USER'S MANUAL

IMMERGAS

Instruction and warning book **IE**

2 ZONES KIT

1 mixed zone and 1 direct zone



STD.007832/000

Dear Client,

Our compliments for having chosen a top-quality Immergas product, able to assure well-being and safety for a long period of time. As an Immergas customer you can also count on a qualified after-sales service, prepared and updated to guarantee constant efficiency of your products.

Read the following pages carefully: you will be able to draw useful suggestions regarding the correct use of the device, the respect of which, will confirm your satisfaction for the Immergas product.

For any interventions or routine maintenance contact Immergas Authorised Centres: these have original spare parts and boast of specific preparation directly from the manufacturer.

General recommendations

This instruction book is an integral part of the generator or of the heat pump manual to which the mixing kit is connected.
It must be kept well and consulted carefully, as all of the warnings supply important indications for safety in the installation, use and maintenance stages.
Installation and maintenance must be performed in compliance with the regulations in force, according to the manufacturer's instructions and by professionally qualified staff, intending staff with specific technical skills in the plant sector, as envisioned by the Law.
Incorrect installation can cause injury to persons and animals and damage to objects, for which the manufacturer is not liable. Maintenance must be carried out by skilled technical staff. The Immergas Authorised After-sales Service represents a guarantee of qualifications and professionalism.
The appliance must only be used for that, expressly foreseen. Any other use must be considered improper and therefore dangerous.
If errors occur during installation, running and maintenance, due to the non-compliance of technical laws in force, standards or instructions contained in this book (or however supplied by the manufacturer), the manufacturer is excluded from any contractual and extra-contractual liability for any damage and the appliance warranty is invalidated.

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1 INSTALLING THE DEVICE

1.1 DESCRIPTION OF THE DEVICE.

This kit proposes for the management of zones heating and cooling systems with large water capacities. In particular, it is a kit that can be combined exclusively with some Immergas heat generators, designed to manage 1 mixed and 1 direct zone.

The kit is characterised by the possibility to be recessed into the wall, therefore having no clearance.
Each zone served by the kit is managed by an appropriate temperature control connected to the heat generator.

1.2 INSTALLATION RECOMMENDATIONS.

Only professionally qualified heating/plumbing technicians are authorised to install Immergas kits. Installation must be carried out according to regulation standards, current legislation and in compliance with local technical regulations and the required technical procedures. Before installing the device, ensure that it is delivered in perfect condition; if in doubt, contact the supplier immediately. Packing materials (staples, nails, plastic bags, polystyrene foam, etc.) constitute a hazard and must be kept out of the reach of children. In the event of malfunctions, faults or incorrect operation, turn the device off immediately and contact a qualified technician (e.g. the Immergas Technical Assistance centre, which has specifically trained staff and original spare parts) Do not attempt to modify or repair the appliance alone. Failure to comply with the above implies personal responsibility and invalidates the warranty.

Recess installation.
Prepare the masonry creating an opening in the wall suitable to contain the kit (see dimensions on the next page).
Insert the kit (1) into its seat, remembering to open the four support fins (2) before insertion (see *Fig. 1*).
Protect the side edges and the front cover during recess preparation for the device.

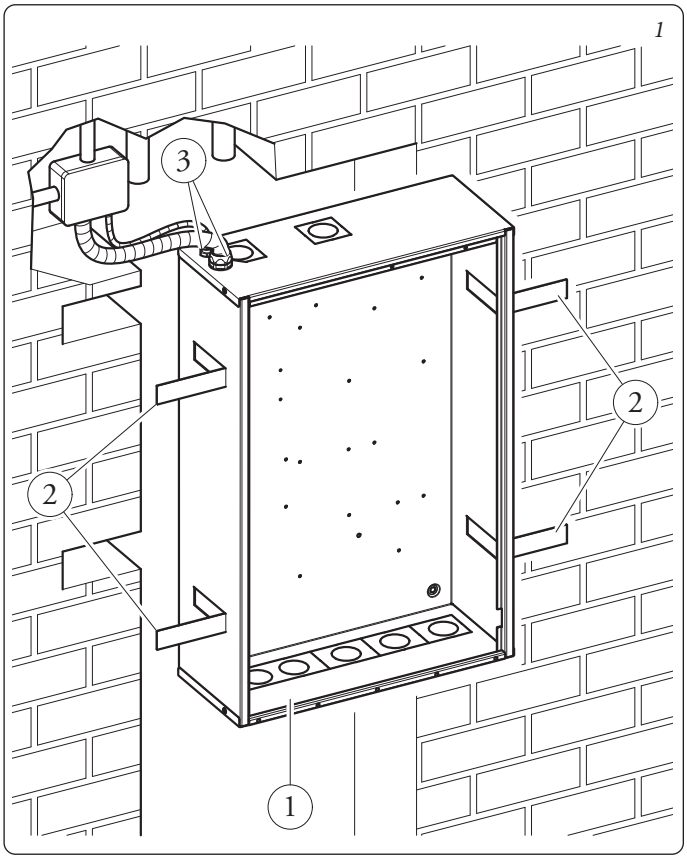
N.B.: because the hydraulic and electric connections between system and kit must be inside the clearance of the device itself, first position the kit and then the system input and output pipes and the electric cable ducts.

Attention: the recessed kit is not a supporting structure and cannot replace the piece of wall removed. It is therefore necessary to check the correct positioning inside the wall.

For safety reasons, it is necessary to carefully seal the housing compartment of the kit in the wall, in compliance with Standards in force.

N.B.: leave the drain holes located under the front door open. Otherwise, if water should enter, it could not go out.

