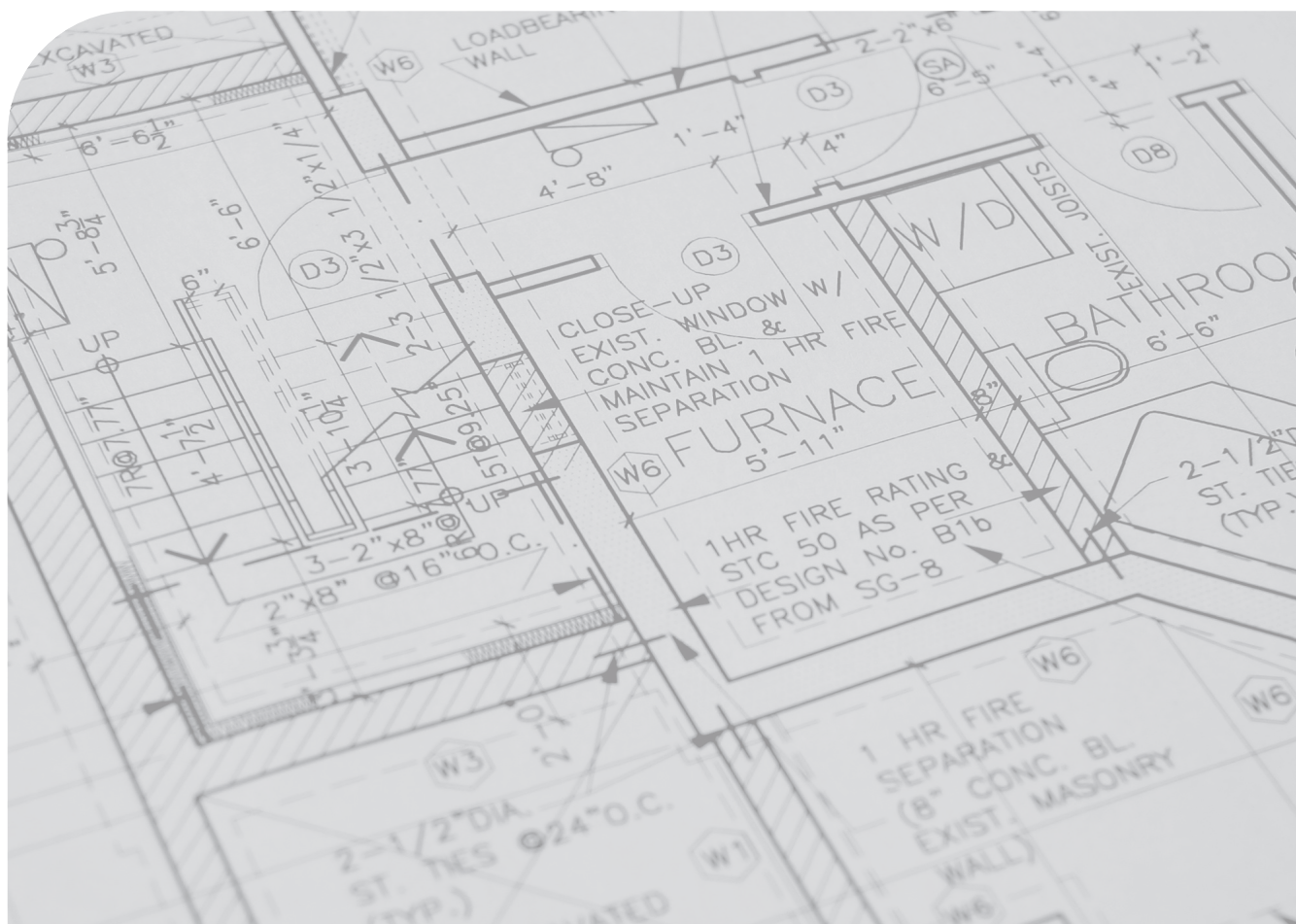


MAGIS HERCULES  
MINI HYDRO  
MAGIS HERCULES  
MINI HYDRO EH

## Floor-standing block heat pump with 180 litre storage tank



# MAGIS HERCULES MINI HYDRO

## MAGIS HERCULES MINI HYDRO EH



MAGIS HERCULES MINI HYDRO is the range of block inverter air-water heat pumps with outdoor unit and floor-standing indoor unit, including a 180 litre domestic hot water storage tank (with single code for indoor unit + outdoor unit).



This is a line of compact all-in-one heat pump solutions that can be installed even where there is little space available. All components are accessible from the front, reducing installation space to just 60 cm wide. These solutions are particularly suitable for new homes or undergoing renovation (characterised by high thermal insulation and possibly integrated with a photovoltaic system).

MAGIS HERCULES MINI HYDRO combines the advantages of having within the same casing a stainless steel DHW storage tank unit and a stainless steel 25 litre inertia storage tank. This is an important plant engineering simplification, as this component is often not present as standard in this type of product, but must be supplied separately. With the same heat pump, it is also possible to meet heating requirements during the winter and cooling requirements during the summer, as well as the production of domestic hot water. The range includes 6 single phase versions, with 5-8-12 kW outputs, 3 of which with integrated system resistance as per standard (versions MAGIS HERCULES MINI HYDRO EH). A 12 kW (three-phase) version for MAGIS HERCULES MINI HYDRO EH is also available. The refrigerant used is R32 for all the machines, which allows a maximum flow temperature of 65°C for water in central heating systems.

The product's P.C.B. allows programming of the boiler functions directly from the control panel and to control 2 different zones (1 zone as standard - booster pumps for up to 2 optional zones outside the casing). For temperature/humidity control of the system zones, various temperature control devices are available (optional for all zones).

In terms of electrical integration, MAGIS HERCULES MINI HYDRO models are equipped with a 2.3 kW DHW integrative resistance as per standard; a 3 kW system integrative resistance can also be combined (standard with MAGIS HERCULES MINI HYDRO EH). Among the accessories, it is also possible to combine a specific kit for connection to a solar thermal system (optional outside of the casing).

At installation level, the floor standing indoor unit has an IPX5D degree of protection (indoor installation only); on the other hand, the outdoor unit can be installed outdoors. Not needing to make the cooling connections between the outdoor unit and the floor standing indoor unit, the F-GAS license is not required for the connection.

35 °C		<b>A+++</b>	MAGIS HERCULES MINI HYDRO 5-8-12
55 °C		<b>A++</b>	MAGIS HERCULES MINI HYDRO 5-8-12

MAGIS HERCULES MINI HYDRO also meets the requirements of the ErP Directive (2009/125/EC) and ELD (2010/30/EC); there are a number of optional kits available, which allow it to be used in different plant applications.



# MAGIS HERCULES MINI HYDRO

## MAGIS HERCULES MINI HYDRO EH

### 1

### MAGIS HERCULES MINI HYDRO FEATURES

Block inverter reversible single-phase air/water heat pumps, composed of an outdoor unit and an indoor floor standing unit; a single code identifies the complete system.

Main components:

- **Outdoor unit** (UE HYDRO HP - UE HYDRO HP T) which mainly includes rotary compressor, inverter electronics, throttle valve, 4-way valve for cycle inversion, finned exchange coil with outdoor air and water/gas plate heat exchanger. The cooling circuit (refrigerant R32) is already pre-loaded in the hermetically sealed outdoor unit, the F-Gas license is not required;
- **Floor standing indoor unit** (UI MHMH - UI MHMH EH), which includes the hydraulic circuit components for connection to the system, as well as the related management and communication electronics with the outdoor unit. The indoor unit consists of:
  - 180-litre domestic hot water storage tank in stainless steel with a high exchange surface area, fully insulated, equipped as standard with a 2.3 kW DHW integration resistance;
  - 25-litre stainless steel inertial storage tank;
  - 3 kW system integrative resistance (standard with MAGIS HERCULES MINI HYDRO EH);
  - Grundfos UPML 15-105/130 PWM low consumption hydraulic unit with 3-way valve with DHW priority, Y filter supplied as per standard to be mounted on the return line of the outdoor unit;
  - 10-litre system expansion vessel and 3 bar system safety valve, 2 DHW expansion vessels of 6 litres each and 8 bar DHW safety valve;
  - Electronics including electrical installation control panel (for programming all boiler functions directly and programming the time slots for all circuits and relative climatic curves, in heating and cooling mode) + main power panel (electrical connection terminal block of the various electrical devices - e.g. resistances);
  - Control panel with control covering door equipped with opening for the large display; controls composed of 7 keys + 2 encoder knobs to make adjustments;  
The system zones can be managed via:
    - Zone remote panel (optional, for zone 1 also), it is possible to install up to 2, one for each system zone;
    - ModBus temperature and humidity sensor kit;
    - On-off room chrono-thermostat and on-off humidistat;
    - DOMINUS V2 interface kit for remote control commands from smartphone application;
    - Shifting temperature operation, using the external probe on the outdoor unit. Possibility to set 2 heating curves and 2 cooling curves (from control panel); if the outdoor unit is installed in "unfavourable" conditions for detecting the outdoor temperature, another external probe can be combined (optional) in place of the one fitted as standard on the outdoor unit;
    - BOOST function for DHW - allows you to use all the available power (HP + electric resistance) with a logic that minimises the filling time of the storage tank;
    - Silent Mode function - hourly level programming to reduce

the sound power of the outdoor unit to 35 dB;

- Input to force activation with photovoltaic system producing electricity (the domestic hot water storage tank is heated to the maximum storage temperature exclusively by the heat pump. In case of simultaneous DHW and system demand, the system will decide which service to satisfy, in order to ensure the best comfort available;
- Recirculation kit management with pump (optional, with 2-relay Kit) - programming of activation time slots from control panel + temperature probe to switch off the pump when the loop is hot (on recirculation network return, this probe does not allow the installation of an additional external probe).
- Programmable anti-legionella function (with resistance);
- Sceded heater function;
- As compared to split heat pumps, the F-Gas license is not required to install the product;
- The electronics of MAGIS HERCULES MINI HYDRO, in combination with the two relay kit (code 3.031943 optional), allows you to manage the recirculation pump (optional) or to control summer/winter diverter valves in radiant panel heating/cooling fan coil systems; switching takes place by changing the mode (summer/winter) from the control panel, from the Remote Panel (optional) or from a dedicated external selector (optional). Alternatively, each relay can activate any dehumidifier in neutral or cooled air mode.
- By integrating the electronics in MAGIS HERCULES MINI HYDRO with the expansion kit (code 3.031944 optional) you may:
  - a) enable a multifunction relay to control summer/winter diverter valves or, alternatively, activate any dehumidifier in neutral or cooled air mode.
  - b) display any system dehumidifier faults;
  - c) manage possible 3<sup>rd</sup> system zone.
  - d) disable the outdoor unit with a contact.

It is available in the model:

- **MAGIS HERCULES MINI HYDRO 5 code 3.035593**
- **MAGIS HERCULES MINI HYDRO 8 code 3.035594**
- **MAGIS HERCULES MINI HYDRO 12 code 3.035595**
- **MAGIS HERCULES MINI HYDRO 5 EH code 3.035596**
- **MAGIS HERCULES MINI HYDRO 8 EH code 3.035597**
- **MAGIS HERCULES MINI HYDRO 12 EH code 3.035598**
- **MAGIS HERCULES MINI HYDRO 12T EH code 3.035599**

**Installation TEMPLATE code 2.017847**

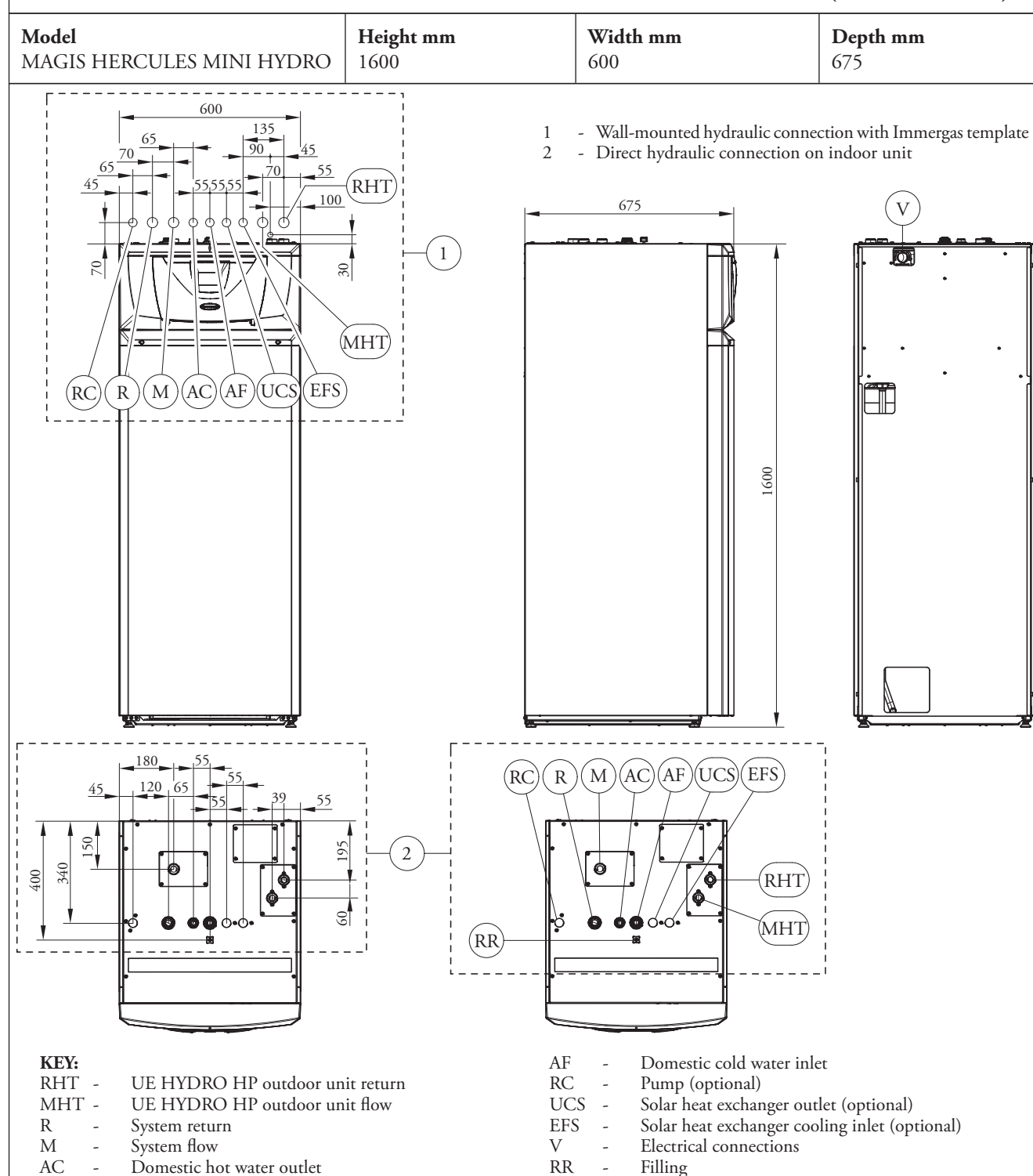
EC Declaration Of Conformity.



# MAGIS HERCULES MINI HYDRO

## MAGIS HERCULES MINI HYDRO EH

### 2 MAGIS HERCULES MINI HYDRO DIMENSIONS AND CONNECTIONS (INDOOR UNIT)



#### DIRECT CONNECTIONS ON MAGIS HERCULES MINI HYDRO (INDOOR UNIT)

MHT	RHT	M - R	AC	AF	RC	UCS	EFS
G 1"	G 1"	G 1"	G 3/4"	G 1"	G 3/4"	G 3/4"	G 3/4"

#### WALL CONNECTIONS WITH TEMPLATE

MHT	RHT	M - R	AC	AF	RC	UCS	EFS
G 1"	G 1"	G 1"	G 3/4"	G 3/4"	G 3/4"	G 3/4"	G 3/4"





# UE HYDRO HP

## UE HYDRO HP T

3

### UE HYDRO HP OUTDOOR UNIT



Hermetically sealed single phase inverter reversible air/water hydronic heat pumps, consisting of a single block to connect the MAGIS HERCULES MINI HYDRO indoor unit with 1" hydraulic pipes.

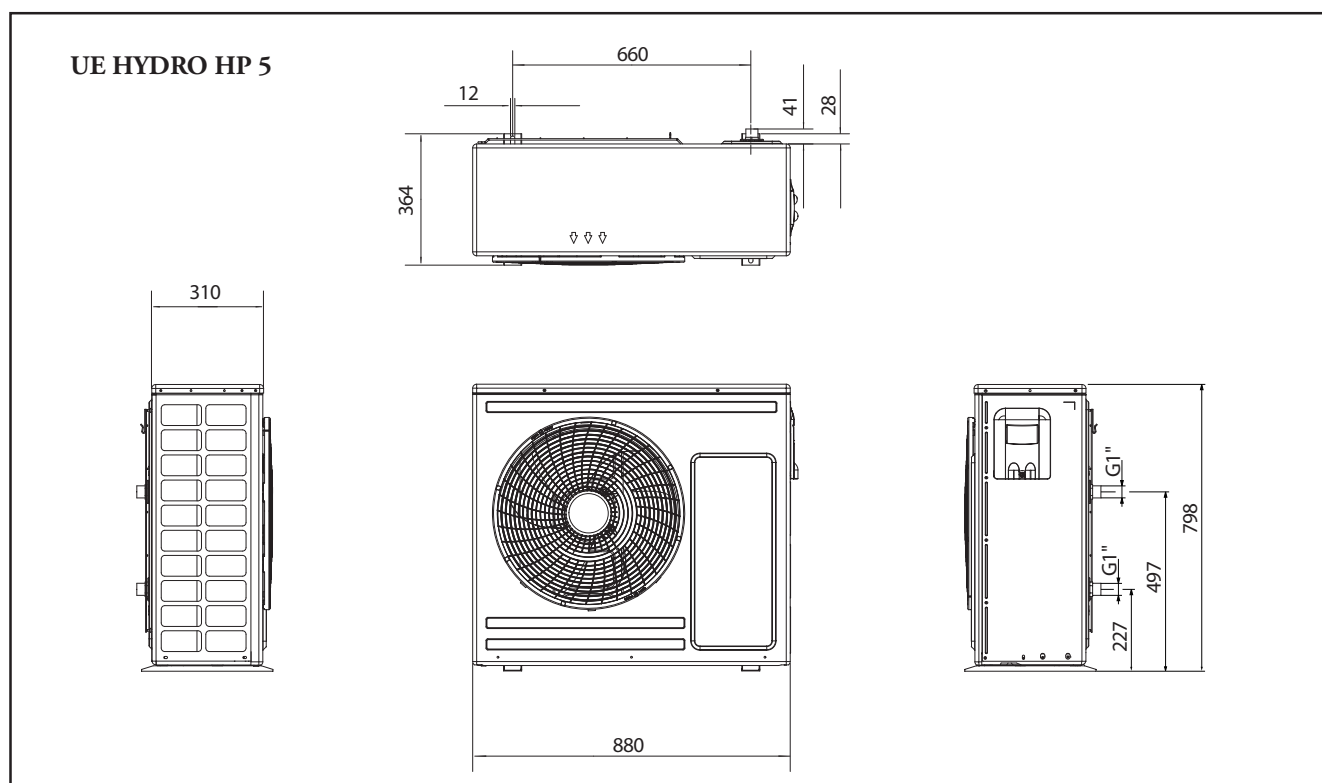
These UE HYDRO HP heat pumps can guarantee central heating, cooling and DHW production comfort. All fed with R32 gas, they are offered in different sizes and outputs; with single fan, sizes 5 and 8 kW, with double fan size 12 kW. *To correctly defrost the heat pump, a minimum amount of water must be guaranteed in the system, always available in the standard inertial storage tank for sizes 5-8, while it is equal to 25 litres to be added to the system for size 12 and 12T.*

**- The UE HYDRO HP block unit includes:**

- inverter electronics;
- Twin-Rotary compressor;
- finned coil for exchange with outdoor air (single fan for sizes 5 and 8 kW - double fan for 12 kW);
- electronic throttle valve;
- water/gas plate heat exchanger;
- cooling cycle inversion 4-way valve;
- R32 cooling circuit preloaded.

### 3.1

### UE HYDRO HP SIZES AND CONNECTIONS (OUTDOOR UNIT)



Height = 798 mm

Width = 880 mm

Depth = 364 mm

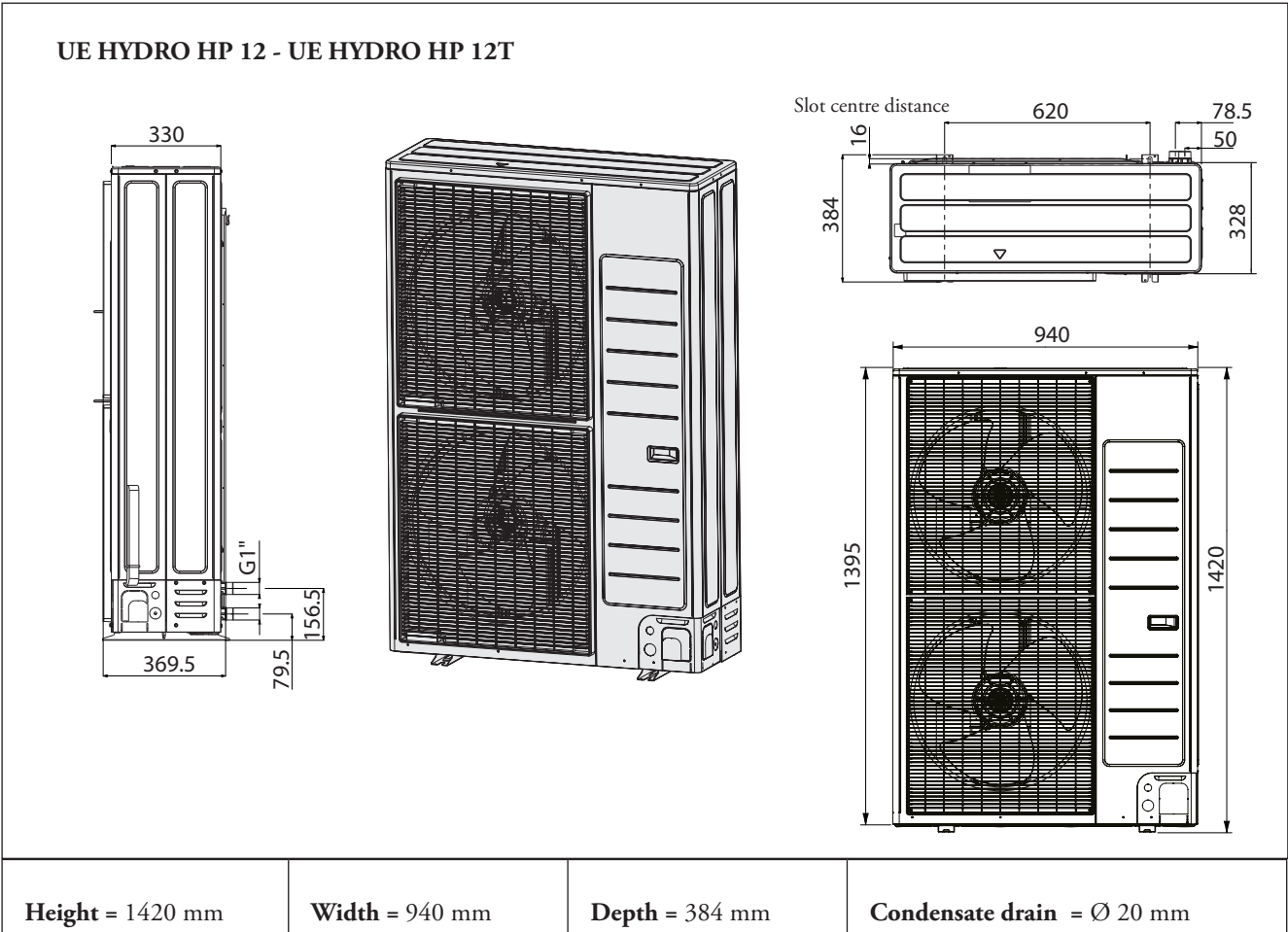
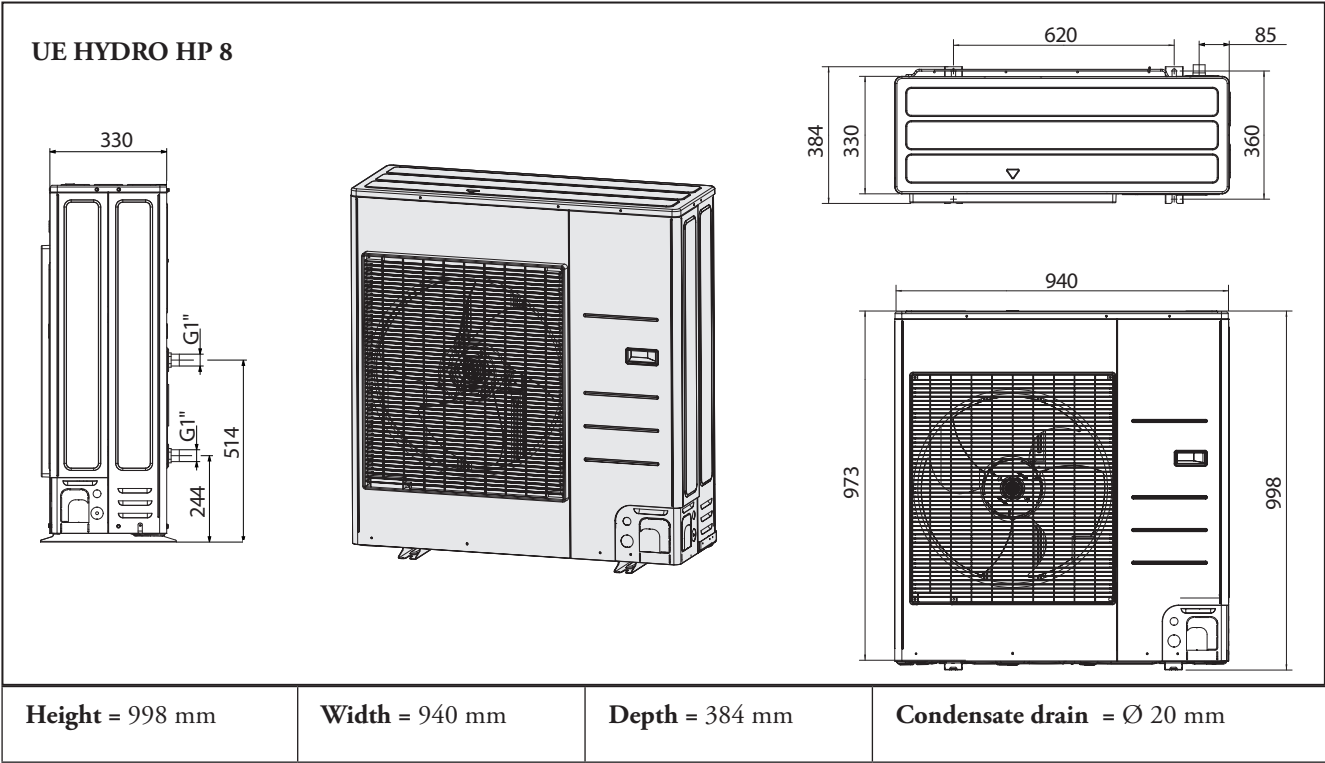
Condensate drain = Ø 20 mm



