

MANUALS



Instructions and recommendations **IE**

Installer

User

Maintenance technician

UB INOX SOLAR

200 V2

Storage tank unit

1.041261ENG



Dear Customer,

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 storage tank unit.

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

For assistance and scheduled maintenance contact Authorised After-Sales centres: they have original spare parts and are specifically trained directly by the manufacturer.

General recommendations

All Immergas products are protected with suitable transport packaging.

The material must be stored in dry environments protected against bad weather.

The instruction book is an integral and essential part of the product and must be consigned to the new user also in the case of transfer or succession of ownership.

It must be stored with care and consulted carefully, as all of the warnings provide important safety indications for installation, use and maintenance stages.

This instructions manual provides technical information regarding installation of Immergas storage tank units. As for the other issues related to installation of the said storage tank units (e.g. safety in the work site, environment protection, injury prevention), it is necessary to comply with the provisions specified in the regulations in force and principles of good practice.

In compliance with legislation in force, the systems must be designed by qualified professionals, within the dimensional limits established by the Law. Installation and maintenance must be performed in compliance with the regulations in force, according to the manufacturer's instructions and by an authorised company, which has specific technical expertise in the system sector, as required by Law.

Improper installation or assembly of the Immergas appliance and/or components, accessories, kit and devices can cause unexpected problems to people, animals and objects. Read the instructions provided with the product carefully to ensure a proper installation.

Maintenance must be carried out by an authorised company. The Authorised After-sales Service represents a guarantee of qualification and professionalism.

The appliance must only be destined for the use for which it has been expressly declared. Any other use will be considered improper and therefore potentially dangerous.

If errors occur during installation, operation and maintenance, due to non compliance with 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 damages and the appliance warranty is invalidated.

The manufacturer declines all liability due to printing or transcription errors, reserving the right to make any modifications to its technical and commercial documents without forewarning.

INDEX

| | | |
|----------|--|-----------|
| 1 | Storage tank unit installation..... | 5 |
| 1.1 | Installation recommendations..... | 5 |
| 1.2 | Main dimensions..... | 5 |
| 1.3 | Connection unit..... | 6 |
| 1.4 | Hydraulic connection..... | 6 |
| 1.5 | Electrical connection..... | 6 |
| 1.6 | Filling the system..... | 6 |
| 1.7 | Domestic hot water storage tank unit..... | 6 |
| 1.8 | DHW mixing valve..... | 7 |
| 1.9 | Storage tank unit hydraulic circuit resistance..... | 7 |
| 1.10 | Main solar circulation unit components..... | 7 |
| 1.11 | Circulation pump (solar heating system)..... | 8 |
| 1.12 | Circulation pump with new wave 3 electronics..... | 10 |
| 1.13 | Commissioning..... | 11 |
| 1.14 | Filling the solar circuit system..... | 11 |
| 1.15 | Solar control unit user instructions..... | 12 |
| 1.16 | Main components..... | 16 |
| 1.17 | Kits available on request..... | 16 |
| 2 | Use and maintenance instructions..... | 17 |
| 2.1 | Cleaning and maintenance..... | 17 |
| 2.2 | Emptying the storage tank unit..... | 17 |
| 2.3 | Cleaning the case..... | 17 |
| 2.4 | Decommissioning..... | 17 |
| 2.5 | Control panel..... | 17 |
| 3 | Checks and maintenance..... | 18 |
| 3.1 | Hydraulic diagram..... | 18 |
| 3.2 | Wiring diagram..... | 19 |
| 3.3 | Yearly appliance check and maintenance..... | 19 |
| 3.4 | Removing the casing..... | 20 |
| 3.5 | Replacing the anode..... | 20 |
| 4 | Technical specifications..... | 21 |
| 4.1 | Product sheet (in compliance with Regulation 812/203)..... | 22 |

1 STORAGE TANK UNIT INSTALLATION

1.1 INSTALLATION RECOMMENDATIONS.

The place of installation of the appliance and relative Immergas accessories must have suitable features (technical and structural) such to allow (always in safety, efficiency and comfortable conditions):

- installation (according to the provisions of the technical legislation and technical regulations);
- maintenance operations (including scheduled, periodic, routine and special maintenance);
- removal (to outdoors in the place for loading and transporting the appliances and components) as well as their eventual replacement with appliances and/or equivalent components.

Only professionally enabled companies are authorised to install Immergas appliances.

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 appliance, 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. If the appliance is installed inside or between cabinets, ensure sufficient space for normal servicing; therefore it is advisable to leave a gap of 2÷3 cm between the storage tank casing and the sides of the cabinet.

In the event of malfunctions, faults or incorrect operation, turn the appliance off and contact an authorised company (e.g. the Authorised 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.

- Installation standards: these storage tanks have been designed for floor installation; they must be used for the storage of domestic hot water and similar purposes. They have not be designed for wall-installation.

Attention: these units are used to store water at a temperature below boiling point at atmospheric pressure. They must be connected to a boiler and to a DHW water distribution network. They must be installed in rooms where the temperature cannot fall below 0°C and must not be exposed to atmospheric agents.

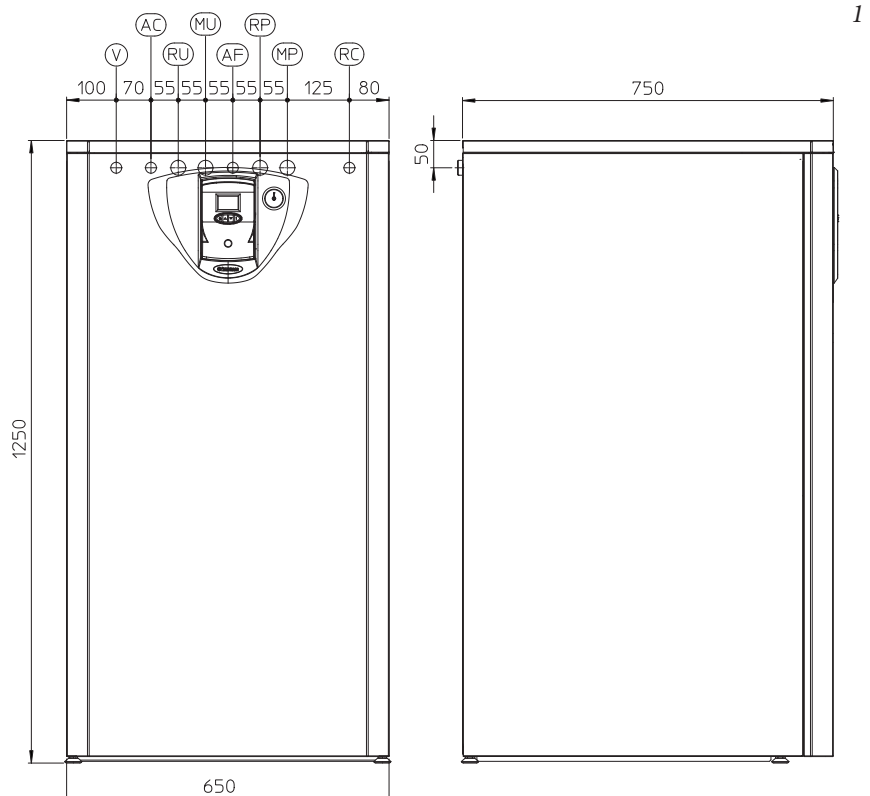
“Anti-legionella” heat treatment of the Immergas storage tank (activated by the specific function present on the predisposed thermoregulatory systems): during this stage, the temperature of the water inside the storage tank exceeds 60°C with a relative risk of burns. Keep this domestic water treatment under control (and inform the users) to prevent unforeseeable damage to people, animals, things. If required install a thermostatic valve on the domestic hot water outlet to prevent scalding.

1.2 MAIN DIMENSIONS.

Key:

- V - Electrical connection
- AC - Domestic hot water outlet
- AF - Domestic cold water inlet
- RU - Return from boiler unit
- MU - Flow to boiler unit
- RP - Return to solar panels
- MP - Flow from solar panels
- RC - Domestic hot water recirculation (Optional)

| CONNECTIONS | | | | |
|-------------|---------|--------------------|------|------|
| SYSTEM | | DOMESTIC HOT WATER | | |
| MU - RU | MP - RP | AF | AC | RC |
| 3/4" | 3/4" | 3/4" | 3/4" | 1/2" |



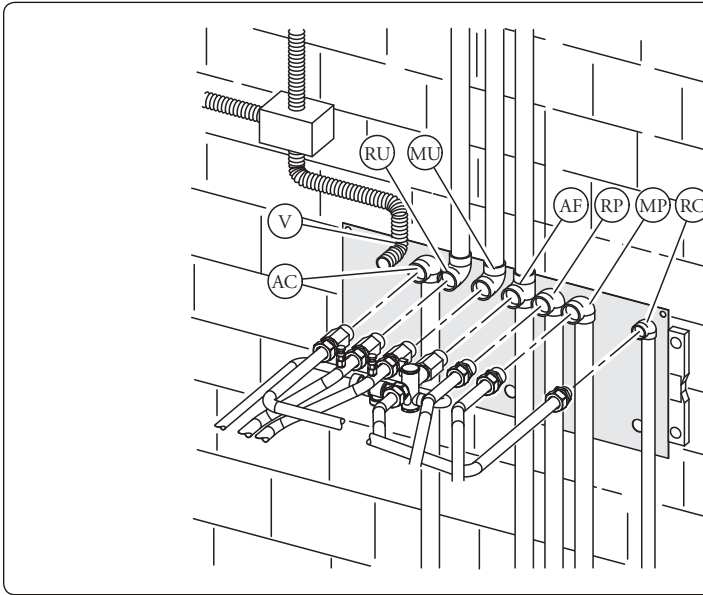
INSTALLER

USER

MAINTENANCE TECHNICIAN

TECHNICAL DATA

1.3 CONNECTION UNIT.



Key:

- V - Electrical connection
- AC - 3/4" Domestic hot water outlet
- RU - 3/4" return from storage tank
- MU - 3/4" flow to storage tank
- AF - 3/4" domestic cold water inlet
- RP - 3/4" return to solar panels
- MP - 3/4" flow from solar panels
- RC - 1/2" recirculation (optional)

2

1.4 HYDRAULIC CONNECTION.

Before making the connections, all of the system piping must be washed thoroughly to remove any residues that could compromise the proper operation of the storage tank. Water connections must be made in a rational way using the couplings on the storage tank template. The storage tank safety valve outlet must be connected to a draining funnel. If this is not the case, the storage tank manufacturer declines any liability in the event of flooding if the drain valve cuts in.