1

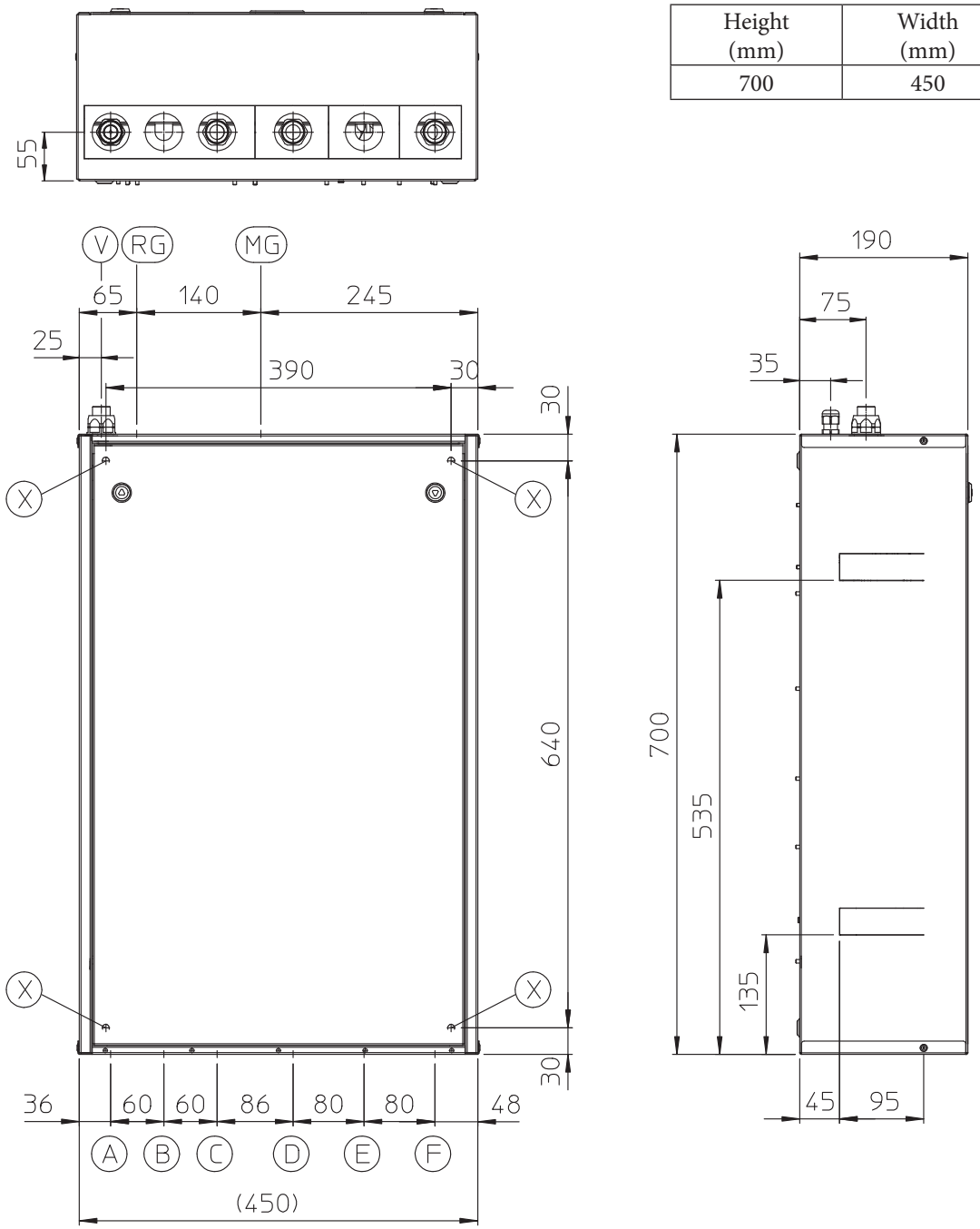


Wall-hanging installation.
Fasten the kit to the wall using four expansion plugs, suitable for the type of wall and weight of the device (not supplied) and using the four drilled holes (see *Fig. 2 pos. X*).

Use the fairlead and the sheath-holder (3) supplied to limit the infiltration of water inside the frame.

1.3 MAIN DIMENSIONS.

Height (mm)	Width (mm)	Depth (mm)
700	450	190



Key:

RG - Generator return (G 1")
MG - Generator flow (G 1")
V - Electrical connection
X - Holes for DIM wall-mounted fastening
A - Direct zone 1 return (G 1")
B - Mixed zone 2 return (G 1")
C - Not used
D - Not used
E - Mixed zone 2 flow (G 1")
F - Direct zone 1 flow (G 1")

2

1.4 HYDRAULIC CONNECTION.

Attention: before making the appliance connections, clean the heating system thoroughly (pipes, radiators, etc.) with special pickling or de-scaling products to remove any deposits that could compromise the correct operation of the device.

Provide a chemical treatment of the thermal system water, in compliance with the local norms, in order to protect the system and the appliance from deposits (e.g., lime scale), slurry or other hazardous deposits.

The hydraulic connections must be made in a rational manner using the values as per *Fig. 2*.

IMPORTANT: remove all the protection caps from the system flow and return pipes before making the hydraulic connections. The connections can be made directly using the female couplings on the distribution manifold or by inserting system cut-off cocks (optional). These cocks are particularly useful for maintenance as they allow you to drain the distribution manifold separately without having to empty the entire system.

N.B.: the manufacturer does not supply the G1" cocks to be installed in the mixed zone.

Check that the expansion vessel in the heat generator allows for the increase in volume of the water resulting from its central heating without opening the safety valve. If this is not the case, an expansion vessel with appropriately dimensioned capacity must be installed on the system.

1.5 ELECTRICAL CONNECTION.

The kit has a protection rating of IPX4D. Electrical safety of the device is reached only when it is correctly connected to an efficient earthing system as specified by current safety standards.

Attention: the manufacturer declines any responsibility for damage or physical injury caused by failure to connect the device to an efficient earth system or failure to comply with the reference IEC standards.

Also ensure that the electrical installation corresponds to maximum power absorbed by the device, as shown on the data-plate inside the recess.

Important: it is mandatory to prepare two electrical connection lines in order to separate the power supply in high and low voltage, according to the standards in force regarding electrical systems. These lines must arrive inside the kit via relevant sheaths or ducts passing through the fairlead and the sheath-holder supplied, situated on the upper side of the device.

1.6 COMMISSIONING THE DEVICE.

System filling. When the device has been connected, fill the system.
Filling is performed at low speed to ensure release of air bubbles in the water via the heating system vents.
Close radiator vent valves when only water escapes from them.
Close the filling cock when the heat pump pressure gauge indicates approx. 1.2 bar.

N.B.: during these operations activate the system vent function of the hydronic unit (see relative instruction booklet)

1.7 SIZING THE SYSTEMS.

Check that the design parameters allow obtaining a maximum surface temperature of the radiant floor in compliance with that established by the Standard.

1.8 KITS AVAILABLE ON REQUEST.

- System cut-off cock kit (on request). The kit is designed for the installation of system interception cocks, to be placed on the flow and return pipes of the connection assembly. This kit is particularly useful for maintenance as it allows the kit to be drained separately without having to empty the entire system.

The above-mentioned kit is supplied complete with instructions sheet for assembly and use.

