to the safety valve ZB1 and ZB2;
- The drain lines must be routed in such a way that there is a gradient along their entire length and the open outlets are in a frost-free environment (it is recommended to drain the condensate into a drain or sewer pipe located in the room where the KENSOL module is installed - see also the drawing in section 5.1);
- All piping and fittings inside the KENSOL module are insulated at the factory with anti-coincidence rubber insulation, eliminating the risk of condensation on their surfaces during heat pump operation in cooling mode. Therefore, there is no need to install an additional drip tray inside the unit.

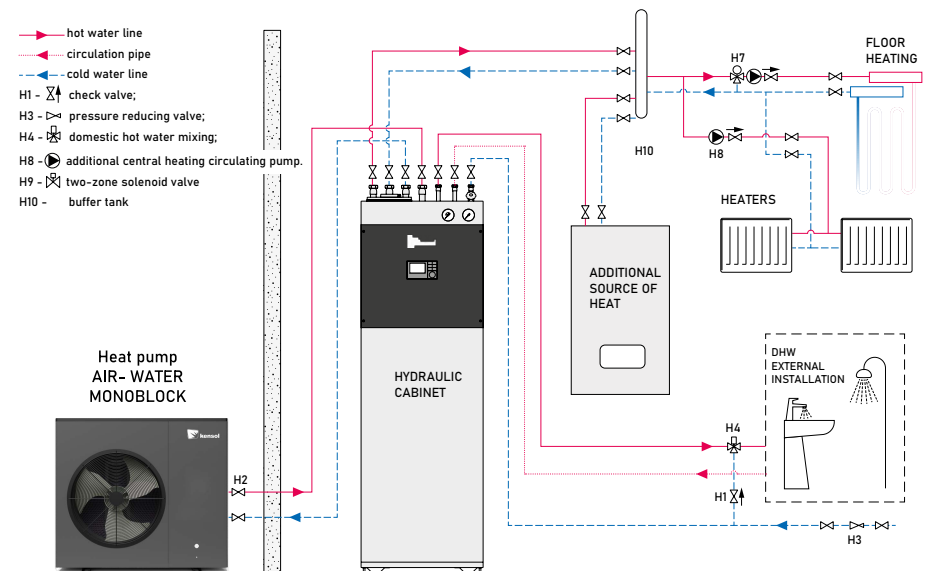




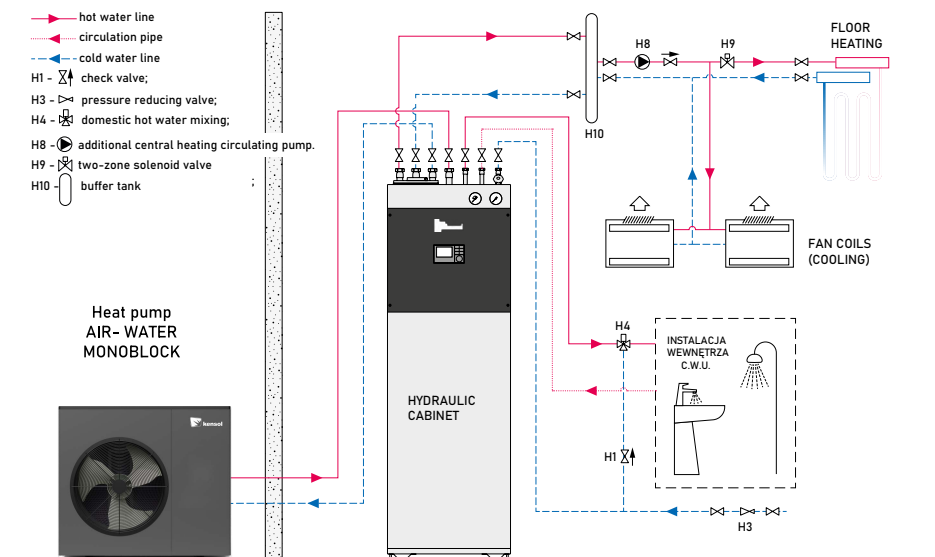
7.7 EXAMPLES OF HYDRAULIC DIAGRAMS

The following hydraulic diagrams show four examples of heating system solutions based on a monoblock air-to-water heat pump and a KENSOL hydraulic cabinet. The presented proposals do not exhaust the possibilities of configuring and expanding systems, but are only an indication of how to practically use the capabilities of heat pumps for different types of installations.