1.5 ELECTRICAL CONNECTION.

The storage tank has an IPX0D protection rating for the entire appliance. Electrical safety of the appliance is reached only when it is correctly connected to an efficient earthing system as specified by current safety standards.

Attention: Immergas S.p.A. declines any responsibility for damage or physical injury caused by failure to connect the storage tank to an efficient earth system or failure to comply with the reference standards.

Also ensure that the electrical installation corresponds to maximum absorbed power specifications as shown on the storage tank data-plate. The storage tank unit is supplied complete with an "X" type power cable without plug.

Solar manifold probe connection.

Connect the solar manifold probe to pins 45 and 46 on the terminal board (Fig. 15 part. 17) present inside the storage tank unit, paying attention to eliminate the resistance R15 as indicated in the wiring diagram.

Storage tank connection to the boiler.

Connect the storage tank to the boiler as indicated in the wiring diagram, using a cable (not present) to connect clamps 36 and 37 to the boiler and to the storage tank.

Storage tank unit electric connection.

The power supply cable must be connected to a 230V \pm 10% / 50Hz mains supply respecting L-N polarity and earth connection; \oplus , this network must also have a multi-pole circuit breaker with class III over-voltage category. When replacing the power supply cable, contact a qualified firm (e.g. the Authorised After-Sales Technical Assistance Service).

For the main power supply to the appliance, never use adapters, multiple sockets or extension leads.

Solar collector return probe connection (optional).

Connect the solar collector return probe to pins 8 and 7 on the terminal board present inside the storage tank unit.

Attention: after the connections have been made, the new system layout must be set on the solar control unit as follows:

- press the "i" key for about 10 seconds;
- use the scrolling keys to find parameter 27 (system configuration);
- press the "i" key for about 2 seconds.
- upon accessing parameter 27, you will find that configuration 1 is set; use the scrolling keys to select configuration 2.
- press the "i" key to confirm the selected configuration.

1.6 FILLING THE SYSTEM.

Once the storage tank has been connected, fill the system via the boiler filling valve. Filling is performed at low speed to ensure release of air bubbles in the water via the boiler and central heating system vents.

Close the filling valve when the boiler manometer pointer indicates approx. 1.2 bar (see boiler instruction book).

1.7 DOMESTIC HOT WATER STORAGE TANK UNIT.

The storage tank unit must be connected to a boiler. It contains large coiled stainless steel heat exchanger pipes, which allow to notably reduce hot water production times. This storage tank unit, manufactured with stainless steel casing and bottoms, guarantees long duration through time.

The assembly concepts and welding (T.I.G.) are implemented to the minimum detail to ensure maximum reliability.

The upper inspection flange ensures practical control of the storage tank unit and the coil heat exchanger pipe and easy internal cleaning.

The DHW couplings are positioned on the lid of the flange (cold inlet and hot outlet). The Magnesium Anode holder cap including the same, supplied as per standard for the internal protection of the storage tank from possible corrosion, is found on the side of the storage tank.

IMPORTANT NOTE: have the efficiency of the storage tank Magnesium Anode checked annually by a qualified firm. The storage tank unit is prepared for introduction of the domestic hot water pump fitting.

1.8 DHW MIXING VALVE.

The thermostatic mixing valve mixes the cold water with the hot water and via an internal wax element, sensitive to the temperature, automatically controls the temperature of the mixed water set by the user.

N.B.: for excellent management of the temperatures, the mixing valve must be set by the installer at a safety temperature required by the user. The outlet temperature of the domestic hot water can also depend on the value set on the boiler, however, the upper limit temperature value of the domestic hot water is always determined by the position of the mixing valve: knob position 1 = 42°C, 2 = 48°C, 3 = 54°C, 4 = 60°C (standard) (the values indicated refer to a storage tank with water at 70°C).

Any release of the three-way mixing valve. If after a long period of inactivity the three-way mixing valve is blocked, it is necessary to act manually on the knob positioned on the top of the same in a way to release the shutter of the valve itself.

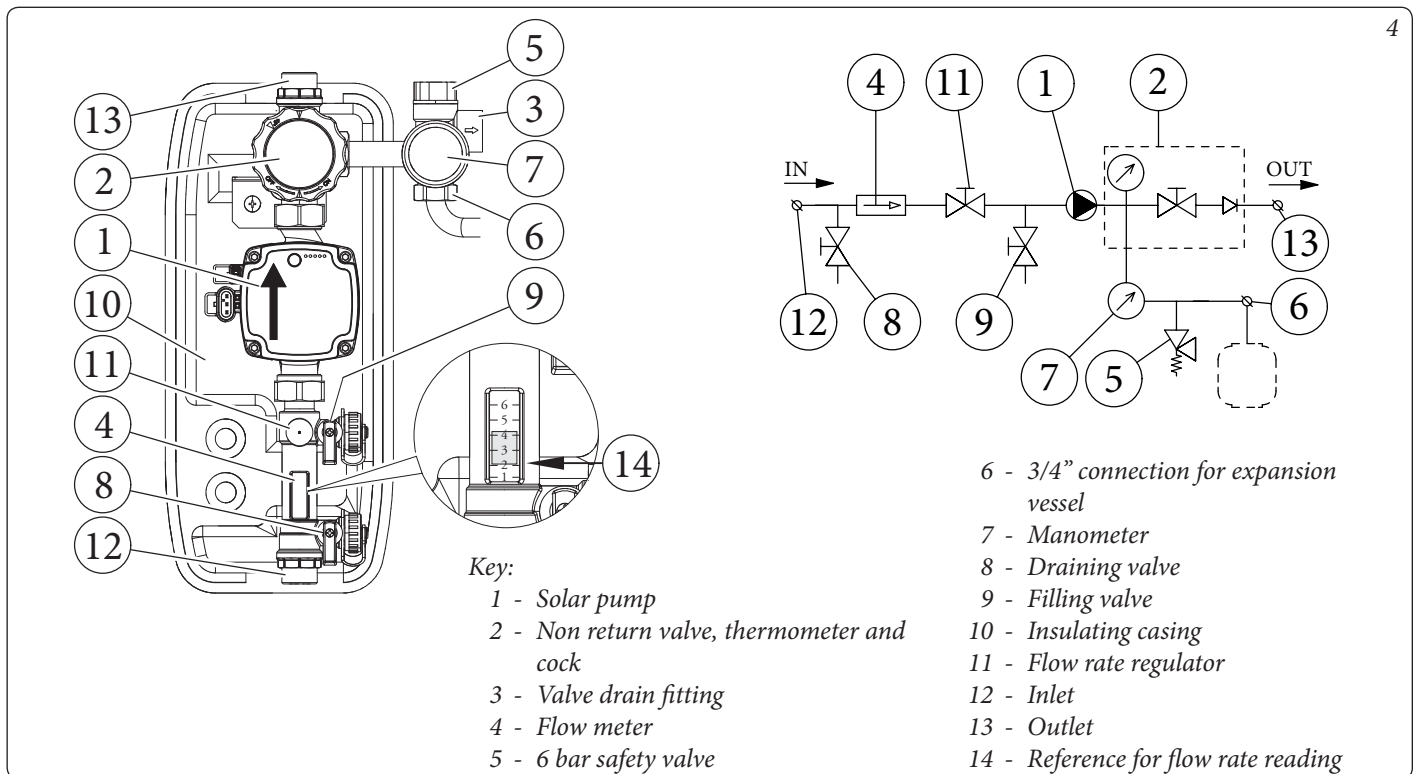
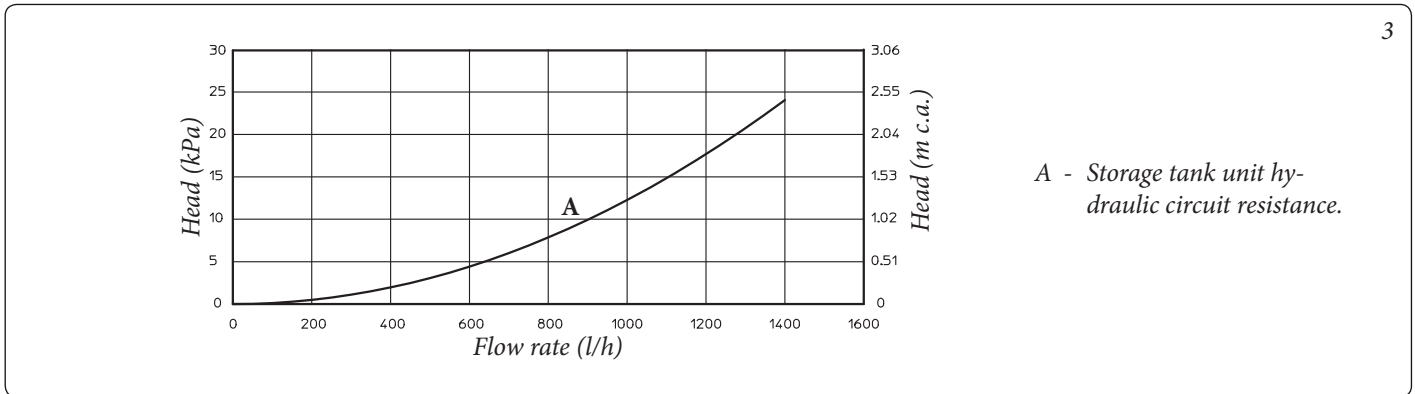
1.9 STORAGE TANK UNIT HYDRAULIC CIRCUIT RESISTANCE.