1.9 CIRCULATION PUMP.

The device is equipped with two circulator pumps: the circulator for direct zone 1 and the circulator for mixed zone 2.

• **Zone 1 and 2 circulator pump**

The pump is ideal for the requirements of each central heating system in a domestic and residential environment.
In fact, the pump is equipped with electronic control that allows to set advanced functions.

Adjustment

Press the button on the front to adjust the pump.
By rotation, it is possible to select the following pump control mode:
- Fixed speed I, II, III.
- Proportional head I, II, III.
- Constant head I, II, III.

Fixed speed 
Adjusts the pump speed in fixed mode.
It is possible to set 3 different speeds:
- I: Minimum Speed.
- II: Intermediate speed.
- III: Maximum speed.

N.B.: Factory set speed = Fixed speed III

Proportional head (ΔP-V) 
This allows the pressure level (head) to be proportionally reduced as the system heat demand decreases (flow rate reduction).
Thanks to this function, the electric power consumption of the circulator pump is reduced further: the energy (power) used by the pump decreases according to the pressure level and flow rate.
With this setting, the pump guarantees optimal performance in most heating systems, thereby being particularly suitable in single-pipe and two-pipe installations.
Any noise originating from the water flow in the pipes, valves and radiators is eliminated by reducing the head.
Optimal conditions for thermal comfort and acoustic well-being.

Constant head (ΔP-C) 
The circulator pump maintains the pressure level (head) constant as the system heat demand decreases (flow rate reduction).
With these settings, the circulator pump is suitable for all floor systems where all the circuits must be balanced for the same drop in head.

• **Other functions:**
- The vent function of the pump is activated by pressing and holding (3 seconds) the control key and automatically venting the pump.
  This function does not act on the central heating / C.H. system.
  The pump venting function starts and lasts 10 minutes.
  The two sets of upper and lower LEDs flash alternately every 1 second.
  To interrupt, press the control key for 3 seconds.
- The manual restart is activated by pressing and holding (5 seconds) the control key and releases the pump when needed (e.g. after prolonged inactivity periods during the summer period).
- The keyboard block is activated by pressing and holding (8 seconds) the control key and block the pump settings. The keyboard block protects against unintentional or unauthorised pump changes.
  Activate the keyboard block by pressing the control key for 8 seconds, until the selected setting LEDs flash briefly and then release.
  The LEDs flash continuously 1 second apart.
  If the keyboard block is active, the pump settings can no longer be modified.
  The deactivation of the keyboard block takes place in a similar manner to the activation.

Troubleshooting.

Faults	Causes	Solutions
Pump not working with power supply on.	Faulty electrical fuse	Check the fuses
	The pump is without voltage	Eliminate the power supply cut-off
The pump generates noise	Cavitation due to insufficient flow pressure	Increase the system pressure within the allowed field
		Check the head setting and eventually set a lower head
The building does not heat up.	Heat output of the radiant panels too low	Increase the delivery value
		Set the adjustment mode to ΔP-c instead of ΔP-v

Diagnostics in real time

- The anomaly LED indicates a fault.
- The pump stops (depending on the fault), and performs cyclical attempts to restart.

LED	Faults	Causes	Solutions
It lights up red	Block	Rotor seized	Activate the manual restart or contact the Authorised Technical Service Centre
	Contact/winding	Faulty winding	
It flashes with red light	Under/Overvoltage	Feed side power supply voltage too low/ high	Check the mains voltage and operating conditions, ask the Authorised Technical Assistance Centre
	Excessive module temperature	Inside of the too hot module	
	Short-circuit	Motor current too high	
It flashes with red/green light	Turbine operation	The hydraulic system of the pumps is fed but the pump has no mains voltage	Check the mains voltage, the water pressure/flow rate as well as the environmental conditions
	Dry operation	Air in the pump	
	Overload	The motor runs with difficulty. The pump complies with the specifications (e.g. high module temperature). The number of revolutions is lower than normal operation	

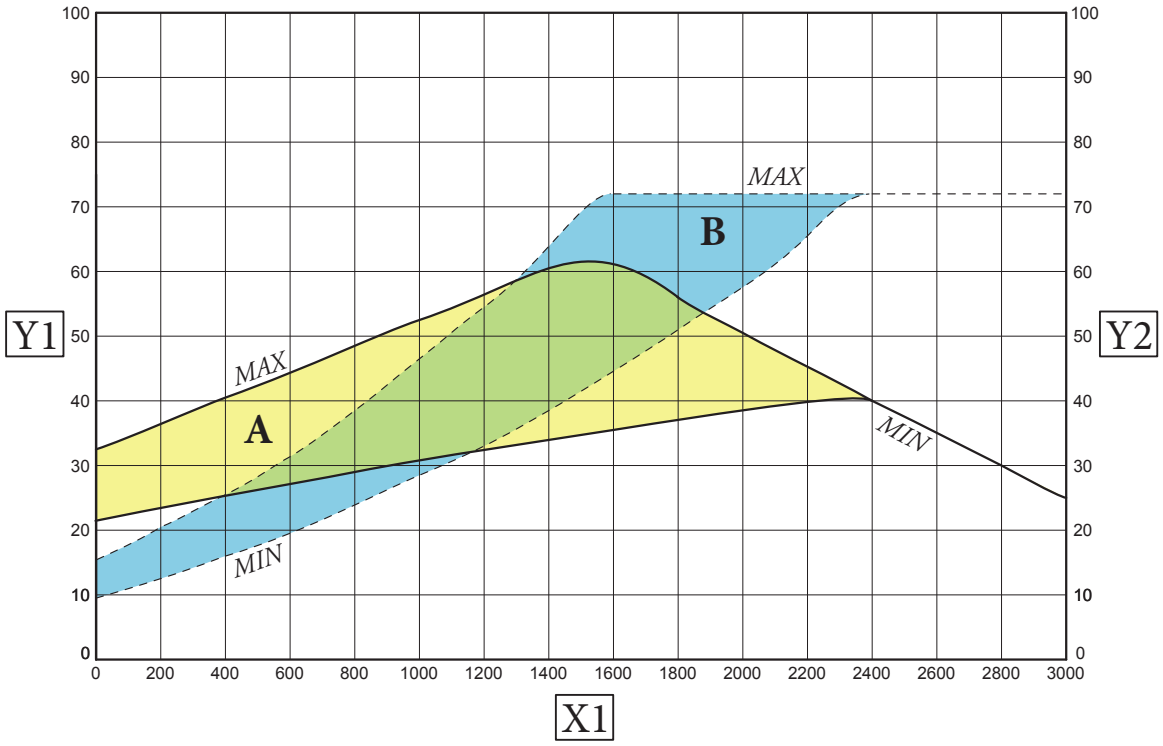
Manual restart

When a blockage is detected, the pump tries to automatically restart.