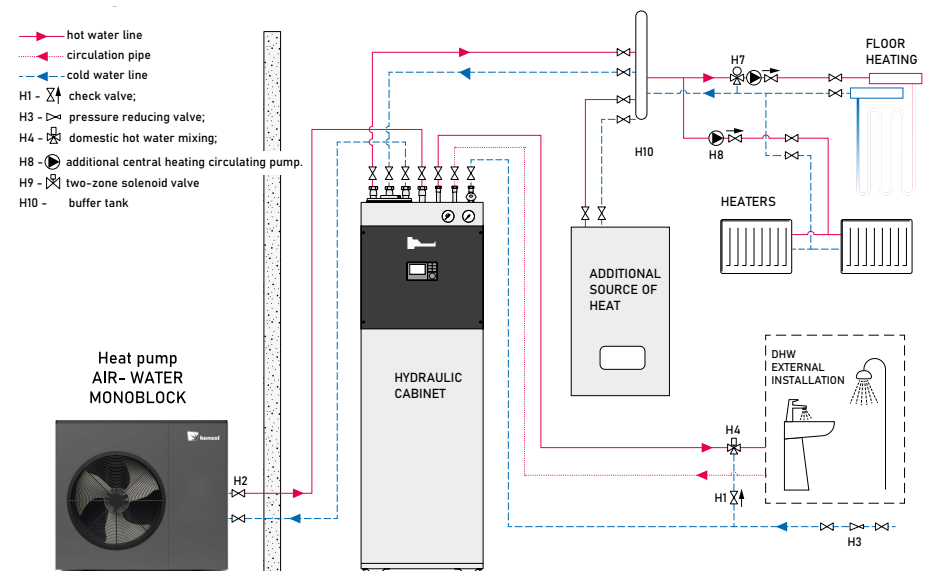
7.7.1 LOW-TEMPERATURE HEATING - DIRECT CONNECTION



7.7.2 HEATING + COOLING - CONNECTION WITH HYDRAULIC COUPLING AND - ZONE SOLENOID VALVE



7.7.3 MIXED HEATING - TWO SOURCES OF HEAT



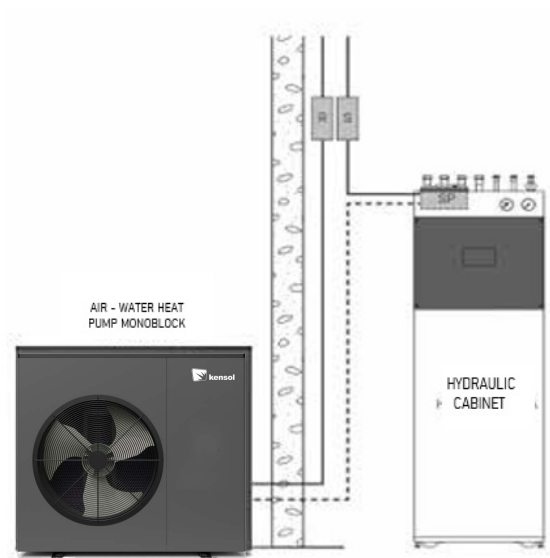
8. ELECTRICAL CONNECTIONS

8.1 GENERAL PRINCIPLES

- All connections and electrical work should be carried out under the supervision of a qualified electrician in accordance with the standards and regulations of the country in which the KENSOL hydraulic cabinet is installed;
- All electrical components not supplied by the manufacturer, such as water switches, circuit breakers, terminal blocks, power sockets, etc., should be selected in accordance with applicable standards and have the necessary approvals and marketing approval (CE mark);
- Before performing any electrical connections and service work within the KENSOL module, it is imperative to cut off the power supply voltage either from the dedicated circuit breaker or by unplugging the power plug from the power outlet;
- Do not apply supply power and do not start the KENSOL module before the heating system and DHW tank are filled, otherwise the components of the heating system may overheat or seize.