In order to guarantee sufficient DHW flow rate, it is important to consider the resistance of the storage tank hydraulic circuit to be coupled to the boiler. (Fig. 3). In order to connect the storage tank unit to Immergas boilers properly, refer to the boiler instruction book.

1.10 MAIN SOLAR CIRCULATION UNIT COMPONENTS.

The pump unit allows you to connect the storage tank to the solar manifold, making the water circulate according to the request of the control unit.

Hydraulic circuit resistance.



1.11 CIRCULATION PUMP (SOLAR HEATING SYSTEM).

The units are supplied with circulating pumps fitted with speed regulator.

These settings are suitable for most systems.

In fact, the pump is equipped with electronic control to set advanced functions. For proper operation one must select the most suitable type of operation for the system and select a speed in the available range, with a focus on energy savings.

Display of operation status (Fig. 6). During normal operation the status LED (2) is on green (flashing FL when it is in stand-by), the four yellow LEDs (3) indicate circulator absorption according to the following table:

| Circulating pump LED | Absorption |
|----------------------|------------------------|
| | Circulator in stand-by |
| | 0 ÷ 25 % |
| | 25 ÷ 50 % |
| | 50 ÷ 75 % |
| | 75 ÷ 100 % |

Selection of operating mode. To see the current operation mode it is sufficient to press button (1) once.

To change operation mode press the button for between 2 to 10 seconds until the current configuration flashing, each time the button is pressed all possible functions are scrolled cyclically according to the table (Fig. 5). After a few seconds without doing any operation the circulator memorises the selected mode and goes back to operation display.

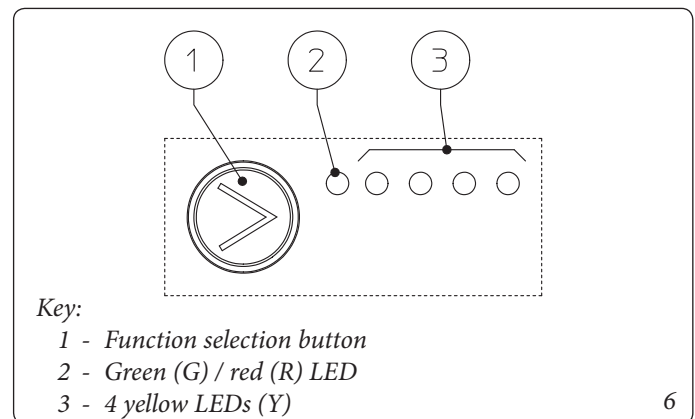
- Constant curve: the pump operates with a constant curve. The circulator working point will move up or down according to the system's demand.
- PWM Profile: **do not use this operation mode.**

Selection button lock. The button has a feature that locks its operation to prevent accidental modifications, to lock the control panel it is necessary to press button (1) longer than 10 seconds (during which the current configuration flashes), the active lock is signalled by all LEDs of the control panel flashing. To unlock the button press again longer than 10 seconds.

Real time diagnostics: in the event of malfunction the LEDs provide information on the circulator operation status, see table (Fig. 7):

| Circulating pump LED | Description |
|----------------------|----------------------------------|
| | Constant curve speed 1 |
| | Constant curve speed 2 |
| | Constant curve speed 3 |
| | Constant curve speed 4 (default) |
| DO NOT USE | |
| Circulating pump LED | Description |
| | PWM Profile speed 1 |
| | PWM Profile speed 2 |
| | PWM Profile speed 3 |
| | PWM Profile speed 4 |

5

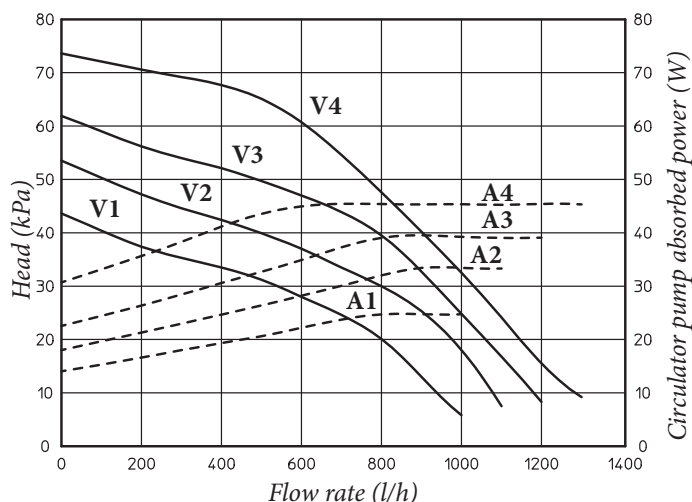


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| Circulating pump LED (first red LED) | Description | Diagnostics | Remedy | | | | | | | | | | | | | | | |
|---|-------------|-------------|--------|-----|---|---|---|---|---|---|----|-----|-----|-----|-----|--|---|--|
| <table border="0"> <tr> <td>R</td><td>Y</td><td>Y</td><td>Y</td><td>Y</td> </tr> <tr> <td>●</td><td>○</td><td>○</td><td>○</td><td>●</td> </tr> <tr> <td>On</td><td>Off</td><td>Off</td><td>Off</td><td>On</td> </tr> </table> | R | Y | Y | Y | Y | ● | ○ | ○ | ○ | ● | On | Off | Off | Off | On | Circulator pump blocked | The circulator pump cannot restart automatically due to an anomaly | Wait for the circulator to make automatic release attempts or manually release the motor shaft acting on the screw in the centre of the head. If the anomaly persists replace the circulator. |
| R | Y | Y | Y | Y | | | | | | | | | | | | | | |
| ● | ○ | ○ | ○ | ● | | | | | | | | | | | | | | |
| On | Off | Off | Off | On | | | | | | | | | | | | | | |
| <table border="0"> <tr> <td>R</td><td>Y</td><td>Y</td><td>Y</td><td>Y</td> </tr> <tr> <td>●</td><td>○</td><td>○</td><td>●</td><td>○</td> </tr> <tr> <td>On</td><td>Off</td><td>Off</td><td>On</td><td>Off</td> </tr> </table> | R | Y | Y | Y | Y | ● | ○ | ○ | ● | ○ | On | Off | Off | On | Off | Abnormal situation (the circulator continues operating). low power supply voltage | Voltage off range | Check power supply |
| R | Y | Y | Y | Y | | | | | | | | | | | | | | |
| ● | ○ | ○ | ● | ○ | | | | | | | | | | | | | | |
| On | Off | Off | On | Off | | | | | | | | | | | | | | |
| <table border="0"> <tr> <td>R</td><td>Y</td><td>Y</td><td>Y</td><td>Y</td> </tr> <tr> <td>●</td><td>○</td><td>●</td><td>○</td><td>○</td> </tr> <tr> <td>On</td><td>Off</td><td>On</td><td>Off</td><td>Off</td> </tr> </table> | R | Y | Y | Y | Y | ● | ○ | ● | ○ | ○ | On | Off | On | Off | Off | Electrical fault (Circulator pump blocked) | The circulator is locked due to power supply too low or serious malfunction | Check the power supply, if the anomaly persists replace the circulator |
| R | Y | Y | Y | Y | | | | | | | | | | | | | | |
| ● | ○ | ● | ○ | ○ | | | | | | | | | | | | | | |
| On | Off | On | Off | Off | | | | | | | | | | | | | | |

7

Solar circulation unit available head.



Key:
 V_n = Available head
 A_n = Circulating pump absorbed power

8

1.12 CIRCULATION PUMP WITH NEW WAVE 3 ELECTRONICS.

The units are supplied with circulating pumps fitted with speed regulator.

These settings are suitable for most systems.

In fact, the pump is equipped with electronic control to set advanced functions. For proper operation one must select the most suitable type of operation for the system and select a speed in the available range, with a focus on energy savings.

Display of operation status (Fig. 9).

