

TABLE OF CONTENTS

1. IMPORTANT SAFETY INSTRUCTIONS	90
1.1 AVOIDING THE RISK TO CHILDREN	90
1.2 AVOIDING THE RISK OF ELECTROCUTION	90
1.3 RISK OF INJURY	91
1.4 RISKS DUE TO UNCLEAN WATER AND CHEMICALS MISUSE	92
2. IMPORTANT SPA INSTRUCTIONS	92
3. INSTALLATION AND START-UP INSTRUCTIONS	93
3.1 SITE PREPARATION	93
3.2 INSTALLING YOUR IDROMAS	94
3.3 FILLING	94
3.4 CONNECTING YOUR IDROMAS	95
3.5 START-UP	95
4. CONTROL PANEL	96
5. OPERATING INSTRUCTIONS	96
5.1 SWITCHING ON/OFF	96
5.2 SPA TEMPERATURE SETTING	97
5.3 AUTOMATIC HEATING	98
5.4 JET CONTROL	98
5.5 PROGRAMMING JET TIMING	99
5.6 SPA LIGHT	99
5.7 AUTOMATIC FILTRATION	100
5.8 PROGRAMMING FILTRATION CYCLES	100
6. CONTROL PANEL ERROR MESSAGES	102
6.1 TROUBLESHOOTING	105
7. JETS (IDROMAS VIEW)	108

8. IDROMAS COVER	109
9. SPA CARE AND MAINTENANCE	111
9.1 GENERAL INFORMATION	111
9.2 CHANGING THE WATER	111
9.3 DRAINING YOUR IDROMAS	111
9.4 FILTER SYSTEM/FILTER CLEANING	113
9.5 CARE OF THE BOTTOM OF YOUR SPA	114
9.6 CARE OF THE INTERNAL/EXTERNAL COVERING	116
9.7 CARE OF THE COVER	116
9.8 VACATION CARE INSTRUCTIONS	116
9.9 PREVENTION OF FREEZING	117
10. WATER QUALITY AND MAINTENANCE	117
10.1 GENERAL INFORMATION	118
10.2 METHODS FOR TESTING THE SPA WATER	118
10.3 BASIC CHEMICAL SAFETY	119
10.4 SUGGESTED SANITIZATION METHODS	119
10.5 RECOMMENDED CHEMICAL LEVELS	120
10.6 SHOCK TREATMENT	121
10.7 IDROMAS LAGHETTO® AROMASPA ESSENCES	121
11. IDROMAS SPA CHARACTERISTICS	122
11.1 TECHNICAL CHARACTERISTICS	122
11.2 SYSTEM COMPONENTS	123
11.3 SYSTEM DESCRIPTION	124
11.4 ELECTRICAL REQUIREMENTS	124
11.5 MOTHERBOARD	126
12. WARRANTY	128

1. IMPORTANT SAFETY INSTRUCTIONS

- ▶ **READ AND FOLLOW ALL INSTRUCTIONS.**
- ▶ This leaflet contains important SPA information, and we strongly recommend you to read and follow them.

1.1 AVOIDING THE RISK TO CHILDREN

- ▶ **DANGER: RISK OF CHILD DROWNING.** Extreme caution must be exercised to prevent unauthorized access by children. To avoid accidents, ensure that children cannot use a SPA unless they are supervised at all times.
- ▶ **WARNING:** To reduce the risk of injury, always use and lock the cover when the SPA is not in use.
- ▶ **DON'T** allow children to climb onto the Idromas Laghetto® cover.
- ▶ **DON'T** permit children to use the SPA unless they are closely supervised at all times.
- ▶ To reduce the risk of injury, lower water temperatures are recommended for young children. Children are especially sensitive to hot water. Temperatures not exceeding 30 Centigrade degrees are recommended for children.
- ▶ Test the water temperature with your hand before allowing children to enter the SPA to be sure that it is comfortable.

1.2 AVOIDING THE RISK OF ELECTROCUTION

- ▶ When using electrical apparels it is necessary to follow safety rules:
 - a) Connect your Idromas Laghetto® only to a grounded source.
 - b) **WARNING:** to reduce the risk of **electrical shock**, replace a damaged cord immediately.
 - c) **WARNING:** do not burn the electric cable of your Idromas Laghetto®.
 - d) **WARNING:** do not cut the power cord (risk of death or serious personal injury).
 - e) **WARNING:** in case of malfunctioning different from those described in the TROUBLESHOOTING section of this MANUAL immediately disconnect the power source.
 - f) **WARNING:** disconnect the SPA from the power supply before servicing the electrical components and pumps. Servicing this part is strictly reserved to authorized qualified technicians. **Any unauthorized opening of the electrical control box by the SPA owner will void the WARRANTY.**
 - g) **DANGER: RISK OF ELECTRICAL SHOCK(1):** install your Idromas Laghetto® at least 1,5 metres from all metal surfaces.
 - h) **DANGER: RISK OF ELECTRICAL SHOCK(2):** do not permit any electrical appliances, such as a light, telephone, radio or television within 1,5 metres of your Idromas Laghetto®.