If the pump does not automatically restart:

- Activate the manual restart by pressing the control key for 5 seconds, then release.
- The restart function starts and last max. 10 minutes.
- The LEDs flash one after the other clockwise.
- To interrupt, press the control key for 5 seconds.

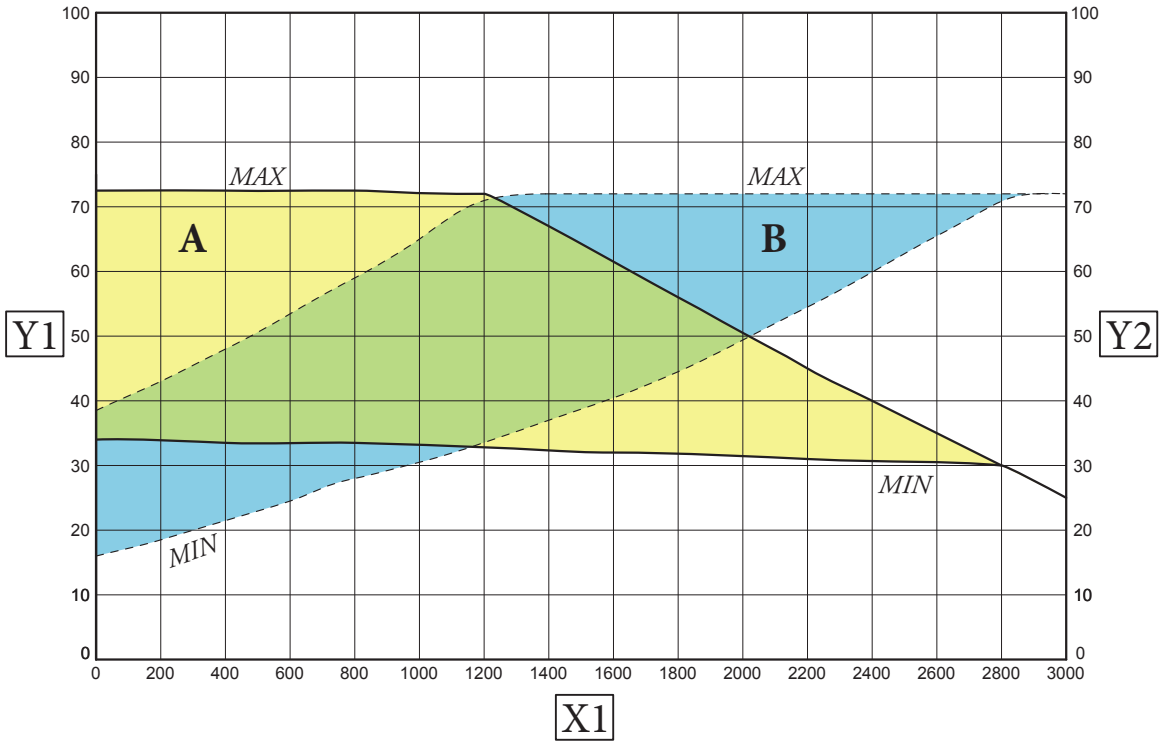
Total head available to the system of zone 1 direct proportional head



Key:
X1 = Flow rate (l/h)
Y1 = Head (kPa)
Y2 = Circulator pump absorbed power (W)
A = Total head available
B = Power absorbed by the system pump (dotted area)

3

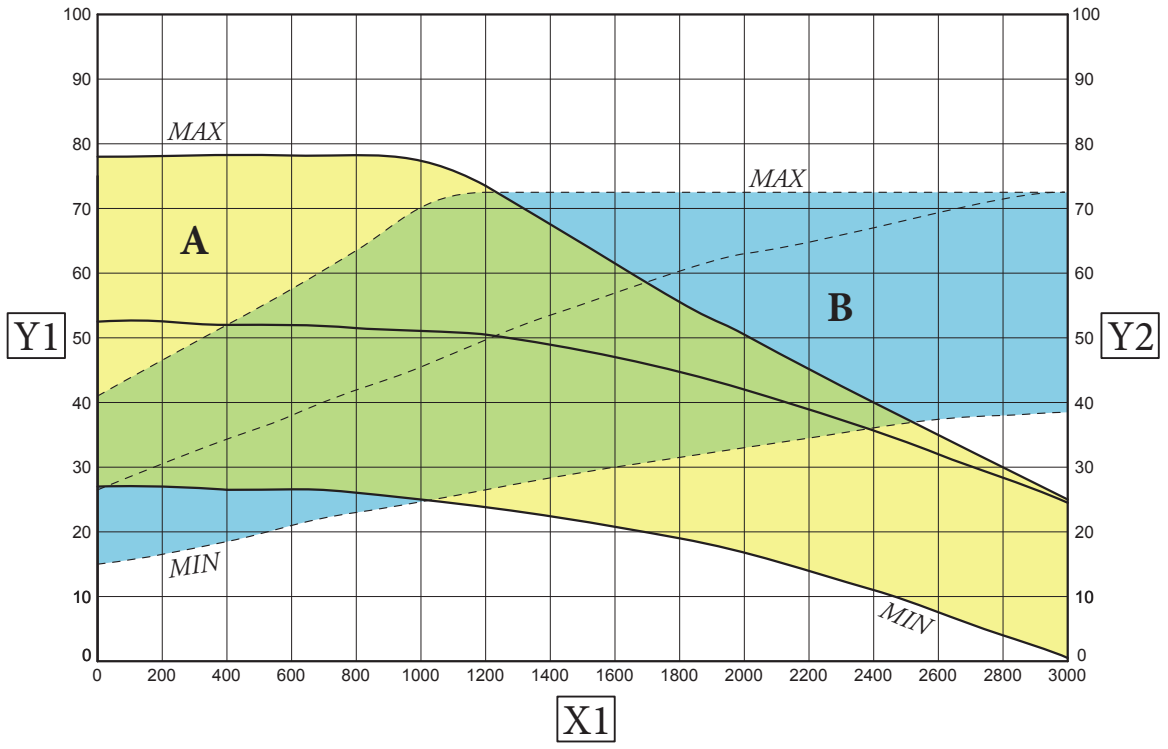
Total head available to the system of zone 1 direct constant head