When the pump starts, the LED (2) lights up green for about 2 seconds, followed by short flashing at great intensity to then switch off during normal operation. The LED (3) only lights up in PWM setting, not used in the application. The three yellow LEDs (4) indicate the three constant curve speeds.

Selection of operating mode.

The operating mode is always visible and indicated by the 3 yellow LEDs (4).

Info: All the LEDs are off when the pump is not powered.

Press the button (1) to change operating mode.

Every time the button is pressed, all the possible functions are scrolled cyclically according to the following table:

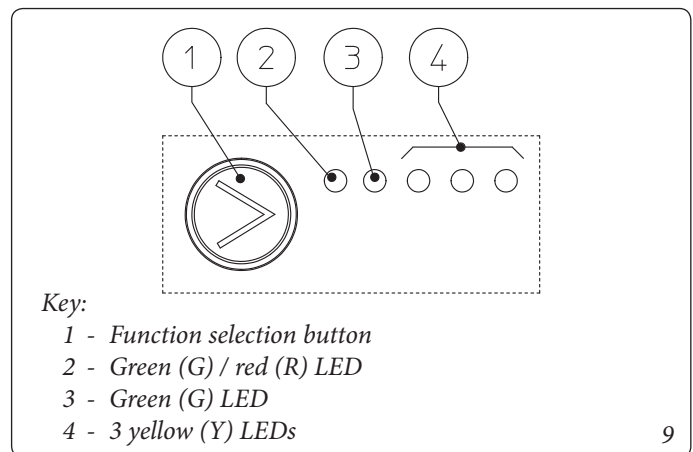
| Circulating pump LED | Description |
|------------------------|------------------------|
| G G Y Y Y ○ ○ ● ○ ○ | Constant curve speed 1 |
| G G Y Y Y ○ ○ ● ● ○ | Constant curve speed 2 |
| G G Y Y Y ○ ○ ● ● ● | Constant curve speed 3 |
| G G Y Y Y ○ ● ● ● ● | PWM - Do not use |
| G G Y Y Y ○ ● ● ● ● | PWM - Do not use |

- Constant curve: the pump works maintaining system head constant. The pump working point will move up or down according to the system's demand.

Attention: PWM Profile; Do not use this operating mode. If this profile is selected, the pump will stop.

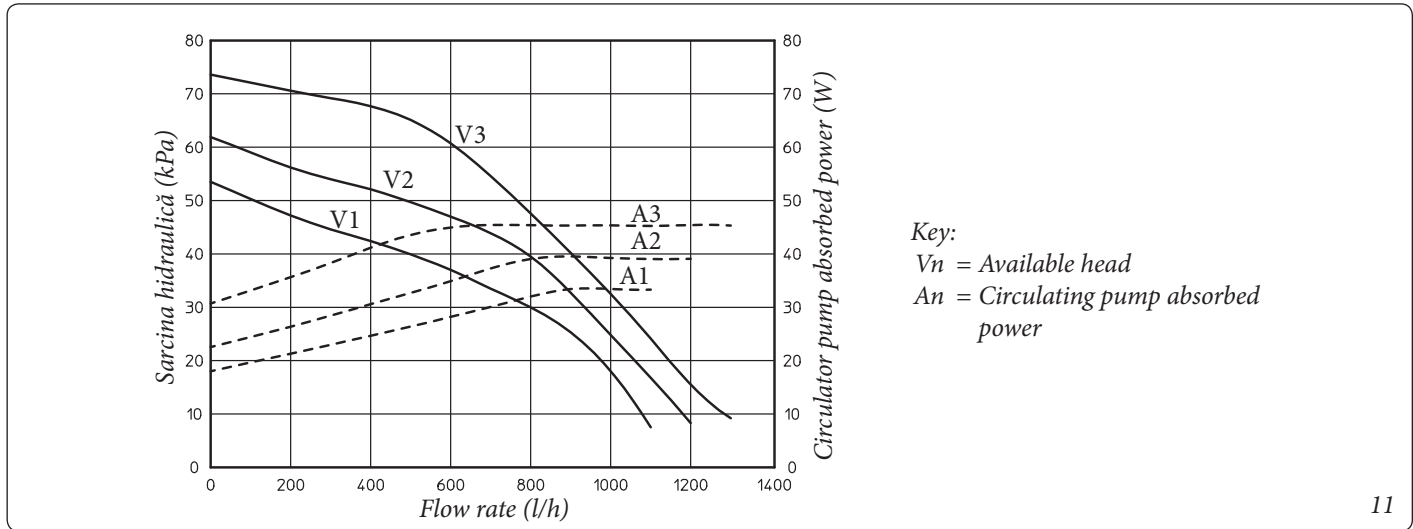
For the UB INOX SOLAR 200 V2 storage tank unit, the pump is set at "Constant curve speed 3" by default.

Real time diagnostics: in the event of malfunction the LEDs provide information on the pump operation status, see table (Fig. 10):



| Circulating pump LED (first red LED) | Description | Diagnostics | Remedy |
|--------------------------------------|--|---|--|
| R Y Y Y Y ● ○ ○ ○ ● | Pump blocked mechanically | The pump cannot restart automatically due to an anomaly | Wait for the pump to make automatic release attempts or manually release the motor shaft acting on the screw in the centre of the head. If the anomaly persists replace the pump. |
| R Y Y Y Y ● ○ ○ ● ○ | Abnormal situation (the pump continues operating). low power supply voltage | Voltage off range < 160 Vac | Check power supply |
| R Y Y Y Y ● ○ ● ○ ○ | Electrical fault (Pump blocked) | The pump is locked due to power supply too low or serious malfunction | Check the power supply if the anomaly persists replace the pump |

Solar circulation unit available head.



11

1.13 COMMISSIONING.

Preliminary checks on the solar system

Before filling the hydraulic circuit and starting the system, carry out the following checks:

- make sure the safety devices are included and are operating properly, particularly:
 - safety valve (6 bar)
 - expansion vessel
 - thermostatic mixing valve
- make sure there are no leaks in the hydraulic circuit;
- make sure there is an air vent valve positioned in the highest point of the circuit above the manifold and that it is operational.
- check connection to a 230V-50Hz power mains, correct L-N polarity and the earthing connection;
- Check that all the requirements relating to the boiler and the central heating circuit have been complied with, as described in the relative boiler instruction book.

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

Expansion vessel factory-set pressure of the solar circuit hydraulic unit.

To compensate the high temperatures that can be reached by the liquid in the circuit and therefore its dilation, an expansion vessel has been fitted on the UB INOX SOLAR 200 V2 storage tank, with sufficient capacity to perform this task. The expansion vessels are supplied factory-set at 2.5 bar. It is therefore necessary to charge them to the pressure necessary for the circuit.

The expansion vessel must be charged to:

2 bar + 0.1 bar for every metre of the water column.

“metre of the water column” means the vertical distance that is present between the expansion vessel and the solar manifold.

Example:

The circulation unit is found on the ground floor and the solar manifold is found on the roof at a hypothetical height of 6 m, the distance to be calculated is:

$$6 \text{ m} \times 0.1 \text{ bar} = 0.6 \text{ bar}$$

therefore the expansion vessel must be charged to:

$$2 + 0.6 = 2.6 \text{ bar}$$

Hydraulic unit safety valve.

There is a safety valve present on the hydraulic unit that protects the system from an excessive increase in pressure. This valve intervenes by discharging the liquid contained in the circuit when the pressure reaches 6 bar.

If the safety valve intervenes and therefore part of the liquid contained in the circuit is lost, it must be re-integrated.

1.14 FILLING THE SOLAR CIRCUIT SYSTEM.

The system can only be filled when:

- the system is completely assembled;
- any operational residues have been eliminated that may cause obstructions and deteriorate the features of the glycol over time;
- any presence of water in the system has been eliminated, which could otherwise cause damage to the system in winter;
- the absence of leaks has been verified by checks using air;
- the storage tank unit has been filled;
- the expansion vessel has been charged according to system requirements.

The system must be filled only using the glycol supplied by Immergas via an automatic pump. The system must be filled with vent valve closed.

Proceed as follows to fill the system:

- 1 connect the flow pipe of the automatic pump to the fitting of the filling valve (9 Fig. 4) located under the pump and open the valve.
- 2 connect the return pipe of the automatic pump to the fitting of the draining valve (8 Fig. 4) and open the draining valve.
- 3 The flow-rate regulator screw (11 Fig. 4) must be orientated horizontally to ensure the closure of the integrated ball valve. Open the ball valve with thermometer (2 Fig. 4) above the pump.
- 4 Fill the filling pump tank with the amount of glycol necessary plus a minimum amount to be left on the bottom of the tank in order to prevent air circulating inside the circuit.
- 5 The filling stage must have a minimum duration of 20 ÷ 25 minutes. This time is required to completely remove all air from the circuit. Every now and again open the flow rate regulator adjustment screw in order to eliminate air from inside (vertical position).

- 6 Eliminate any air in the solar circuit preferably using the so-called “pressure shot” method, which consists in raising the filling pressure of the circuit followed by a quick opening of the return valve (8 Fig. 4). This method allows air to be expelled from the circuit.
- 7 Close the filling cock and switch the filling pump off, open the regulator screw of the flow rate regulator (notch in vertical position).
- 8 Leave the circuit pressurised. Any pressure drop indicates a leak in the system.
- 9 Set the functioning pressure in the circuit at 2.0 bar + 0.1 bar for every metre in the distance between the solar collector and the expansion vessel (practically, set the same pressure between expansion vessel and system).