# UE HYDRO HP

# UE HYDRO HP T

## UE HYDRO HP SIZES AND CONNECTIONS (OUTDOOR UNIT) (CONTINUOUS)



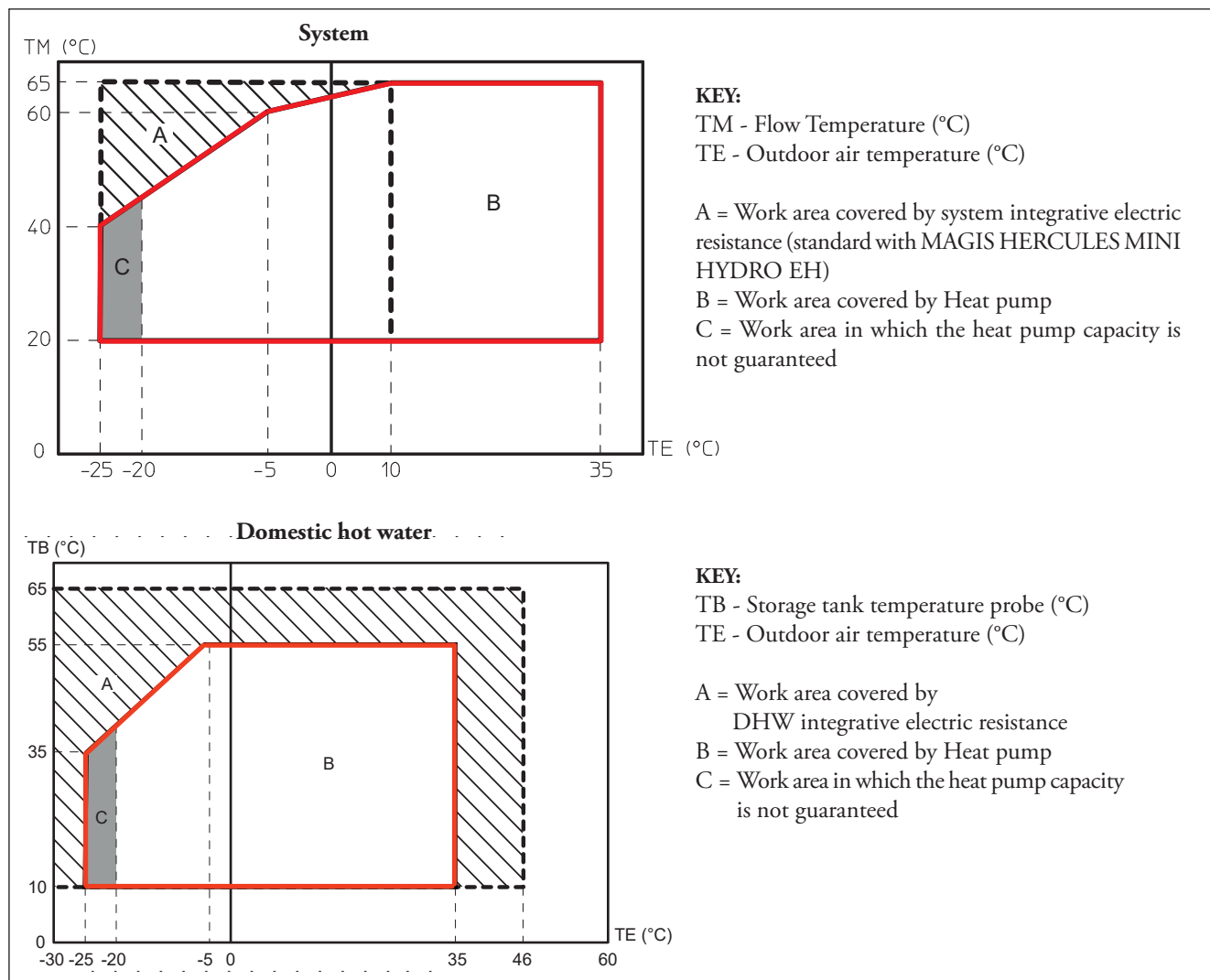
# UE HYDRO HP

# UE HYDRO HP T

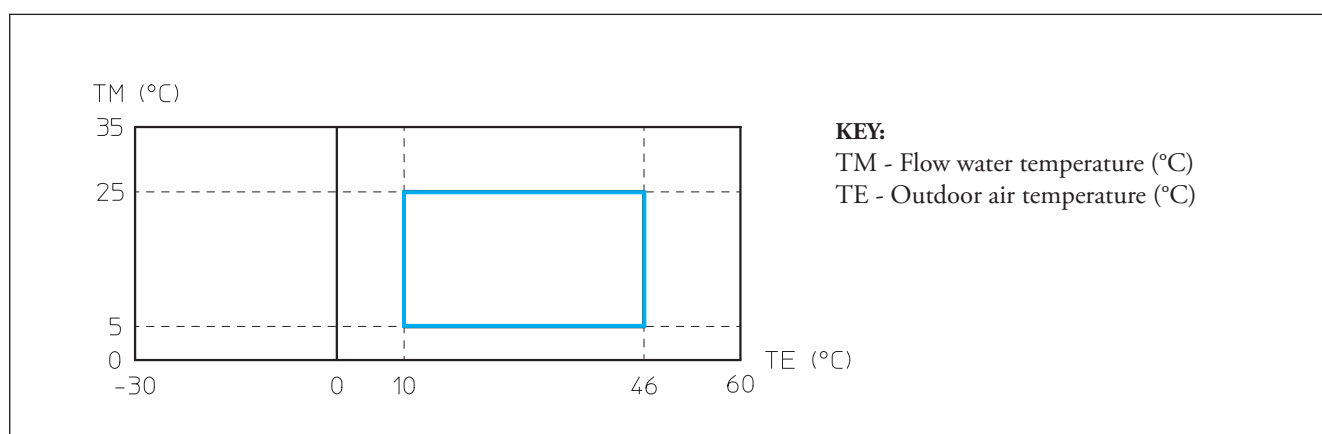
4

## COOLING CIRCUIT WITH R32 FUNCTIONING LIMITS

### Central heating



### Cooling



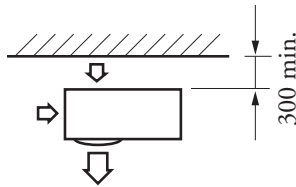
# UE HYDRO HP

# UE HYDRO HP T

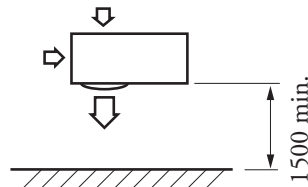
5

## SINGLE UE HYDRO HP MINIMUM INSTALLATION DISTANCES

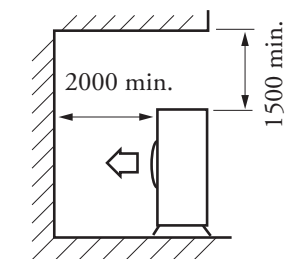
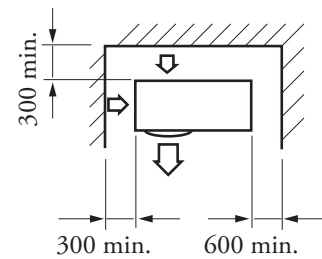
With the back side of the unit facing a wall



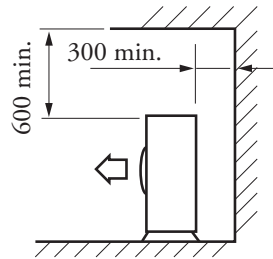
With the front side of the unit facing a wall



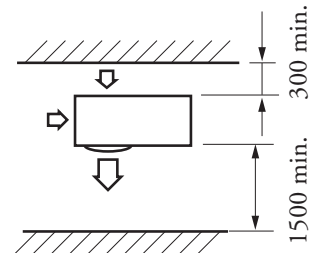
With three sides of the unit facing a wall



With the top and front sides of the unit facing a wall



With the top and back sides of the unit facing a wall



With the front and back sides of the unit facing a wall

**N.B.:** Unit of measurement in millimetres

### Place of installation:

The place of installation is very important and must be established by the system's designer or by a specifically qualified person, and must consider the technical requirements, standards and laws in force.

- The outdoor unit must be installed outside the building only; the indoor unit must be installed inside the building or outdoors in a partially protected place;
- It is recommended to avoid:
  - positioning in basement windows;
  - obstacles or barriers that cause recirculation of exhaust air;
  - places with aggressive atmospheres;
  - limited spaces or anyhow in places where sound levels from the appliance can be enhanced through reverberations or resonance;
  - positioning in corners where there is an accumulation of dust, leaves and anything else that can reduce the appliance's efficiency due to blocked passageways;

- prevent exhaust air from the device from coming into the rooms through doors or windows, thus disturbing people;
- The appliances must:
  - be placed on a level surface that is able to withstand its weight;
  - be placed on a slab that is hard enough and which does not transfer any vibrations to the underlying or adjacent rooms;
  - installed by means of the vibration-dampening supports supplied with the machine.
- If the unit is installed in zones subject to heavy snow, it will be necessary to raise the machine by at least the height of the strongest expected snowfall or, alternatively, use wall-support brackets (optional).



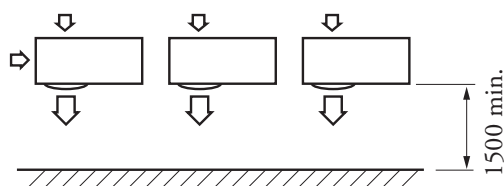


# UE HYDRO HP

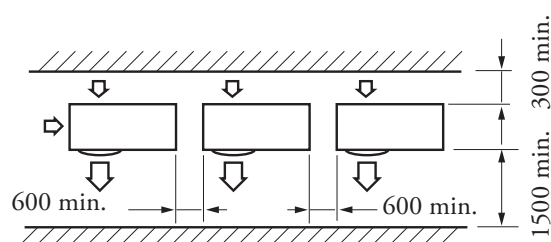
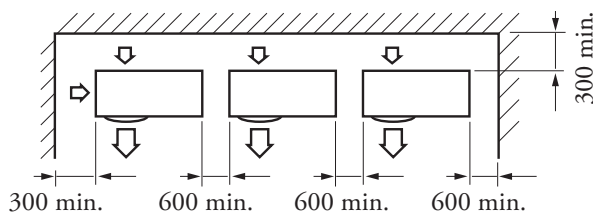
# UE HYDRO HP T

## 5.1 UE HYDRO HP MINIMUM INSTALLATION DISTANCES (SEVERAL APPLIANCES)

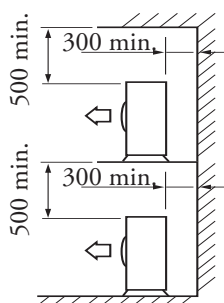
The front side of the unit facing a wall



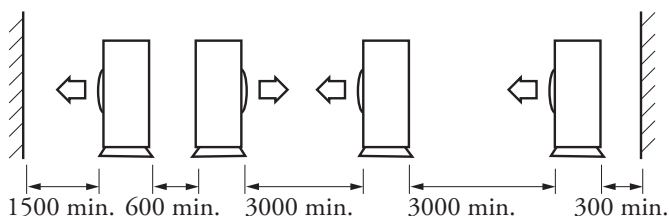
With three sides of the units facing a wall



With the front and back sides of the units facing a wall



With the top and back sides of the units facing a wall



With the units facing each other and with the front and back sides of the end units facing a wall

**N.B.:** Unit of measurement in millimetres

In addition:

- the unit must be installed in a position protected from snow falling from above. If this is not possible, you must at least prevent the snow from clogging the air/refrigerant heat exchanger (even by constructing a small protective roof for the unit, if necessary);
- the effects of the wind can be minimised by installing the unit with the intake side facing a wall;
- the unit must not be installed with the intake side against the wind;
- the effects of the wind can be further minimised by installed a deflector plate facing the unit air flow side (not supplied).

**N.B.:** The spaces shown must be left free to allow air to circulate and to ensure accessibility for repairs or maintenance on every side of the units. In fact, it must be possible to disassemble all the unit components under the utmost safety conditions (both for objects and for people).



# UE HYDRO HP

## UE HYDRO HP T

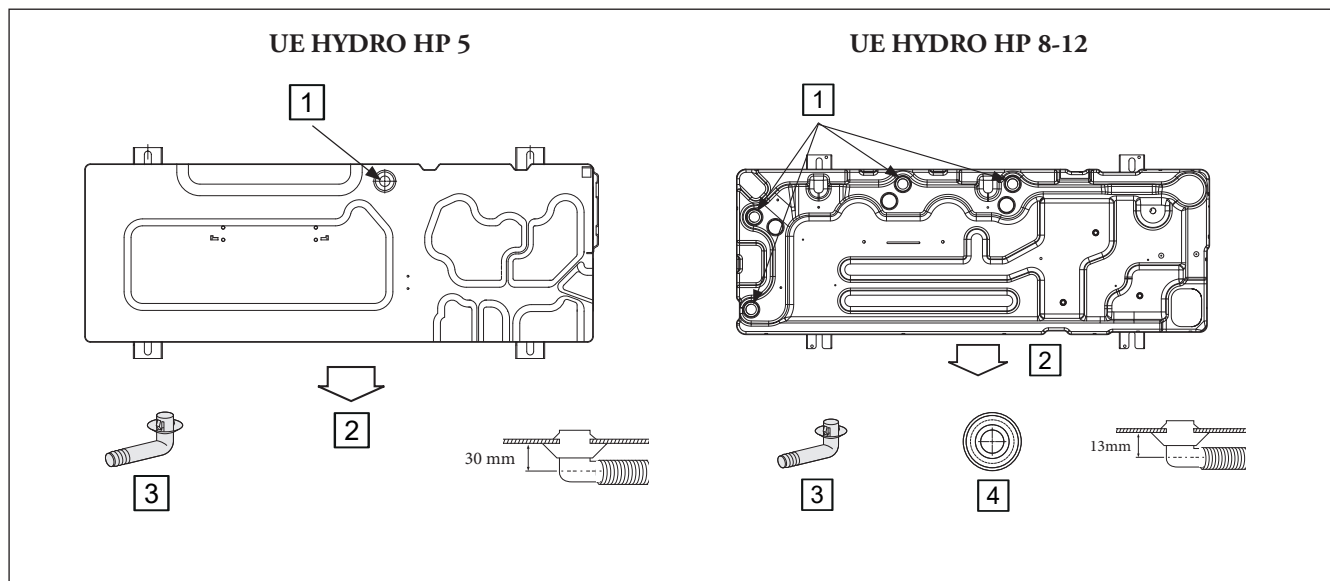
6

### DRAIN HOLES AND CONDENSATE DRAIN

During central heating, ice can deposit on the outer surface of the refrigerant-air heat exchanger. To prevent these deposits from becoming excessive, the unit runs defrosting cycles to melt these deposits. The water resulting from this process is eliminated via drainage holes to prevent it from re-solidifying at the bottom of the unit when the outdoor temperature is quite low. If, for whatever reason, this water cannot be allowed to drain freely, you must leave the appliance raised at least 100 mm above the floor level and the drain sleeve supplied as standard should be used. If the produced condensate is drained through the drain pipe, connect the standard supplied drain fitting [3] in one of the drainage holes on the bottom of the appliance [1] and close

the other holes with drain plugs [4] (see drawings below) and use the drain pipe (16 mm internal diameter) commercially available so that it conveys the water to the desired location. In the event of installation in very cold zones or zones subject to heavy snow where the condensate drain pipe can freeze, take the necessary precautions to keep the drainage holes or the condensate drain pipe free.

**N.B.:** If the water produced by the unit is not properly drained, the performance of the entire system will suffer a negative impact and the system itself could be damaged.

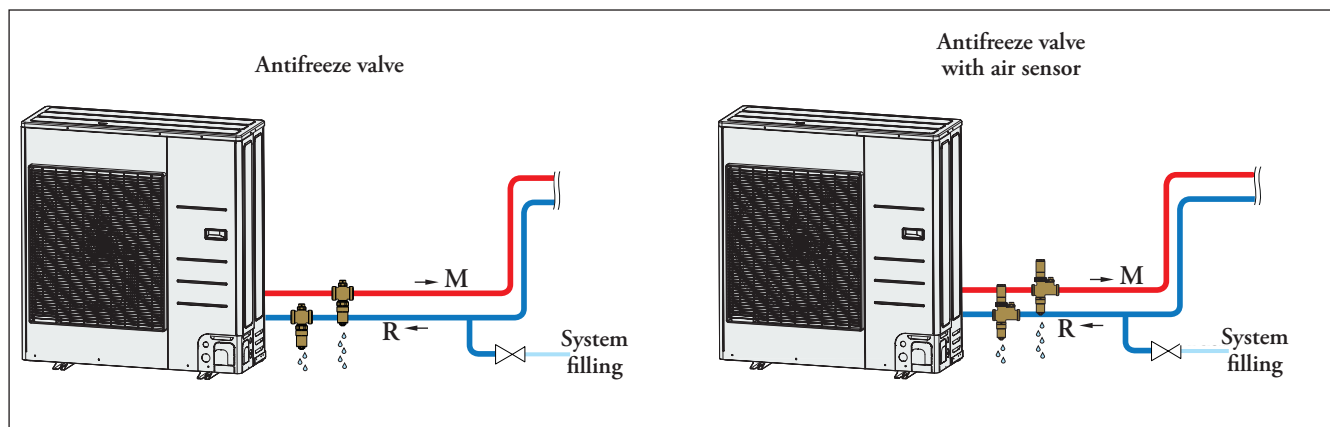


### 7 ANTIFREEZE VALVE BETWEEN HEAT PUMP AND INDOOR UNIT (optional not supplied)

To avoid the formation of ice on the primary connection circuit between the UE HYDRO HP and UI MHMH hydronic outdoor unit, specific antifreeze liquids for heat pumps can be used, suitable for low temperature systems with radiant panels (preventing the formation of algae).

If on the other hand you wish to intervene with mechanical components, you can insert an antifreeze valve which drains

the carrying fluid when its temperature reaches an average value of 3°C. This prevents the formation of ice, in the absence of electricity or antifreeze additives protecting the heat circuit. The version with air sensor allows the system to operate in cooling mode. Under these conditions, tripping of the air sensor prevents the water from being drained.

