

izzifast

izzifast Hydraulic Cabinet



Technical documentation

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01 Theoretical product description

izzIFAST hydraulic module is an innovative product which cooperates with air - water monoblock heat pumps manufactured by such brands as Samsung, Buderus or Ecoforest. The compact construction of the device allows to compress almost the entire boiler room to a closed space, with a volume of less than 1m³. The unit is equipped with hydraulic and control fittings necessary for the proper and safe functioning of central heating and domestic hot water preparation. Careful workmanship with high-class materials ensures durability and aesthetics of the product. Quiet operation and compact design allow for installation of the device in such rooms as kitchen or hallway, where you can easily and comfortably control the entire heating system.

01.01 Safety

This device should not be used by persons (especially children) with mobility or mental impairments or lack of experience or knowledge, unless they use this device under supervision of appropriate persons or receive instructions from them on how to use this device to ensure safety.

Children should use this device under adult supervision to ensure that they do not play with this product.

01.02 Warranty and liability

The manufacturer is not responsible for damage resulting from misuse, improper transport or handling. Please check if the delivered goods have not been damaged in transport, subsequent complaints will not be accepted! The manufacturer reserves the right to make technical and color changes! All dimensions are in mm!

The manufacturer is not liable for damage that may result from

- failure to observe the operating, safety and maintenance instructions mentioned in this manual,
- installation not in conformity with the rules of construction engineering, applicable regulations in force in Poland and the guidelines contained in the operating manual,
- use of spare parts which are not delivered or recommended by the manufacturer,
- normal wear and tear.

01.03 Disposal



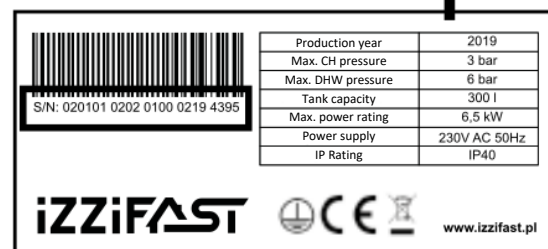
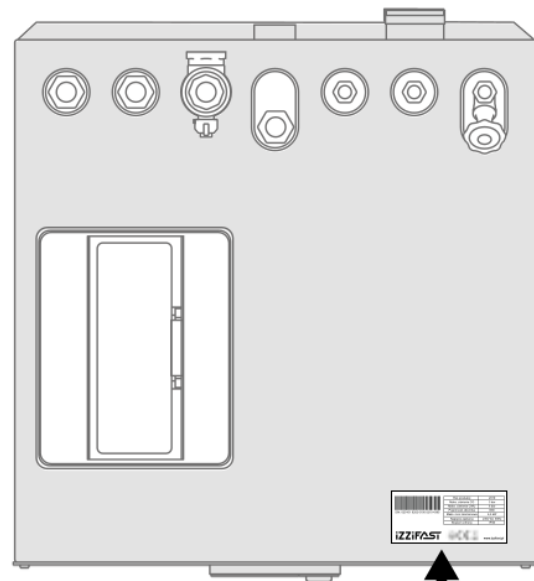
Do not dispose of the decommissioned products with your normal household waste. Hand them over to a special waste disposal facility or to a dealer who provides such services. Incorrect disposal of this product by the user may result in administrative penalties in accordance with applicable regulations.

02 The main components of the izzIFAST module:

- hot water tank with capacity of 190 l ;
- central heating safety group
- DHW safety group;
- High efficiency circulation pump with PWM control capability
- emergency circulation pump with UPS protection system;
- circulation pump (optional);
- flow heater;
- differential pressure (flow) sensor;
- water filter with softener;
- service and vent valves;
- rubber pipe insulation;
- advanced control set;
- integrated wired programmer.

02.01 Data plate

The data plate is located on the upper side of the cabinet next to the electrical connections (see picture). It is used to identify the product. The information it contains is necessary for safe use of the product and servicing issues. The data plate should not be covered or removed from the device.



03 Basic benefits of using the iZZiFAST module with air - water heat pumps

For the user:

- aesthetic appearance and modern design;
- compact design;
- space saving - no need to create a classic boiler room;
- compatibility of iZZiFAST modules with the entire series of monoblock heat pumps from a given manufacturer;
- guarantee of product quality and durability due to the use of the highest quality materials (stainless steel 316L);
- lower investment costs compared to split systems;
- maintenance free operation;
- advanced control capabilities, also via Wi-Fi;

For the fitter:

- easy to install by any qualified plumber;
- no F-Gas certification required;
- reduces the complexity of the heat pump installation to just a few hours;
- no need to use antifreeze solutions as a medium in the heating circuit;
- comprehensive hydraulic equipment of iZZiFAST module;
- additional connection box - the possibility of connecting power and communication lines without interfering with the automation of the control set.

04 Compatibility of iZZiFAST modules

Note: *The iZZiFAST manufacturer is not responsible for installing the outdoor unit not in accordance with the installation instructions and guidelines of the outdoor unit manufacturer.*

04.01 Monoblock pumps

The iZZiFAST hydraulic modules are compatible with all monoblock pumps (Samsung, Buderus, Hitachi, Panasonic, LG, Gree, etc.)

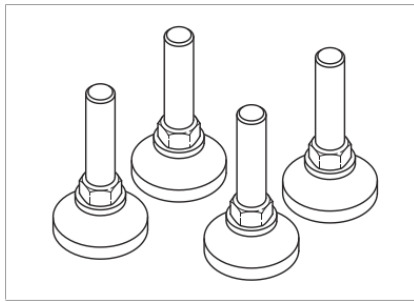
04.02 Photovoltaics

It is possible to use iZZiFAST hydraulic modules together with PV. Please ask customer service for details.

05 Technical specifications

Product feature		Unit	izzIFAST
Dimensions/net weight	Material	-	stainless steel
	Height	mm	1800 (<i>without feet</i>)
	Length	mm	600
	Depth	mm	600
	Weight	kg	92
Equipment	Circulation pump		WILO STG-8
	Circulation pump		WILO STAR Z
	CH safety valve	bar	3
	DHW safety valve	bar	6
	CH diaphragm vessel	dm ³	12
	DHW diaphragm vessel	dm ³	12
	Flow heater	kW	4 to 12
	DHW pressure gauge		YES
	CH pressure gauge		YES
	mains water filter		YES
	CH filling valves		YES
	integrated filling valves for CH systems		YES
	CH filter with magnetite		YES
	Check valve on DHW inlet		YES
	Heat pump anti-freeze protection		YES
DHW tank	Material	-	Stainless steel 316L
	Capacity	dm ³	190
	coil construction material		Stainless steel 316L
	coil replacement area	m ²	2
Diameter of water connections	Heating system	Inch	1"
	DHW	inch	3/4"
	Circulation	inch	3/4"
Electrical specification	operating parameters	Ø/V/Hz	3/380-415/50
	recommended size of the overcurrent circuit breaker	A	25
	recommended cross-section of the power supply line	mm ²	5x2,5
	recommended cross-section of the control line	mm ²	Acc. to the manufacturer of the outdoor unit