8.2 POWER LINE

- The KENSOL module is factory-equipped with a PZ power line terminated with a WZ power plug;
- The PZ line is an integral part of the SP junction box and is electrically connected to it;
- The length of the power line (PZ) is 1.5



- power line
- - - - communication line
- R residual current circuit breaker with protection unit
- S overcurrent circuit breaker
- SP KENSOL module connection box

To connect the power supply to the KENSOL module, it is only necessary to plug the plug (WZ) of the cable (PZ) into the power outlet connected to the building's electrical system;

- The socket should be prepared by the Investor/Installer prior to the installation of the hydraulic cabinet and located near the planned position of the cabinet so as to avoid the need for additional connection of the power supply line;
- Pay special attention that the installed power socket is compatible with the power plug (WZ) of the KENSOL 16A module;
- Although the KENSOL hydraulic cabinet has factory overcurrent and residual current protection, it is recommended that the outlet be installed on a separate electrical circuit with a dedicated automatic overcurrent circuit breaker.
- The minimum recommended line size between the electrical switchboard and the power outlet is 5x2.5mm²;
- The power supply line for the power outlet should be routed in an additional protective covering that protects against direct contact (protective tube, line tray, electrical conduit, concealed)

COMMUNICATION LINES

- Run communication and control lines as required from the outdoor unit to the KENSOL module.
- A detailed description of communication and control connections is described in the Quick Installation Guide.
- Run the communication line at least 5 cm away from the power (high-current) cables due to the possibility of signal interference. If it is necessary to run it through the server room or other technical rooms, a shielded line should be used;
- It is recommended that the control cable be run in parallel with the hydraulic lines connecting the heat pump to the KENSOL cabinet using a single channel to protect against external forces.

Note: Make the connection between the outdoor unit and the indoor unit according to the recommendations of the manufacturer of the outdoor unit. According to the guidelines in the installation instructions for Kensol KTM heat pumps, use appropriate electrical protection and line cross-sections.

8.3 CONNECTING EXTERNAL DEVICES

The main idea of KENSOL hydronic cabinets is to create a closed „boiler room“ compressed into a very small space, which, in cooperation with a monoblock air-water heat pump and a receiving system, forms a fully complete, reliable system for heating a building and preparing hot water. The solution is very convenient for both the user and installation companies. Nevertheless, depending on the specifications of the building or user preferences, there are cases in which heating systems need to be expanded with additional hydraulic and control elements (see chap. 7.7 “Examples of hydraulic diagrams” In such situations, in addition to connecting the power and communication lines, complementary connections should be made to control external devices from the KENSOL module. Detailed construction of the control set and ways to connect additional components such as another circulating pump, two-way valve, backup heat source, mixing valve, etc., can be found in the installation manual of the heat pump.

Note: Connect the communication cable to the KT-Multi controller connector „B“. On the other hand, if additional external devices need to be added, they should be connected to KT-Multi according to the controller's instructions. Pay particular attention to ensure that sections of wiring inside the hydraulic cabinet have additional protective covering and do not interfere with the operation of individual devices.

9. SYSTEM START-UP

Before proceeding with the following steps, carefully check that all hydraulic connections of the KENSOL module to the heat pump and indoor installations have been made correctly. Pay particular attention to ensure that there are no gaps in the system and that all external drain and fill valves are in the closed position. Failure to do so may result in accidental flooding of the living area of the building. Also check the state of insulation and the correctness of electrical lines. It is important that they are properly protected and routed in such a way that they do not come into contact with the liquid during filling and operation of the system. Before proceeding with the following work, the power supply to the heat pump and the KENSOL module should be disconnected using installation overcurrent protection switches.