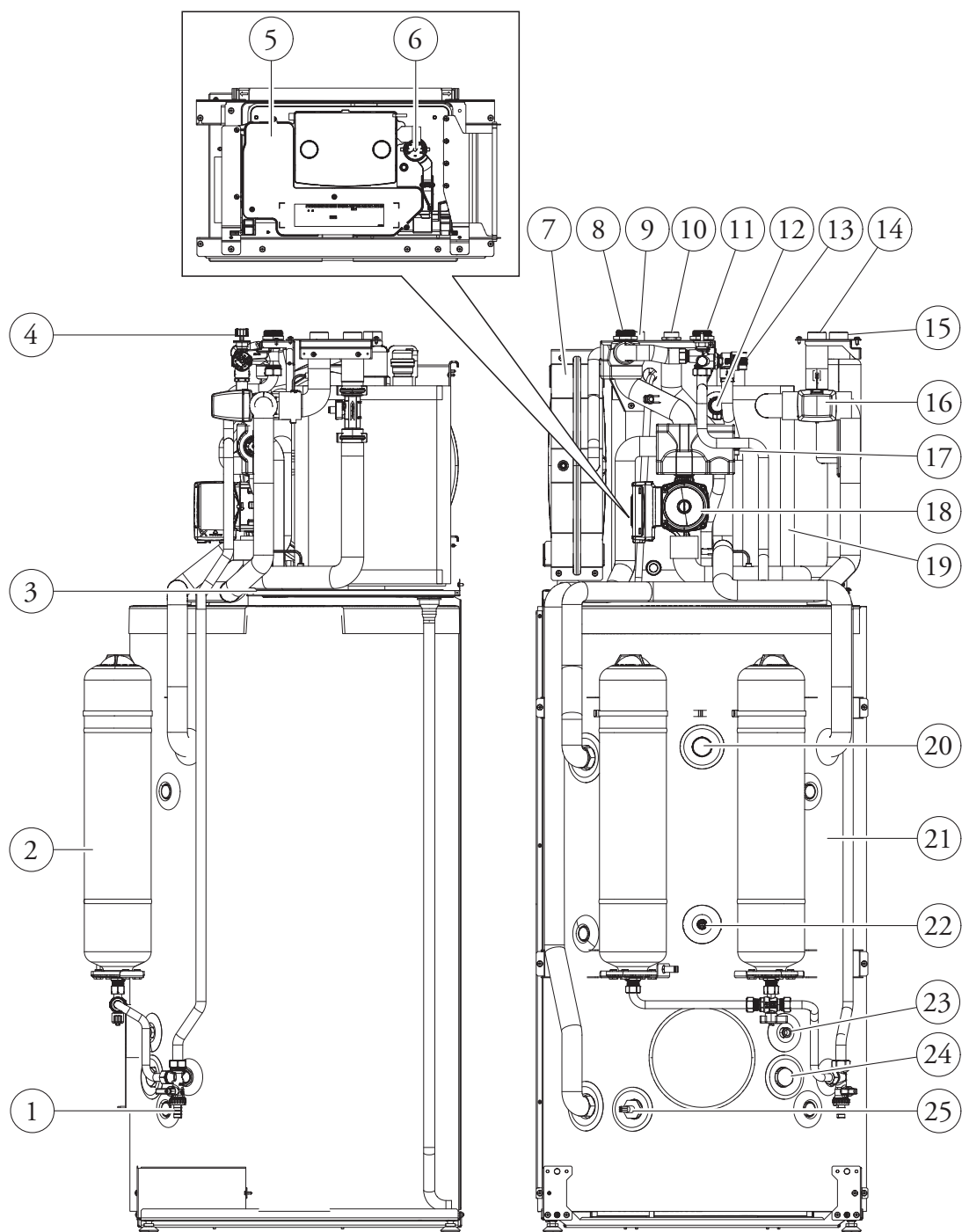


# MAGIS HERCULES MINI HYDRO

## MAGIS HERCULES MINI HYDRO EH

8

### INDOOR UNIT MAIN COMPONENTS



#### KEY:

- |                                       |   |                                     |
|---------------------------------------|---|-------------------------------------|
| 1 - Storage tank unit draining valve  | 10 - Cold water inlet fitting   | 17 - System safety valve            |
| 2 - DHW expansion tank                | 11 - Hot water outlet fitting   | 18 - Heat pump                      |
| 3 - Condensate collection tray        | 12 - System electric resistance (standard with MAGIS HERCULES MINI HYDROEH) | 19 - 25 Litre inertial storage tank |
| 4 - Filling cock                      | 13 - 8 bar safety valve   | 20 - Sacrificial anode              |
| 5 - Electrical connection compartment | 14 - Flow from heat pump  | 21 - Stainless steel storage tank   |
| 6 - System pressure gauge             | 15 - Return to heat pump  | 22 - DHW probe                      |
| 7 - System expansion vessel           | 16 - Motorised 3-way valve  | 23 - Solar probe                    |
| 8 - System return fitting             |   | 24 - Sacrificial anode              |
| 9 - System flow fitting               |   | 25 - DHW electric resistance        |

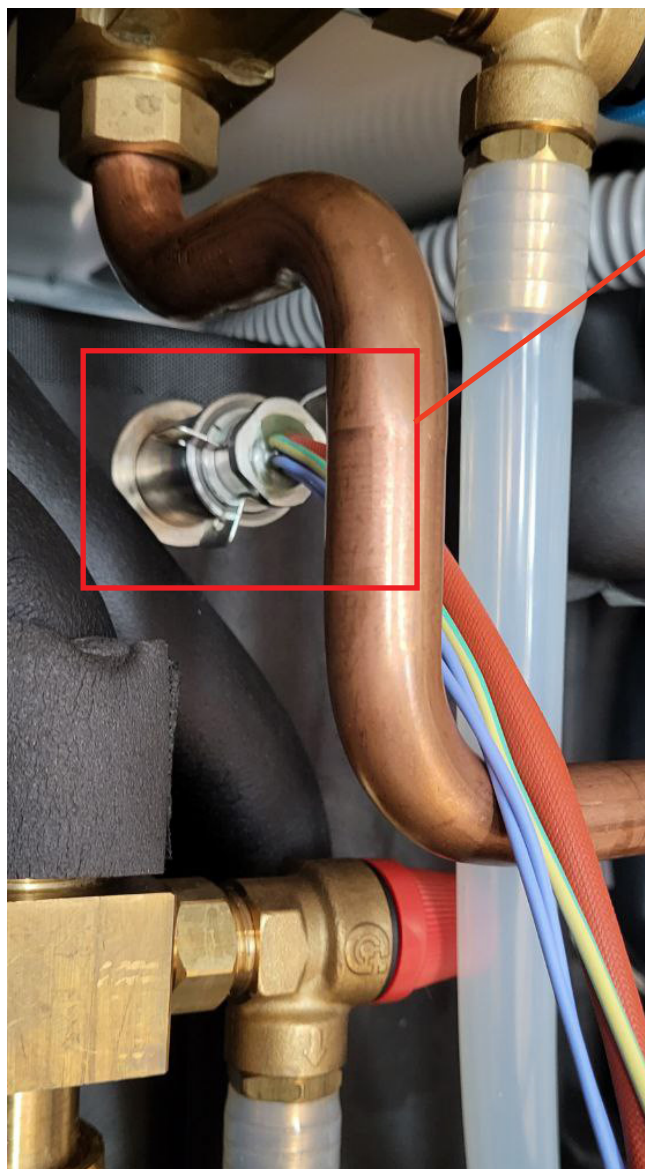


# MAGIS HERCULES MINI HYDRO

## MAGIS HERCULES MINI HYDRO EH

9

3 kW SYSTEM INTEGRATIVE RESISTANCE KIT POSITION (CODE 3.030899)



System integrative  
resistance (optional)



### TECHNICAL DATA

Electric power supply	230V-50Hz single phase+earthing
Max. Output	3 kW
Absorption	13 A
Working temperature	65°C
Maximum temperature	70 °C

**NOTE:** the system integrative resistance is supplied as per standard with MAGIS HERCULES MINI HYDRO EH, optional with the rest of the products



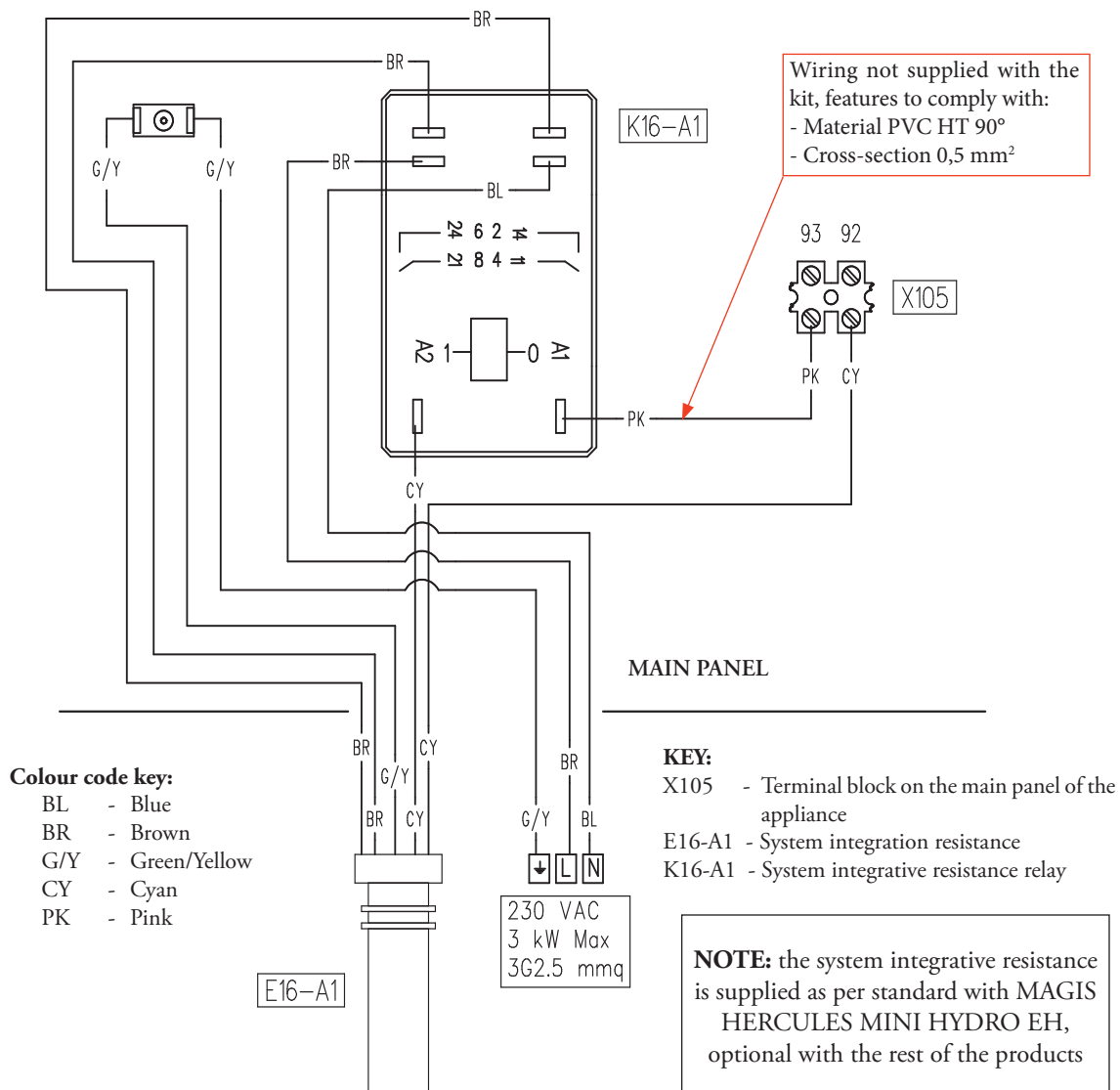
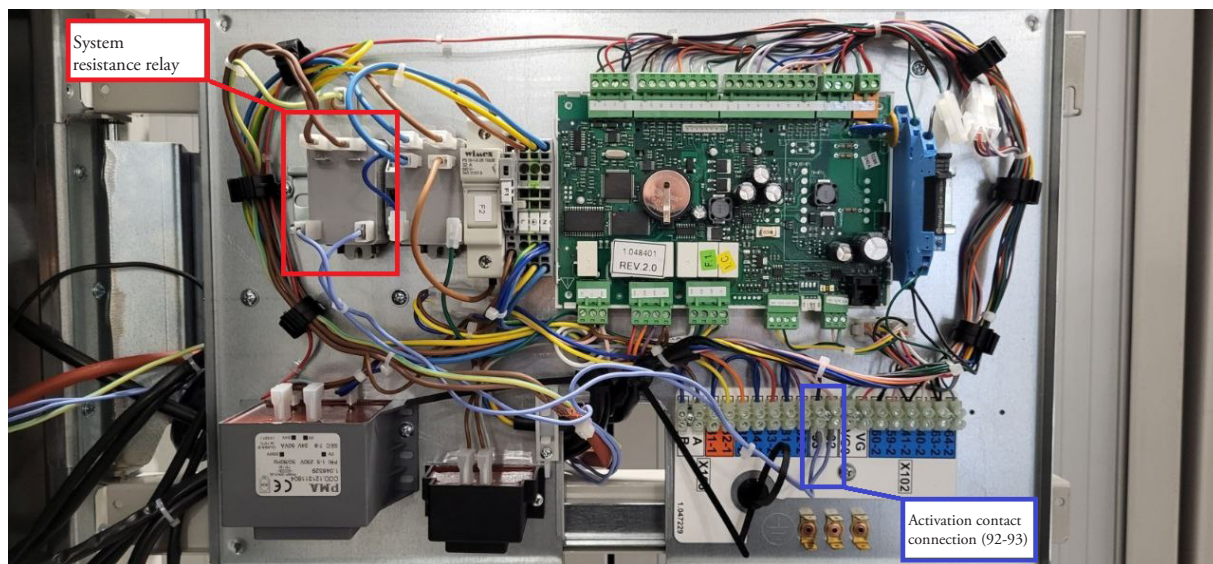


# MAGIS HERCULES MINI HYDRO

## MAGIS HERCULES MINI HYDRO EH

### 9.1

#### ELECTRICAL CONNECTION OF 3 kW SYSTEM INTEGRATIVE RESISTANCE KIT (CODE 3.030899)



# MAGIS HERCULES MINI HYDRO

## MAGIS HERCULES MINI HYDRO EH

10

### HEAD FLOW RATE AVAILABLE TO THE SYSTEM GRAPH

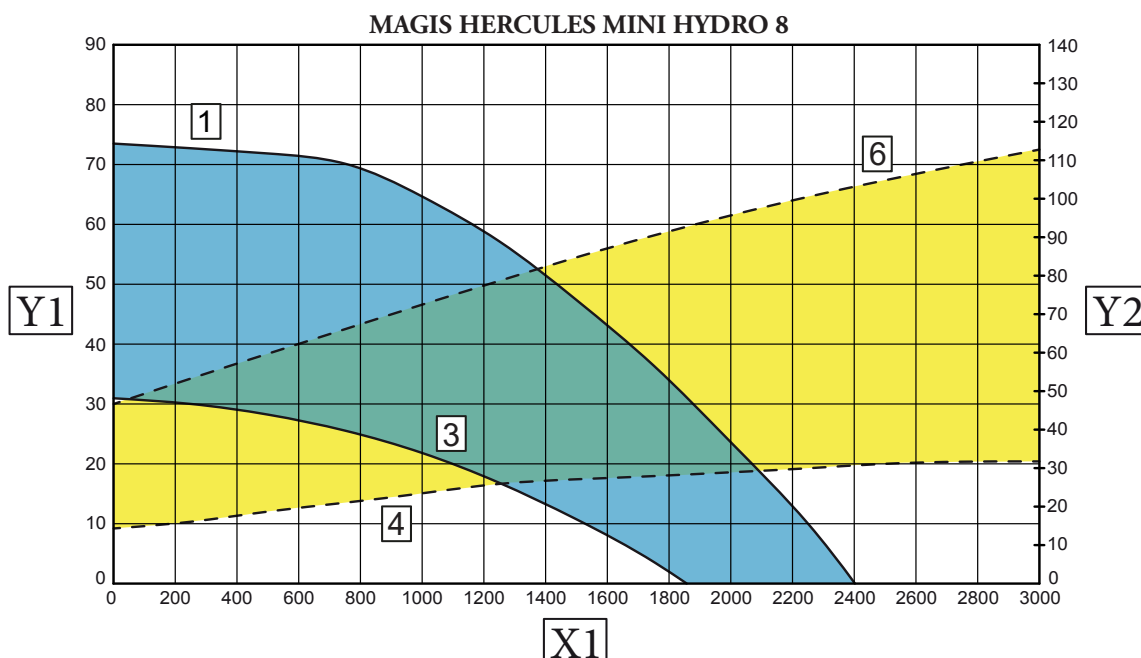
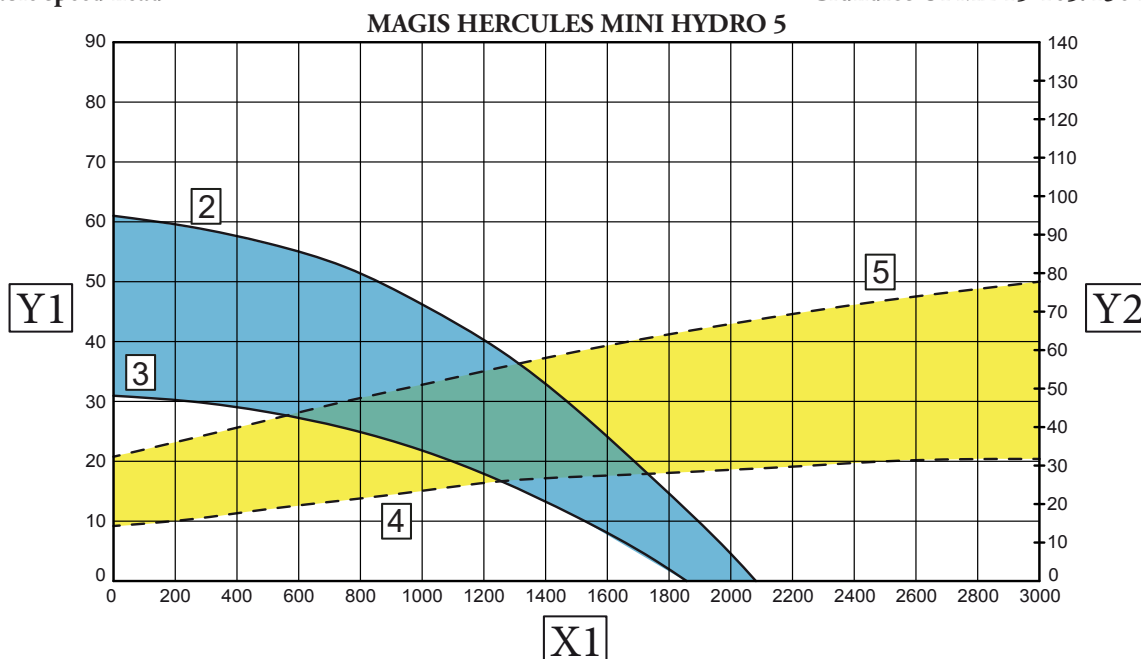
MAGIS HERCULES MINI HYDRO is equipped as standard with a variable-speed, modulating pump with low power consumption (factory settings are suitable to guarantee the best possible performance), through which you can operate directly

on the air-conditioning system.

The flow rate/head characteristics of this pump are shown in the graph below, and it is suitable for both space heating and cooling operation.

Variable speed head

Grundfos UPML 15-105/130 PWM



#### KEY:

- 1 = Head available to the PWM system 80%
- 2 = Head available to the PWM system 70%
- 3 = Head available to the PWM system 50%
- 4 = Power absorbed by pump PWM 50%
- 5 = Power absorbed by pump PWM 70%
- 6 = Power absorbed by pump PWM 80%

- X1 = Flow rate (l/h)
- Y1 = Head (kPa)
- Y2 = Power absorbed by pump (W)

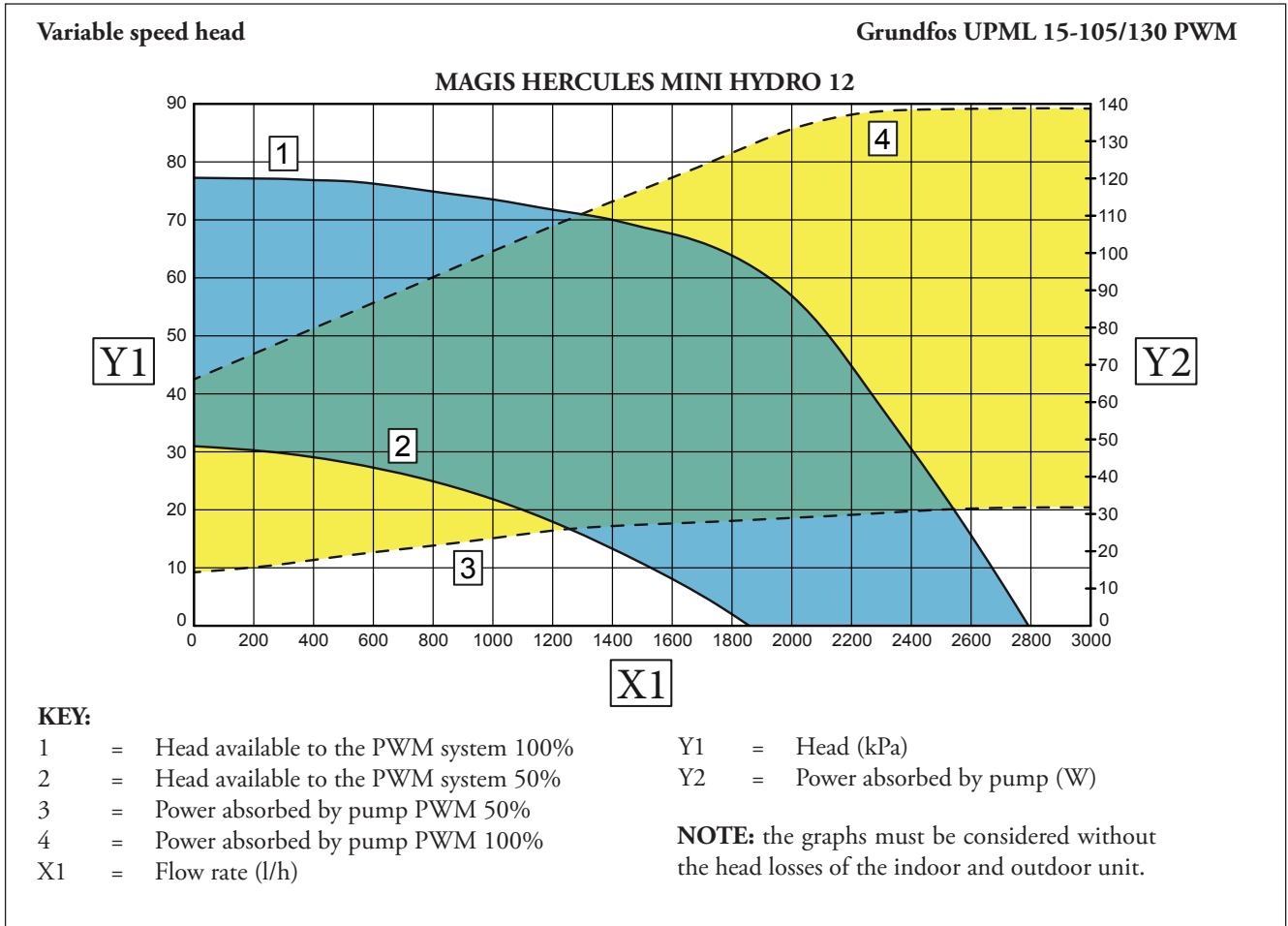
**NOTE:** the graphs must be considered without the head losses of the indoor and outdoor unit.



# MAGIS HERCULES MINI HYDRO

## MAGIS HERCULES MINI HYDRO EH

### HEAD FLOW RATE AVAILABLE TO THE SYSTEM (CONTINUOUS) GRAPH



### 10.1 GRUNDFOS UPML 15-105/130 PWM PUMP SETTINGS AND CONFIGURATIONS

The pump speed is set via the following parameters:

**Fixed (Pump Mode = Max. Speed):** the speed of the pump is fixed and corresponds to the maximum speed.

**$\Delta T$  constant (Pump mode = Modul.):** the speed of the pump varies to keep the system flow and return  $\Delta T$  constant at 5°C.

**NOTE:** for proper system operation, make sure that the minimum flow rate in operating conditions never drops below certain values:

- 500 l/h for sizes 5-8 kW;
- 750 l/h for size 12 kW;
- 1000 l/h for all sizes with heating integration resistance (standard with MAGIS HERCULES MINI HYDRO EH).

**TECHNICAL NOTE: System minimum water content:**

To correctly perform the heat pump defrosting cycles, a minimum amount of water must be guaranteed in the system, always available in the standard inertial storage tank for sizes 5-8, while it is equal to **25 litres to be added to the system for size 12 and 12T**. You must therefore pay attention to systems divided into several zones, where the water content available to the machine changes continuously, making it necessary to install an additional thermal flywheel to guarantee standard operation of the generator. This minimum content also guarantees proper operation with fan coils used for cooling (a condition in which the flow temperature is very low and has significant heat load variations that vary the number of active fan coils). Lastly, it is important to check that the dehumidifier line has a minimum of **3 l/kW** of the machine power (dehumidifier hydraulic circuit connection).

Treating the feed water allows you to prevent problems and maintain the function and efficiency of the generator over time. Legislative Decree 26/06/2015 requires a chemical treatment of the thermal system water, in compliance with the UNI 8065 standard, in the cases provided for by the Decree.