06.02 Standard Accessories



Set of adjustable feet

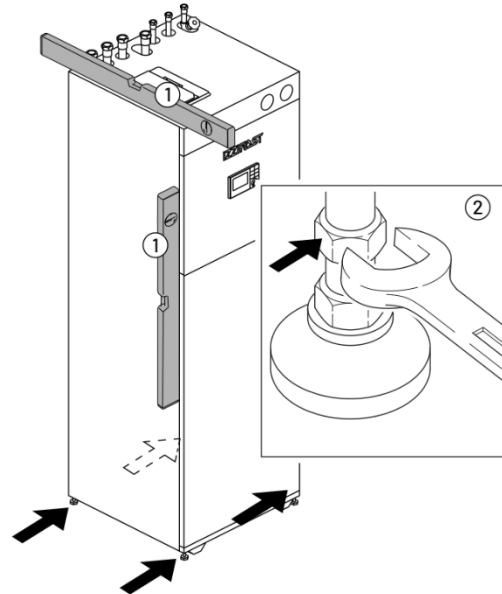
06.03 Transport

- Transport the iZZiFAST hydraulic module in an upright position on the pallet provided by the manufacturer.
- Storage of the unit should take place in a dry environment.
- To bring the iZZiFAST into the building, it is permitted to place it in a horizontal position on the rear wall.
- Due to the weight and size of the unit, it should be carried by at least two adults. Otherwise, there is a risk of personal injury.
- Ensure that the unit is not damaged by impacts during transport.

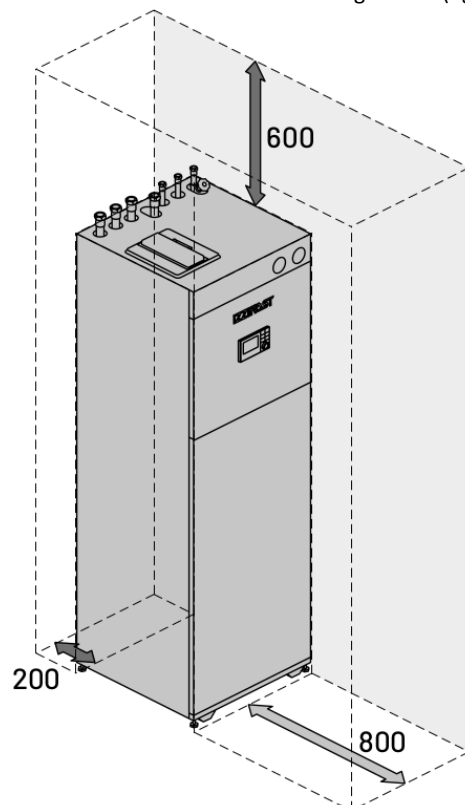
06.04 Installation of iZZiFAST:

- iZZiFAST Hydraulic module must be installed in a closed room, protected from frost and excessive humidity;
- Place the unit on a flat, solid surface;

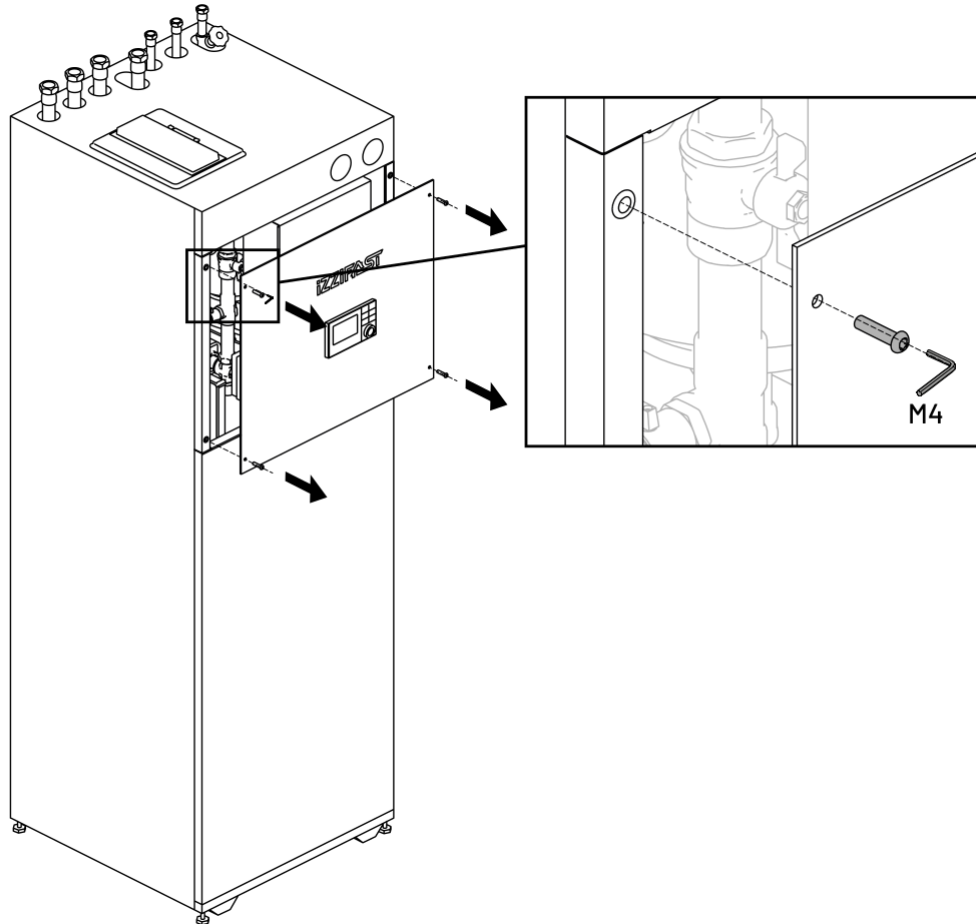
- The installed device should be leveled and stand firmly on the ground. Use the adjustable feet provided by the manufacturer for this purpose (figure).



- The iZZiFAST 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 positioned in such a way as to ensure service space and free installation of hydraulic and electric wires. Required installation distances are shown in the drawing below. (figure).



06.05 Removing the service lid:

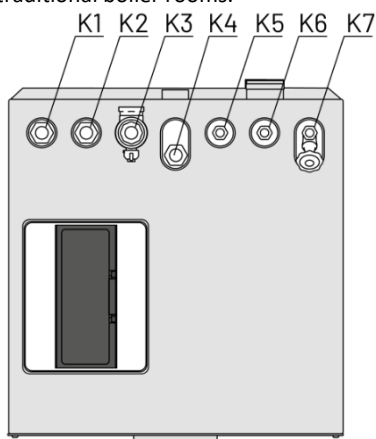


07 Hydraulic connection

07.01 Description of connections

The iZZiFAST hydraulic module together with the monoblock air-water heat pump and internal central heating installation creates a highly efficient, closed system for heating the building, as well as enables the preparation and accumulation of domestic hot water. Owing to the compressed construction and rich equipment, installation of a heating system is definitely simplified and less time-consuming than in case of traditional boiler rooms.

Inside the unit, copper piping in a system of soldered connections is used. From the upper lid there is a set of seven water connections ended with thread couplings, to which appropriate sections of the heating and water installation should be led. Details are shown on the drawing below.



No.	Description	Thread [inch]
K1	CH power	1"
K2	CH return	
K3	Indoor inlet unit	
K4	Outdoor outlet unit	
K5	Hot water	3/4"
K6	Circulation	
K7	Cold water	

07.02 General rules

- The hydraulic installation should be installed by a qualified fitter in accordance with the applicable standards and regulations;
- Use only new and clean piping for installation;
- Ensure that no solid debris remains inside the pipes when cutting and deburring them;
- When routing the pipe through openings in the wall barrier, plug one end of the pipe to prevent dust and other contaminants from entering the pipe;
- When tightening or loosening threaded connections, always use two wrenches;
- Select 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 shall be equipped with automatic vent valves;
- The quality of the water used in the heating system shall be in accordance with current directives;
- If the heat pump is to be operated in cooling mode, all connections and pipes of the heating system must be sealed with anti-condensation (rubber) insulation;
- For easier servicing and possible draining of the heating system, it is recommended to install shut-off valves directly above the water connections K1-K7 of the iZZiFAST module.