Key:
X1 = Flow rate (l/h)
Y1 = Head (kPa)
Y2 = Circulator pump absorbed power (W)
A = Total head available
B = Power absorbed by the system pump (dotted area)

4

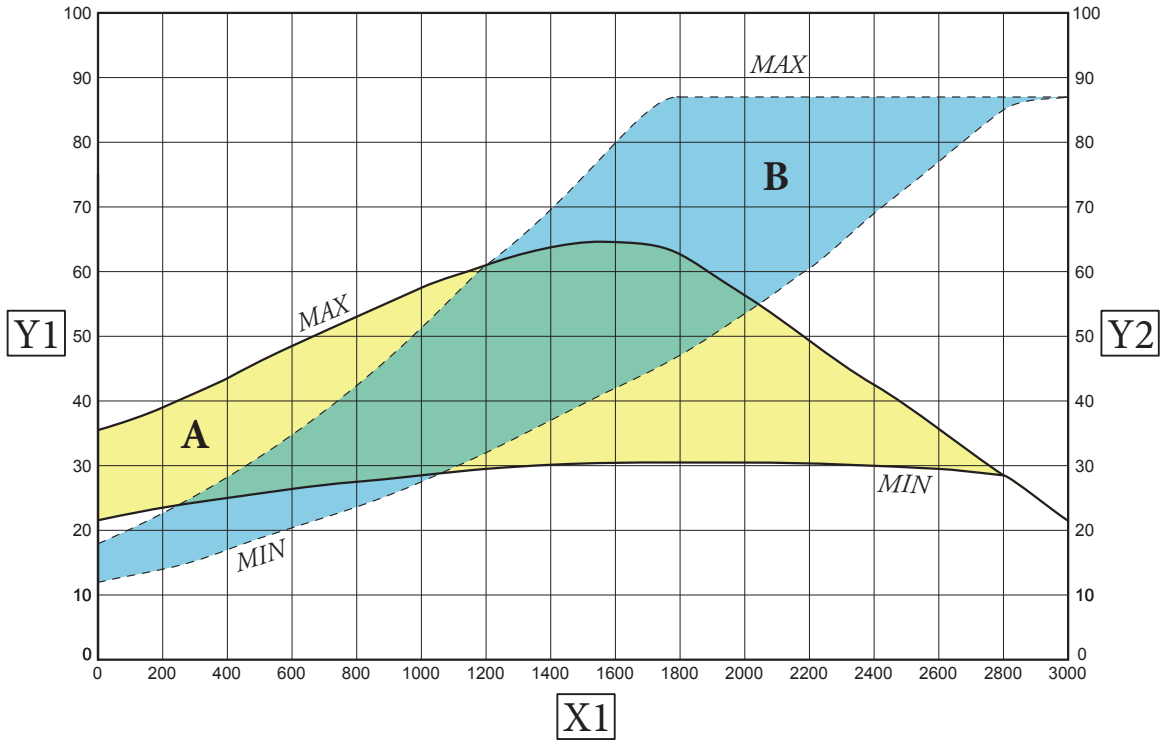
Total head available to the system of zone 1 direct fixed speed



Key:
X1 = Flow rate (l/h)
Y1 = Head (kPa)
Y2 = Circulator pump absorbed power (W)
A = Total head available
B = Power absorbed by the system pump (dotted area)

5

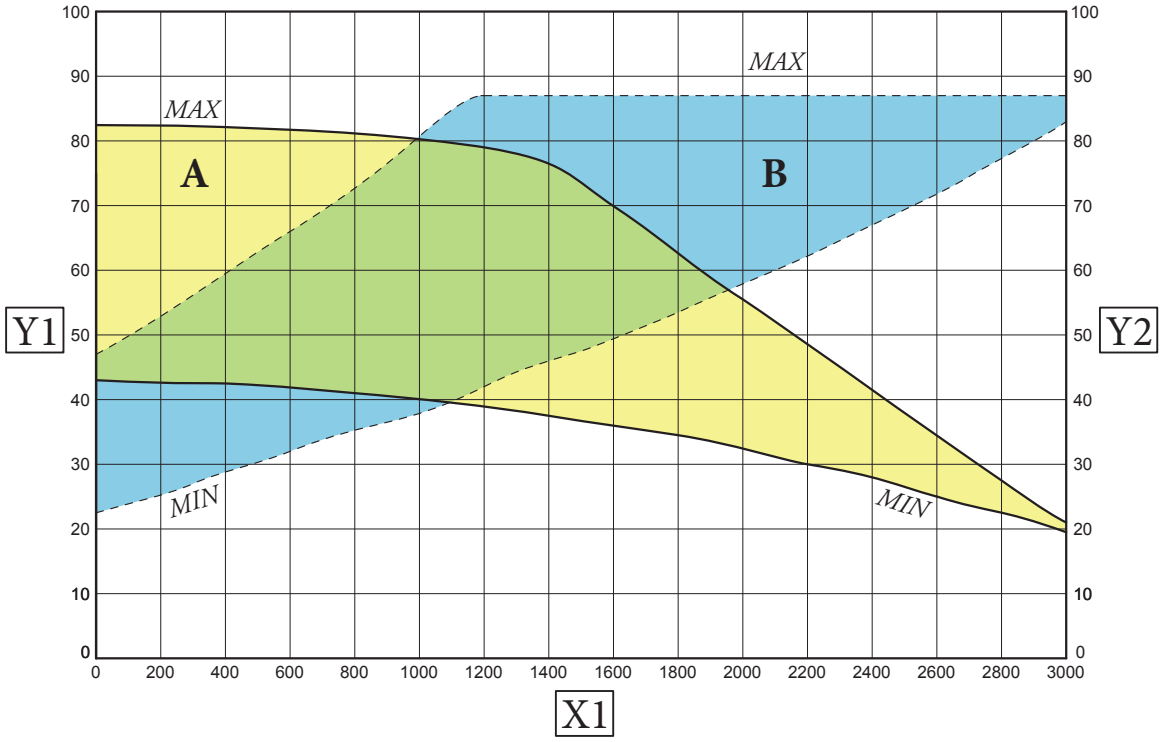
Total head available to the system of zone 1 mixed proportional head



Key:
X1 = Flow rate (l/h)
Y1 = Head (kPa)
Y2 = Circulator pump absorbed power (W)
A = Total head available
B = Power absorbed by the system pump (dotted area)