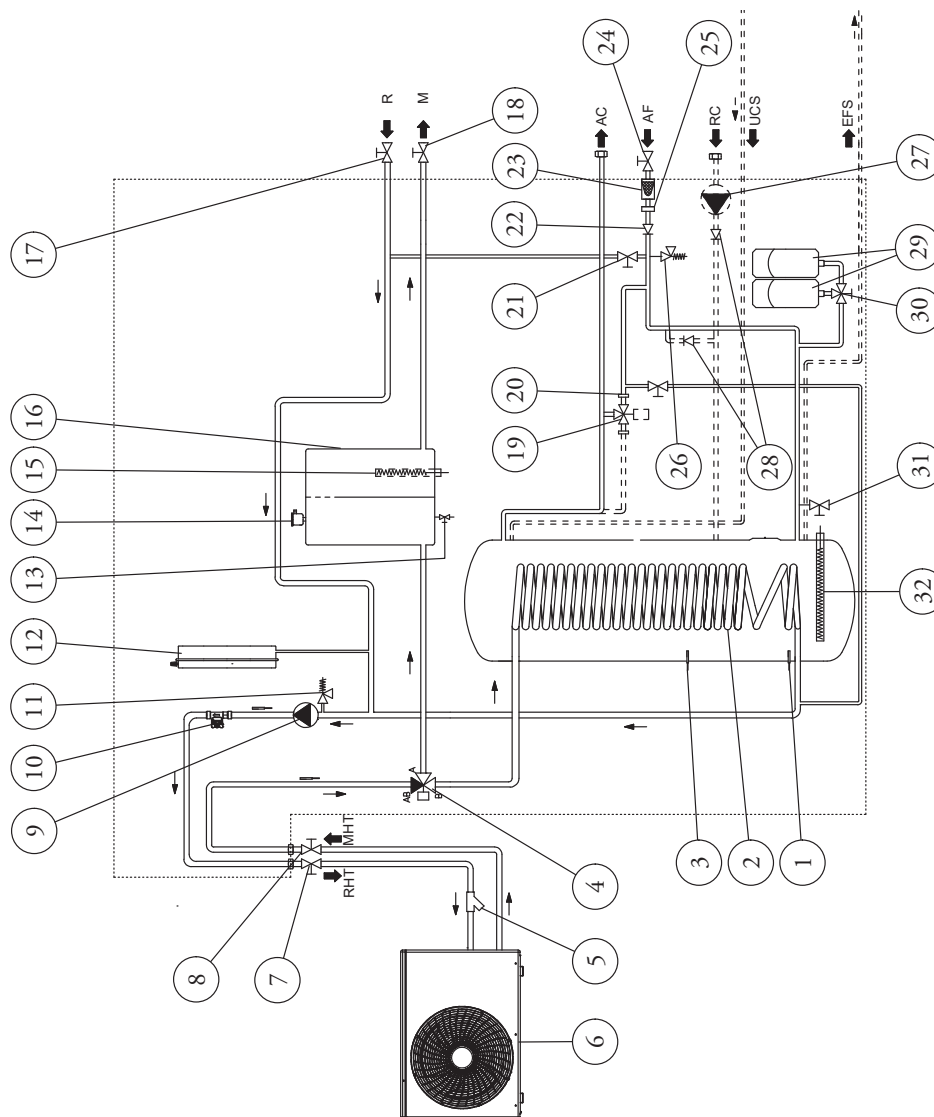
# MAGIS HERCULES MINI HYDRO

## MAGIS HERCULES MINI HYDRO EH

### 11 MAGIS HERCULES MINI HYDRO (INDOOR UNIT) HYDRAULIC DIAGRAM

#### KEY:

- 1 - Storage tank solar probe (Optional)
- 2 - Stainless steel coil for storage tank
- 3 - DHW probe
- 4 - Motorised 3-way valve
- 5 - Inspectable Y filter (to be mounted on RHT pipe)
- 6 - UEHYDRO HP outdoor unit
- 7 - Heat pump return shut-off cock
- 8 - Heat pump flow shut-off cock
- 9 - Heat pump
- 10 - System flow-meter
- 11 - 3 bar safety valve
- 12 - 10 litre system expansion vessel
- 13 - System draining valve
- 14 - Air vent valve
- 15 - 3 kW system electric resistance (standard with MAGIS HERCULES MINI HYDRO EH)
- 16 - 25-litre inertial storage tank
- 17 - System return shut-off cock (Optional)
- 18 - System flow shut-off cock (Optional)
- 19 - DHW mixing valve (Solar kit, optional)
- 20 - Cap for solar kit installation
- 21 - System filling valve
- 22 - Cold water inlet non-return valve
- 23 - Cold water filter
- 24 - Cold water inlet cock
- 25 - Flow limiter
- 26 - 8 bar safety valve
- 27 - DHW recirculation pump (Optional)
- 28 - DHW recirculation one-way valve (Optional)
- 29 - DHW (Domestic hot water) expansion vessel
- 30 - DHW expansion vessel valve
- 31 - Storage tank draining valve
- 32 - DHW electric resistance 2,3 kW
- R - System return
- M - System flow
- AC - Domestic hot water outlet
- AF - Domestic cold water inlet
- UCS - Solar heat exchanger outlet (optional)
- EFS - Solar heat exchanger cold inlet (optional)
- RC - Recirculation (Optional)
- RHT - Return to heat pump
- MHT - Flow from heat pump





# MAGIS HERCULES MINI HYDRO

## MAGIS HERCULES MINI HYDRO EH

### 12 MAGIS HERCULES MINI HYDRO ELECTRONIC MANAGEMENT FUNCTIONS



The electronics of MAGIS HERCULES MINI HYDRO is characterised by an integrated intelligent management system that establishes the system operating priority, on the basis of the external climatic conditions and central heating system flow temperature set.

It is characterised by a user interface made up of a control panel with a large backlit display, controls consisting of lit touch keys with sound effect and encoders for making adjustments.

It activates the electric resistances for both the central heating system (as per standard with MAGIS HERCULES MINI HYDRO EH) and the domestic hot water system (the power supply must be taken separately); the logic plans for the activation of the resistances if I do not reach the set temperature within the maximum time (settable for the system and for the domestic hot water system separately), or below a certain external temperature (also settable) I can immediately activate the electric resistance; it is possible to set up simultaneous operation of the HP and integrative resistances. Lastly, a seasonal conjunction function can be activated to meet the simultaneous air-conditioning and DHW demands, both in summer and winter.

The "SILENT MODE" function with schedule envisages a reduction of the sound power of the outdoor unit by acting on the compressor frequency and fan speed. 4 different sound power reduction levels can be set (level 4 guarantees 35 dB of sound power, which can be compared to silent living quarters at nighttime).

The "Domestic hot water BOOST" function is also available, by activating this function via the parameter menu, the DHW (Domestic hot water) operation takes place with the contribution of both the heat pump and the electrical resistance, with a logic that minimises storage tank charging time.

MAGIS HERCULES MINI HYDRO works at a shifting temperature, exploiting the external probe on the outdoor unit (located outside); it is designed to manage 2 booster zones either for heating and cooling operation (2-zone kit with 1 dir. + 1 mix, optional outside of the casing) or for heating-only operation (2 direct zones kit or 2-zone kit with 1 dir. + 1 mix., optional outside of the casing), with the possibility of setting 2 climatic curves in central heating and 2 climatic curves in cooling (for the 2 zones) without the need for additional electronic supervision boards. In this case MAGIS HERCULES MINI HYDRO can be connected to remote zone panels (code 3.030863) via Bus connections (up to 2 can be provided), or it can be connected with simple on/off contacts (e.g. CHRONO 7) to control the room temperature of the 2 zones.

For humidity control, 2 humidistats (code 3.023302) or 2 Modbus temperature and humidity sensors (code 3.030992) can be connected, as an alternative to the Zone Remote Panel

described above, for the complete management of the relative dehumidifiers by providing the 2 relay board kit (optional).

For each zone, from the MAGIS HERCULES MINI HYDRO electronics it is possible to set if the zone is only heating/cooling, only cooling (dehumidification included, with dew point calculation), as well as setting the programming of different time slots for both zones.

The device can only be remote controlled if the DOMINUS V2 interface board kit (optional) is installed. It consists of a simple and intuitive App for controlling the system and viewing operation with a Tablet, Smartphone and PC.

MAGIS HERCULES MINI HYDRO can also be controlled using home automation systems supplied by third parties by installing the home automation manager kit (optional)

There is an input for system activation in correspondence of electricity production by the photovoltaic system (if installed). This input (when active) forces the central heating of the storage tank for the production of DHW at maximum storage temperature.

The electronics of MAGIS HERCULES MINI HYDRO, in combination with the two relay kit (code 3.031943 optional), allow you to control summer/winter diverter valves, where switching takes place by changing the mode from the control panel, from the remote panel (optional) or from a dedicated external selector (optional). Otherwise, each relay allows you to activate any dehumidifiers in neutral or cooled air mode.

By integrating the electronics in MAGIS HERCULES MINI HYDRO with the expansion kit (code 3.031944 optional) it is possible to: view any system dehumidifier faults; enable a multi-function relay to control summer/winter diverter valves, or else activate any dehumidifiers in neutral or cooled air mode; it is also possible to control a 3<sup>rd</sup> system zone (dedicated hydraulic kits not supplied). The electronics of MAGIS HERCULES MINI HYDRO also manage the anti-legionella function through the use of the DHW electric resistance (standard, but to be programmed). The electronics of MAGIS HERCULES MINI HYDRO also manage the activation of the recirculation pump (optional) by means of the 2 relay board kit (optional).

Whereas to manage a solar system, if supplied, a solar control unit must be purchased separately and integrated in the optional kit (partly outside the casing).

Lastly, the integrated electronics also manage the screed drying function in order to perform the initial central heating cycle on new radiant panel systems.



# MAGIS HERCULES MINI HYDRO

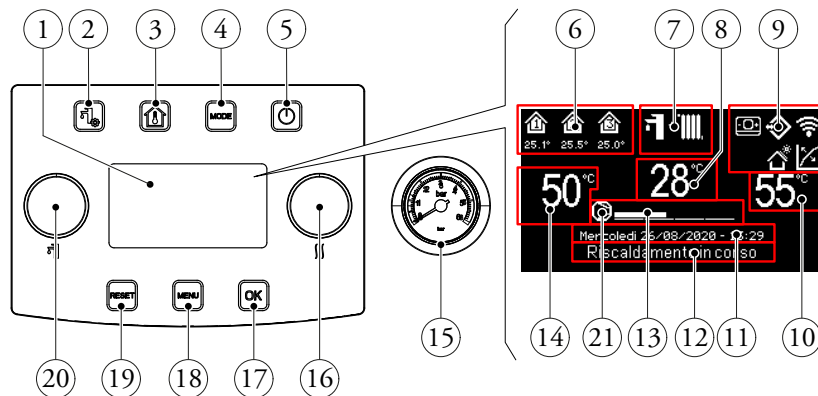
## MAGIS HERCULES MINI HYDRO EH

### 12.1

### DISPLAY AND PROGRAMMING MENU

#### KEY:

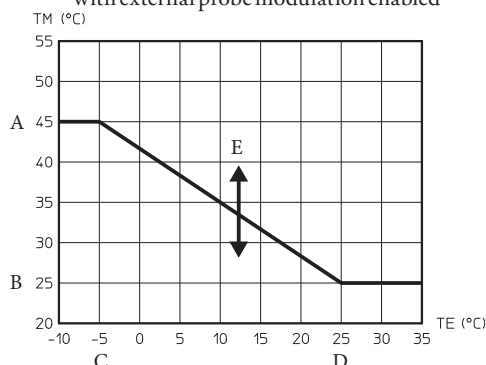
- 1 - Display
- 2 - "DHW" menu button
- 3 - "Zones" button
- 4 - Functioning mode button
- 5 - ON/OFF Button
- 6 - Area zone
- 7 - Operating mode
- 8 - Anomaly code/flow temperature display
- 9 - System general icon display
- 10 - C.H. set display
- 11 - Current date and time display
- 12 - System status display
- 13 - HP power scale display
- 14 - DHW set display
- 15 - Pressure gauge
- 16 - "Heating/cooling set" knob
- 17 - Selection confirmation/OK button
- 18 - "Menu" button
- 19 - Anomalies/esc. reset button
- 20 - "Set DHW" Knob



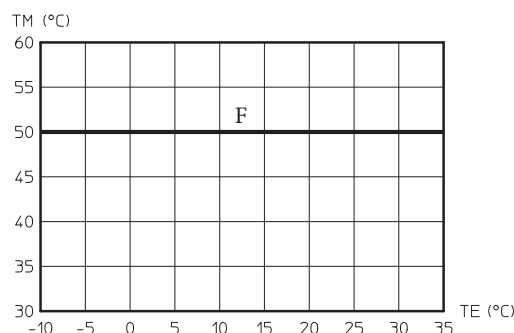
By setting the parameters in the "Temperature control" menu, you can adjust how the system operates.

The following graphs show the default settings in the various operating modes available both with external probe and without.

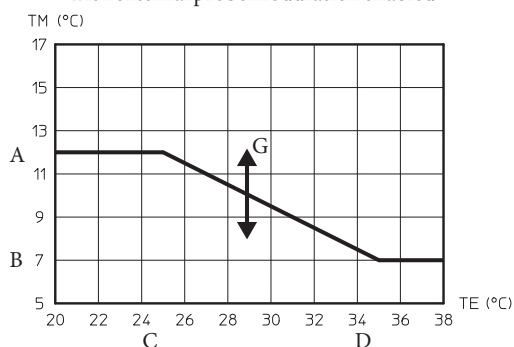
Flow temperature in central heating mode  
with external probe modulation enabled



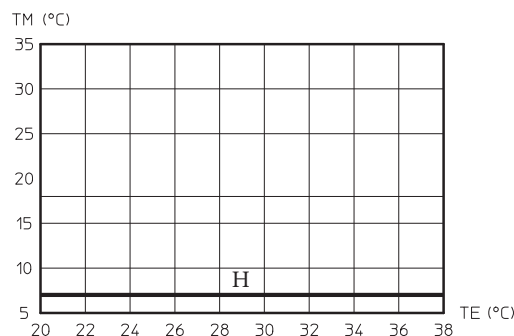
Flow temperature in central heating mode  
without external probe modulation



Flow temperature in cooling mode  
with external probe modulation enabled



Flow temperature in cooling mode  
without external probe modulation



#### KEY:

- A - Maximum flow set
- B - Minimum flow set
- C - External minimum temperature
- D - External maximum temperature

- E - C.H. flow temperature offset
- F - C.H. flow setting
- G - Cooling flow temperature offset
- H - Cooling flow set

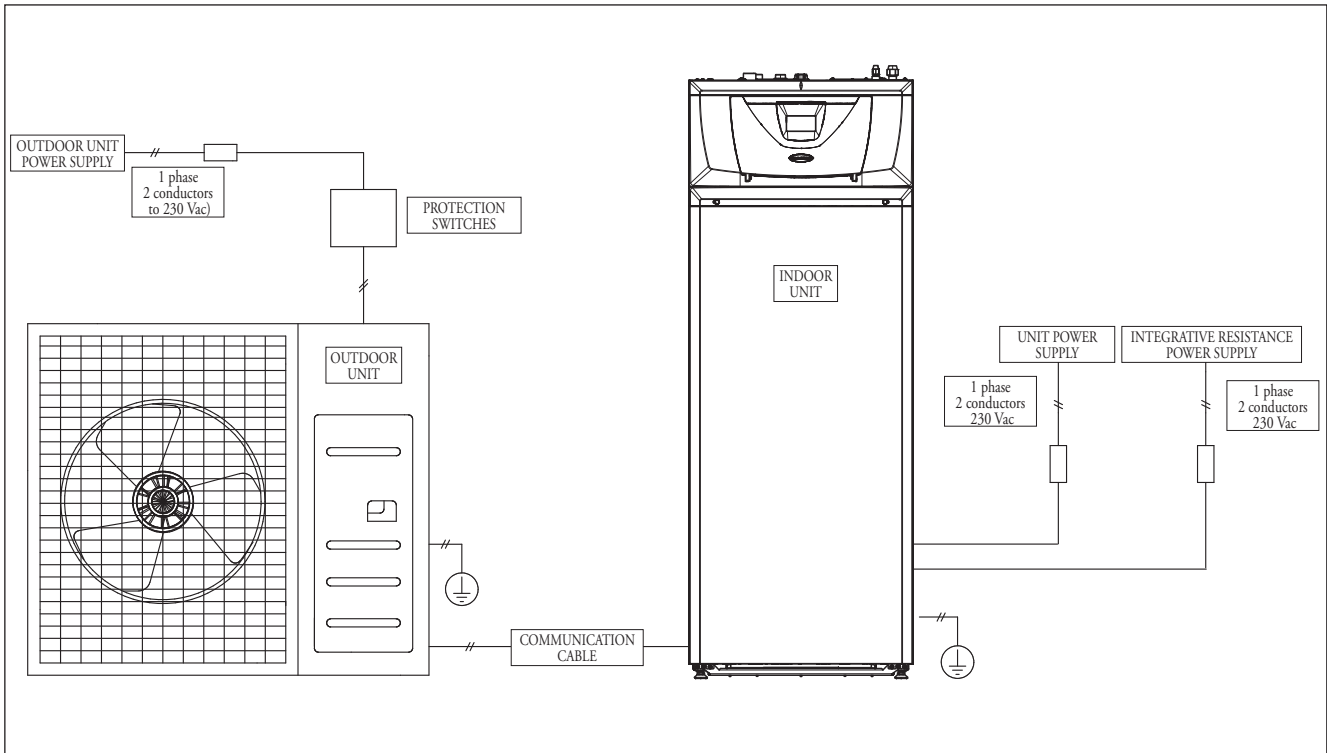


# MAGIS HERCULES MINI HYDRO

## MAGIS HERCULES MINI HYDRO EH

13

### ELECTRIC CONNECTION CABLES FEATURES



**Features of the outdoor unit connection.** The outdoor unit power cable (not standard supplied) must be suitable for outdoor installation and must have at least a flexible polychloroprene sheath (code IEC:60245IEC57 / CENELEC:H05RN-F). Indicatively, the appropriate cable section can be 2,5 ~ 6 mm<sup>2</sup>, to be checked depending on the specific installation conditions.

**N.B:** It is always necessary to install a type “A” residual current device, which must have 30mA high speed contacts (less than 0.1 seconds). Circuit breaker with tripping curve “C” with magnetic release setting 5-10 In (rated current).

Outdoor Unit	Nominal Values		Voltage interval min. - max.		Maximum current absorbed (MCA)	Range of protective device
	Hz	V	V	V	A	A
UE HYDRO HP 5	50	220 - 240	198	264	16	20
UE HYDRO HP 8	50	220 - 240	198	264	22	27.5
UE HYDRO HP 12	50	220 - 240	198	264	28	35
UE HYDRO HP 12 T	50	380 - 415	342	457	10	16.1

**Features of the connection between outdoor/indoor units.** Use H07RN-F or H05RN-F class cables to power the indoor unit. If the indoor unit is installed in a server room or where

there is a risk of disturbance of the communication cable, use a double-shielded cable (aluminium tape / polyester + copper braid) type FROHH2R.

MAGIS HERCULES MINI HYDRO Power supply (indoor unit)				BUS communication cable between outdoor units and indoor units
Power supply	Max./Min.(V)	Main Power supply Cable	Power supply Cable System resistance (standard with MAGIS HERCULES HYDRO MIN EH)	
Single-phase, 220-240V, 50Hz	±10%	2.5 mm <sup>2</sup> , 3 wires	2.5 mm <sup>2</sup> , 3 wires	0,75 ~ 1.5 mm <sup>2</sup> , 2 wires



# UE HYDRO HP

# UE HYDRO HP T

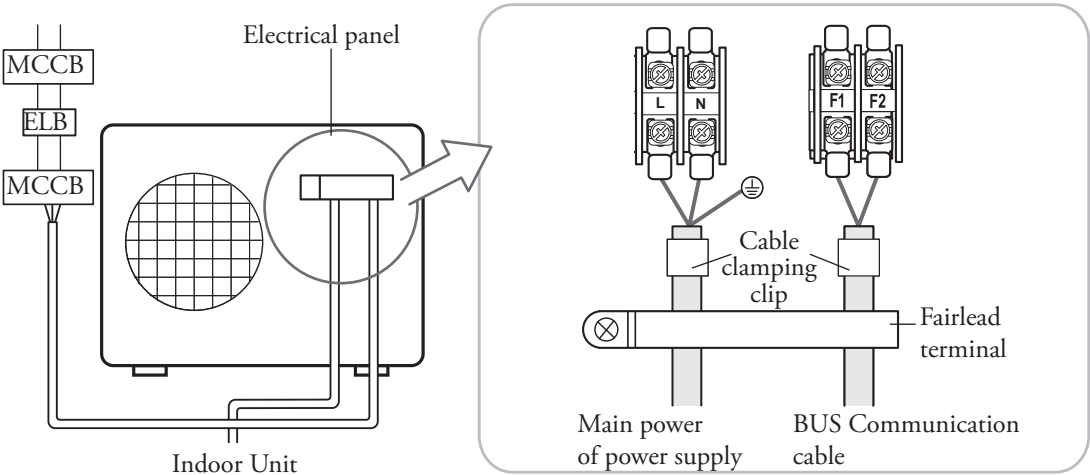
13.1

OUTDOOR UNIT TERMINAL BLOCK ELECTRICAL CONNECTIONS

With use of the single phase circuit breaker (ELB).

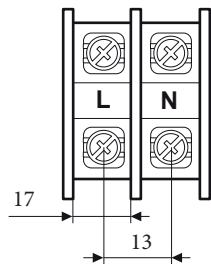
Depending on the model, the actual appearance of the unit may differ from the one shown in the figure.

- KEY:
- ELB - Safety Switch
  - MCCB - Circuit breaker switch

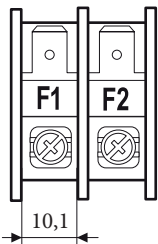


UE HYDRO HP 5-8-12 - AC single phase power supply.

Electric power supply  
M5 screw

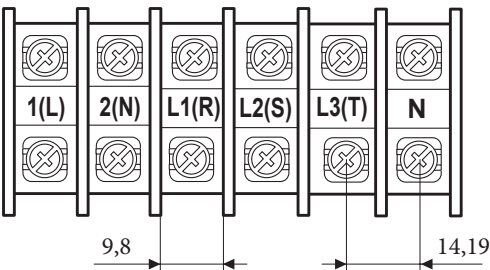


M4 screw communication  
BUS

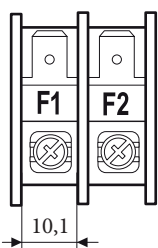


UE HYDRO HP 12 T - AC three-phase power supply.