9.1 FILLING THE SYSTEM AND THE HOT WATER TANK.

1. Turn off all taps and hot water showers in the building.
2. Open the shut-off valve on the hot water line mounted above the K5 connection of the KENSOL module. If the circulation line (connection K6) is also connected to the hydraulic cabinet, proceed similarly.
3. Open the shut-off valves on the mains line to allow cold water to flow into the KENSOL module (connection K7).
4. After a period of several minutes or so, water should begin to flow from the taps.
5. Ensure that the installation is tight and there are no visible leaks at the pipe connections.
6. To remove residual air from the system, turn the knob of the safety valve ZB1 counterclockwise and hold in this position for several seconds.
7. Turn off all taps and hot water showers in the building.

Note: during this time liquid will flow out of the outlet of the safety valve, therefore it should be connected to a pipe carrying excess water to the sewage system.

9.2 SELECTION OF HEATING AND COOLING MEDIUM

- According to current regulations, heating media used in central heating systems must meet normative criteria such as hardness, PH level, etc;
- The standard medium used for most heating systems in Poland is water;
- Monobloc air-to-water heat pumps are devices where the hydronic lines of the central heating system are fed indirectly to the outdoor unit, inside which there is a closed refrigeration circuit;
- In a situation where there are extremely low air temperatures outside and there is a prolonged interruption in the operation of the heat pump, the water in the system may freeze, which can lead to damage (leakage or even bursting);
- The KENSOL unit is equipped with safeguards to protect the water heating system from freezing due to the failure of the outdoor unit (electric emergency heating or power outages (additional circulating pump with UPS emergency power supply guaranteeing cyclic circulation of the medium in the heating circuit for at least 2 days);
- Therefore, it is recommended to fill the heating system with water with appropriate parameters, however, the manufacturer allows the use of propylene glycol solution with a maximum weight concentration of up to 30% (crystalliza-

tion temperature of the solution: -20°C). All devices and components inside the KENSOL module are designed to work with this type of medium;

- It is absolutely forbidden to use ethylene glycol solution due to its toxicity and the possibility of penetration into drinking water (DHW coil).

9.3 FILLING AND BLEEDING THE HEATING SYSTEM AND KENSOL MODULE

The KENSOL module, thanks to its practical design, makes it possible to fill the heating system in various ways. A few of these are listed below:

- With the use of a portable filling and flushing station and service valves ZS1 and ZS2 (connection diagram in the figure);
- Using a piston hand pump and ZS1 filling valve;
- Directly from the mains water line through the flexible hose connection of the outlet port of the FZ softening filter to the ZS1 filling valve. This case applies only when the heating medium in the central heating system is water.

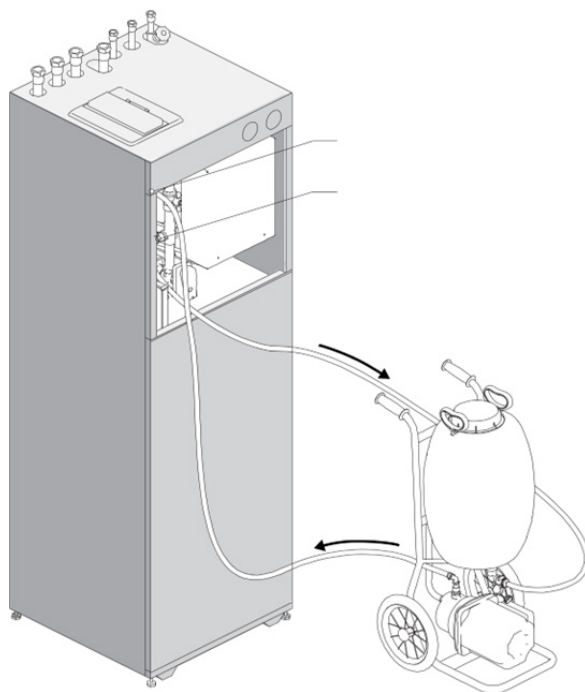
Note: the filter must be soaked for at least 6 hours before filling