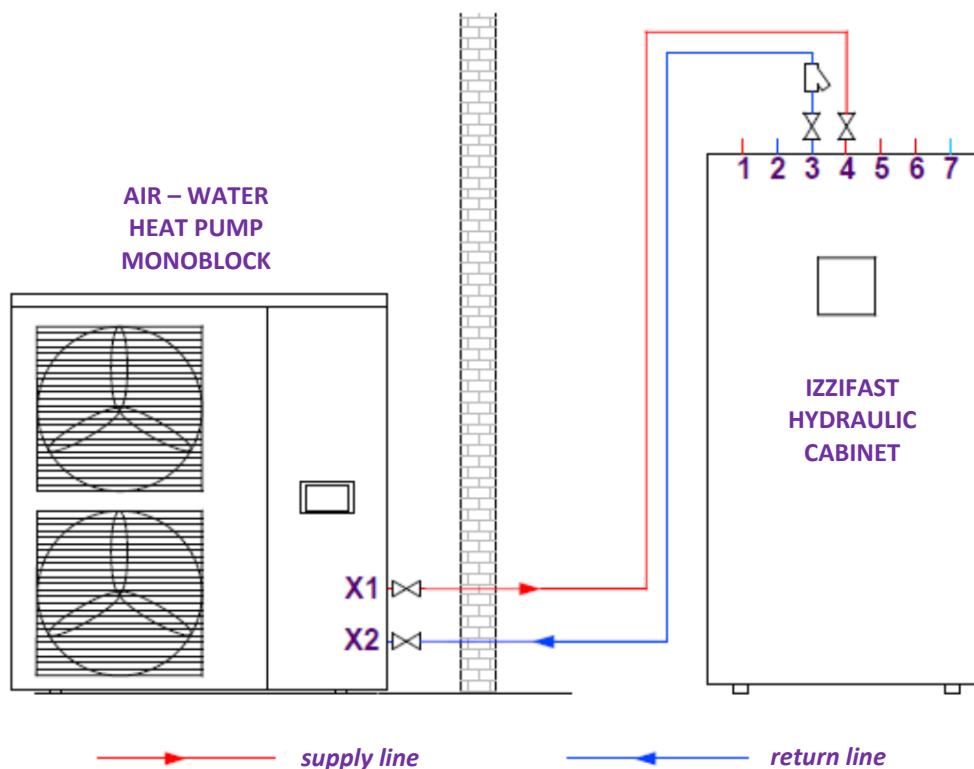
07.03 Connection of the iZZiFAST cabinet with a heat pump

- Connect the heat pump supply line X1 to the inlet connector K4 on the hydraulic cabinet;
- Connect the heat pump return line X2 to the outlet connector K3 on the hydraulic cabinet;
- Incorrect wiring may result in damage to the iZZiFAST module and/or the monoblock outdoor unit;
- Install the magnetite mesh filter supplied with the hydraulic module on the primary circuit return line (see "Standard Accessories"). When installing the filter pay particular attention to the correct flow direction (the arrow on the filter indicates the direction of the medium flow in the heating circuit);
- The internal cross-sections of the hydraulic lines must be large enough to ensure the required fluid flow needed to transmit the given heat output at the lowest possible pressure loss. The table below shows the recommended minimum pipe diameters depending on the pipe type (material of manufacture).

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

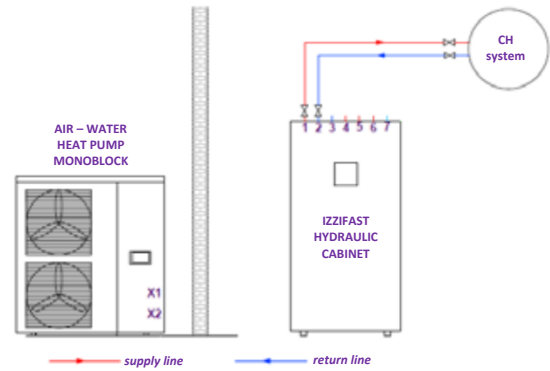
Heating capacity of the heat pump	Construction material			
	Copper	Steel	PP (PN10)	PEX
Up to 8.0 kW	22	22	25	25
8.0 – 12 kW	28	28	32	32
12.0 – 16 kW	35	35	40	40

- All pipe sections outside the building shall be insulated with a minimum of 20 mm of pipe insulation.



07.04 Connection of the iZZiFAST cabinet to a central heating system

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



The following table shows the flow rates that must be provided when the heat pump is operating at nominal capacity.

Heat pump input capacity [kW].	5	9	12.0	16
Required volume flow [l/min]*.	14.3	25.8	34.4	45.9

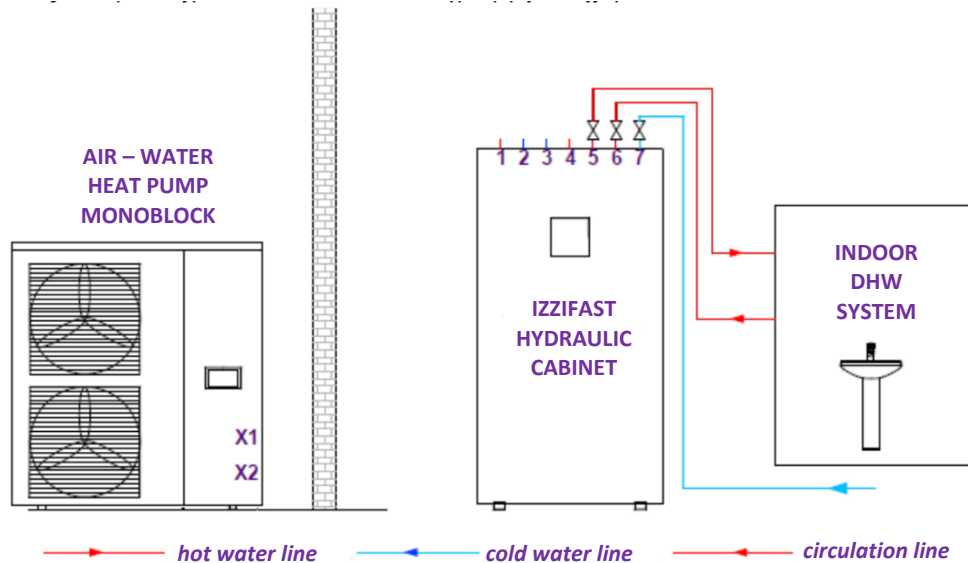
* heating medium: water; temperature difference between supply and return pipes $\Delta T = 5K$

- Pipes should be provided with thermal insulation in accordance with applicable regulations;
- iZZiFAST hydraulic module is factory equipped with safety group for central heating system and NP1 equalizing tank with capacity of 12 l and initial pressure of 1.7 bar. In case of standard systems in single family houses there is no need to add an additional diaphragm vessel or to adjust its initial pressure;
- To ensure reliable operation, the total volume of the heating medium in the heating system should be greater than 50l. Otherwise a buffer tank should be used to increase the system's capacity;
- In case of direct connection between the iZZiFAST hydraulic module and the intake unit (without separation of circuits by means of a buffer, hydraulic coupling, bypass, or additional exchanger), make sure that the circulation pump used in the hydraulic module can provide the required flow, taking into account the resistance of the system 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. The types of circulation pumps used and their characteristics are presented below.