Electric power supply  
M4 Screw



M4 screw communication  
BUS



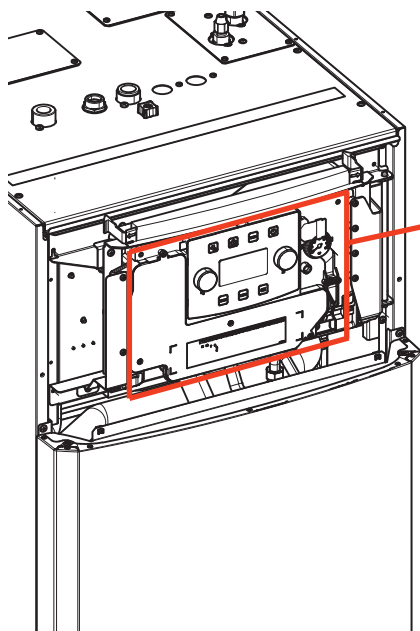


# MAGIS HERCULES MINI HYDRO

## MAGIS HERCULES MINI HYDRO EH

14

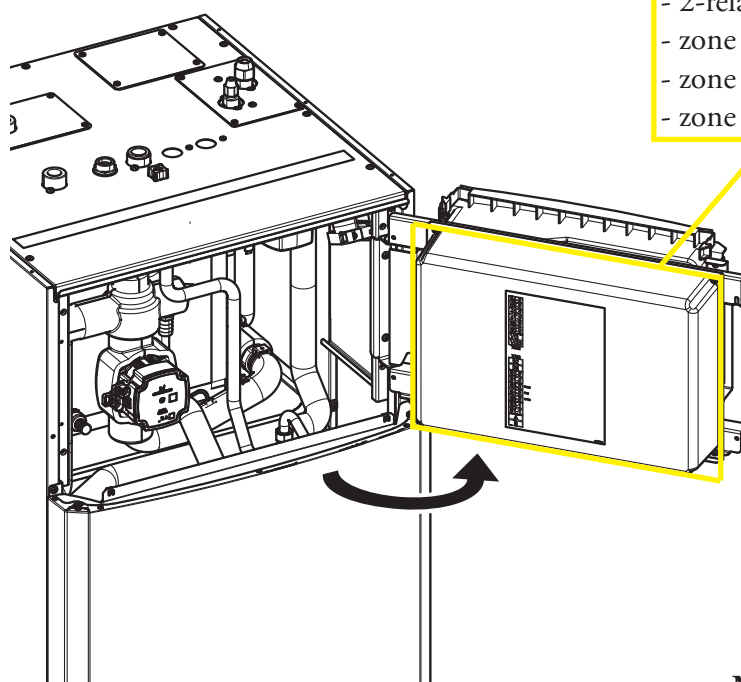
### LOCATION OF ELECTRICAL PANELS AND TERMINAL BLOCKS



#### Control panel (front)

Connectable:

- outdoor unit communication
- remote panels zone 1 and 2
- temperature/humidity sensors zone 1 and 2
- expansion kit communication
- DOMINUS V2 interface kit
- additional external probe\*
- recirculation probe\*
- photovoltaic contact
- zone 1 flow probe
- zone 1 humidistat and thermostat
- central heating/cooling selector



#### Main panel (rear)

Connectable:

- zone 2 flow probe
- zone 2 safety thermostat
- zone 2 humidistat and thermostat
- expansion kit power supply
- system integration resistance
- 2-relay multifunction kit
- zone 1 booster pump
- zone 2 booster pump
- zone 2 mixing valve

**N.B.:** Only one component marked with \* may be installed.

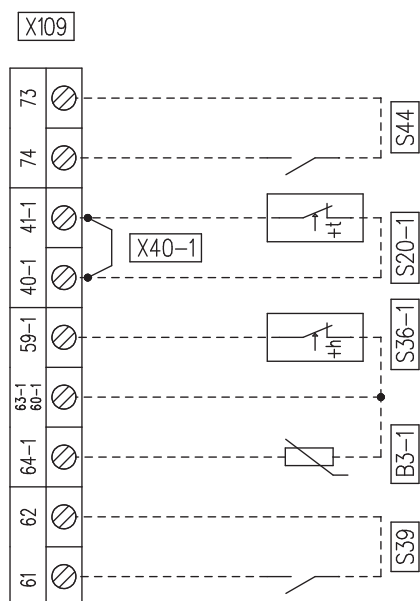


# MAGIS HERCULES MINI HYDRO

## MAGIS HERCULES MINI HYDRO EH

15

### ELECTRICAL CONNECTIONS - CONTROL PANEL (FRONT)

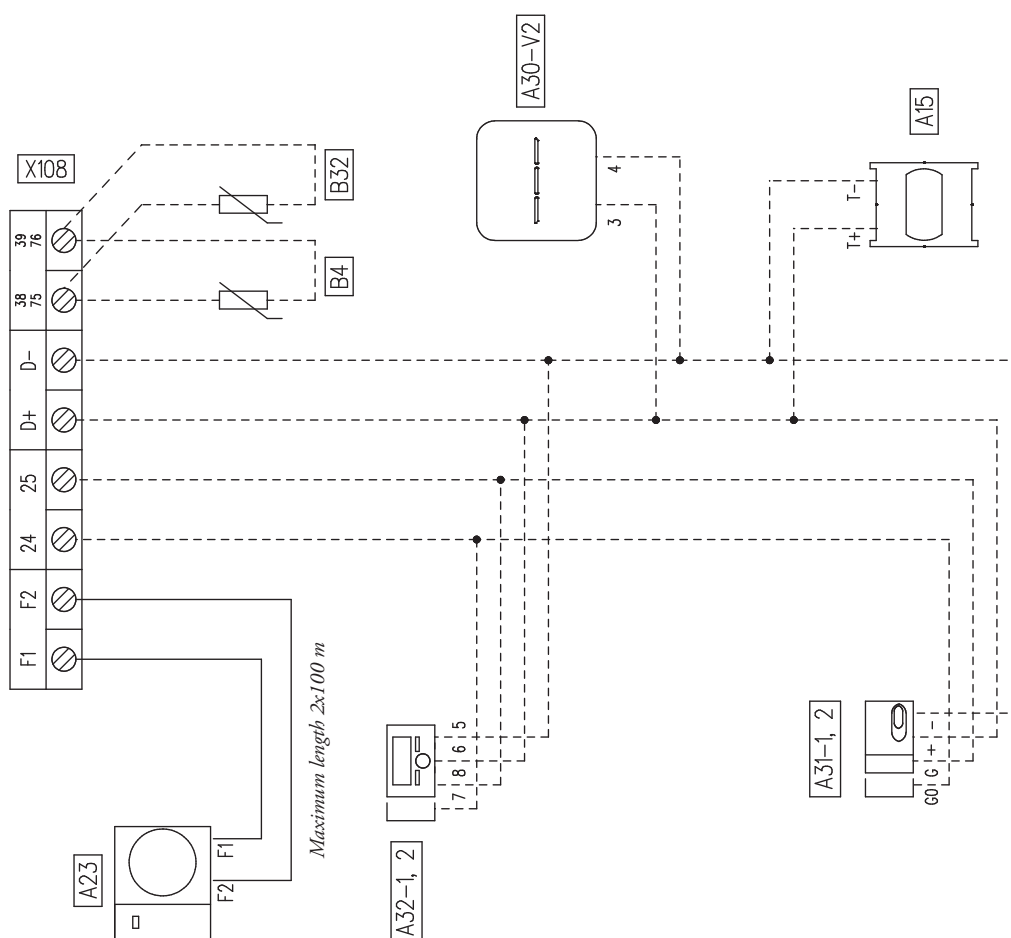


#### KEY:

- A15 Electronic expansion board (optional)
- A23 Outdoor unit
- A30-V2 DOMINUS V2 interface kit (optional)
- A31-1, 2 MODBUS temperature sensor zone 1, 2 (optional)
- A32-1, 2 Zone 1, 2 remote panel (optional)
- B3-1 Zone 1 flow probe (optional)
- B4 External probe (Optional)
- B32 Recirculation probe (optional)
- S20-1 Zone 1 room thermostat (optional)
- S36-1 Zone 1 humidistat (Optional)
- S39 Photovoltaic inlet (optional)
- S44 Heating/Cooling Selector (optional)
- X40-1 Zone 1 room thermostat jumper

**NOTES:** Eliminate the X40-1 jumper before connecting the S20-1 room thermostat. When the Zone 1 remote panel is connected, hold the X40-1 jumper.

If Zone 2 Remote Panel is also connected, ensure that there is a jumper between terminals 41-2 and 40-2 on terminal block X102 of the **main panel**.

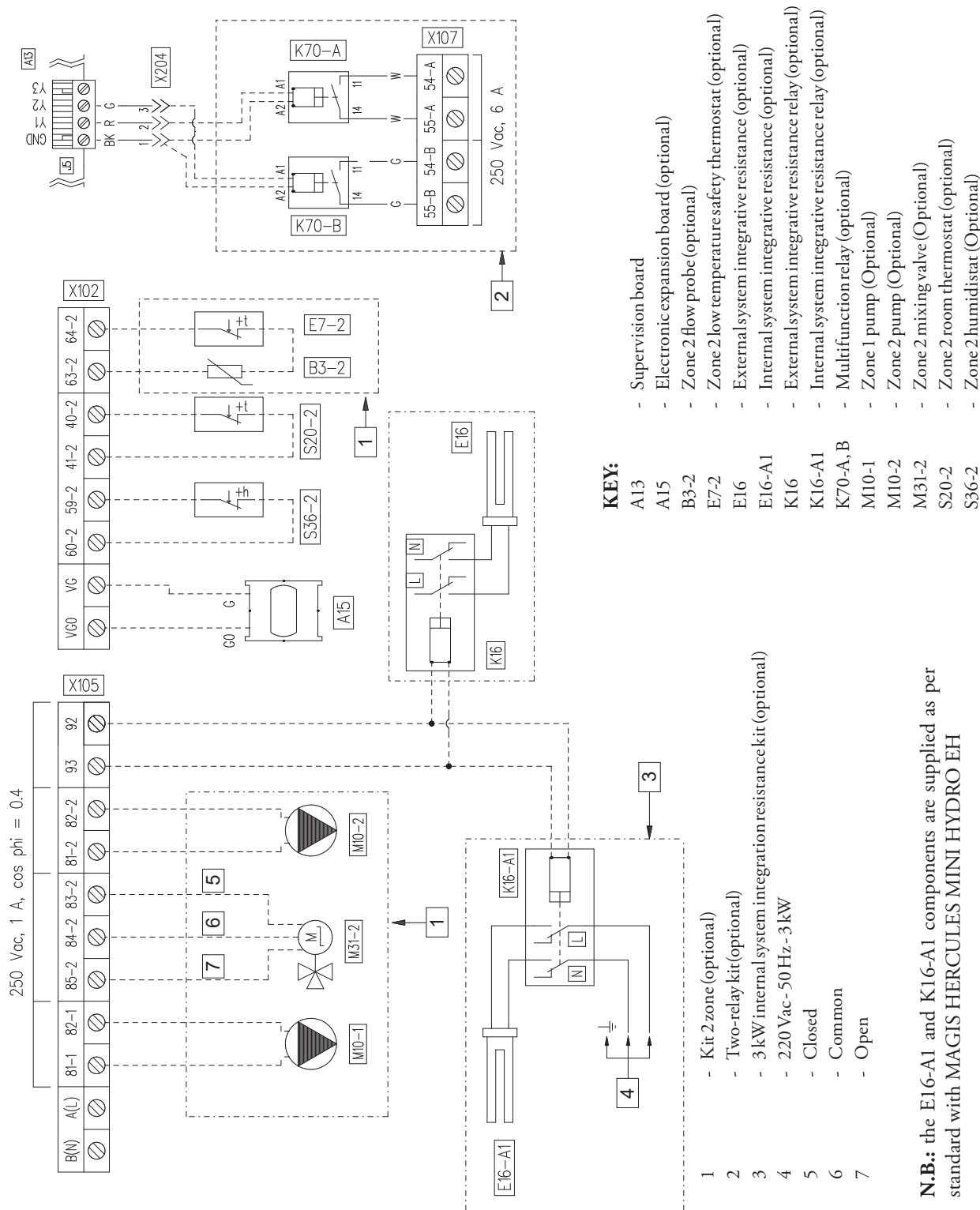


**N.B.:** The installation of the additional (optional) B4 external probe precludes the use of the (optional) B32 recirculation probe and vice versa.



**MAGIS HERCULES MINI HYDRO**  
**MAGIS HERCULES MINI HYDRO EH**

## ELECTRICAL CONNECTIONS - MAIN PANEL (REAR)



**N.B.:** the E16-A1 and K16-A1 components are supplied as per standard with MAGIS HERCULES MINI HYDRO EH

# MAGIS HERCULES MINI HYDRO

## MAGIS HERCULES MINI HYDRO EH

16

### TEMPERATURE CONTROL (OPTIONAL)

16.1

#### REMOTE ZONE PANEL



It is an electronic device equipped with a back-lit display to control and adjust the room's temperature and humidity. Connection to the terminal block is made via two BUS cables and two power supply cables.

It programs the relative room temperature control.

It can be applied to the wall using the supplied screws and plugs. The kit is powered at 24 V (directly from the terminal block).

• OPTIONAL

code 3.030863

16.2

#### MODBUS TEMPERATURE/HUMIDITY PROBE



It is a room probe that detects the temperature and humidity in the room.

Connection to the terminal block is made via two BUS cables and two power supply cables.

It can be applied to the wall using the supplied screws and plugs. The kit is powered at 24 V (directly from the terminal block).

• OPTIONAL

code 3.030992

16.3

#### CHRONO 7



It is an On/Off type backlit digital chrono-thermostat with microprocessor for setting two room temperature levels, one for the day (comfort temperature) and one for the night (reduced temperature), it allows setting separate on and off weekly programs; Displays any error codes.

It is connected to the appliance with only 2 wires, by means of which it requests air conditioning. Power supply is by means of 2 "AA" type 1.5 V batteries.

• OPTIONAL

code 3.021622

16.4

#### CRONO 7 WIRELESS



It is an On/Off type backlit digital chrono-thermostat with microprocessor consisting of two receiver and transmitter elements, it allows to make the same settings as for the CHRONO 7. The receiver is connected to the appliance with only 2 wires, by means of which it requests air conditioning.

The Chrono-thermostat (transmitter) is powered by 2 "AA" type 1.5 V batteries.

The maximum distance between the transmitter and the receiver is about 50 metres (depends on the room).

• OPTIONAL

code 3.021624

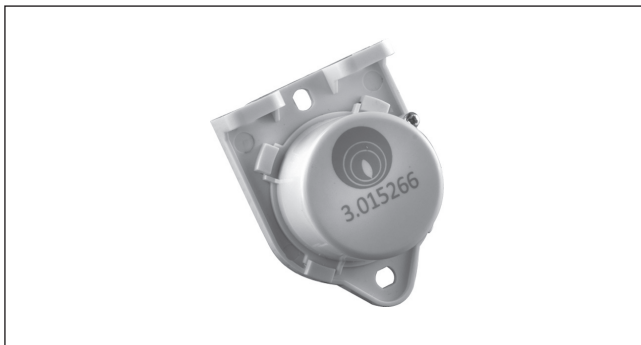


# MAGIS HERCULES MINI HYDRO

## MAGIS HERCULES MINI HYDRO EH

16.5

### EXTERNAL PROBE



It is a device for adjusting the heat provided by the system according to the outdoor temperature change.

The external probe always acts when it is connected, independently from the presence and type of temperature control. It can be applied to the wall using the supplied screws and plugs, possibly on the North or North-West wall.

It is connected with only 2 wires, with a maximum length of 50 metres.

• OPTIONAL

code 3.015266

16.6

### HUMIDISTAT KIT



It is a device used for controlling the room humidity. It can be adjusted using the knob to select the relative humidity percentage to be controlled between 30 and 90%, it acts with an On/Off contact for dehumidification equipment.

The humidistat is designed for wall installation or on junction boxes normally found on the market.

It is connected to the appliance with only 2 wires.

• OPTIONAL

code 3.023302

16.7

### DOMINUS V2 INTERFACE BOARD KIT



It is a simple and intuitive application for controlling the system and viewing operation with a tablet, smartphone and/or laptop. The DOMINUS V2 interface board kit must be installed interposed with a wireless modem/router (not supplied).

The app can be downloaded for free from all stores of your operating system (APP store, Google Play Windows Store).

It can be applied to the wall using the supplied screws and plugs. The kit must be connected to the system's M-Bus network.

The kit is powered at 230 Vac directly from the terminal block.

• OPTIONAL

code 3.034903





# MAGIS HERCULES MINI HYDRO

## MAGIS HERCULES MINI HYDRO EH

### 17 “OUTPUTS” AND “ABSORPTION” IN UE HYDRO HP 5 CENTRAL HEATING MODE

UE HYDRO HP 5		Water flow temperature °C					
		30			35		
Air temperature °C d.b.	(w.b.)	Max. output (kW)	Max. absorbed output (kW)	COP	Max. output (kW)	Max. absorbed output (kW)	COP
-20	(-21)	3.57	1.42	2.51	3.40	1.60	2.13
-15	(-16)	4.47	1.63	2.74	4.26	1.83	2.33
-10	(-11)	5.15	1.69	3.05	4.90	1.90	2.58
-7	(-8)	5.36	1.67	3.21	5.10	1.88	2.71
-2	(-3)	5.20	1.48	3.51	4.95	1.67	2.96
2	(1)	5.04	1.29	3.91	4.80	1.45	3.31
7	(6)	5.25	0.92	5.71	5.00	1.03	4.85
10	(9)	5.73	0.92	6.23	5.46	1.04	5.25
15	(14)	6.54	0.94	6.96	6.23	1.05	5.93
20	(19)	7.35	0.95	7.74	7.00	1.07	6.54

UE HYDRO HP 5		Water flow temperature °C					
		40			45		
Air temperature °C d.b.	(w.b.)	Max. output (kW)	Max. absorbed output (kW)	COP	Max. output (kW)	Max. absorbed output (kW)	COP
-20	(-21)	3.41	1.69	2.02	3.43	1.98	1.73
-15	(-16)	4.12	1.92	2.15	3.99	2.00	2.00
-10	(-11)	4.75	1.99	2.39	4.61	2.08	2.22
-7	(-8)	4.99	2.12	2.35	4.88	2.36	2.07
-2	(-3)	4.76	1.83	2.60	4.58	1.99	2.30
2	(1)	4.54	1.54	2.95	4.27	1.62	2.64
7	(6)	4.90	1.17	4.19	4.80	1.30	3.69
10	(9)	5.38	1.18	4.56	5.29	1.31	4.04
15	(14)	6.17	1.18	5.23	6.12	1.33	4.60
20	(19)	6.97	1.20	5.81	6.94	1.35	5.14

UE HYDRO HP 5		Water flow temperature °C					
		50			55		
Air temperature °C d.b.	(w.b.)	Max. output (kW)	Max. absorbed output (kW)	COP	Max. output (kW)	Max. absorbed output (kW)	COP
-15	(-16)	3.87	2.10	1.84	-	-	-
-10	(-11)	4.47	2.18	2.05	4.15	2.39	1.74
-7	(-8)	4.78	2.58	1.85	4.67	2.79	1.67
-2	(-3)	4.35	2.24	1.94	4.12	2.49	1.65
2	(1)	4.06	1.82	2.23	3.84	2.03	1.89
7	(6)	4.55	1.41	3.23	4.30	1.52	2.83
10	(9)	5.03	1.48	3.40	4.76	1.64	2.90
15	(14)	5.81	1.50	3.87	5.51	1.66	3.32
20	(19)	6.59	1.52	4.34	6.25	1.69	3.70



# MAGIS HERCULES MINI HYDRO

## MAGIS HERCULES MINI HYDRO EH

### “OUTPUTS” AND “ABSORPTION” IN UE HYDRO HP 5 (CONTINUOUS) CENTRAL HEATING MODE

UE HYDRO HP 5		Water flow temperature °C					
		60			65		
Air temperature °C d.b.	(w.b.)	Max. output (kW)	Max. absorbed output (kW)	COP	Max. output (kW)	Max. absorbed output (kW)	COP
-7	(-8)	-	-	-	-	-	-
-2	(-3)	3.90	2.76	1.41	-	-	-
2	(1)	3.64	2.25	1.62	-	-	-
7	(6)	4.08	1.56	2.62	3.85	1.60	2.41
10	(9)	4.53	1.69	2.68	4.29	1.74	2.47
15	(14)	5.23	1.72	3.04	4.95	1.77	2.80
20	(19)	5.93	1.74	3.41	5.62	1.79	3.14

- TOL = -25 °C

### 17.1 “OUTPUTS” AND “ABSORPTION” IN UE HYDRO HP 5 COOLING MODE

UE HYDRO HP 5		Water flow temperature °C				
		7			10	
Air temperature °C d.b.		Max. output (kW)	Max. absorbed output (kW)	EER	Max. output (kW)	Max. absorbed output (kW)
10		4.32	0.86	5.02	4.62	0.85
20		4.15	0.97	4.28	4.45	0.97
30		3.99	1.09	3.66	4.27	1.08
35		3.90	1.15	3.39	4.18	1.15
46		3.72	1.27	2.93	3.98	1.27

UE HYDRO HP 5		Water flow temperature °C				
		13			15	
Air temperature °C d.b.		Max. output (kW)	Max. absorbed output (kW)	EER	Max. output (kW)	Max. absorbed output (kW)
10		4.93	0.85	5.80	5.23	0.85
20		4.74	0.97	4.89	5.03	0.97
30		4.55	1.08	4.21	4.83	1.08
35		4.45	1.15	3.87	4.73	1.14
46		4.24	1.27	3.34	4.50	1.26

UE HYDRO HP 5		Water flow temperature °C				
		18			25	
Air temperature °C d.b.		Max. output (kW)	Max. absorbed output (kW)	EER	Max. output (kW)	Max. absorbed output (kW)
10		5.54	0.85	6.52	6.09	0.87
20		5.33	0.96	5.55	5.86	0.98
30		5.11	1.08	4.73	5.62	1.10
35		5.00	1.14	4.39	5.50	1.16
46		4.77	1.26	3.79	5.24	1.28



# MAGIS HERCULES MINI HYDRO

## MAGIS HERCULES MINI HYDRO EH

### 18 “OUTPUTS” AND “ABSORPTION” IN UE HYDRO HP 8 CENTRAL HEATING MODE

UE HYDRO HP 8		Water flow temperature °C					
		30			35		
Air temperature °C d.b.	(w.b.)	Max. output (kW)	Max. absorbed output (kW)	COP	Max. output (kW)	Max. absorbed output (kW)	COP
-20	(-21)	5.60	2.21	2.53	5.33	2.48	2.15
-15	(-16)	6.56	2.42	2.71	6.25	2.72	2.30
-10	(-11)	7.86	2.66	2.95	7.49	2.99	2.51
-7	(-8)	7.72	2.69	2.87	7.35	3.02	2.43
-2	(-3)	7.53	2.39	3.15	7.18	2.69	2.67
2	(1)	7.35	2.09	3.52	7.00	2.35	2.98
7	(6)	8.40	1.58	5.32	8.00	1.77	4.52
10	(9)	9.23	1.57	5.88	8.79	1.77	4.97
15	(14)	10.60	1.56	6.79	10.10	1.76	5.74
20	(19)	11.98	1.56	7.68	11.41	1.75	6.52

UE HYDRO HP 8		Water flow temperature °C					
		40			45		
Air temperature °C d.b.	(w.b.)	Max. output (kW)	Max. absorbed output (kW)	COP	Max. output (kW)	Max. absorbed output (kW)	COP
-20	(-21)	5.27	2.70	1.95	5.20	3.13	1.66
-15	(-16)	6.15	2.94	2.09	6.06	3.16	1.92
-10	(-11)	7.26	3.14	2.31	7.04	3.28	2.15
-7	(-8)	7.13	3.17	2.25	6.91	3.32	2.08
-2	(-3)	6.94	2.83	2.45	6.71	2.97	2.26
2	(1)	6.75	2.49	2.71	6.50	2.62	2.48
7	(6)	7.70	1.95	3.95	7.40	2.12	3.49
10	(9)	8.53	1.97	4.33	8.28	2.17	3.82
15	(14)	9.92	1.97	5.04	9.74	2.24	4.35
20	(19)	11.31	2.01	5.63	11.20	2.32	4.83

UE HYDRO HP 8		Water flow temperature °C					
		50			55		
Air temperature °C d.b.	(w.b.)	Max. output (kW)	Max. absorbed output (kW)	COP	Max. output (kW)	Max. absorbed output (kW)	COP
-15	(-16)	5.88	3.32	1.77	-	-	-
-10	(-11)	6.83	3.45	1.98	6.33	3.77	1.68
-7	(-8)	6.31	3.59	1.76	5.71	3.85	1.48
-2	(-3)	6.37	3.34	1.91	6.03	3.71	1.63
2	(1)	6.18	2.95	2.09	5.85	3.28	1.78
7	(6)	7.25	2.33	3.11	7.10	2.53	2.81
10	(9)	7.86	2.44	3.22	7.45	2.71	2.75
15	(14)	9.25	2.52	3.67	8.76	2.80	3.13
20	(19)	10.64	2.61	4.08	10.08	2.90	3.48



# MAGIS HERCULES MINI HYDRO

## MAGIS HERCULES MINI HYDRO EH

### “OUTPUTS” AND “ABSORPTION” IN UE HYDRO HP 8 (CONTINUOUS) CENTRAL HEATING MODE

UE HYDRO HP 8		Water flow temperature °C					
		60			65		
Air temperature °C d.b.	(w.b.)	Max. output (kW)	Max. absorbed output (kW)	COP	Max. output (kW)	Max. absorbed output (kW)	COP
-7	(-8)	-	-	-	-	-	-
-2	(-3)	5.72	4.13	1.38	-	-	-
2	(1)	5.54	3.64	1.52	-	-	-
7	(6)	6.96	2.62	2.66	6.81	2.72	2.50
10	(9)	7.08	2.79	2.54	6.70	2.88	2.33
15	(14)	8.33	2.89	2.88	7.89	2.98	2.65
20	(19)	9,58	2.99	3.20	9.07	3.08	2.94

- TOL = -25 °C

### 18.1 “OUTPUTS” AND “ABSORPTION” IN UE HYDRO HP 8 COOLING MODE

UE HYDRO HP 8		Water flow temperature °C				
		7			10	
Air temperature °C d.b.		Max. output (kW)	Max. absorbed output (kW)	EER	Max. output (kW)	Max. absorbed output (kW)
10		6.31	1.40	4.51	6.92	1.33
20		6.07	1.59	3.82	6.66	1.51
30		5.83	1.78	3.28	6.39	1.69
35		5.70	1.88	3.03	6.25	1.79
46		5.43	2.08	2.61	5.96	1.97