Simplified procedure for filling and bleeding the heating system:

1. Remove the service lid of the KENSOL module.
2. Open the air relief valve at the highest point of the heating system..
3. Open the shut-off valves above the K1, K2, K3, K4 connections of the KENSOL cabinet and all others located on the central heating system so as to allow flow in all heating circuits.
4. Connect the filling lines to the appropriate service valves, open them and start filling (by one of the selected methods).
5. Close the air relief valve, at which point the heating medium will start to come out through it continuously (without air bubbles).
6. Check the medium pressure in the system with an M2 dial pressure gauge. When the over-pressure value exceeds 2.5 bar, close the filling

(service) valves.

7. Make sure that the installation is tight: the pressure in the system does not drop for a long period of time, and there are no visible leaks at pipe joints.
8. Connect the power supply to the KENSOL module and start the circulating pump from the controller (see chap. First start-up or User's manual).
9. From time to time unscrew the caps of the O1 and O2 air relief valves installed in the KENSOL plumbing cabinet, as well as the other vents installed on the indoor system, until the heating medium begins to flow out of them in a steady stream.
10. In order to remove residual air from the system and stabilize the pressure in the system, turn the knob of the ZB2 safety valve counterclockwise and hold it in this position until the pressure gauge M2 is in the range of 1.0 - 1.5 bar (recommended operating pressure).



Note: liquid may flow out of the outlet port of the safety valve, therefore it must be connected to a pipe carrying excess medium to the sewerage system.

11. After turning off the circulating pump from the controller and cutting off the supply voltage, disconnect the filling equipment from the KENSOL module.

12. If flooding or moisture has occurred in the internal components of the KENSOL unit, remove the liquid residue thoroughly with a towel or dry cloth.

13. Replace the service lid.

9.4 FIRST START-UP

- Before starting-up a heating system based on the KENSOL KTM heat pump and the KENSOL hydraulic cabinet, carefully check that all hydraulic and electrical connections are correct, and that the heating system and the DHW water tank are filled and initially bled;

- In order to start up, it is necessary to supply electrical voltage to the outdoor unit and the KENSOL hydraulic cabinet;

- The wired controller will start automatically, however, there may be a time delay.

- After the main circulating pump P3 is switched on, check whether characteristic voices indicating the presence of residual air in the system can be heard from the hydraulic module. If there are any, remove the service lid and unscrew the vent valves O1 and O2 until the air bubbles are removed and the situation is normalized;

- Check that the compressor in the heat pump turns on in the various modes of operation, and the discharge water temperature changes as intended;

10. MAINTENANCE

- A comprehensive inspection and technical inspection of the KENSOL module should be performed by a qualified installation company at

least once a year, before the start of the heating season;

- Activities such as cleaning the FS mesh filter and checking the correct operation of the ZB1 and ZB2 safety valves should be carried out at least once every 6 months and can be carried out directly by the device operator;
- The installer should adequately train the user in the above-mentioned activities when starting up the system;

SIMPLIFIED PROCEDURE OF CHECKING CORRECT OPERATION OF SAFETY VALVES:

- Turn the knob located on the safety valve counterclockwise;
- The rotation of the knob should cause the liquid to flow out of the valve through the discharge pipe/hose;
- When the knob is released, it should return to its original state stopping the flow of liquid;
- If there is no outflow of liquid when the knob is turned, it means that the valve is defective

**Note: red knob - central heating safety valve.
blue knob - DHW safety valve.**

11. MALFUNCTIONS

If there is a failure or damage to the heat pump, the display of the controller built into the front panel of the KENSOL module will show an error code and its description, identifying the cause of the problem. In the case of errors which cannot be fixed from the user level, it is recommended to contact the nearest authorized service center. Full technical and service documentation is available on the manufacturer's website.



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