- 10 Switch the solar pump on at a maximum speed and make it run for at least 15 minutes.
- 11 Disconnect the filling pump and close the fittings using the relevant screw caps.
- 12 Open the ball valve above the pump completely.











Do not fill the system in conditions with strong insolation and with the manifolds at high temperatures.

Make sure that all air bubbles have been completely eliminated.





1.15 SOLAR CONTROL UNIT USER INSTRUCTIONS.

The solar control unit user information are described successively.

Description of display.

| Symbol | State | Description |
|---|----------|---|
|  | Flashing | Solar pump functioning |
|  | On | Boiler burner enabled |
|  | On | Communication with boiler active |
|  | Flashing | Anomaly present |
|  | On | Solar collector temperature sufficient for functioning |
|  | Flashing | Anti-freeze function active |
|  | On | Digit to display the temperatures, parameters and values. |
|  | On | Probe active S1 - DHW inhibition probe (NTC) S2 - Solar storage tank probe (NTC) S3 - Solar collector probe (PT1000) |
|  | On | Indicates the presence of the storage tank |
|  | On | Indicates the presence of solar panel/s |

Description of the control panel.

| Symbol | Description |
|---|---|
|  | Control unit switch-on - switch-off/Return to previous menu |
|  | Parameter/next value selection |
|  | Parameter/previous value selection |
|  | Access to the parameters/system info/value confirmation |

• Programming the functions.

Access to the board parameters menu is given through the buttons present on the control unit.

To access the parameters menu and modify a value necessary:

- Press and hold the (⏏) key for 10 seconds. (access to the menu)
- Scroll to the parameter to be modified by pressing the (▲) and (▼) buttons.
- Press the (⏏) key and then (▲▼) to modify the value of the parameter selected.

- Select the value and press the (⏏) key to confirm. Otherwise, press (⏏) to exit. In this case, the value set will not be memorised, but the previous one will be kept.

- To exit the parameter menu, press the (⏏) button once or wait 60 seconds without pressing any keys.

List and description of parameters available.

The board has 34 parameters.

The parameters that go from 1 to 11 is simple information and cannot be modified.

| N° Parameter | Description of the Parameter | Values Field | Default |
|--------------|--|--------------|---------|
| 1 | Software Version | 1÷99 | 10 |
| 2 | Current temperature S1: NTC sensor (°C) | 0÷120 | -- |
| 3 | Current temperature S2: NTC sensor (°C) | 0÷120 | -- |
| 4 | Current temperature S3: PT1000 sensor (°C) | 0÷170 | -- |
| 5 | Current temperature S4: PT1000 sensor (°C) | 0÷170 | -- |
| 6 | Maximum temperature S1 (with period of 24 hours starting from their last switch-on of the device from OFF mode): NTC sensor (°C) | 0÷120 | -- |
| 7 | Maximum temperature S2 (with period of 24 hours starting from their last switch-on of the device from OFF mode): NTC sensor (°C) | 0÷120 | -- |
| 8 | Maximum temperature S3 (with period of 24 hours starting from their last switch-on of the device from OFF mode): PT1000 sensor (°C) | 0÷170 | -- |
| 9 | Maximum temperature S4 (with period of 24 hours starting from their last switch-on of the device from OFF mode): PT1000 sensor (°C) | 0÷170 | -- |
| 10 | Current modulating pump speed (Vel.1=40% ÷ Vel.5=100%) | 0÷100% | -- |
| 11 | System functioning hours timer | -- | -- |
| 12 | Value of the Δ flow - return solar collector temperature differential for solar pump switch/on (in presence of return probe) | 5÷30°C | 10°C |
| 13 | Value of the temperature differential for the modulation of the solar pump (for speeds 1 and 2) | 5÷20°C | 10°C |
| 14 | Value of the temperature differential for the modulation of the solar pump (for speeds 3, 4 and 5) | 2÷10°C | 5°C |
| 15 | Tank set-point (solar pump switch-off temperature) | 60÷80°C | 70°C |
| 16 | Value of the Δ solar collector flow - tank temperature differential for solar pump switch-on | 3÷20°C * | 5°C |
| 17 | Solar collector flow Maximum Temperature (°C) | 90÷160°C | 140°C |
| 18 | Tank Maximum Temperature (°C) | 70÷95°C | 80°C |
| 19 | Value of the temperature differential between the solar collector maximum temperature (PAR 17) and the solar collector temperature, above which the solar collector cooling function activates (Solar collector cooling function) (0=Function deactivated) | 0÷20°C | 0 |
| 20 | Diverter functioning (0 = Off, 1 = Auto, 2 = On) | 0 ÷ 2 | 1 |
| 21 | Value of the Δ flow - return temperature differential below which the collector is recognised as cold (Cold solar collector recognition func.) | 0÷10°C | 5°C |
| 22 | Value of the Δ collector flow - tank temperature differential for solar pump switch-off | 1÷10°C * | 3°C |
| 23 | Solar collector anti-freeze temperature value (see Solar collector anti-freeze func.) (0=Function deactivated, 1÷10°C=Protection temperature) | 0÷10°C | 0 |
| 24 | Solar Pump functioning (0=On/Off, 1=Modulating, 2 = On, 3 = Off) | 0÷3 | 0 |
| 25 | Appliance configuration (stand alone=1, PLB-BUS=2, PLB-BUS remote control only=3) | 1÷3 | 1 |
| 26 | Selected system layout - DO NOT MODIFY | 1÷6 | 6 |
| 27 | System configuration (the range of values varies on the basis of the system selected) | 1÷4 | 1 |
| 28 | Priority logic (1= S1 has priority over S2 / 2= S2 has priority over S1) | 1÷2 | 2 |
| 29 | Thermostat insertion temperature (S1) | 30÷90°C | 30°C |
| 30 | Thermostat disconnection temperature (S1) | 30÷90°C | 30°C |
| 31 | DHW set | 20÷60°C | 45°C |
| 32 | Priority integration (0=Function deactivated) | 0÷10°C | 5°C |
| 33 | Parallel integration (0=Function deactivated) | 0÷20°C | 10°C |
| 34 | Solar pump functioning (0 = Off, 1 = Auto, 2 = On) | 0 ÷ 2 | 1 |

*=the range of parameters 16 and 22 is dynamic, it is not allowed to set a Δ between these two parameters lower than 2.

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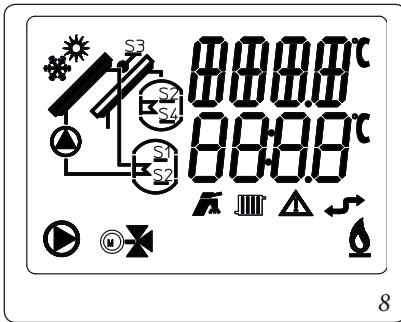
MAINTENANCE TECHNICIAN

TECHNICAL DATA

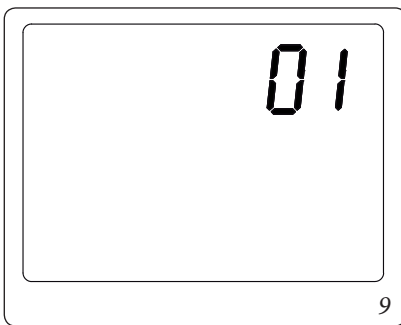
• Use and operation.

- Start-up display.

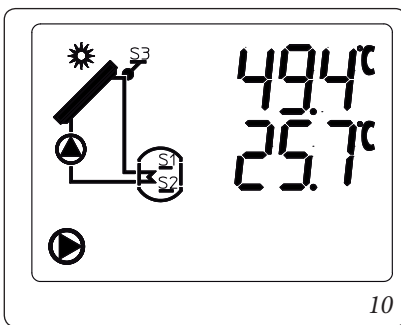
Every time power is supplied to the appliance, the display will activate all symbols for 2 seconds:



while in the next 5 seconds, the display will indicate the board software version:




After which, the following information regarding the type of system will be displayed, the temperature of the solar collector (1 ÷ 170°C upper digit) and the temperature of the storage tank probe (1 ÷ 125°C lower digit):



• Functioning.

For the description of the parameters, refer to the table in the previous paragraph

- **OFF mode.** By pressing the  key for 3 seconds, the appliance switches to off mode (also in the event of anomalies). In this way, it is not operational and the display shows off. Only the anti-freeze protection and the pump anti-block remain active.

- Solar pump functioning.

The pump activates and deactivates automatically when it is set in On/Off mode.

Activation: the solar pump will be activated by the board if the following conditions occur at the same time:

$$T \text{ tank} < \text{PAR15} - \text{PAR16}$$

and

$$\text{Solar collector T} - \text{tank T} > \text{PAR16}$$

Disabling: the board disables the solar pump if one of the following conditions occurs:

$$\text{Tank T} > \text{PAR 15}$$

or

$$\text{Solar collector T} < \text{tank T} + \text{PAR 22}$$

Manual mode: the pump can be set in On mode (always on) or Off mode (always off). In the event of manual setting, the protection functions are inhibited.