6

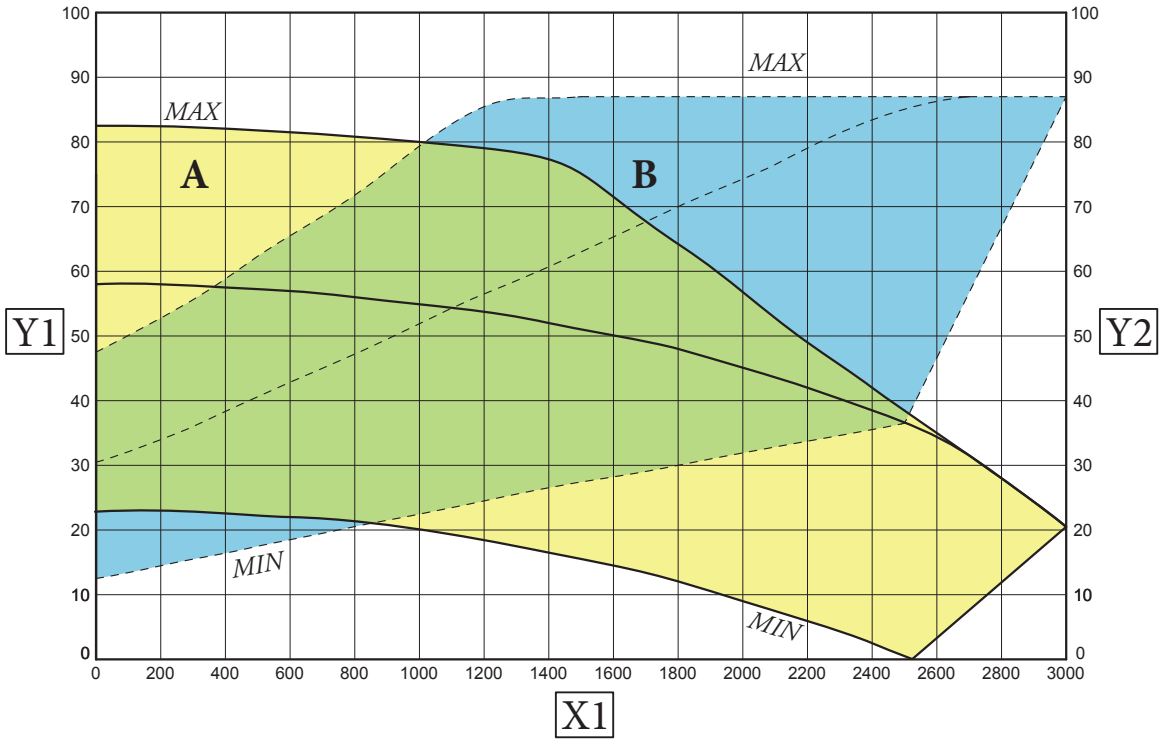
Total head available to the system of zone 1 mixed constant head



Key:
X1 = Flow rate (l/h)
Y1 = Head (kPa)
Y2 = Circulator pump absorbed power (W)
A = Total head available
B = Power absorbed by the system pump (dotted area)

7

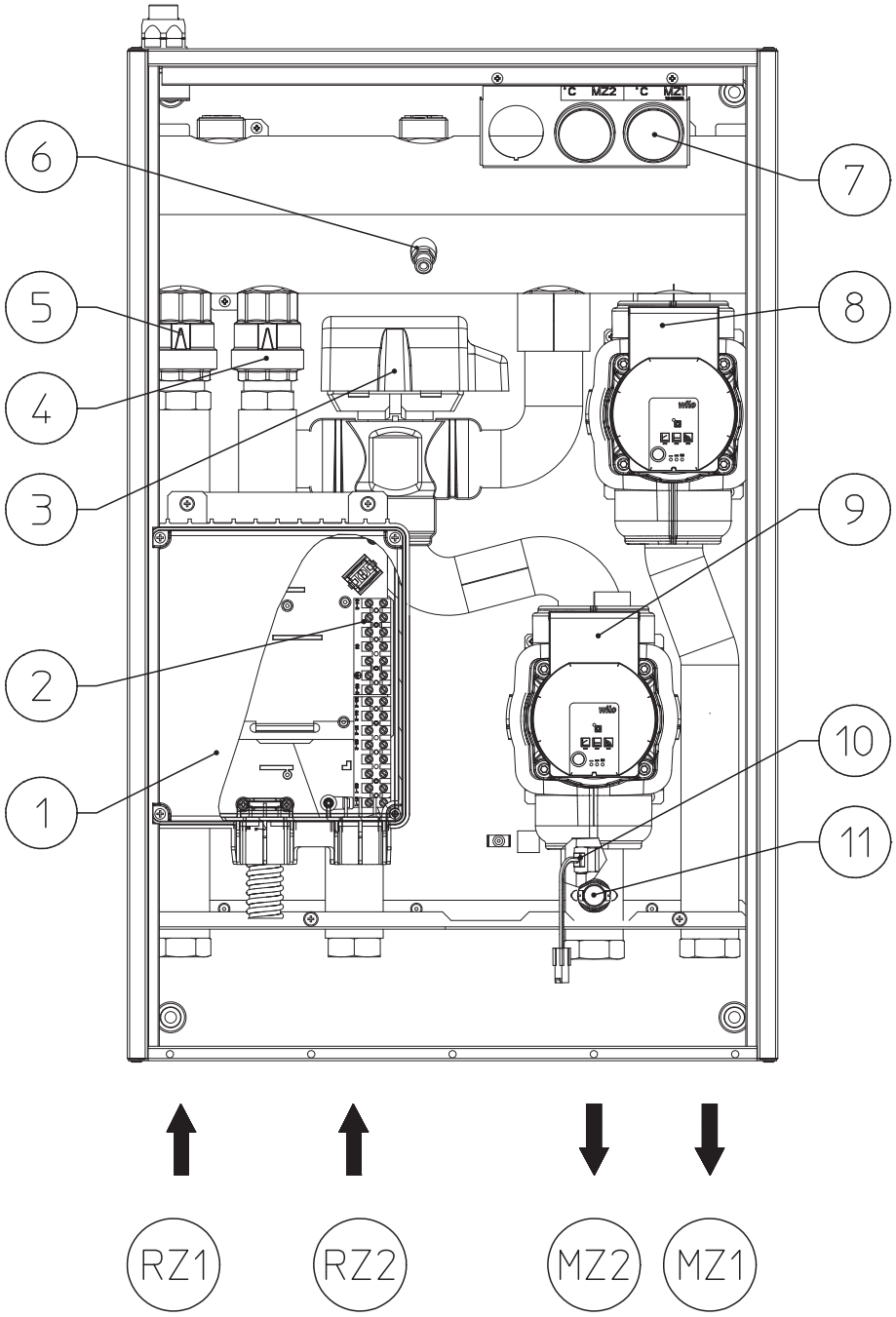
Total head available to the system of zone 1 mixed fixed speed



Key:
X1 = Flow rate (l/h)
Y1 = Head (kPa)
Y2 = Circulator pump absorbed power (W)
A = Total head available
B = Power absorbed by the system pump (dotted area)

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1.10 MAIN COMPONENTS.