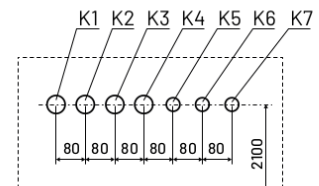
Circulation pump used	Wilo – Para STG 25/8	Wilo – Stratos – Para 25/1-9
Heating capacity of the heat pump	Up to 12.0 kW	Above 12.0 kW
	<p>Hydraulic operational area</p>	

07.05 Connecting the 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
(note: purchase the iZZiFAST version with built-in circulation pump P2).

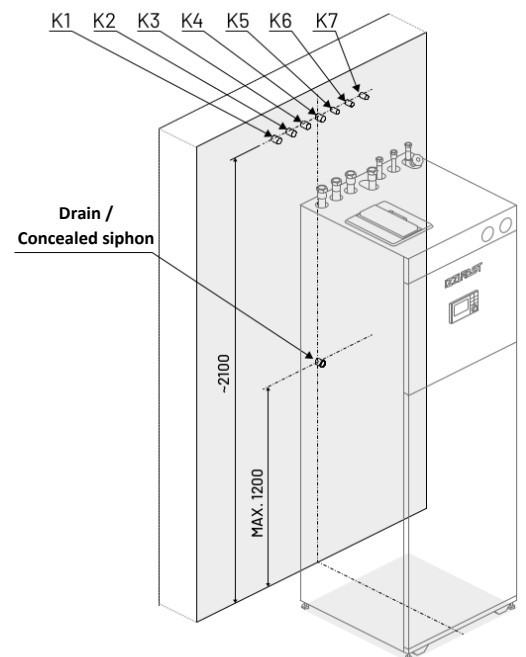


- For above mentioned connections of the iZZiFAST module with indoor hot water system it is not allowed to use pipes and fittings made of black or galvanized steel due to contact with drinking water;
- iZZiFAST hydraulic module is factory equipped with stainless steel coil tank ZAS of 190 l capacity, safety group for hot water system, equalizing tank NP2 of capacity 12 l and initial pressure equal to 3.0 bar;
- If the rest pressure in the mains water pipe exceeds 5.0 bar, a pressure regulator must be used;
- In order to ensure correct and safe operation, the hot water system should meet the normative requirements and be made by an experienced plumber.



07.06 Condensate drain

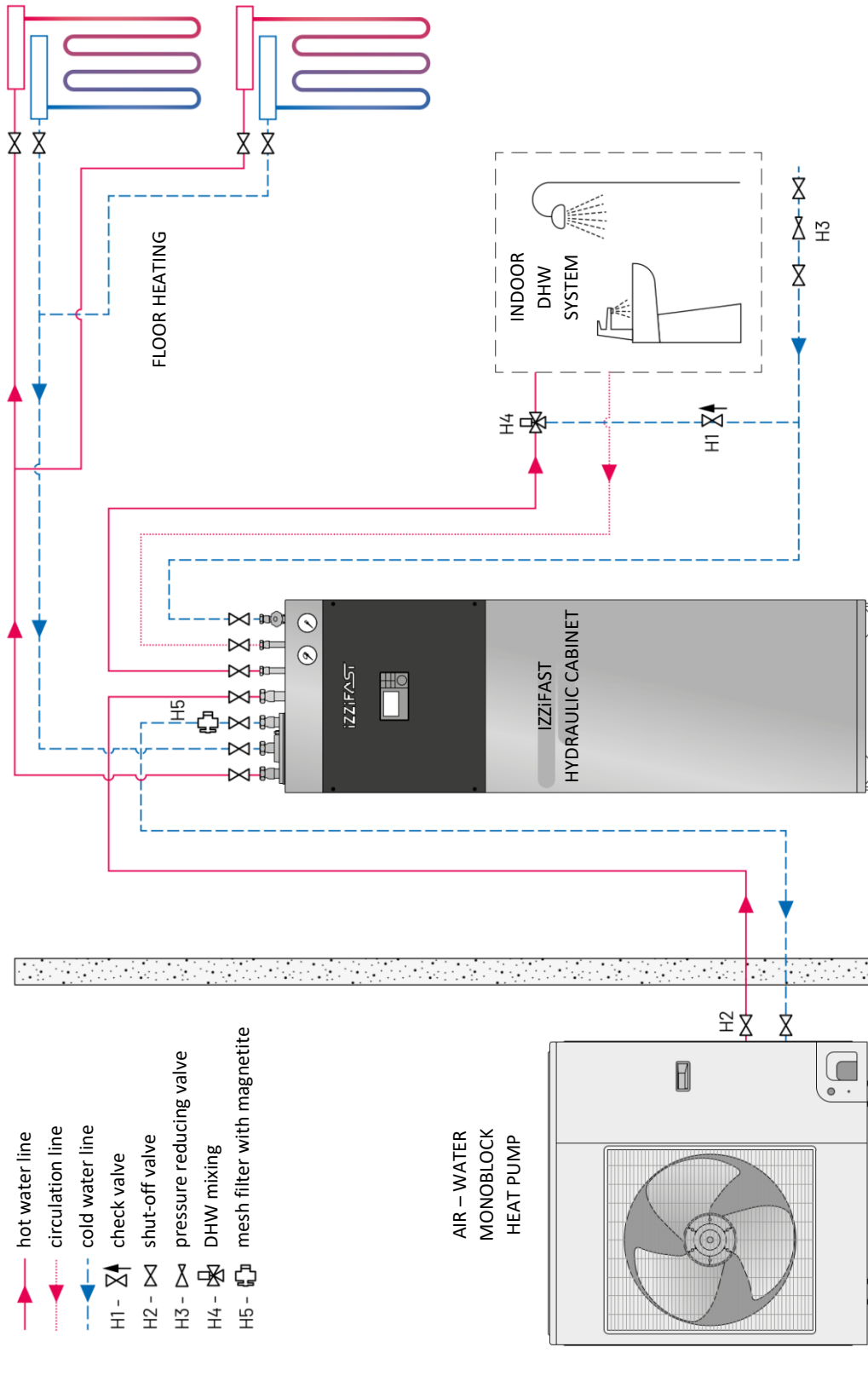
- Ensure that condensate can drain freely from the pressure safety valves located inside the hydraulic module;
- Connect a flexible drain hose or lead the discharge pipe independently to safety valve ZB1 and ZB2;
- The drain lines must be routed in such a way that there is a gradient along their entire length and that the open outlets are in a frost-free environment (it is recommended that the condensate is discharged into the drain or sewer pipe located in the room where the iZZiFAST module is installed - see also the figure in item 05.01);
- All piping and fittings inside the iZZiFAST are factory insulated with anti-condensation rubber insulation, which eliminates the risk of condensation forming on the surface during cooling operation of the heat pump. Therefore, it is not necessary to install an additional drip tray inside the unit.