- **Solar manifold cooling function.** This function is used to manage the pump in the event of overheating of the solar panel according to the following table:

| Description | Condition |
|-------------------------|--|
| Solar pump activation | PAR 15 < tank T < PAR 18 + Solar collector T > PAR 17 - PAR 19 |
| Solar pump deactivation | Solar collector T (PAR 17 - PAR 19) - 1°C or Tank T ≥ PAR 18 + 1°C or Solar collector T > PAR 17 (reactivates with solar collector T < PAR17 - 1°C) |

With parameter 19=0, the solar collector cooling function is deactivated; the following conditions remain active:

$$\text{Solar collector T} > \text{PAR17} \Rightarrow \text{Solar pump off}$$

$$\text{Solar collector T} < \text{PAR17} - 1^\circ\text{C} \Rightarrow \text{Solar pump on}$$

- **Cold solar manifold recognition function.** The board will disable the solar pump (present only with return probe) when:
Solar collector T- solar collector return T < PAR 21

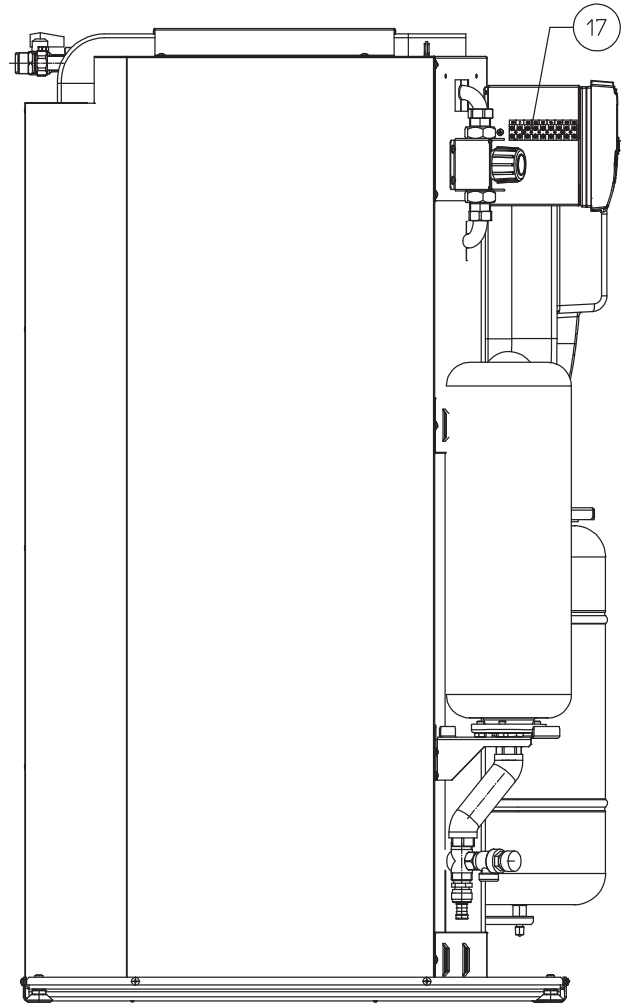
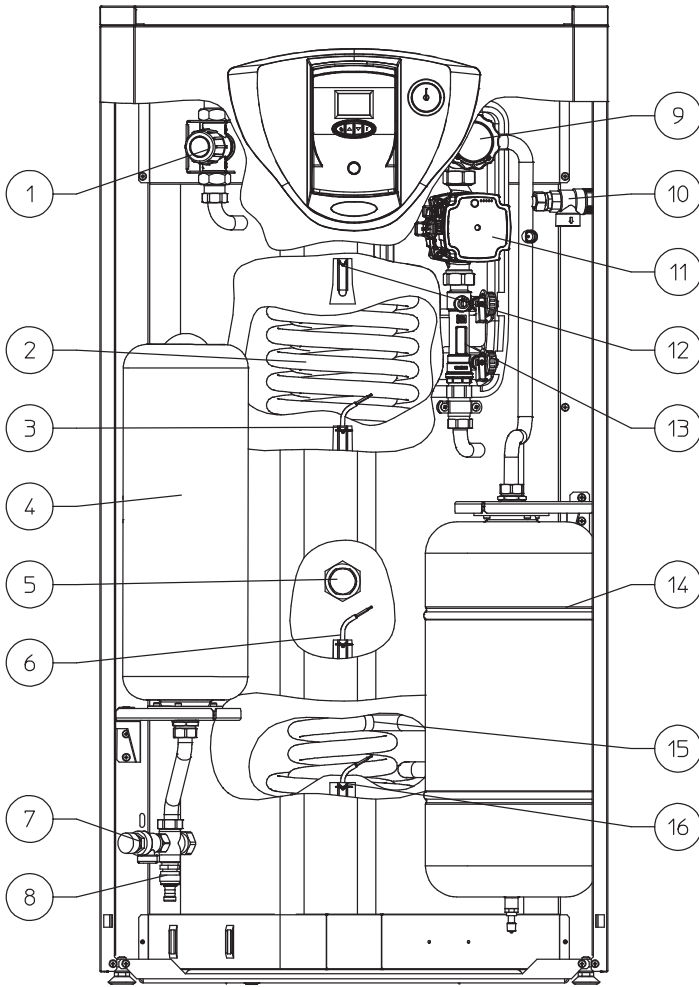
- **Solar manifold anti-freeze function.** The Solar Pump activates when:

$$\text{Solar collector T} < \text{PAR 23}$$

The board will not deactivate the solar pump until:

$$\text{Solar collector T} > \text{PAR 23} + 1^\circ\text{C}$$

1.16 MAIN COMPONENTS.



Key:

- 1 - Domestic hot water circuit mixing valve
- 2 - Stainless steel coil for storage tank
- 3 - Domestic hot water probe
- 4 - D.H.W. expansion vessel
- 5 - Magnesium anode
- 6 - Domestic hot water unabling probe
- 7 - 8 bar safety valve
- 8 - Storage tank unit draining valve
- 9 - Shut-off valve with thermometer

- 10 - 6 bar safety valve
- 11 - Solar pump
- 12 - Thermometer probe
- 13 - Flow meter
- 14 - Solar expansion vessel
- 15 - Stainless steel coil that can be coupled to solar panels
- 16 - Solar panel probe
- 17 - Storage tank electric connections terminal board

1.17 KITS AVAILABLE ON REQUEST.

- Recirculation kit (on request). The storage tank unit is prepared for application of the pump kit. Immergas supplies a series of fittings and attachments that allow connection between the storage tank unit and domestic hot water system. The pump kit attachment is also envisioned on the template.

- Electronic anode kit (on request). Direct current is made to circulate between the device and the tank to be protected via a special titanium anode. Use the free fitting on the storage tank upper flange for installation of the anode.

The above-mentioned kits are supplied complete with instructions for assembly and use.

2 USE AND MAINTENANCE INSTRUCTIONS

2.1 CLEANING AND MAINTENANCE.

Attention: to preserve integrity of the storage tank unit and keep the safety features, performance and reliability, which distinguish it, unchanged over time, you must at least execute maintenance operations on a yearly basis in compliance with what is stated in the relative point at “annual check and maintenance of the appliance”, in compliance with national, regional, or local standards in force. Annual maintenance is essential to validate the Immergas warranty. We recommend stipulating a yearly cleaning and maintenance contract with an authorised local firm.

2.2 EMPTYING THE STORAGE TANK UNIT.

To drain the storage tank, use the special draining valve in the lower part of the storage tank (Fig. 15 part. 8). Before draining, ensure that the DHW inlet valve is closed.

2.3 CLEANING THE CASE.

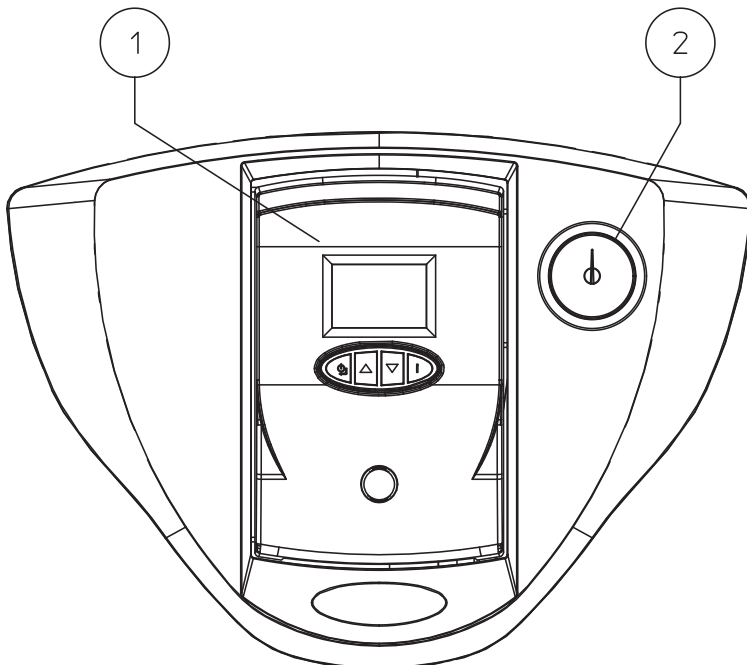
Use damp cloths and neutral detergent to clean the storage tank casing. Never use abrasive or powder detergents.

2.4 DECOMMISSIONING.

In the event of decommissioning the storage tank, contact an authorised company for the relative operations, among other things making sure that water supply is disconnected.