Key:

1 - Connections box
2 - Connections board
3 - Mixing valve
4 - Mixed zone return circuit "Europa" one-way valve
5 - Direct zone return circuit "Europa" one-way valve
6 - Drain fitting
7 - Flow temperature thermometers
8 - Direct zone pump
9 - Mixed zone pump
10 - Mixed zone flow probe
11 - Mixed zone safety thermostat

2 USE AND MAINTENANCE INSTRUCTIONS

2.1 GENERAL WARNINGS.

If the device must be deactivated temporarily, act directly on the main switch to power off the system and work safely

- **Attention:** using any components that use electrical power requires the observation of some fundamental rules:

- do not touch the device with wet or moist parts of the body; do not touch when barefoot.
- if the device is wall-mounted: do not pull the electric cables, do not leave the device exposed to the elements (rain, sun, etc.);
- in the event of damage to the cable, switch off the device and contact exclusively qualified staff for replacement;
- if the device is not going to be used for a certain period, disconnect the main power switch.

2.2 WARNINGS FOR THE USER.

This device does not require any regulation or control by the user; *the opening of the device front lid is therefore prohibited.*
The only operation that the user must perform is to periodically check the water pressure of the system in the heat generator. The heat generator pressure gauge should read a value of between 1 and 1.2 bar.
If the pressure is below 1 bar (with the circuit cool), restore normal pressure.

N.B.: if pressure values reach around 3 bar the boiler safety valve may be activated.
In this case contact a professional technician for assistance.
In the event of frequent pressure drops, contact qualified staff for assistance to eliminate the possible system leakage.

2.3 CLEANING THE CASE.

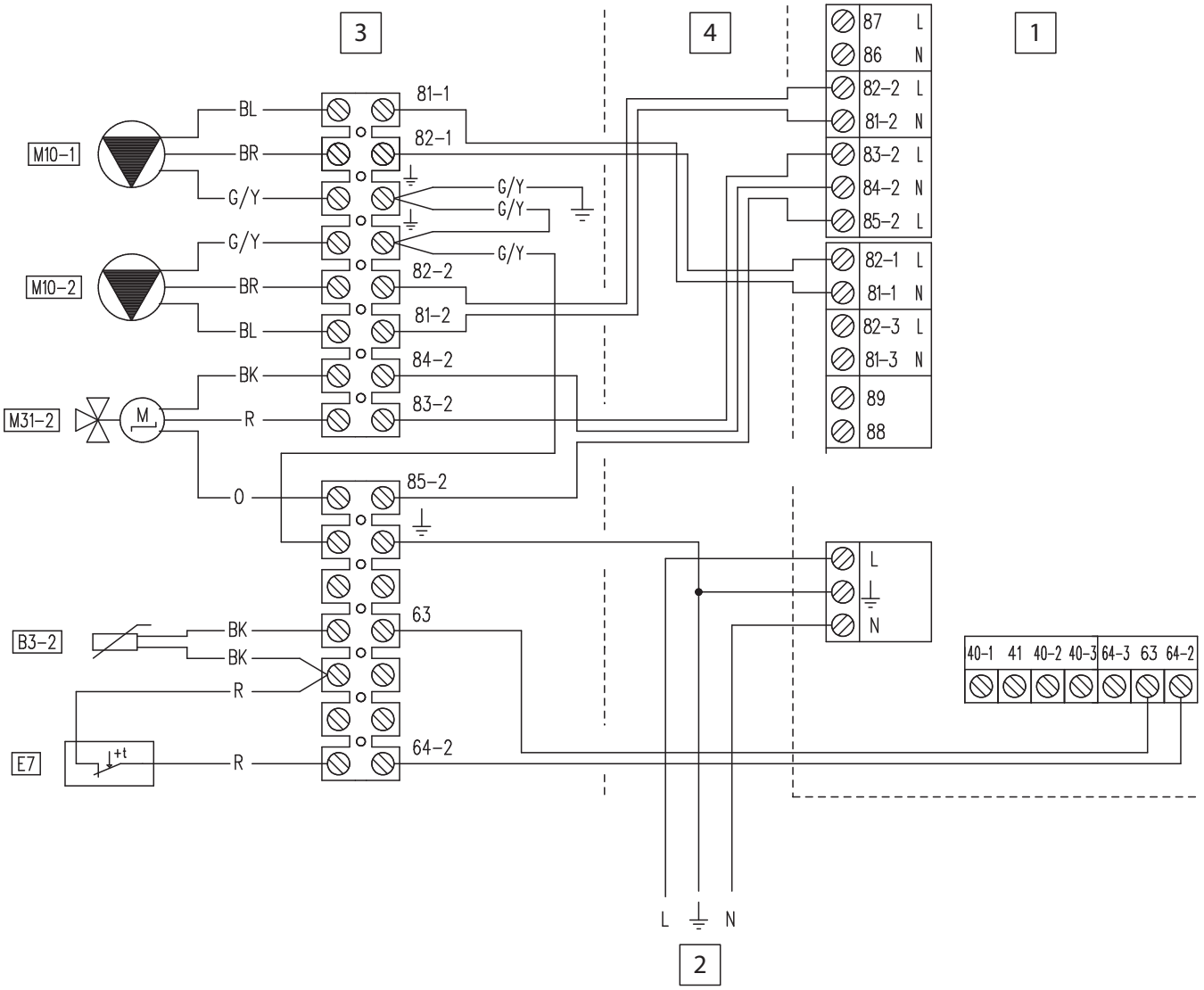
Use damp cloths and neutral detergent to clean the kit casing. Never use abrasive or powder detergents.

3 CHECKS AND MAINTENANCE

- make sure the heating/cooling system is filled with water and that the manometer indicates a pressure of 1÷1.2 bar;
- make sure that the air valve cap (if present) is open and that the system is appropriately de-aerated;
- check the sealing efficiency of water circuits;
- check the correlation between the electric and hydraulic connections;

If even only a single safety check offers a negative result, do not commission the system.