UE HYDRO HP 8		Water flow temperature °C				
		13			15	
Air temperature °C d.b.		Max. output (kW)	Max. absorbed output (kW)	EER	Max. output (kW)	Max. absorbed output (kW)
10		7.53	1.26	5.98	8.14	1.19
20		7.24	1.43	5.06	7.83	1.35
30		6.95	1.60	4.34	7.51	1.51
35		6.80	1.69	4.02	7.35	1.60
46		6.48	1.87	3.47	7.00	1.76

UE HYDRO HP 8		Water flow temperature °C				
		18			25	
Air temperature °C d.b.		Max. output (kW)	Max. absorbed output (kW)	EER	Max. output (kW)	Max. absorbed output (kW)
10		8.75	1.12	7.81	9.62	1.14
20		8.41	1.27	6.62	9.25	1.29
30		8.07	1.42	5.68	8.88	1.45
35		7.90	1.50	5.27	8.69	1.53
46		7.53	1.66	4.54	8.28	1.69



# MAGIS HERCULES MINI HYDRO

## MAGIS HERCULES MINI HYDRO EH

### 19 “OUTPUTS” AND “ABSORPTION” IN UE HYDRO HP 12-12 T CENTRAL HEATING MODE

UE HYDRO HP 12		Water flow temperature °C					
		30			35		
Air temperature °C d.b. (w.b.)		Max. output (kW)	Max. absorbed output (kW)	COP	Max. output (kW)	Max. absorbed output (kW)	COP
-20	(-21)	9.82	4.08	2.41	9.35	4.58	2.04
-15	(-16)	11.02	4.21	2.62	10.49	4.73	2.22
-10	(-11)	12.14	4.23	2.87	11,56	4.75	2.43
-7	(-8)	12.60	4.19	3.01	12.00	4.71	2.55
-2	(-3)	11.97	3.56	3.36	11.40	4.01	2.84
2	(1)	11.34	2.94	3.86	10.80	3.30	3.27
7	(6)	12.60	2.36	5.34	12.00	2.65	4.53
10	(9)	13.91	2.34	5.94	13.25	2.63	5.04
15	(14)	16.09	2.30	7.00	15,32	2.59	5.92
20	(19)	18,27	2.27	8.05	17,40	2.55	6.82

UE HYDRO HP 12		Water flow temperature °C					
		40			45		
Air temperature °C d.b. (w.b.)		Max. output (kW)	Max. absorbed output (kW)	COP	Max. output (kW)	Max. absorbed output (kW)	COP
-20	(-21)	9,04	4.68	1.93	8.72	4.88	1.79
-15	(-16)	10.33	4.83	2.14	10.16	4.93	2.06
-10	(-11)	11.22	4.94	2.27	10.87	5.12	2.12
-7	(-8)	11.47	5.18	2.21	10.94	5.64	1.94
-2	(-3)	11.19	4.48	2.50	10,98	4.95	2.22
2	(1)	10.91	3.78	2.89	11.02	4.25	2.59
7	(6)	11,85	2.92	4.06	11.70	3.18	3.68
10	(9)	13.06	2.88	4.53	12,87	3.14	4.10
15	(14)	15.07	2.79	5.40	14.81	3.07	4.82
20	(19)	17.08	2.75	6.21	16.75	3.00	5.58

UE HYDRO HP 12		Water flow temperature °C					
		50			55		
Air temperature °C d.b. (w.b.)		Max. output (kW)	Max. absorbed output (kW)	COP	Max. output (kW)	Max. absorbed output (kW)	COP
-15	(-16)	9.85	5.18	1.90	-	-	-
-10	(-11)	10.54	5.38	1.96	9.78	5.89	1.66
-7	(-8)	10.41	6.11	1.70	9,87	6.57	1.50
-2	(-3)	10,43	5.56	1.88	9.88	6.18	1.60
2	(1)	10.47	4.78	2.19	9,92	5.31	1.87
7	(6)	11.50	3.46	3.32	11.30	3.73	3.03
10	(9)	12,22	3.53	3.46	11,58	3.92	2.95
15	(14)	14,07	3.45	4.08	13.33	3.84	3.47
20	(19)	15.91	3.38	4.71	15,08	3.75	4.02





# MAGIS HERCULES MINI HYDRO

## MAGIS HERCULES MINI HYDRO EH

### “OUTPUTS” AND “ABSORPTION” IN UE HYDRO HP 12 (CONTINUOUS) CENTRAL HEATING MODE

UE HYDRO HP 12		Water flow temperature °C					
		60			65		
Air temperature °C d.b.	(w.b.)	Max. output (kW)	Max. absorbed output (kW)	COP	Max. output (kW)	Max. absorbed output (kW)	COP
-7	(-8)	-	-	-	-	-	-
-2	(-3)	9.36	6.87	1.36	-	-	-
2	(1)	9.40	5.90	1.59	-	-	-
7	(6)	11.11	3.83	2.90	10.91	3.94	2.77
10	(9)	11.00	4.05	2.72	10.42	4.17	2.50
15	(14)	12.66	3.96	3.20	11.99	4.08	2.94
20	(19)	14.32	3.87	3.70	13,57	3.98	3.41

- TOL = -25 °C

### 19.1 “OUTPUTS” AND “ABSORPTION” IN UE HYDRO HP 12-12 T COOLING MODE

UE HYDRO HP 12		Water flow temperature °C				
		7			10	
Air temperature °C d.b.		Max. output (kW)	Max. absorbed output (kW)	EER	Max. output (kW)	Max. absorbed output (kW)
10		9,96	2.03	4.91	10.79	2.04
20		9.59	2.31	4.15	10.38	2.32
30		9.20	2.58	3.57	9,96	2.59
35		9.00	2.73	3.30	9.75	2.74
46		8,58	3.02	2.84	9.29	3.03

UE HYDRO HP 12		Water flow temperature °C				
		13			15	
Air temperature °C d.b.		Max. output (kW)	Max. absorbed output (kW)	EER	Max. output (kW)	Max. absorbed output (kW)
10		11.62	2.05	5.67	12.45	2.06
20		11.18	2.32	4.82	11.98	2.33
30		10,73	2.60	4.13	11.50	2.61
35		10.50	2.75	3.82	11.25	2.76
46		10,01	3.04	3.29	10.72	3.05

UE HYDRO HP 12		Water flow temperature °C				
		18			25	
Air temperature °C d.b.		Max. output (kW)	Max. absorbed output (kW)	EER	Max. output (kW)	Max. absorbed output (kW)
10		13.28	2.06	6.45	14,61	2.10
20		12.78	2.34	5.46	14.06	2.39
30		12,26	2.62	4.68	13,49	2.67
35		12.00	2.77	4.33	13.20	2.83
46		11,44	3.06	3.74	12.58	3.12



# MAGIS HERCULES MINI HYDRO

## MAGIS HERCULES MINI HYDRO EH

20

### MAGIS HERCULES MINI HYDRO TECHNICAL DATA

UE HYDRO		HP 5	HP 8	HP 12 - 12T
<b>Nominal heating performance</b>				
Energy class in set water heating 55/35 °C	-	A++/A+++	A++/A+++	A++/A+++
Power in CH mode with water set at 35 °C <sup>(1)</sup>	kW	5.00	8.00	12.00
Power in CH mode with water set at 45 °C <sup>(2)</sup>	kW	4.80	7.40	11.70
Power in CH mode with water set at 55 °C <sup>(3)</sup>	kW	4.30	7.10	11.30
Output is in CH mode with water set at 35 °C <sup>(4)</sup>	kW	5.10	5.97	8.53
CH mode COP with water set at 35 °C <sup>(1)</sup>	-	4.85	4.52	4.53
CH mode COP with water set at 45 °C <sup>(2)</sup>	-	3.69	3.49	3.68
CH mode COP with water set at 55 °C <sup>(3)</sup>	-	2.83	2.81	3.03
CH mode COP with water set at 35 °C <sup>(4)</sup>	-	2.71	2.91	2,79
Flow temperature range	°C	20 - 65	20 - 65	20 - 65
Outdoor temp. limits for Heating mode operation	°C	- 25 / 35	- 25 / 35	- 25 / 35
<b>Nominal cooling performance</b>				
Power in cooling mode with water set at 18 °C <sup>(1)</sup>	kW	5.00	7.50	12.00
Power in cooling mode with water set at 7 °C <sup>(2)</sup>	kW	3.90	5.70	9.00
Cooling mode EER with water set at 18 °C <sup>(1)</sup>	-	4.39	3.95	4.33
Cooling mode EER with water set at 7 °C <sup>(2)</sup>	-	3.39	3.03	3.30
Flow temperature range	°C	5 - 25	5 - 25	5 - 25
Outdoor temp. limits for Cooling mode operation	°C	10 / 46	10 / 46	10 / 46
<b>DHW circuit</b>				
Energy class in DHW	-	A+	A	A
Storage tank load profile	-	L	XL	XL
DHW adjustable temperature	°C	10 - 55	10 - 55	10 - 55
DHW adjustable temperature with DHW resistance	°C	10 - 65	10 - 65	10 - 65
DHW integrative resistance absorption (standard)	kW	2.3	2.3	2,3
<b>General data</b>				
Max hydraulic system operating (preload)	bar	3 (1)	3 (1)	3 (1)
System expansion vessel nominal capacity (useful*)	litres	10 (4,7)	10 (4,7)	10 (4,7)
Max DHW system operating (preload)	bar	7 (3,5)	7 (3,5)	7 (3,5)
Rated DHW expansion vessel capacity (useful*)	litres	12 (4,7)	12 (4,7)	12 (4,7)
Central heating/cooling sound power level	dB(A)	61/62	63/64	64/65
Electric protection rating	IP	X5D	X5D	X5D
Power supply (indoor unit)	V - Hz	230 - 50	230 - 50	230 - 50
System integrative resistance absorption (optional)	kW	3	3	3
Absorbed nominal power/current (indoor unit only)	W/A	150/1,09	150/1,09	150/1,09
Absorbed nominal power/current (indoor unit + DHW resistance)	kW/A	2,40/11	2,40/11	2,40/11
Maximum absorbed current (outdoor unit)	A	16	22	28
R32 refrigerant fluid pre-load (outdoor unit)	g	1000	1150	2200
Water content (in the storage tank)	litres	26,5 (171)	26,5 (171)	26,5 (171)
Outdoor unit empty weight (gross weight)	kg	58,5 (62,5)	76,0 (84,5)	111,0 (120,0)
Indoor unit empty weight (gross weight)	kg	139,7(337,2)	139,7(337,2)	139,7(337,2)

\* Referring to the pre-charge pressure.

THE DATA REFER TO THE FOLLOWING CONDITIONS (in compliance with EN 14511)		
ENVIRONMENT	CENTRAL HEATING MODE (°C)	COOLING MODE (°C)
WATER <sup>(1)</sup> - AIR temp. (db/wb)	35/30 - 7/6	18/23 - 35 (db)
WATER <sup>(2)</sup> - AIR temp. (db/wb)	45/40 - 7/6	7/12 - 35 (db)
WATER <sup>(3)</sup> - AIR temp. (db/wb)	55/47 - 7/6	-
WATER <sup>(4)</sup> - AIR temp. (db/wb)	35/30 - -7/-8	-



# MAGIS HERCULES MINI HYDRO

## MAGIS HERCULES MINI HYDRO EH

21

OPTIONAL FOR MAGIS HERCULES MINI HYDRO

TEMPERATURE CONTROL OPTIONALS	Code
<b>Zone remote panel</b> - (device class V* or VI)	3.030863
<b>Temperature and humidity sensor kit ModBus</b> - (device class V or VI*)	3.030992
<b>CRONO 7 (Digital weekly chrono-thermostat)</b> - (device class IV* or VII)	3.021622
<b>CRONO 7 WIRELESS</b> - (device class IV* or VII)	3.021624
<b>External probe</b> - if the outdoor unit is installed under unfavourable conditions (device class II* or VI or VII)	3.015266
<b>Humidistat kit</b> - room humidity control	3.023302
<b>2-relay kit</b> - for dehumidifier management, summer/winter 3-way valve or DHW recirculation	3.031943
<b>Expansion kit</b> - for management of dehumidifiers with associated alarms, 3-way E/I valves and 3 <sup>rd</sup> system zone	3.031944
<b>Telephone control kit</b> - fixed telephone network required	3.013305
<b>GSM telephone control kit</b> - for remote control of the boiler via SMS	3.017182
<b>DOMINUS V2 Interface board kit</b> - for remote control via App	3.034903
CONNECTION UNITS OPTIONALS	Code
<b>Hydraulic connection kit</b> - for easy connection of the hydraulic circuit	3.035068
<b>Hydraulic connection kit with adjustable by-pass</b> - to facilitate the connection of the hydraulic circuit and always guarantee the minimum flow rate thanks to the by-pass	3.035330
<b>Cover kit</b> - for concealing connection pipes	3.034183
OPTIONALS WITH DEDICATED CASING	Code
<b>2 heating/cooling zones kit</b> - 1 direct zone and 1 mixed zone for heating and cooling combined with sizes 5-8	3.026301
<b>2 heating only zones kit</b> - 1 direct zone and 1 mixed zone for heating only combined with sizes 5-8	3.032265
<b>2 direct heating-only zones kit</b> - 2 direct heating-only zones combined with sizes 5-8	3.032264
<b>2 HP heating/cooling zones kit</b> - 1 direct zone and 1 mixed zone for heating and cooling combined with size 12	3.031695
<b>2 HP heating only zones kit</b> - 1 direct zone and 1 mixed zone for heating only combined with size 12	3.035333
<b>2 HP heating only zones kit</b> - 2 direct zones for heating only combined with size 12	3.035334
<b>Interception cock kit for zone kit</b> - including two 1" cocks and 3/4" reduction	3.014948
<b>Solar thermal system coupling kit</b>	3.033210

\*Device class (REF. Communication of the European Commission 2014/C 207/02 ) with factory settings.



# MAGIS HERCULES MINI HYDRO

## MAGIS HERCULES MINI HYDRO EH

### OPTIONAL FOR MAGIS HERCULES MINI HYDRO (CONTINUOUS)

OTHER OPTIONALS	Code
<b>Three-way diverter valve kit</b> - used as heating/cooling system diverter	3.020632
<b>3 kW thermal system integrative electric resistance kit</b> - to be inserted inside the appliance, 230 Vac power supply, standard with MAGIS HERCULES MINI HYDRO EH	3.030899
<b>Flow temperature probe kit</b> to be used for zone temperature control	3.030913
<b>Safety marker thermostat kit</b> - can cut power to MAGIS HERCULES MINI HYDRO	3.019229
<b>Wall installation brackets kit</b> for outdoor unit	3.034758
<b>Dehumidifier kit</b> - for recessed installation only	3.021529
<b>Dehumidifier frame kit</b>	3.022146
<b>Dehumidifier grid kit</b>	3.022147
<b>Double electronic anode kit</b> - protects the storage tank from eddy currents	3.025003
<b>Recirculation kit with pump</b> - the kit is positioned completely in the casing of the indoor unit, to be provided together with 2 relay kit code 3.031943	3.033217
<b>HYDRO V2 Range</b> - Wall-mounted hydronic split	Codes various
<b>HYDRO FS range</b> - floor standing hydronic fan coil	Codes various
<b>HYDRO IN range</b> - recessed hydronic fan coil	Codes various
<b>ZENIT AIR MONO range</b> - bidirectional punctual mechanical ventilation system	Codes various



# MAGIS HERCULES MINI HYDRO

## MAGIS HERCULES MINI HYDRO EH

22

### HYDRAULIC CONNECTION KIT AND COVER



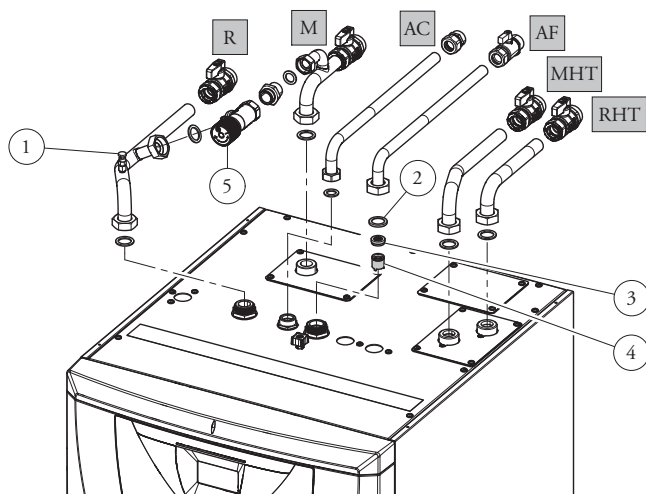
• Hydraulic connection unit kit code 3.035068



• Hydraulic connection cover kit code 3.034183

MAGIS HERCULES MINI HYDRO has been designed to be an extremely compact unit and to make installation as simple and easy as possible. This makes MAGIS HERCULES MINI HYDRO a unit with full frontal accessibility with all hydraulic connections located at the top. The connection fittings that allow the wall connections to be brought perfectly in line with the pre-connections of the template are optional and there are different types:

- Hydraulic connection unit kit with adjustable by-pass *code 3.035330*;
- Hydraulic connection unit kit *code 3.035068*, without by-pass it is assumed that there is an always open loop on the system in order to guarantee the minimum flow rate to the heat pump (see **note** p.15);
- Cover kit *code 3.034183*, through which it is possible to cover the pipes just described, improving the aesthetics of the product.



#### KEY:

- AC - 3/4" DHW outlet
- AF - 3/4" Domestic cold water inlet
- R - 1" system return
- M - 1" System flow
- RHT - UE HYDRO HP 1" outdoor unit return
- MHT - UE HYDRO HP 1" outdoor unit flow

- 1 - Manual air vent valve
- 2 - Sealed filter
- 3 - Flow limiter
- 4 - Non return valve
- 5 - By-pass valve (not present with 3.035068)

• Hydraulic connection unit kit with adjustable by-pass code 3.035330

**N.B.:** a Y filter is applied as per standard with MAGIS HERCULES MINI HYDRO, to be mounted on the return of the outdoor unit





# MAGIS HERCULES MINI HYDRO

## MAGIS HERCULES MINI HYDRO EH

23

### 2 DIRECT HEAT ONLY ZONES KIT



• 2 direct heating only zones kit code 3.032264

The 2 direct zones kits are composed of a frame, open hydraulic manifold, low electric consumption solenoid valves, pipes with hydraulic fitting and thermometers for temperature reading. These kits are suitable for space heating only.

The pumps included in the kit are distinguished for being very elastic, also thanks to the operating modes that can be pre-set, but are not suitable for cooling.

All components are already assembled and ready to operate. All electrical connections are to be taken to the MAGIS HERCULES MINI HYDRO P.C.B.

Two different kits are distinguished:

- 2 direct heating only zones kit for sizes 5-8 code 3.032264;
- 2 HP direct heating only zones kit for size 12 code 3.035334.

These kits are to be used for the management of systems divided into two distinct zones. Inserting these kits into the system enhances overall comfort and energy savings.

See the dedicated instruction booklet for the head flow rate graphs of the pumps.

23.1

### 2-ZONE KIT (1 DIRECT AND 1 MIXED) HEATING ONLY



• 2 heating only zone kit code 3.032265

The 2 zone kits are composed of a frame, open hydraulic manifold, low electric consumption solenoid valves, three-way mixing valve, pipes with hydraulic fitting and thermometers for temperature reading. These kits are suitable for space heating only. The pumps included in the kit are distinguished for being very elastic, also thanks to the operating modes that can be pre-set, but are not suitable for cooling.

All components are already assembled and ready to operate. All electrical connections are to be taken to the MAGIS HERCULES MINI HYDRO P.C.B.

Two different kits are distinguished:

- 2 heating only zones kit for sizes 5-8 code 3.032265;
- 2 HP heating only zones kit for size 12 code 3.035333.

These kits are to be used to control differential temperature systems and/or divided into two distinct zones. With the acquisition of the outdoor temperature, the MAGIS HERCULES MINI HYDRO electronics enable you to select independent flow temperature curves for each of the 2 zones of the system. Inserting these kits into the system enhances overall comfort and energy savings.

See the dedicated instruction booklet for the head flow rate graphs of the pumps.



# MAGIS HERCULES MINI HYDRO

## MAGIS HERCULES MINI HYDRO EH

23.2

2-ZONE KIT (1 DIRECT + 1 MIXED) HEATING/COOLING



• 2-zone kit code 3.026301

The 2 zone kits are composed of a frame, open hydraulic manifold, low electric consumption solenoid valves, three-way mixing valve, pipes with hydraulic fitting and thermometers for temperature reading. This kit is suitable for space heating and cooling. The pumps included in the kit are distinguished for being very elastic, also thanks to the operating modes that can be pre-set. All components are already assembled and ready to operate. All electrical connections are to be taken to the MAGIS HERCULES MINI HYDRO P.C.B.

Two different kits are distinguished:

- 2-zone kit for sizes 5-8 code 3.026301;
- 2-zone HP kit for size 12 code 3.031695.

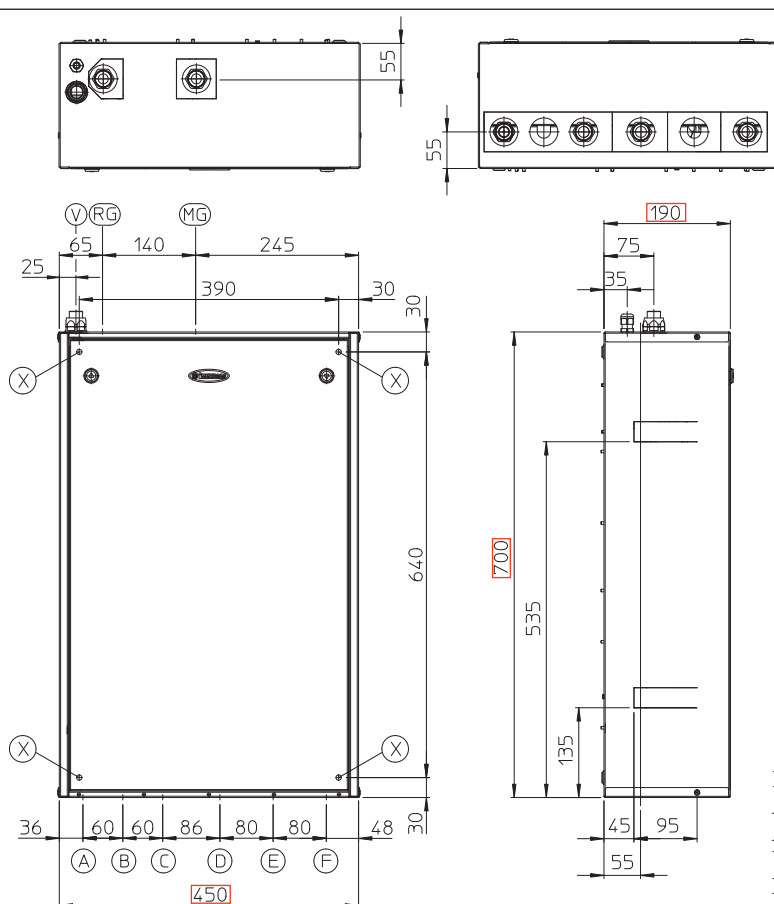
These kits are to be used to control differential temperature systems and/or divided into two distinct zones.

With the acquisition of the outdoor temperature, the MAGIS HERCULES PRO MINI electronics enable you to select independent flow temperature curves for each of the 2 zones of the system (both with C.H. and cooling). Inserting these kits into the system enhances overall comfort and energy savings.

See the dedicated instruction booklet for the head flow rate graphs of the pumps.