At the end of its service life the appliance must not be disposed of like normal household waste nor abandoned in the environment, but must be removed by a professionally authorised company. Contact the manufacturer for disposal instructions.

2.5 CONTROL PANEL.



Key:

- 1 - Solar control unit
- 2 - Solar manometer

3 CHECKS AND MAINTENANCE

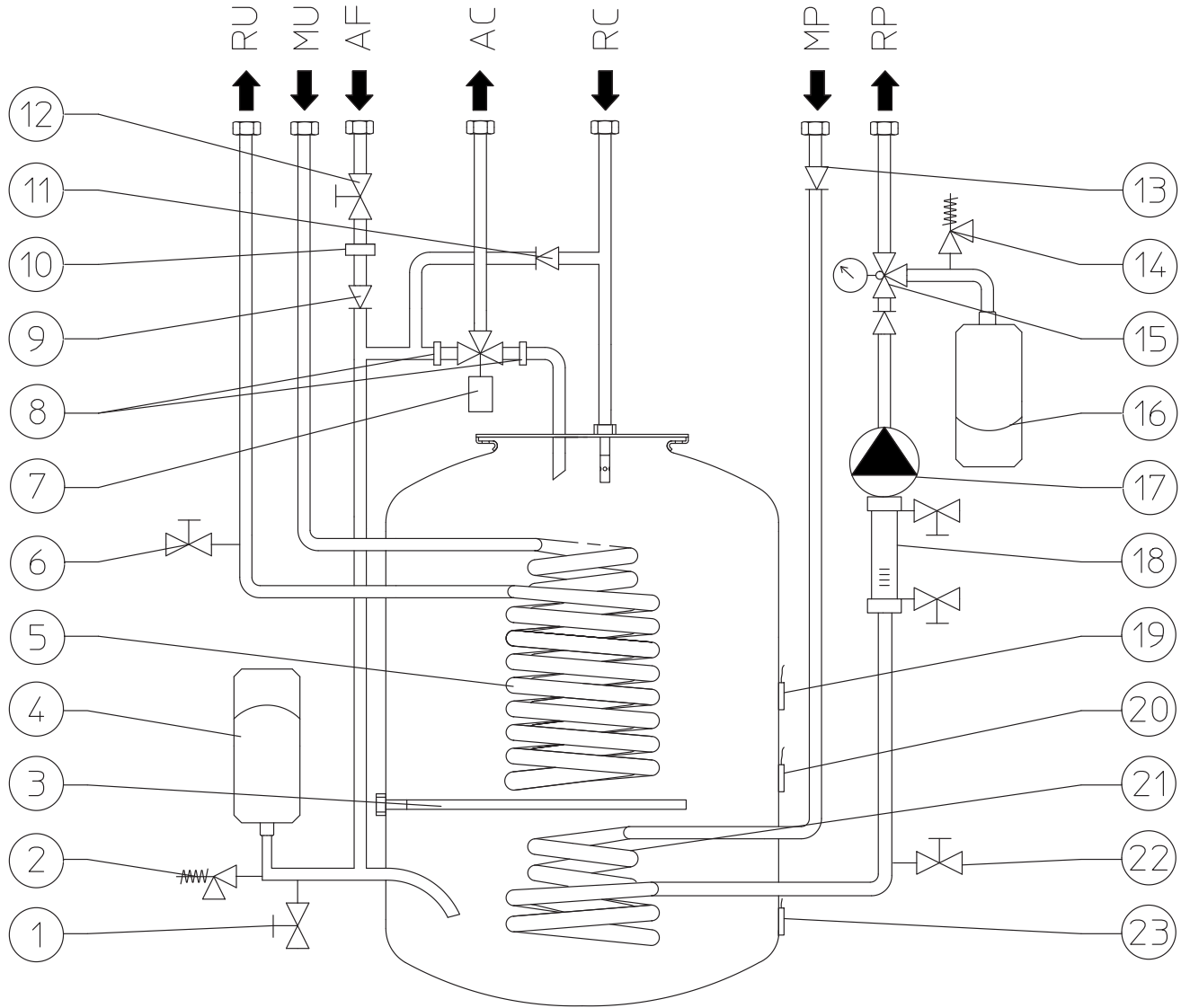
3.1 HYDRAULIC DIAGRAM.

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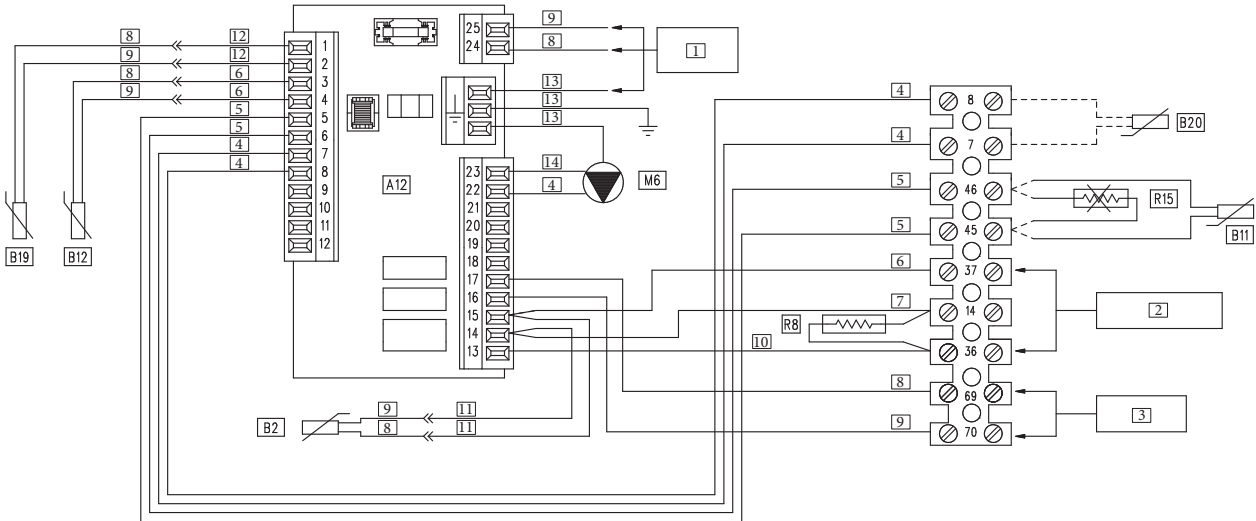
TECHNICAL DATA



Key:

- | | |
|---|---|
| 1 - Storage tank unit draining valve | 17 - Solar pump |
| 2 - 8 bar safety valve | 18 - Flow meter |
| 3 - Magnesium anode | 19 - Domestic hot water probe |
| 4 - D.H.W. expansion vessel | 20 - Domestic hot water unabling probe |
| 5 - Stainless steel coil for storage tank | 21 - Stainless steel coil that can be coupled to solar panels |
| 6 - System draining valve | 22 - Solar system draining valve |
| 7 - Domestic hot water circuit mixing valve | 23 - Solar panel probe |
| 8 - Mixing valve filter | |
| 9 - One-way valve (OV 20) | AC - Domestic hot water outlet |
| 10 - Cold water inlet filter | RC - Recirculation (Optional) |
| 11 - One-way valve (OV 15) (Optional) | AF - Domestic cold water inlet |
| 12 - Cold water inlet cock | MU- Flow to boiler unit |
| 13 - One-way solar valve | RU - Return from storage tank unit |
| 14 - 6 bar safety valve | MP - Flow from solar panels |
| 15 - Shut-off valve with thermometer | RP - Return to solar panels |
| 16 - Solar expansion vessel | |

3.2 WIRING DIAGRAM.



Key:

- | | |
|---|------------------------------------|
| A12- Solar management control unit | 1 - Supply voltage 230 Vac 50 Hz |
| B2 - Domestic hot water probe (NTC) | 2 - Boiler clamps 36 and 37 |
| B11 - Solar manifold probe (PT1000) | 3 - Domestic hot water integration |
| B12 - Solar storage tank probe (NTC) | 4 - Black |
| B19 - DHW inhibition probe (NTC) | 5 - White |
| B20 - Solar manifold return probe (PT1000) (Optional) | 6 - Green |
| M6 - Solar circuit circulator | 7 - Orange |
| R8 - Storage tank function unabling resistance | 8 - Blue |
| R15 - Solar manifold probe unabling resistance | 9 - Brown |
| | 10 - Purple |
| | 11 - Red |
| | 12 - Yellow |
| | 13 - Yellow/green |
| | 14 - Grey |

The solar collector probe (B11) must be connected to clamps 45 and 46 eliminating the resistance R15.

3.3 YEARLY APPLIANCE CHECK AND MAINTENANCE.

The following checks and maintenance should be performed at least once a year.

- Check for water leaks or oxidation from/on the fittings;
- Check that the safety and control devices have not been tampered with and in particular, the DHW regulation NTC probe;
- Check the integrity of the storage tank Magnesium anode;
- Check the state of the internal coil;
- Check for any slurry deposits on the bottom of the storage tank.