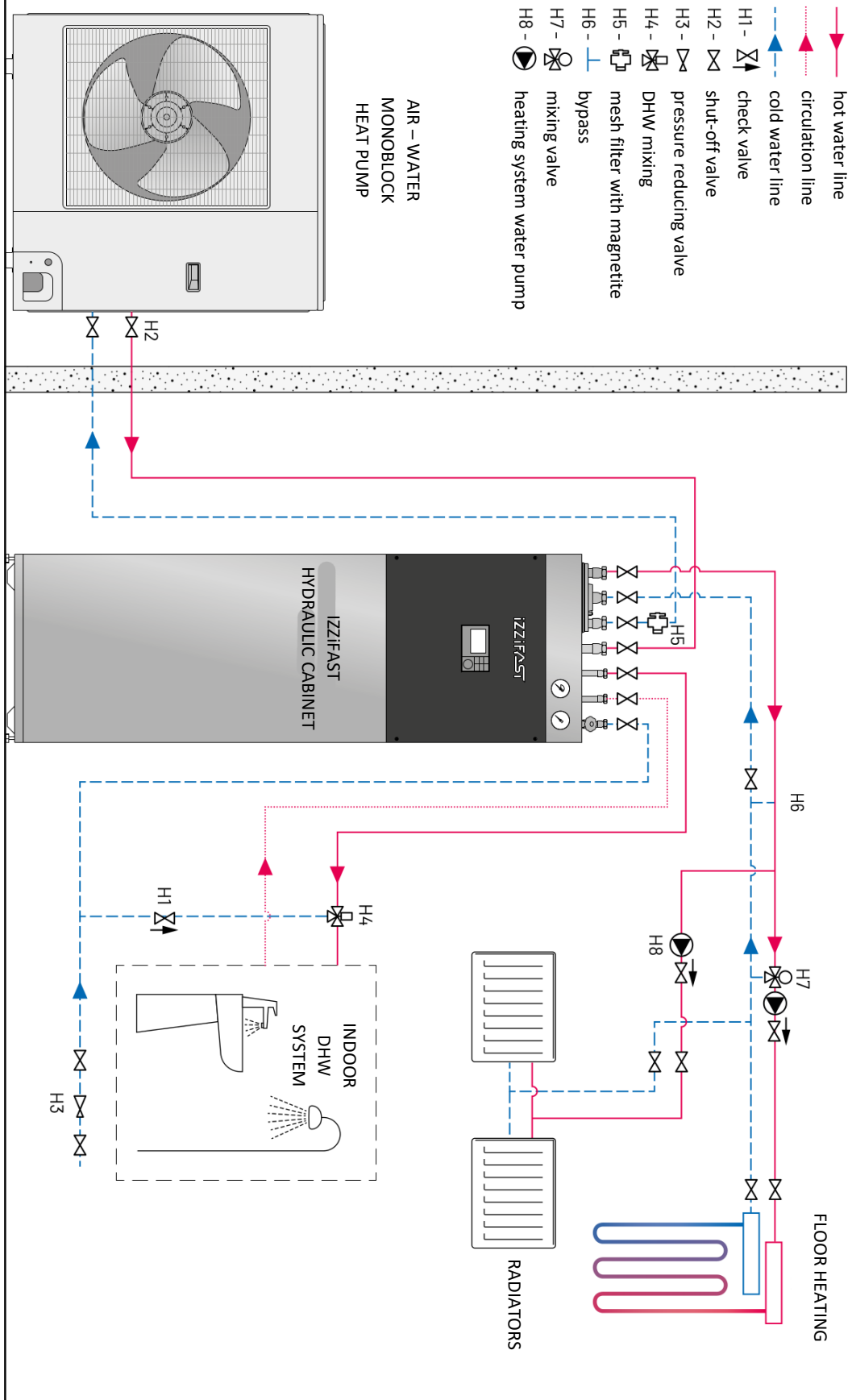
07.07 Examples of hydraulic diagrams

The hydraulic diagrams presented below show four examples of heating system solutions based on air/water heat pump of monoblock type and the iZZiFAST hydraulic cabinet. The presented suggestions do not exhaust the possibilities of configuring and expanding systems, but are only an indication of how to practically use the possibilities of heat pumps for various types of systems.

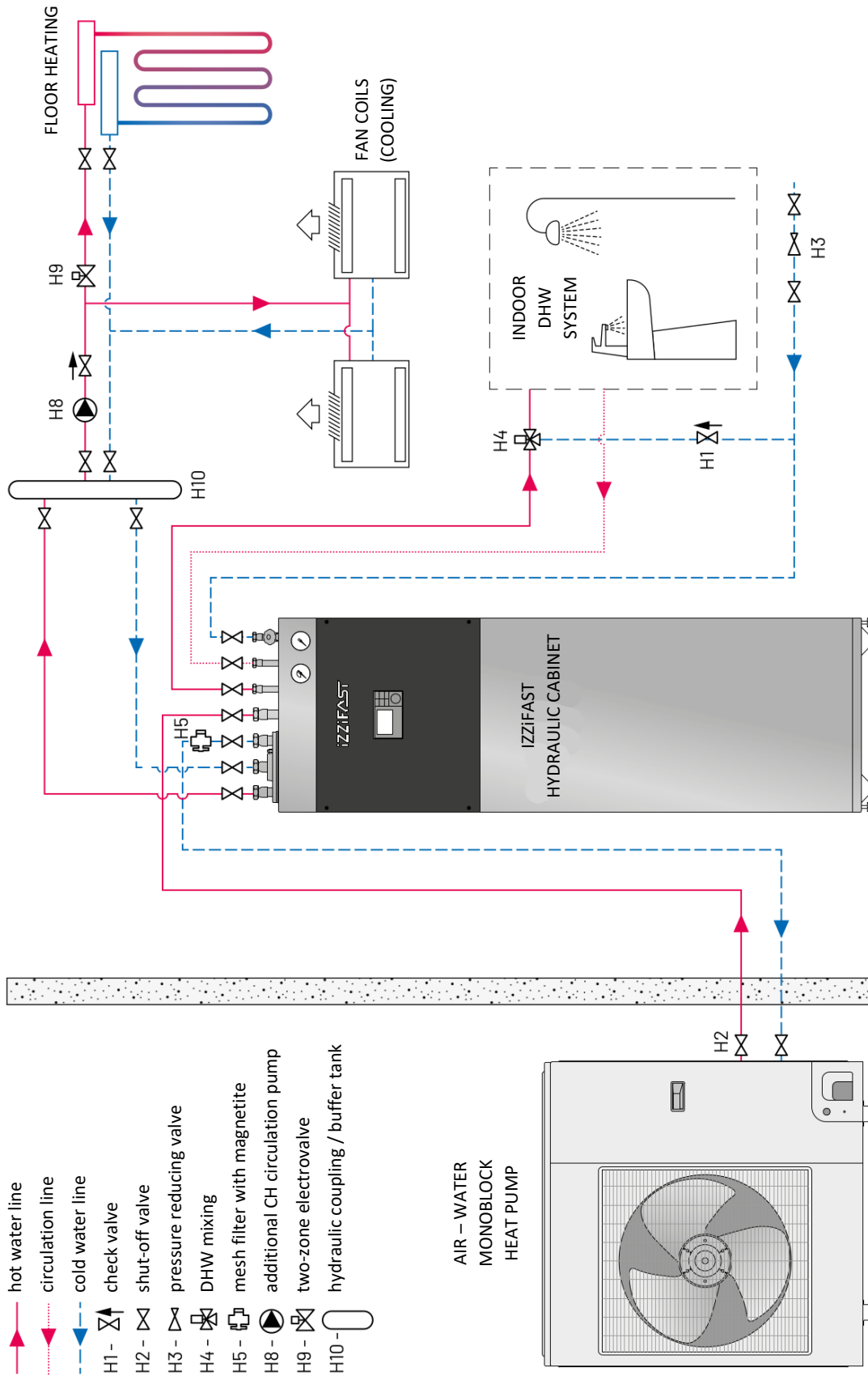
07.07.1 Low-temperature heating - direct connection