24

DIMENSIONS AND CONNECTIONS



### 2 direct heating only zones kit (code 3.032264)

- A - Direct zone 1 return (G 3/4")
- C - Direct zone 2 return (G 3/4")
- D - Direct zone 2 flow (G 3/4")
- F - Direct zone 1 flow (G 3/4")

### 2 heating only zone kit code 3.032265 & 2 heating/cooling zones kit (code 3.026301)

- A - Direct zone 1 return (G 3/4")
- B - Mixed zone 2 return (G 1")
- E - Mixed zone 2 flow (G 1")
- F - Direct zone 1 flow (G 3/4")

### 2 HP direct heating only zones kit code 3.035334

- A - Direct zone 1 return (G 1")
- C - Direct zone 2 return (G 1")
- D - Direct zone 2 flow (G 1")
- F - Direct zone 1 flow (G 1")

### 2 HP heating only zones kit code 3.035333

### 2 HP heating/cooling zones kit code 3.031695

- A - Direct zone 1 return (G 1")
- B - Mixed zone 2 return (G 1")
- E - Mixed zone 2 flow (G 1")
- F - Direct zone 1 flow (G 1")

### KEY:

- AR - Appliance return (G 3/4")
- AF - Appliance flow (G 3/4")
- V - Electrical connection
- X - Holes for wall-hanging of Kit (off-wall)



# MAGIS HERCULES MINI HYDRO

## MAGIS HERCULES MINI HYDRO EH

24.1

### 2-ZONE KIT TECHNICAL DATA

		2 direct heating only zones kit code 3.032264	2 direct HP heating only zones kit code 3.035334
Maximum nominal pressure	bar	3	3
Maximum operating pressure	°C	90	90
Water content in device	l	1,3	2,2
Empty device weight	kg	17,3	19,8
Full device weight	kg	18,6	22,0
Electrical connection	V/Hz	230/50	230/50
Maximum input	A	0,62	0,6
Installed electric power	W	90	60
Electric plant protection	-	IPX5D	IPX5D

		2 heating only zones kit code 3.032265	2 HP heating only zones kit code 3.035333
Maximum nominal pressure	bar	3	3
Maximum operating pressure	°C	90	90
Low-temperature safety thermostat intervention	°C	55	55
Water content in device	l	1,5	2,2
Empty device weight	kg	19,7	20,9
Full device weight	kg	21,2	23,1
Electrical connection	V/Hz	230/50	230/50
Maximum input	A	0,70	0,6
Installed electric power	W	90	60
Electric plant protection	-	IPX5D	IPX5D

		2 heating/cooling zones kit code 3.026301	2 HP heating/cooling zones kit code 3.031695
Maximum nominal pressure	bar	3	3
Maximum operating pressure	°C	90	90
Water content in device	l	1,5	2,2
Empty device weight	kg	21,1	20,3
Full device weight	kg	22,6	22,5
Electrical connection	V/Hz	230/50	230/50
Maximum input	A	0,7	1,0
Installed electric power	W	135	162
Electric plant protection	-	IPX4D	IPX4D

#### NOTE:

Treating the feed water allows you to prevent problems and maintain the function and efficiency of the generator over time. It. Legislative Decree 26/06/2015 requires a chemical treatment of the thermal system water, in compliance with the UNI 8065 standard, in the cases provided for by the Decree.

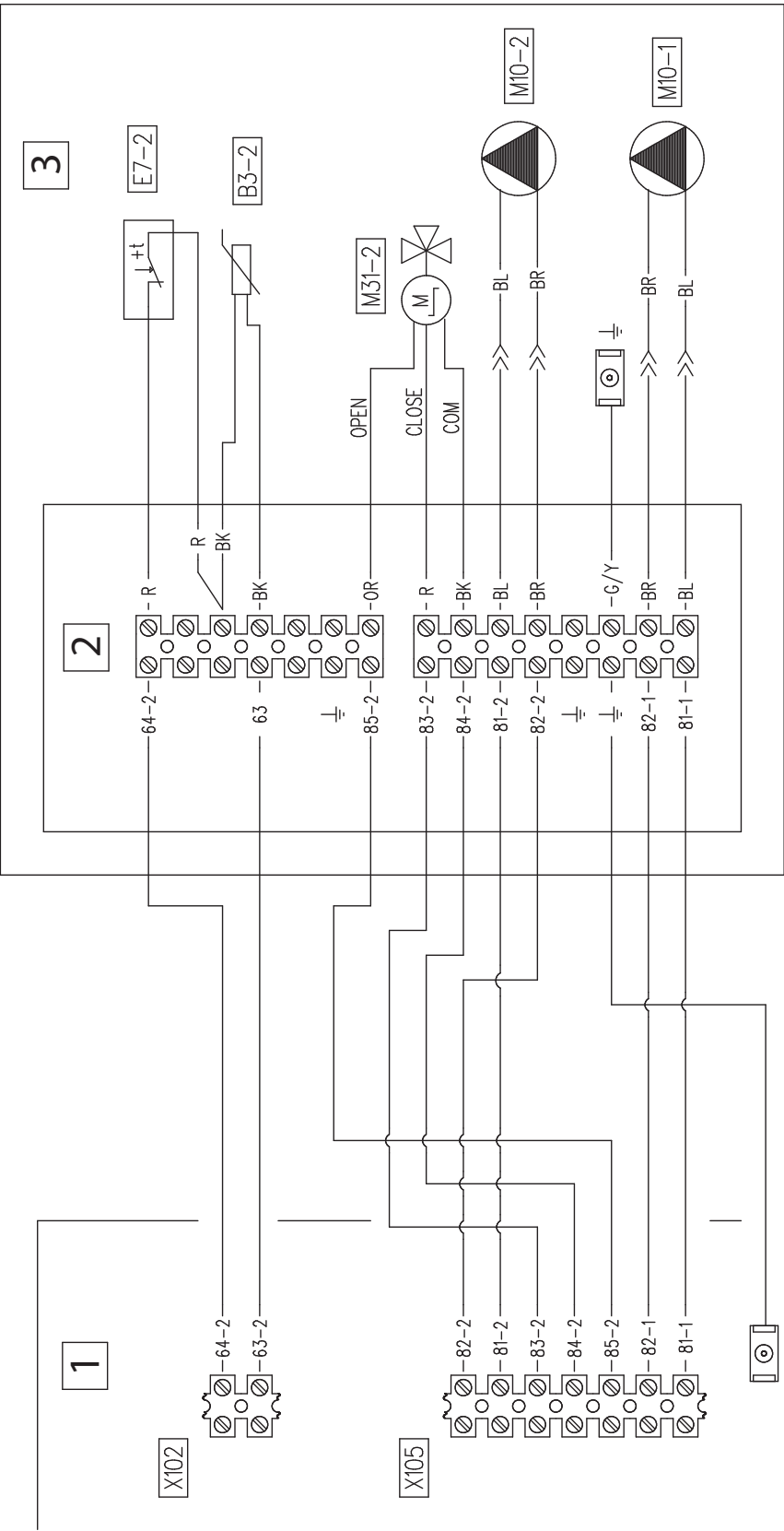


# MAGIS HERCULES MINI HYDRO

## MAGIS HERCULES MINI HYDRO EH

25

### ELECTRICAL CONNECTIONS 2-ZONE KIT



**KEY:**

- B3-2 - Zone 2 flow probe
- E7-2 - Mixed zone 2 safety thermostat (absent in the 2 direct heating only zone kits [code 3.032264 & code 3.035334](#))
- M10-1 - Zone 1 booster pump
- M10-2 - Zone 2 booster pump
- M31-2 - Zone 2 mixing valve (absent in the 2 direct heating only zone kits [code 3.032264 & code 3.035334](#))

- 1 - Main panel (rear)
- 2 - Electrical connection box
- 3 - 2 zones kit



# MAGIS HERCULES MINI HYDRO

## MAGIS HERCULES MINI HYDRO EH

26

### DEHUMIDIFIER



Designed to be coupled to cooling plants with radiant panels, the dehumidifier allows to keep the percentage of relative humidity in the room within the comfort values, preventing the possible formation of condensate on the walls.

The dehumidifier, which is designed to be installed vertically on the wall (recessed), has pre- and post-cooling coils.

These components allow excellent control of the air temperature and humidity.

However, it can function without the aid of pre and post cooling water coils, thus allowing to dehumidify when the cooling system is off, typical of mid-season.

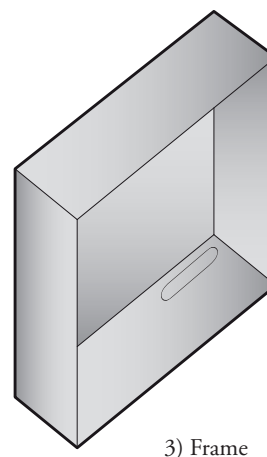
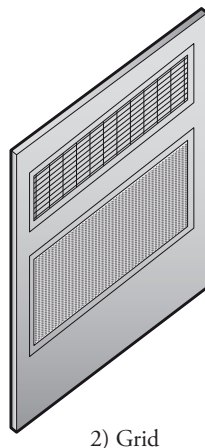
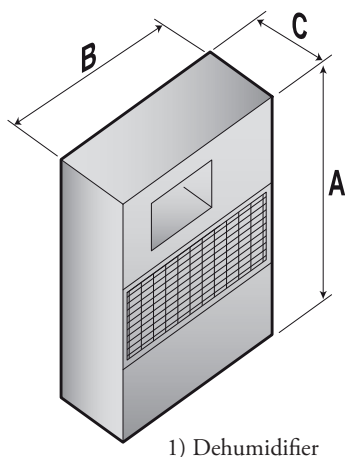
In compliance with European Directives, it has EC declaration of conformity.

Dehumidification can take place:

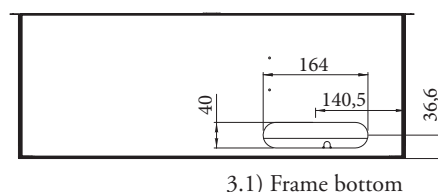
- with **neutral air**: without variation of the air temperature, dehumidifies internal rooms;
- with **cooled air**: contributes to cooling the rooms, as well as reducing the internal relative humidity.

### 26.1

### DIMENSIONS AND CONNECTIONS



Model	A (mm)	B (mm)	C (mm)
1	680	545	221
2	750	660	20
3	703	605	228



- **DEHUMIDIFIER** **code 3.021529**  
(frame and grid to be purchased separately)

Connect the F-R (female) 1/2" fittings of the dehumidifier to the cooling system, using the measurements in fig. 3.1





# MAGIS HERCULES MINI HYDRO

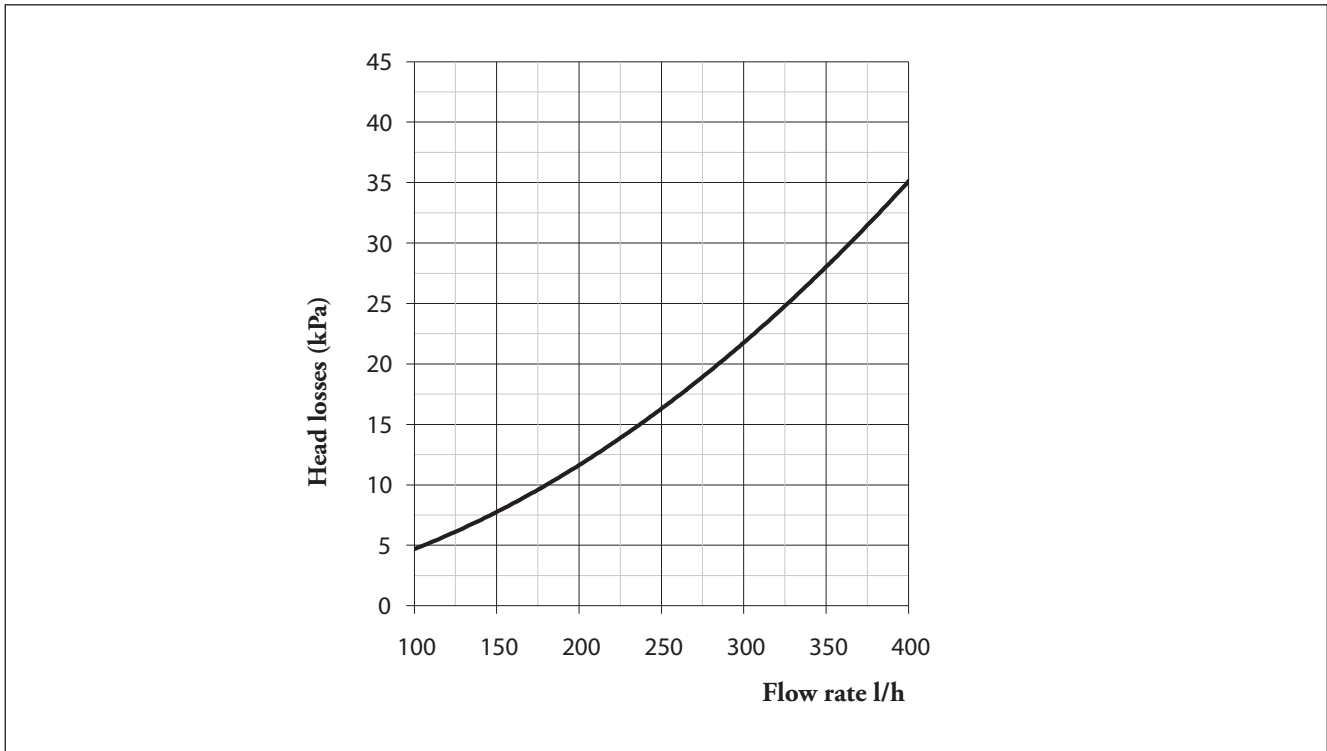
## MAGIS HERCULES MINI HYDRO EH

### 26.2 TECHNICAL DATA

Coolant		R134a
Humidity removed in neutral air condition <sup>(1)</sup>	litres/24h	20.1
Cooling capacity <sup>(1)</sup>	W	1250
Nominal water input	l/h	150
Head losses	kPa	7.8
Water supply temperature operating field	°C	15 ÷ 45
work humidity field	%	40 ÷ 90
Air flow rate	m³/h	250
Fan useful static head (maximum speed)	Pa	43
Sound pressure <sup>(3)</sup>	dB(A)	35
Sound power	dB(A)	43
Power absorbed <sup>(1)</sup>	W	340
Power supply	V/Ph/Hz	230/1~/50
Maximum power absorbed <sup>(2)</sup>	W	450
Nominal current absorbed <sup>(1)</sup>	A	2.5
Maximum current absorbed <sup>(2)</sup>	A	2.8
Hydraulic F-R connections		1/2" F
Weight	kg	38

The data given refer to the following conditions:
<sup>1)</sup> Room temperature 26 °C; relative humidity 65% with coil inlet water temperature of 15 °C.
<sup>2)</sup> Room temperature 35 °C; relative humidity 80%.
<sup>3)</sup> Sound pressure level measured in free field at 1 m from the machine, in compliance with UNI EN ISO 3746/97

### 26.3 HEAD LOSS OF THE HYDRAULIC CIRCUIT



# MAGIS HERCULES MINI HYDRO

## MAGIS HERCULES MINI HYDRO EH

### A) HYDRONIC SPLITS AND FAN COILS APPENDIX

27

#### HYDRONIC SPLITS AND FAN COILS

Range of "HYDRO V2" wall-mounted water splits and "HYDRO FS" or "HYDRO IN" hydronic fan coils complete the IMMERGAS offer.

Our goal is to offer you a complete system in all its parts, from production to distribution of energy for air conditioning in residential (and tertiary) environments.

These terminals are particularly suitable for systems in which a heat pump is present.

They fully meet the requirements of efficiency, quietness and aesthetics laid down by the market, with a design that easily matches the various applications, providing an integrated and complete solution to ensure room climate control and maximum comfort. The models identified correspond to different power ratings in heating and cooling.

**HYDRO V2**



**HYDRO FS**



HYDRO V2 - HYDRONIC SPLITS wall mounting	Code
HYDRO 3 V2 Wall-mounted hydronic split; effective heating capacity* 2.94 kW - effective cooling capacity 2.15 kW	3.033625
HYDRO 4 V2 Wall-mounted hydronic split; effective heating capacity* 4.30 kW - effective cooling capacity 3.18 kW	3.033626
HYDRO FS - FAN COILS installation near the floor	Code
HYDRO FS 200 Hydronic fan coil; effective heating capacity* 1.02 kW - effective cooling capacity 0.91 kW	3.028500
HYDRO FS 400 Hydronic fan coil; effective heating capacity* 2.21 kW - effective cooling capacity 2.12 kW	3.028501
HYDRO FS 600 Hydronic fan coil; effective heating capacity* 3.02 kW - effective cooling capacity 2.81 kW	3.028502
HYDRO FS 800 Hydronic fan coil; effective heating capacity* 3.81 kW - effective cooling capacity 3.30 kW	3.028503
HYDRO FS 1000 Hydronic fan coil; effective heating capacity* 4.32 kW - effective cooling capacity 3.71 kW	3.028505
HYDRO IN - FAN COILS recessed installation	Code
HYDRO IN 200 Hydronic fan coil; effective heating capacity* 1,02 kW - effective cooling capacity 0.91 kW	3.029841
HYDRO IN 400 Hydronic fan coil; effective heating capacity* 2,21 kW - effective cooling capacity 2.12 kW	3.029842
HYDRO IN 600 Hydronic fan coil; effective heating capacity* 3,02 kW - effective cooling capacity 2.81 kW	3.029843
HYDRO IN 800 Hydronic fan coil; effective heating capacity* 3,81 kW - effective cooling capacity 3.30 kW	3.029844
HYDRO IN 1000 Hydronic fan coil; effective heating capacity* 4.32 kW - effective cooling capacity 3.71 kW	3.029845

\* Power outputs referred to with system water at 45/40 °C.

AS REGARDS THE VARIOUS CONFIGURATIONS AND ANY INSTALLABLE ACCESSORIES, PLEASE REFER TO THE RELEVANT PRODUCT CATALOGUE OR CURRENT PRICE LIST



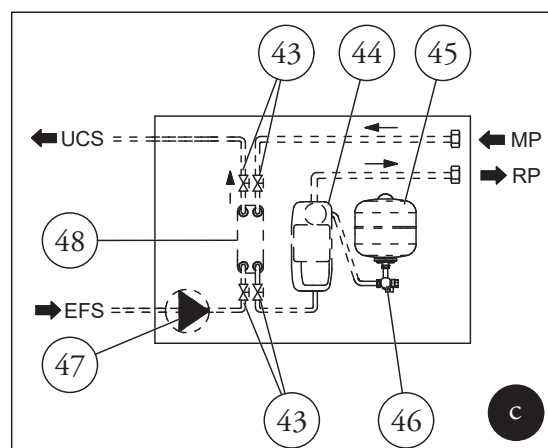
# MAGIS HERCULES MINI HYDRO

## MAGIS HERCULES MINI HYDRO EH

### B) THERMAL SOLAR APPENDIX

28

#### SOLAR THERMAL SYSTEM COUPLING KIT (CODE 3.033210)



#### KEY:

- 43 - Solar shut-off valves
- 44 - Single solar circulation unit
- 45 - Solar expansion vessel
- 46 - Shut-off valve with solar system thermometer
- 47 - DHW pump
- 48 - Solar system plate heat exchanger

- MP - Flow from solar panels (Optional)
- RP - Return to solar panels (Optional)
- UCS - Solar heat exchanger heating outlet
- EFS - Solar heat exchanger cooling inlet
- C - Solar kit (outside of indoor unit casing)

#### SOLAR CIRCUIT - Components present in the kit:

- Electronic control unit including 1 storage tank probe (NTC) and 1 solar collector probe (PT1000);
- Single type solar circulation unit, with 1 -6 l/min flow rate regulator with low power consumption pump and relative support bracket;
- DHW pump;
- 6 bar solar safety valve and relative recovery can;
- 18 litre solar expansion vessel with relative support;
- Complete insulated piping for kit installation;
- 16 plate heat exchanger - fully insulated - sized to exchange the power of max. 2 flat solar collectors (e.g. CP4 XL);
- Solar unit support and containment frame;
- Thermostatic mixing valve (to be installed inside the casing of the indoor unit);
- Hydraulic fittings to complete the installation (to be installed inside the casing of the indoor unit).

**NOTE:** To complete the solar thermal circuit it is necessary to provide one or two exclusively flat solar collectors

(e.s. CP4 XL/M), solar collector connection kit (including hydraulic fittings and air vent), mount frame and relative mounting system, glycol and connection pipes to the manifold (see pages below “optional for solar circuit completion”).

#### OPERATING PRINCIPLE:

The kit integrates a plate heat exchanger that allows heat exchange between the solar collector connected by forced circulation on the primary side and the domestic hot water on the secondary side, which is also heated by forced circulation thanks to the presence of the pump (47).

This technical solution has the advantage of quick heating the water at relatively high temperatures and directing the heating water directly to the upper part of the storage tank, thus generating a readily available volume of water.

The kit is shipped partly assembled and wired, ready to be combined externally with MAGIS HERCULES MINI HYDRO. The kit also contains the drain fitting, the pipe and can for glycol collection (conveying the drain of the solar safety valve).

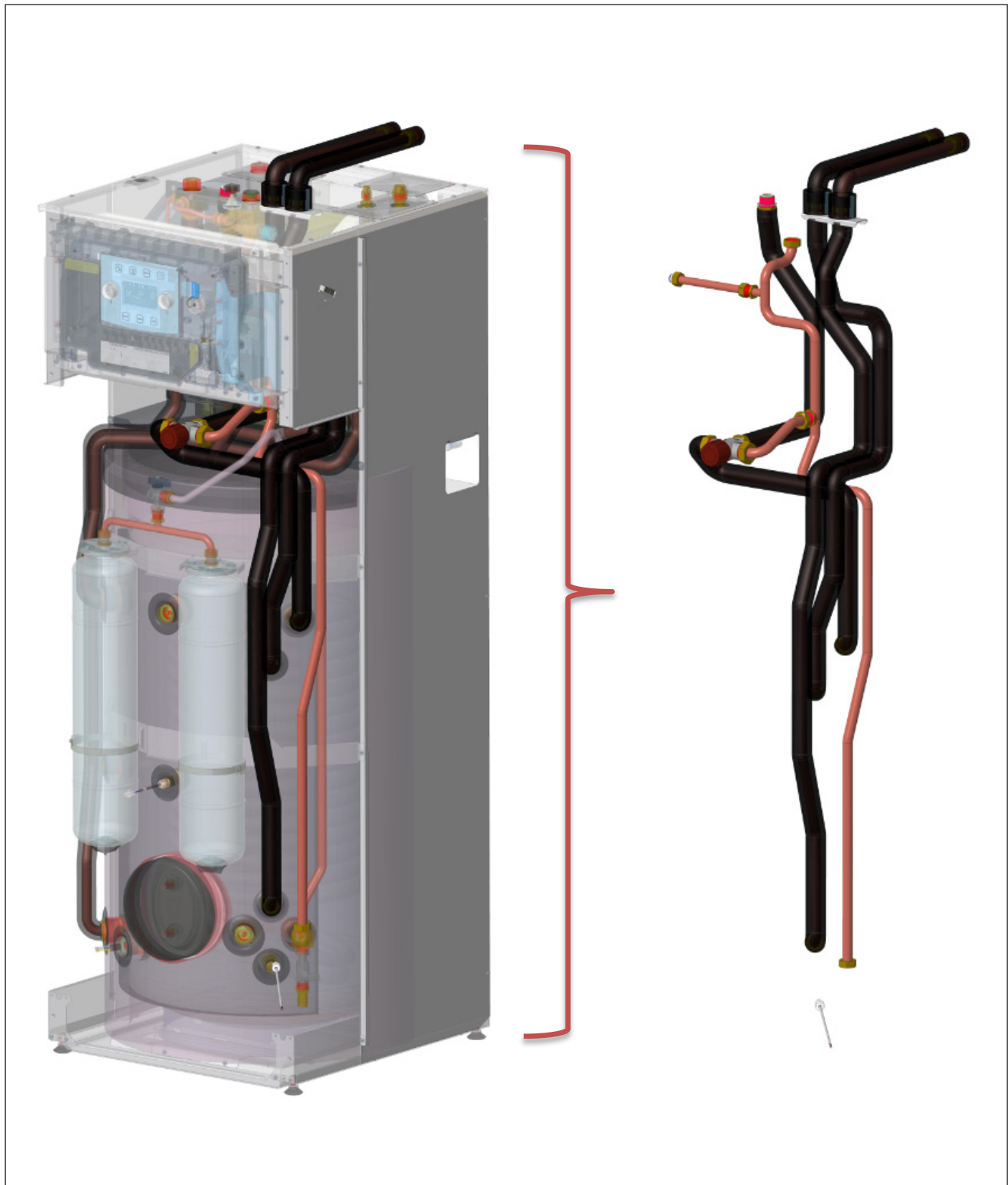


# MAGIS HERCULES MINI HYDRO

## MAGIS HERCULES MINI HYDRO EH

28.1

ASSEMBLY OF SOLAR THERMAL SYSTEM COUPLING KIT



**N.B:** The mixing valve, storage tank probe and piping shown in the figure are included in the Solar coupling kit code 3.033210 and are installed inside MAGIS HERCULES MINI HYDRO. One or two exclusively flat-plate solar collectors (e.g. CP4 XL

/M), solar collector connection kit (incl. hydraulic fittings and air vent), support frame and associated bracket system, glycol and piping for connection to the collector are not included.