3.1 WIRING DIAGRAM.



Key:

B3-2 - Zone 2 flow probe
E7 - Mixed zone safety thermostat
M10-1 - Zone 1 pump
M10-2 - Zone 2 pump
M31-2 - Mixing valve zone

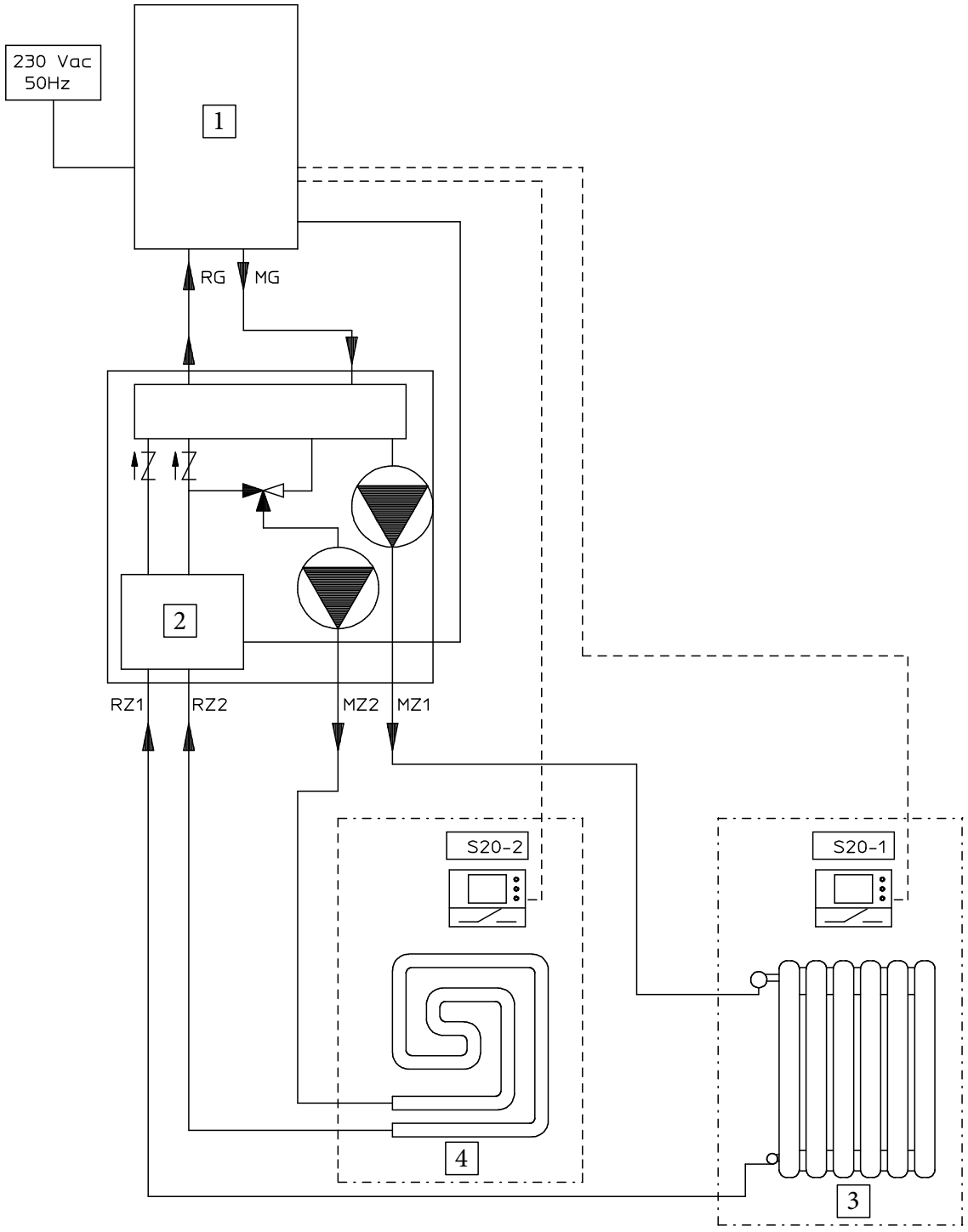
1 - Control panel connections compartment
2 - 230 Vac - 50 Hz
3 - 2 zones kit
4 - Electrical connections

Colour code key:

BK - Black
BL - Blue
BR - Brown
G/Y - Green/Yellow
O - Orange
R - Red

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Connection example of hydraulic diagram.



Key:

S20-1 - Room thermostat zone 1
S20-2 - Room thermostat zone 2
1 - Heater supplier
2 - Connection box
3 - Zone 1: direct zone
4 - Zone 2: mixing zone

***N.B.:** Set A13=2. If necessary, set thermoregulation parameters.*

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3.2 TECHNICAL DATA.

Maximum nominal pressure	bar	3
Maximum operating pressure	°C	90*
Water content in device	l	2,2
Total head available in non-mixed zone with 1000 l/h flow rate (max)	kPa (m H_2O)	77,3 (7,9)
Total head available in non-mixed zone with 2000 l/h flow rate (max)	kPa (m H_2O)	50,4 (5,1)
Total head available in mixed zone (mixing valve open) with 1000 l/h flow rate (max.)	kPa (m H_2O)	79,8 (8,1)
Total head available in mixed zone (mixing valve open) with 2000 l/h flow rate (max.)	kPa (m H_2O)	56,3 (5,7)
Empty device weight	kg	20,3
Full device weight	kg	22,5
Maximum input	A	1,0
Installed electric power	W	162
EEI value	-	<=0,21
Electric plant protection	-	IPX4D
Maximum distance between kit - hydraulic side generator	m	15

* = temperature can only be reached in combination with a generator.

Nel corso della vita utile dei prodotti, le prestazioni sono influenzate da fattori esterni, come ad es. la durezza dell'acqua sanitaria, gli agenti atmosferici, le incrostazioni nell'impianto e così via. I dati dichiarati si riferiscono ai prodotti nuovi e correttamente installati ed utilizzati, nel rispetto delle norme vigenti.
N.B.: si raccomanda di fare eseguire una corretta manutenzione periodica.

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.

Il libretto istruzioni è realizzato in carta ecologica.

The instruction manual is printed on environmentally-friendly paper.

Immergas TOOLBOX
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The App designed by Immergas for professionals

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