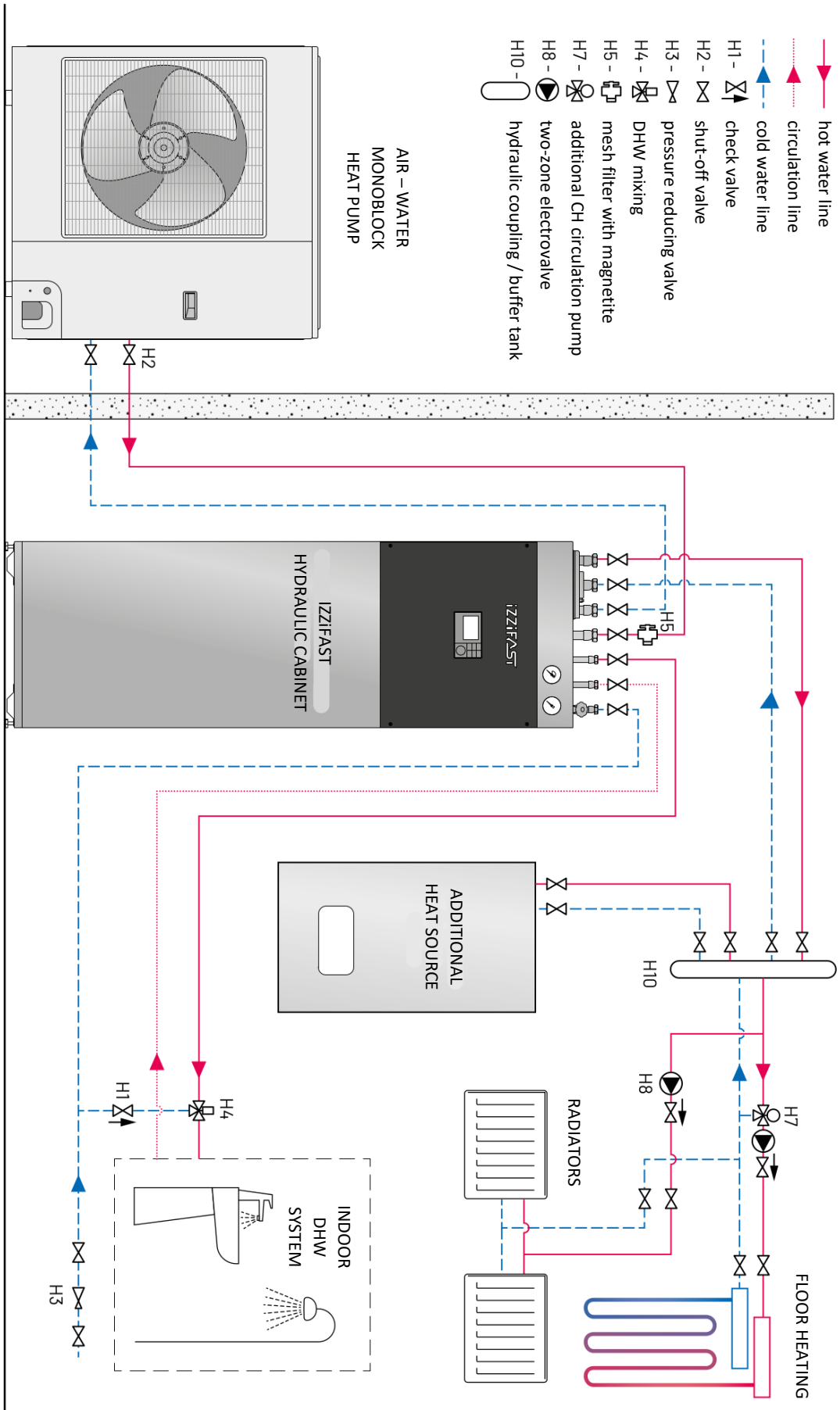
07.07.2 Mixed heating - connection via bypass



07.07.3 Heating + cooling - connection using hydraulic coupling and zone electrovalve



07.07.4 Mixed heating - two heat sources



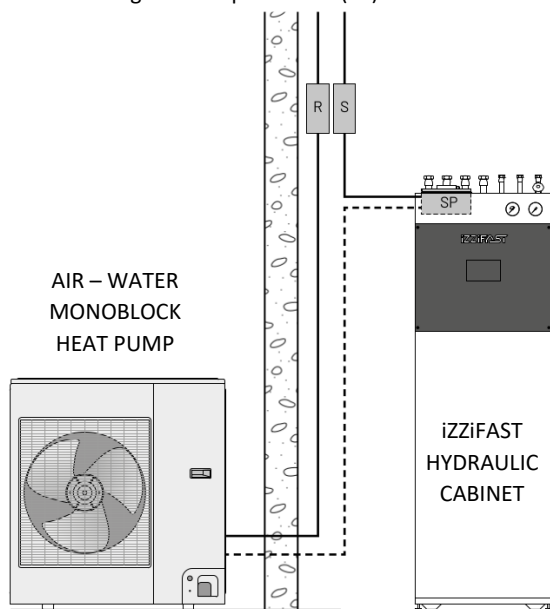
08 Electrical connections

08.01 General rules

- All connections and electrical work must be carried out under the supervision of a qualified electrician in accordance with the standards and regulations in force in the country where the iZZiFAST hydraulic module is being installed;
- All electrical components not supplied by the manufacturer such as wires, circuit breakers, termination blocks, power sockets, etc., should be selected in accordance with the applicable standards and have the necessary approvals and marketing authorizations (CE mark);
- Before proceeding to any electrical connections and service works within the iZZiFAST module it is absolutely necessary to cut off the power supply from the dedicated circuit breaker or by unplugging the power plug from the power socket;
- Do not supply power and do not start up the iZZiFAST module before the heating system and the hot water cylinder have been filled. Otherwise components of the heating system may overheat or seize.

08.02 Power line

- The iZZiFAST module is factory-fitted with a PZ power line terminated with WZ power plug (as shown in the table below);
- The PZ line is an integral part of the SP connection box and is electrically connected to it;
- The length of the power line (PZ) is 1.5 m



— Power line

- - - - - Communication line

NOTE! applies to unit models of selected manufacturers.