# MAGIS HERCULES MINI HYDRO

## MAGIS HERCULES MINI HYDRO EH

28.2

OPTIONAL FOR COMPLETING THE SOLAR SYSTEMS

Solar panels	Code
CP4 XL flat-plate collector characterised by 4 connections with a useful surface of 2.31 m <sup>2</sup>	3.022664
CP4 M flat-plate collector characterised by 4 connections with a useful surface of 1.84 m <sup>2</sup>	3.022876
Mount frames	Code
Support frame kit 1 CP4 XL/M flat-plate collector on vertical tiles	3.022670
Support frame kit 2 CP4 XL/M flat-plate collector on vertical tiles	3.022671
Support frame kit 1 CP4 XL/M flat-plate collector on horizontal tiles	3.022749
Additional CP4 XL/M flat-plate collector frame connection kit	3.022681
Hydraulic connections	Code
Solar thermal system coupling kit for MAGIS HERCULES MINI HYDRO	3.033210
1 CP4 XL/M flat-plate collector connection kit	3.022797
Additional CP4 XL/M flat-plate collectors connection kit	3.019085
Extensible connection kit with additional horizontal short side CP4 XL/M flat-plate collector elbows	3.025693
Connection kit with additional horizontal long side CP4 XL/M flat-plate collectors	3.026073
Venting kit and pipe fitting Ø 22 mm for 1 CP4 XL/M horizontal flat-plate collector	3.022849
2 caps kit for Flat Plate Collector CP4 XL/M short side horizontal	3.020364
2 Lowered plugs kit for 1 CP4 XL/M Flat-Plate Collector to be used for multiple installations of recessed horizontal collectors, connected to separate systems	3.026082
Fixing systems	Code
4 Bracket kit for Slates/Tiles	3.022678
2 Bracket kit for Slates/Tiles	3.022680
4 Bracket kit for Slates/Tiles to be drilled	3.019105
"L"-shaped brackets kit for smooth roofs	3.022776
Fixing elements kit CP4 XL/M Flat-Plate Collector	3.022922
45° free installation kit for 1 CP4 XL/M flat-plate collector in vertical * it allows installation on the ground or on flat roofs - N.B.: The mount frame kit is necessary for the installation of these kits	3.022674
Free 45° installation extension kit for 1 vertical CP4 XL/M flat-plate collector	3.022677
45° free installation kit for 1 CP4 XL/M flat-plate collector in horizontal * it allows installation on the ground or on flat roofs - N.B.: The mount frame kit is necessary for the installation of these kits	3.022750
Recessed systems with outflow below the collector (N.B.: NO support frame required)	Code
Recessed kit for 1 vertical CP4 XL/M flat-plate collector	3.022213
Recessed frame extension kit for CP4 XL/M flat-plate collector in vertical	3.023028
Recessed kit for 1 vertical CP4 XL/M flat-plate collector in horizontal/vertical	3.025469
Recessed frame extension kit for CP4 XL/M flat-plate collector in horizontal/vertical	3.025477
Recessed systems with outflow above the collector (N.B.: NO support frame required)	Code
Recessed kit for 1 vertical CP4 XL flat-plate collector	3.027735
Recessed kit for 1 vertical CP4 M flat-plate collector	3.027768
Recessed frame extension kit for CP4 XL/M flat-plate collector in vertical	3.027736
Recessed kit for 1 vertical CP4 XL/M flat-plate collector in horizontal	3.027769
Recessed frame extension kit for CP4 XL/M flat-plate collector in horizontal	3.027849
Filling and installation accessories	Code
Glycol can for CP4 XL/M flat-plate collector already premixed and ready to use	3.028517
Canvas cover for CP4 M Flat-Plane Collector	1.028522
Canvas cover for CP4 XL Flat-Plane Collector	1.033271
System filling pump station	3.018742

\* the installation envisions a structural calculation that considers the place and static sealing of the system

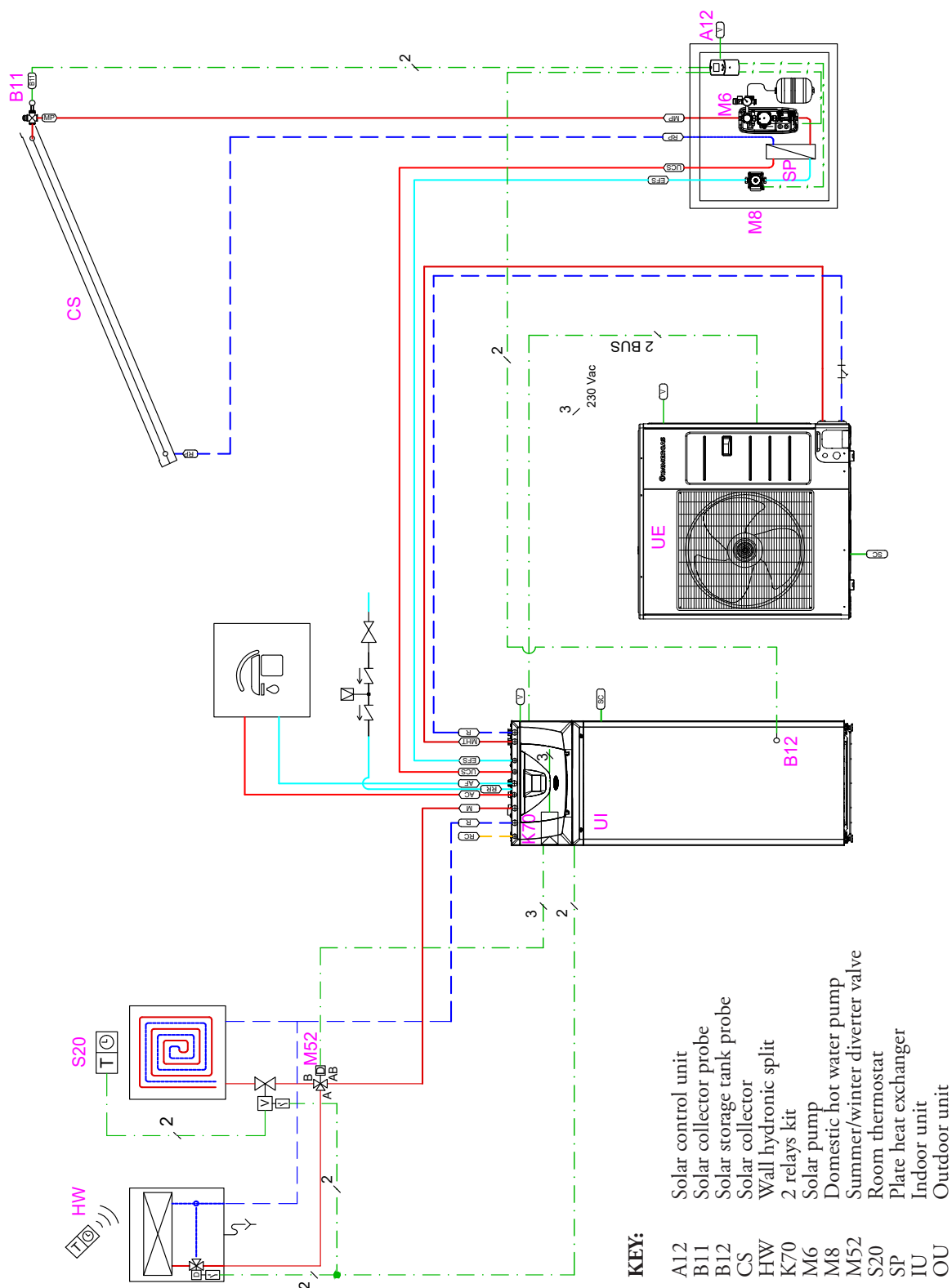


# MAGIS HERCULES MINI HYDRO

## MAGIS HERCULES MINI HYDRO EH

### C) FUNCTIONAL DIAGRAMS APPENDIX

#### 29 HYDRAULIC DIAGRAM: MAGIS HERCULES MINI HYDRO WITH 1 DIRECT ZONE + DIVERTER VALVE/S + THERMAL SOLAR



**NOTE:** this diagram is an example. It is also required to convey the heat pump's condensate drain.

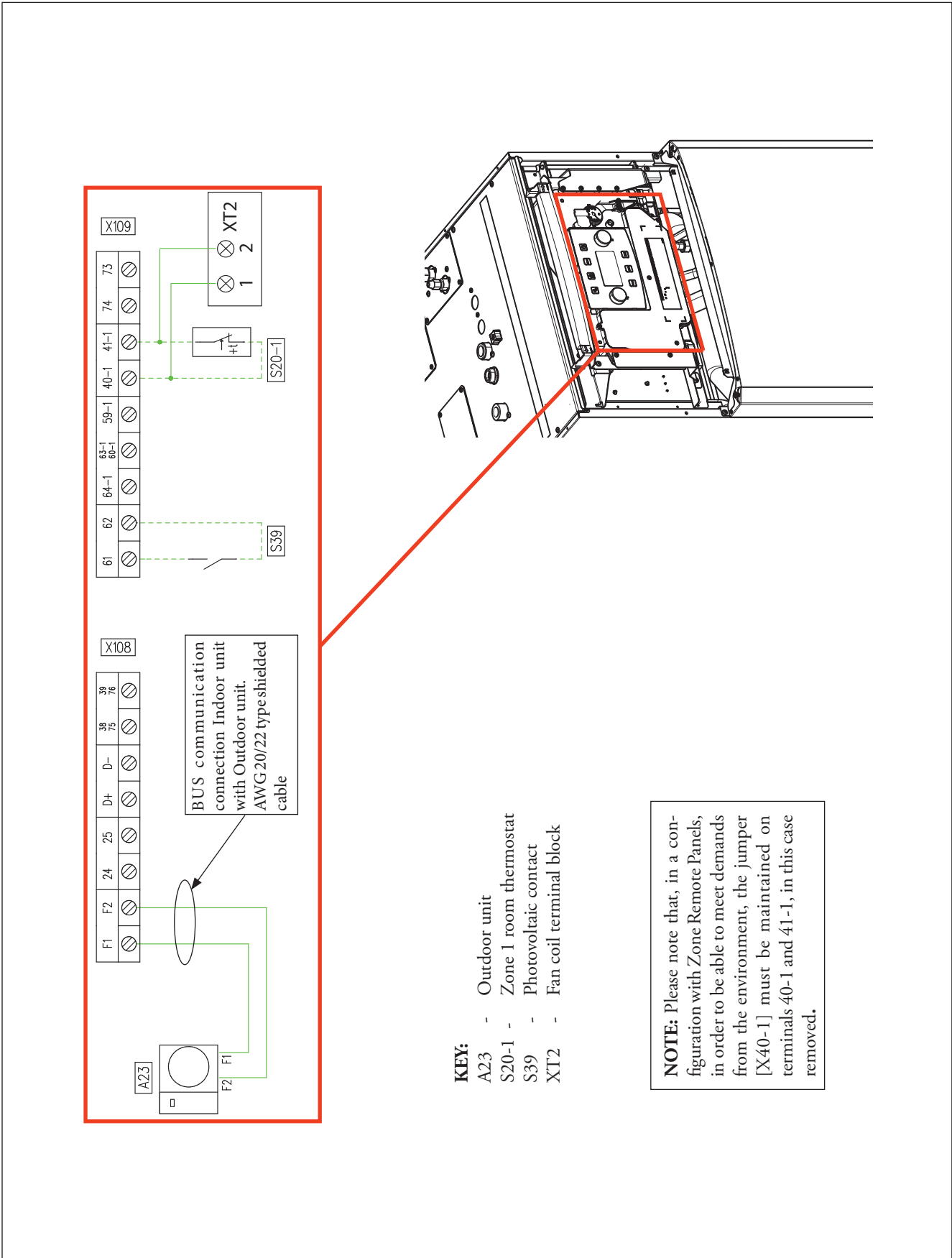




# MAGIS HERCULES MINI HYDRO

## MAGIS HERCULES MINI HYDRO EH

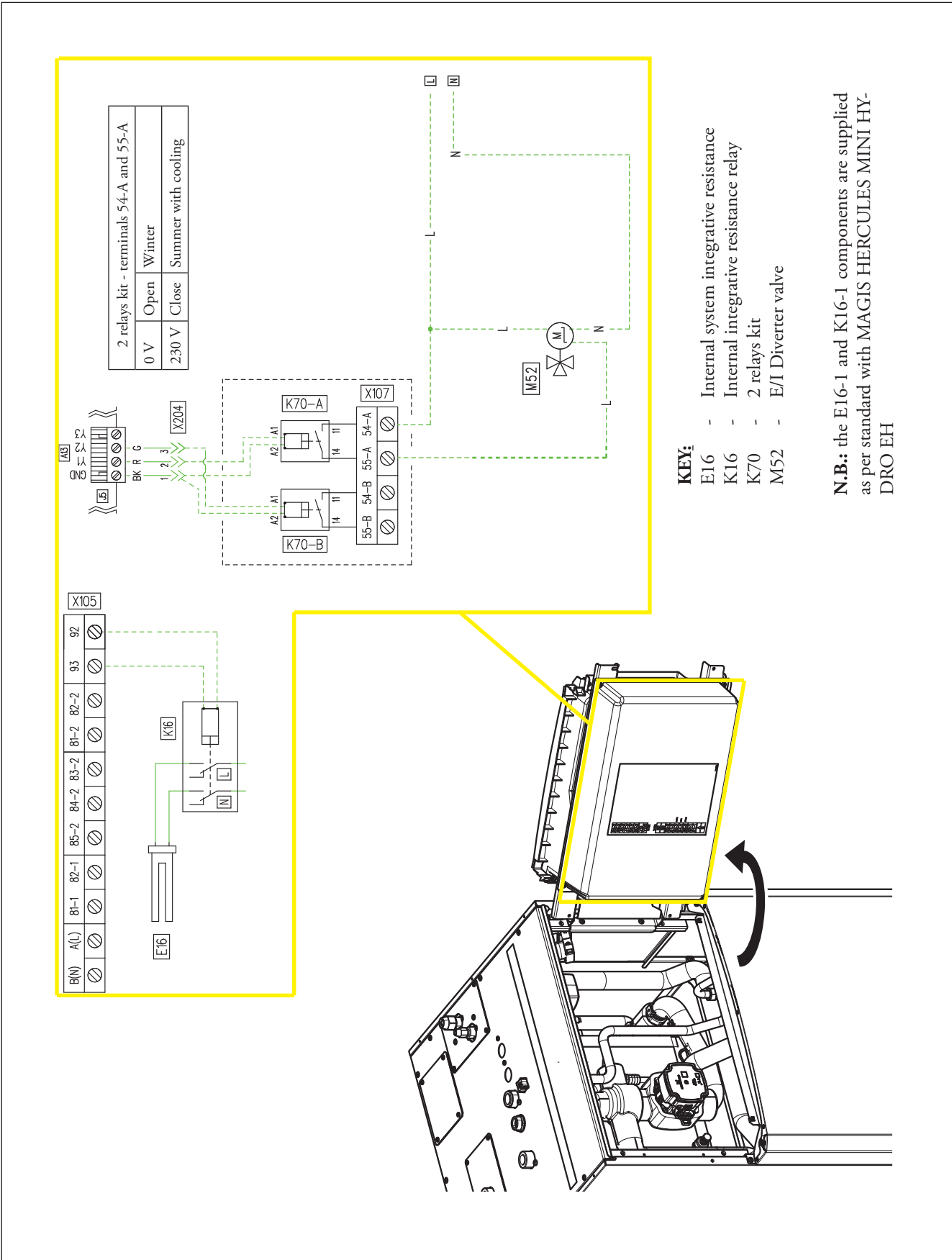
29.1 WIRING DIAGRAM - CONTROL PANEL: MAGIS HERCULES MINI HYDRO WITH 1 DIRECT ZONE + DIVERTER VALVE/S + THERMAL SOLAR



# MAGIS HERCULES MINI HYDRO

## MAGIS HERCULES MINI HYDRO EH

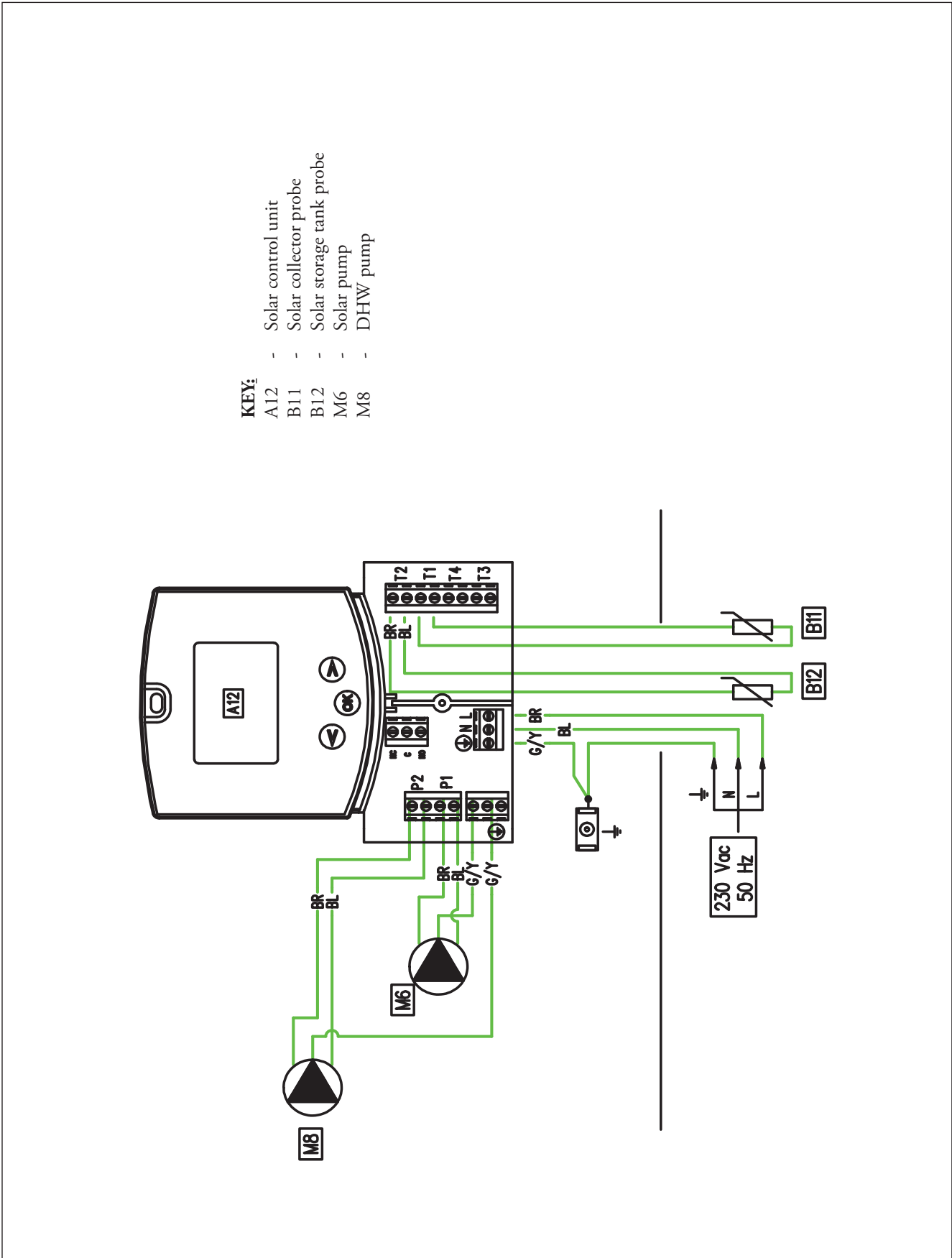
29.2 WIRING DIAGRAM - MAIN PANEL: MAGIS HERCULES MINI HYDRO WITH 1 DIRECT ZONE + DIVERTER VALVE/S + THERMAL SOLAR



# MAGIS HERCULES MINI HYDRO

## MAGIS HERCULES MINI HYDRO EH

29.3 WIRING DIAGRAM - SOLAR CONTROL UNIT: MAGIS HERCULES MINI HYDRO WITH 1 DIRECT ZONE + DIVERTER VALVE/S + THERMAL SOLAR



# MAGIS HERCULES MINI HYDRO

## MAGIS HERCULES MINI HYDRO EH

29.4

### DESCRIPTION OF THE DIAGRAM: MAIN APPLICATIONS

#### WINTER MODE

- **CH phase active:** The ON-OFF chronothermostat placed in the room activates the consent in the winter phase; in this diagram MAGIS HERCULES MINI HYDRO is integrated by means of the 3 kW electric resistance (standard with MAGIS HERCULES MINI HYDRO EH), to be inserted in the inertial storage tank.

The logic plans to activate the integrative resistance if I do not reach the temperature set within the maximum time (settable via parameters), or below a certain outdoor temperature (again settable via parameters) I can immediately activate the electrical resistance. By setting specific parameters, the Heat pump and the system integrative resistance can activate simultaneously or alternately with each other. It is also possible to set “concurrent” operation (only in the presence of integrative electrical resistance) between a system and DHW demand.

From the control panel, it will also be possible to set a MANUAL or AUTOMATIC operating system, where in the former the room set is kept constant throughout the day, while in the latter it is possible to set a comfort value and an economy value to optimise product logic.

- **Domestic hot water phase:** the MAGIS HERCULES MINI HYDRO electronics constantly monitor the DHW temperature set (probe located in the storage tank), activating MAGIS HERCULES MINI HYDRO.

The logic plans to activate the integrative resistance (as per standard) if I do not reach the setting set within the maximum time (settable via parameters), or below a certain outdoor temperature (again settable via parameters) I can immediately activate the DHW electrical resistance.

By setting specific parameters, the Heat pump and the system integrative resistance can activate simultaneously or alternately with each other. It is also possible to set “concurrent” operation between a system and DHW demand (e.g. with cooling demand the heat pump activates and with “concurrent” DHW demand the DHW resistance activates).

From the control panel it will also be possible to set a MANUAL or AUTOMATIC operating system, where in the former the storage tank setting is kept constant during the day, while in the latter it is possible to set a comfort value and an economy value to optimise the product logic.

The “DHW (Domestic hot water) BOOST” function is also available, by activating this function via the parameter menu, the DHW (Domestic hot water) operation takes place with the contribution of both the heat pump and the electrical resistance, with a logic that minimises storage tank charging time.

#### SUMMER MODE

- **Cooling phase active:** The cooling demand is made through the fan coil located in the room, controlled by infrared remote control. In this diagram, transition to cooling service involves the use of a 3-way diverter valve (optional), which is controlled via the 2 relay kit (optional).

- **Domestic hot water phase:** the same considerations as for winter mode apply.

**N.B.:** In case of production from photovoltaic (contact closure “S39”), the DHW storage tank is heated to a maximum storage temperature of 55°C exclusively by the heat pump. In case of simultaneous DHW and system demand, the system will decide which service to satisfy, in order to ensure the best comfort.



During the useful life of the products, performance is affected by external factors, e.g. the hardness of the DHW, atmospheric agents, deposits in the system and so on.

The data declared refer to new products that are correctly installed and used with respect to the Standards in force.

**N.B.:** correct periodic maintenance is highly recommended.

**NOTE:** Depending on the specific design and installation conditions, the diagrams and drawings provided in this documentation can require further integration or modifications, according to what is set forth by the Standards and technical regulations in force and applicable (as an example, the R stamp - edition 2009 is mentioned). It is the professional's responsibility to identify the applicable provisions, to evaluate compliance with these in each case and the necessity of any changes to diagrams and drawings.

**immergas.com**