3.4 REMOVING THE CASING.

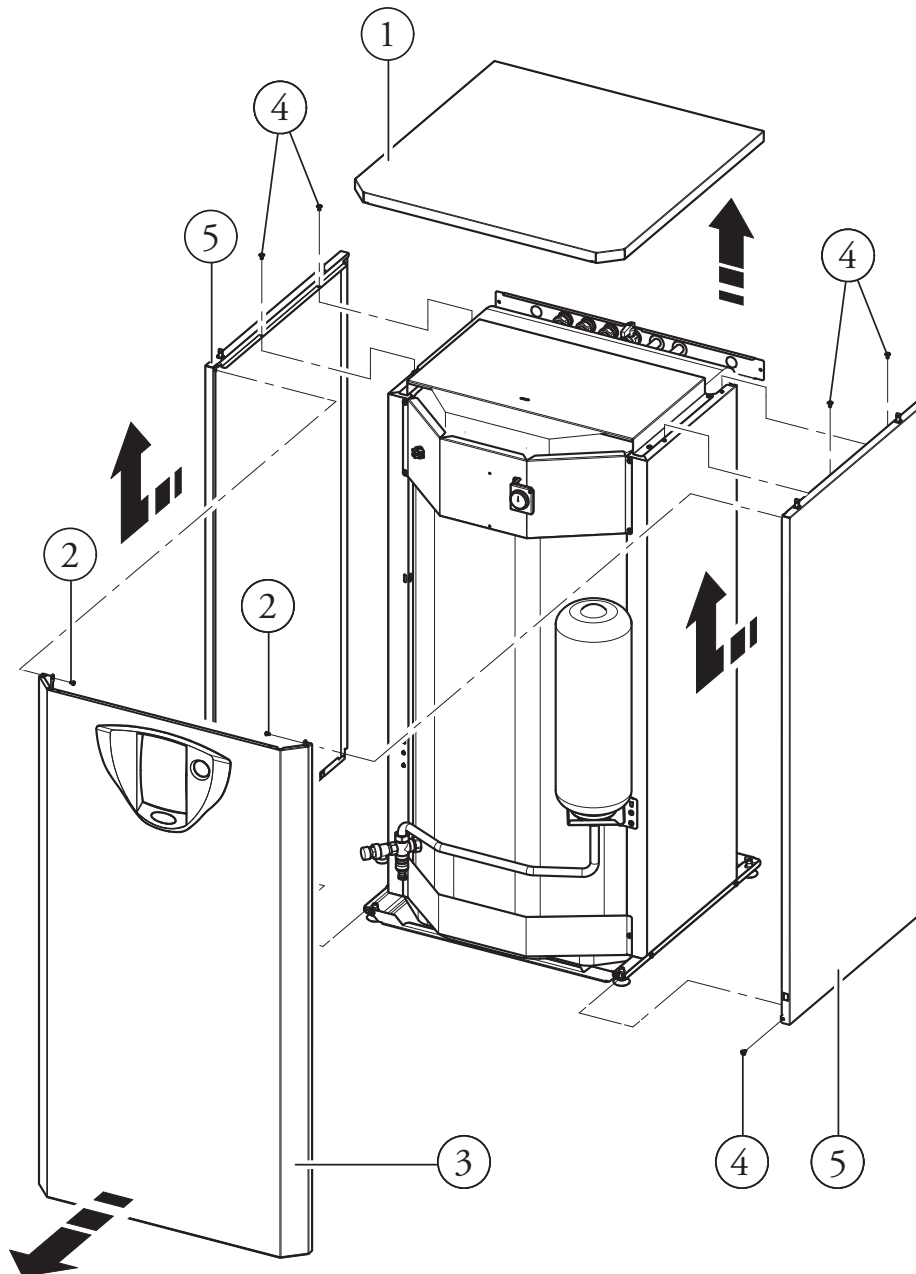
To facilitate storage tank maintenance, the casing can be completely removed as follows:

IMPORTANT NOTE: the procedure for removing the casing is the same for all storage tank unit models.

- remove the lid (1) by pulling it upwards;
- undo the screws (2) and pull the front panel outwards (3);
- undo the screws (4) of the sides (5) on the top and in the lower part of the sides themselves. After having released them from the screws, they can be removed by pulling them forward and then upwards.

3.5 REPLACING THE ANODE.

If it is necessary to replace the magnesium anode (Fig. 15 det. 5) present in the storage tank, replace the latter with another having the same characteristics.



4 TECHNICAL SPECIFICATIONS.

| | | |
|--|--------------------------|------------------|
| Storage tank useful capacity | l | 199 |
| Domestic hot water side maximum pressure | bar | 8 |
| DHW side maximum temperature | °C | 99 |
| Domestic hot water expansion vessel total volume | l | 4,3 |
| Dispersions | kW/24h | 1,87 |
| Psbsol | W/K | 1,73 |
| Coil thickness | mm | 0,8 |
| Solar coil length | mm | 6500 |
| CH coil length | mm | 10700 |
| Solar coil exchange surface | m ² | 0,41 |
| CH coil exchange surface | m ² | 0,67 |
| Solar coil capacity | l | 1,73 |
| CH coil capacity | l | 2,84 |
| CH/solar primary fluid flow rate (coil) | l/h | 1140 / 1140 |
| Coil head loss at 1000 l/h | kPa (m H ₂ O) | 12,3 (1,25) |
| Central heating side maximum pressure | bar | 6 |
| Central heating side maximum temperature | °C | 90 |
| Solar heat exchange maximum output | kW | 23,8 |
| CH heat exchange maximum output | kW | 26,5 |
| Full weight | kg | 310,67 |
| Empty weight | kg | 106,1 |
| Total water content | l | 204,57 |
| Solar circuit maximum pressure | bar | 6 |
| Total volume solar expansion vessel | l | 13,46 |
| Solar expansion vessel pre-charge | bar | 2,5 |
| Content of glycoled water in the solar circuit | l | 3,7 |
| Power absorbed by the solar pump | W | 36 |
| EEI | - | ≤ 0,20 - Part. 3 |
| Equipment electrical system protection | - | IPX0D |
| Max. solar pump head | m c.a. | 6 |
| Solar circuit maximum peak temperature | °C | 150 |
| Solar circuit maximum continuous working temperature | °C | 130 |

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TECHNICAL DATA

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TECHNICAL DATA

4.1 PRODUCT SHEET (IN COMPLIANCE WITH REGULATION 812/2013).

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IMMERGAS UB INOX SOLAR 200 V2

A+
A
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78_W

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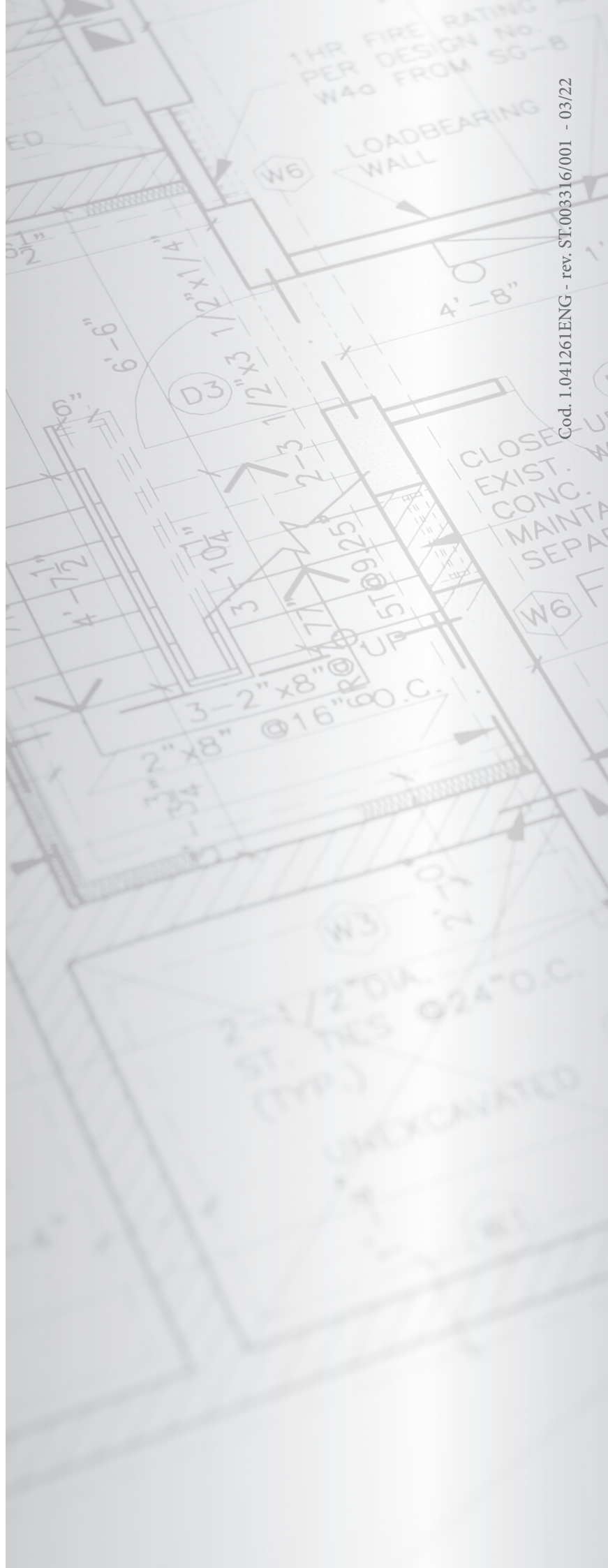


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