R - RCD with overcurrent protection unit

S - Overcurrent circuit breaker

SP - iZZiFAST module connection box

- In order to connect the power supply to the iZZiFAST module, it is only necessary to insert the plug (WZ) of the line (PZ) into the power socket connected to the electrical installation of the building;
- The socket should be prepared by the Investor/fitter before the installation of the hydraulic cabinet and located near its planned position in order to avoid the necessity of additional connection of the power supply line;
- Special attention should be paid to make sure that the installed power outlet is compatible with the power plug (WZ) of the iZZiFAST module;
- Although the iZZiFAST hydraulic cabinet includes factory installed overcurrent and RCD protection, it is recommended that the outlet be installed on a separate electrical circuit with a dedicated automatic overcurrent circuit breaker.
- Recommended type of overcurrent protection for the power outlet circuit: S303 C 20A - for heat pumps not exceeding 12.0 kW and S303 C 25 A - for units with higher heating capacity;
- The minimum recommended line size between the electrical switchboard and the power outlet is 5x2.5mm²;
- The power line between the electrical switchboard and the power outlet should be laid in an additional protective covering that protects against direct contact (protective tube, line tray, electrical conduit, concealed);

Communication lines

- Communication and control lines should be run as needed from the outdoor unit to the iZZiFAST module.
- For different models of outdoor units these lines can be 2 or 16 core.
- Carefully examine the connections of the outdoor unit before installation.
- A detailed description of the communication and control connections is described in the quick start guide of the respective manufacturer of the outdoor unit.
- Run the communication line at least 5 cm away from the power (high current) lines due to the possibility of signal interference. If you need to run it through a server room or other technical rooms, use a shielded line;
- It is recommended that the control line be laid parallel to the hydraulic lines connecting the heat pump with the iZZiFAST cabinet, using a single channel to protect against external forces;
- The heat pump kit with iZZiFAST does not include the delivery of control lines.

08.03 Connecting external devices

The main idea of the iZZiFAST hydraulic cabinets is to create a closed "boiler room" compressed to a very small space, which in cooperation with the air - water heat pump monoblock and the receiving system creates a fully complete, reliable system for heating the building and preparing hot water. This solution is very convenient for both user and installation companies. Nevertheless, depending on the building specification or users' preferences, there are cases in which heating installations require extension with additional hydraulic and control elements (see section 07.07 "Example hydraulic diagrams"). In such situations, in addition to connecting the supply and communication lines, it is necessary to make supplementary connections, allowing the external devices to be controlled from the iZZiFAST module. This is possible owing to the ZS control set, which is based on a slight modification of the automation module dedicated by the manufacturer to the standard versions of compatible monoblock heat pumps.

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Detailed construction of the control set and ways of connecting additional elements such as: another circulating pump, two-way valve, backup heat source, mixing valve, etc., can be found in the installation manual of the control module itself, which is included as a standard accessory to the iZZiFAST cabinet.

Note: It is essential to connect the communication and power lines of the iZZiFAST to the SP junction box. However, if it is necessary to add additional external devices, all other electric and control lines must be connected directly to the ZS control set by inserting them through the opening in the rear wall of the module. Particular attention should be paid that the lines sections inside the hydraulic box have an additional protective cover and do not interfere with the operation of the individual devices.

09 System start-up

Before proceeding with the operations described below, carefully check that all hydraulic connections of the iZZiFAST module to the heat pump and to the indoor installations have been made correctly. Particular attention should be paid to ensuring that there are no breaks 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.

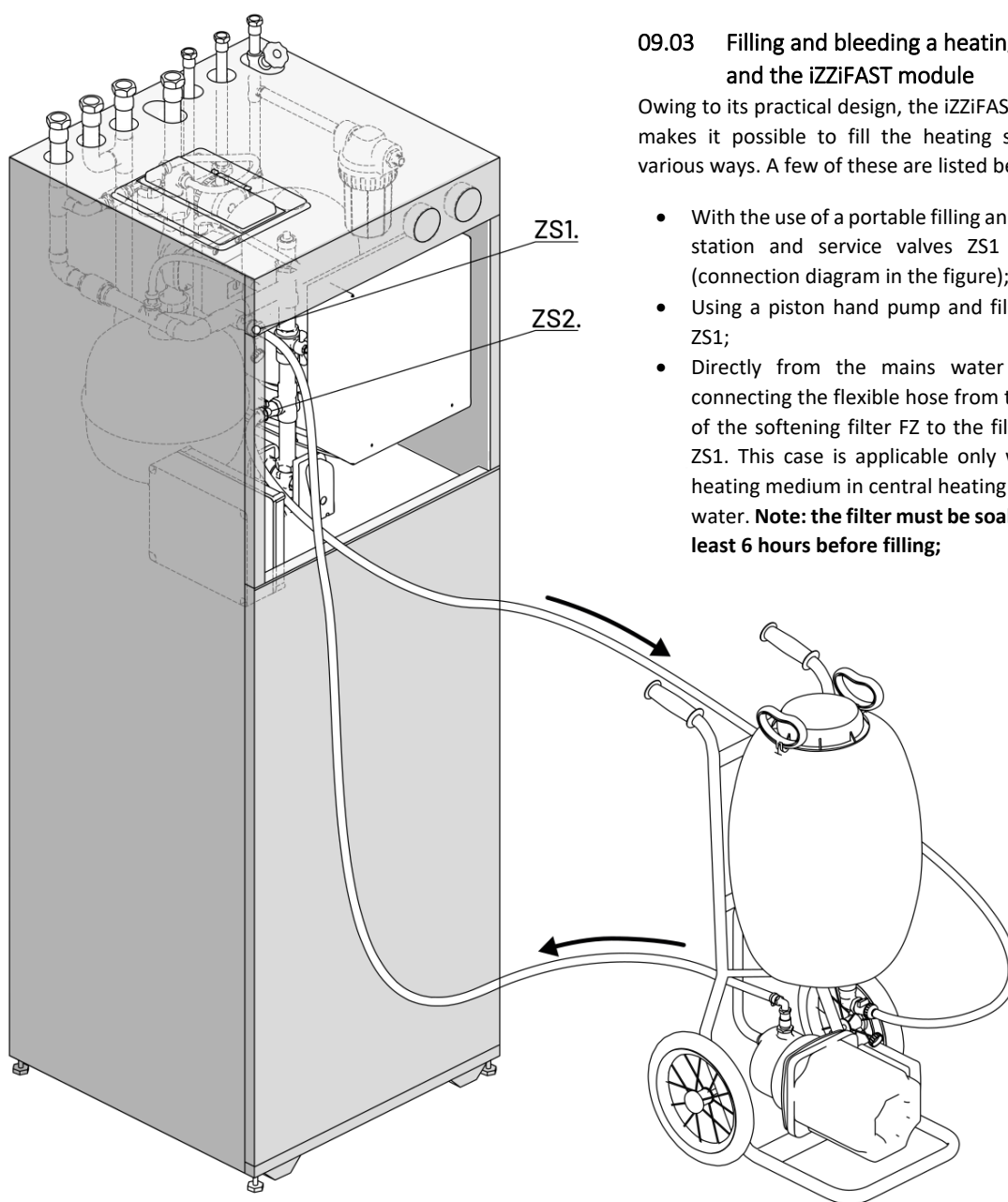
Also check the insulation and wiring of the electrical lines. It is important that they are adequately protected and routed to prevent contact with the fluid during filling and operation. Before carrying out the following work, the power supply to the heat pump and the iZZiFAST module should be disconnected using installation overcurrent protection switches.

09.01 Filling the system and the DHW tank

1. Turn off all hot water taps and showers in the building.
2. Open the shut-off valve on the hot water line mounted above connection K5 of the iZZiFAST module. If a circulation line is also connected to the hydraulic cabinet (connection K6) proceed analogously.
3. Open the shut-off valves on the mains line to allow cold water to flow into the iZZiFAST module (connection K7).
4. After several minutes water should start flowing from the taps.
5. Make sure the system is tight and there are no visible leaks at the pipe connections.
6. In order to remove remaining air from the system, turn the knob of the ZB1 safety valve counterclockwise and hold it in this position for a few seconds.
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.
7. turn off all hot water taps and showers in the building.

09.02 Selecting the heating/cooling medium

- In accordance with current regulations, heating medium used in central heating installations must meet normative criteria such as hardness, PH level, etc;
- The standard medium used in most heating systems in Poland is water;
- Air - water monoblock heat pumps are devices where the hydraulic lines of the central heating system are led directly to the external unit, inside which there is a closed refrigeration circuit;
- When the air temperature outside is extremely low and the heat pump is not in operation for a long period of time, the water in the system may freeze and cause damage (leakage or even bursting);
- iZZiFAST module is equipped with safety devices protecting water heating installation against freezing caused by the failure of the external unit (electric emergency heating) or power cuts (additional circulation pump with UPS emergency power supply guaranteeing cyclic circulation of the medium in the heating circuit for at least 2 days);
- It is recommended to fill the heating system with water of appropriate parameters; however, the manufacturer allows the use of propylene glycol solution of maximum mass concentration up to 40% (solution crystallization temperature: -20°C). All devices and subassemblies inside the iZZiFAST module are adapted 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 the drinking water (DHW coil).



09.03 Filling and bleeding a heating system and the iZZiFAST module

Owing to its practical design, the iZZiFAST module 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 filling valve ZS1;
- Directly from the mains water pipe by connecting the flexible hose from the outlet of the softening filter FZ to the filling valve ZS1. This case is applicable only when the heating medium in 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 iZZiFAST module.
2. Open the air relief valve at the highest point of the heating system
3. Open the shut-off valves above connections K1, K2, K3, K4 of the iZZiFAST cabinet and all others on the central heating system so that the flow is allowed 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 when the heating medium starts flowing out through it in a steady stream (without air bubbles)
6. Check the medium pressure in the system with the M2 dial pressure gauge. When the excess pressure value exceeds 2.5 bar, close the filling (service) valves.
7. Make sure that the system is sealed: the pressure in the system does not drop over a long period of time and there are no visible leaks at pipe joints.
8. Connect the power supply to the iZZiFAST module and start the circulation pump from the controller (see section First start-up or User's manual).
9. From time to time unscrew caps of the air relief valves O1 and O2 installed in the iZZiFAST module, as well as other air relief valves installed in the indoor system, until the heating medium starts flowing out of them in a steady stream.

10. In order to remove the remaining air from the system and stabilize the pressure in the system, turn the knob of the safety valve ZB2 counterclockwise and hold it until the pointer of the pressure gauge M2 is between 1.0 and 1.5 bar (recommended operating pressure). Caution: 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 switching off the circulation pump from the controller and cutting off the power supply, disconnect the filling equipment from the iZZiFAST module.
12. If flooding or moisture has occurred in the internal components of the iZZiFAST during the filling or connection process, carefully remove any residual liquid with a towel or dry cloth.
13. Install the service lid.

09.04 First start-up

- Before starting up a heating system based on Samsung EHS MONO heat pump and the iZZiFAST module, carefully check that all hydraulic and electrical connections are correct, and that the heating system and DHW tank are filled and initially bled;
- In order to start up the unit it is necessary to supply electrical voltage to the outdoor unit and iZZiFAST hydraulic cabinet;
- The wired controller will start automatically, however there may be a time delay. For the first commissioning the display may not come on until several minutes after the electrical supply has been applied.
- After starting up the controller, check the icon display and key operation according to the supplied manual;
- Before selecting the heat pump operation mode, activate the DHW tank heating function. The default settings of the service parameters must be changed to the following values according to the user manual:
 - > #3011 - target value: "1" - activating DHW tank application.
 - > #3031 - target value: "0" - deactivating the use of additional tank heater
 - > #3041 - target value: "0" - deactivating the DHW tank disinfection function;
- Use the "View" button to check the value of the outlet water temperature in the heating circuit. If it exceeds 10°C, start the system in the selected operation mode according to the controller manual. Otherwise first activate the emergency heating (see chapter Additional functions) and heat up the water in circuit with built-in electric heater. After reaching the temperature of 10-12°C deactivate the function and start normal operation. An adequate heating circuit temperature prevents the compressor from being overloaded during the first start-up;
- After the main circulation pump P3 is switched on, check whether the hydraulic module does not make any characteristic noises indicating the presence of remaining air in the system. If this is the case, remove the service lid and open the O1 and O2 air relief valves until the air bubbles are removed and the situation is normalized;
- Check that the compressor in the heat pump switches on in each operating mode and that the outlet water temperature varies as specified;
- Go to the user menu and other service settings as described in the operating manual.

10 Maintenance

- A comprehensive inspection of the iZZiFAST module should be carried out by a qualified installation company at least once a year, before the heating season starts;
- Activities such as cleaning the mesh filter FS and checking the proper operation of the safety valves ZB1 and ZB2 should be performed at least once every 6 months and can be carried out directly by the unit operator;
- The fitter must train the user in the aforementioned operations when starting up the system;

Simplified procedure for cleaning the mesh filter:

- Close the shut-off valve on the mesh filter;
- Unscrew the filter body and pull out the sieve;
- Clean the sieve of any accumulated sediment and rinse thoroughly under warm running water;
- Place the sieve back in the filter and screw the filter body tightly
- Open the shut-off valve;
- Start circulation pumps from the controller and open the air relief valves installed on the central heating system until air bubbles are removed from the heating system.

Note: *while performing the above actions a small volume of heating medium may flow out, therefore before performing them it is recommended to properly secure the nearest space against flooding.*

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 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 the liquid does not flow out when the knob is turned, the valve is defective;

Note: *red knob - CH safety valve; blue knob - DHW safety valve.*

The table below presents a list of suggested maintenance operations and measurements carried out annually by a qualified representative of the installation company.

Operation	Value	Notes
Checked the correct installation and positioning of the iZZiFAST module	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Checked that the supply voltage of the iZZiFAST module is within the permitted range	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Checked for proper operation of RCDs in the building and in the unit	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Checked the condition and quality of electrical, control and protective wiring connections	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Checked the freezing point of the medium in the water circuit	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Checked the tightness of the hydraulic connections coming out of the iZZiFAST module	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Checked the condition of thermal insulation of hydraulic lines	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Checked that the static pressure in the heating system is between 1.0 and 1.5 bar	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Checked that the controller display is functioning correctly	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Checked the proper operation of the 3-way valve (Z3D)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Checked the water system for proper deaeration	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Checked the operation of the DHW safety valve (ZB1)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Checked the operation of the CH safety valve (ZB2)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Checked if safety valves discharge pipes/lines are free from blockages.	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Checked if any untypical noises / noises are emitted from the unit during operation.	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Cleaned mesh filter	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Supply voltage value L1-L2 [V]		
Supply voltage value L1-L3 [V]		
Supply voltage value L3-L2 [V]		
Value of resistance between conductive active elements and iZZiFAST module casing [Ohm]		
Pressure value in the CH system [bar]		
Pressure value in the DHW system [bar]		
Ambient temperature [°C]		
Supply temperature of the CH system [°C]		
Return temperature of the CH system [°C]		
DHW tank water temperature [°C]		

11 Malfunctions

If a malfunction or damage to the heat pump occurs, an error code identifying the cause of the problem will be displayed on the controller built into the front panel of the iZZiFAST unit. A complete list of error codes can be found in the installation manual of the air - water heat pump external unit, and repair algorithms are described in special service manuals. Full technical and service documentation is available on the manufacturer's website.

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