IMPORTANT: Your Idromas Laghetto® must be correctly connected to the power supply. It must be permanently connected to a dedicated current-operated (earth leakage) circuit breaker – use a licensed electrical contractor. **Do not use any extension cord to connect the SPA to its power source.** (The cord may not be properly grounded). For proper functioning your Idromas Laghetto® must be connected to a dedicated 16 Amp power supply.

1.3 RISK OF INJURY

- ▶ To reduce the risk of physical injuries:
 - a) The water in your SPA **should never exceed 40 Centigrade degrees** (40 °C). Water temperatures between 30 and 40 Centigrade degrees are considered safe for a healthy adult. Lower water temperatures are recommended for extended use exceeding 10-15 minutes and for young children.
 - b) Pregnant or possibly pregnant women should limit SPA water temperatures to 30 Centigrade degrees (30 °C). Failure to do so may result in permanent injury to your baby. Pregnant women should consult a physician before using SPA.
 - c) The use of drugs, alcohol, or medication before or during SPA use may lead to unconsciousness with the possibility of drowning.
 - d) Persons using medications should consult a physician before using a SPA; some medications may cause a user to become drowsy, while other medication may affect heart rate, blood pressure, and circulation.
 - e) Persons taking medications which induce drowsiness, such as tranquilizers, antihistamines or anticoagulants **SHOULD NOT use the SPA.**
 - f) Persons suffering from obesity, or with a medical history of heart disease, low or high blood pressure, circulatory system problems, or diabetes should consult a physician before using SPA.
 - g) **AVOIDING THE RISK OF HYPERTHERMIA:** Prolonged immersion in hot water can result in HYPERTHERMIA, a dangerous condition which occurs when the internal temperature of the body reaches a level above normal (37° C). The symptoms of hyperthermia include unawareness of impending hazard, failure to perceive heat, failure to recognize the need to exit the SPA, physical inability to exit the SPA, foetus damage in pregnant women, and unconsciousness resulting in a danger of drowning.
WARNING: the use of ALCOHOL, DRUGS, or MEDICATION can greatly increase the risk of fatal HYPERTHERMIA.
 - h) **WARNING:** there is a danger of slipping and falling. Remember that wet surfaces can be very slippery. Take care when entering or exiting your Idromas Laghetto®.
 - i) **IMPORTANT:** DO NOT seat on the skimmer and DO NOT close the floating head up.

IMPORTANT: Your Idromas is provided with a main control panel allowing you to set the ideal temperature; to avoid the risk of skin burns, we recommend to **test the water with your hand before entering the SPA to be sure it's comfortable.**

1.4 RISKS DUE TO UNCLEAN WATER AND CHEMICALS MISUSE

- a) Keep the water clean and sanitized with correct chemical care, and routine cleaning. Warm water is an ideal place for bacteria and viruses to thrive. It is your sole responsibility to maintain proper water sanitation with chemicals recommended for Idromas Laghetto®.
- b) When using chemicals pay attention to the label and follow all the instructions on it. Chemicals protect you and your SPA, but they can be dangerous if misused.
- c) Never add water to chemicals.
- d) Note: chemicals (except **HALOCYDE TABS®** or **CHLOR-ACTIVE GRANULAR®**) have always to be previously dissolved in hot water in the middle of the spa (**not in the skimmer**). We recommend you to make this operation with the jets off and to pay attention in order to avoid splashes.

IMPORTANT: Water chemistry should be properly maintained as described in this MANUAL to prevent skin irritation.

Please make reference to the **WATER QUALITY AND MAINTENANCE** section of this manual for detailed information about water treatment and sanitation.

2. IMPORTANT SPA INSTRUCTIONS

- ▶ The following contains important information concerning your Idromas Laghetto®. We strongly encourage you to read and apply them.
- ▶ **DO:**
 - Follow the important safety instructions specified in this MANUAL.
 - Always use and lock the cover when the SPA is not in use, whether it is empty or full.
 - Follow the **SPA CARE AND MAINTENANCE** recommendations stated in this manual. Any operation not in accordance with this manual will void the WARRANTY of your Idromas Laghetto®.
 - Use only approved accessories and recommended SPA chemicals and cleaners.
 - Install your Idromas Laghetto® only on a solid floor capable of supporting its weight when filled. In doubt contact an architect or an engineer to verify that the location you choose can support the weight of your SPA before filling with water (see SPA CHARACTERISTICS).

- Don't open the electrical control box. Any unauthorized opening of the electrical control box by the SPA owner will void the WARRANTY.
- In case of malfunctioning follow the instructions stated in the TROUBLESHOOTING section of this manual. If you are unable to solve the problem do not hesitate to contact your authorized Idromas dealer.
- Follow the instruction specified in the FILLING section of this manual. An insufficient water level can cause damage to electrical pumps and as a consequence void the warranty.

SAVE THIS MANUAL

3. INSTALLATION AND START UP INSTRUCTIONS

3.1 SITE PREPARATION

- ▶ Put your Idromas Laghetto® on a clean, structurally sound, level surface. Make certain that the location you choose can support the weight of your filled SPA and of the persons using it (max. 4 seats).
- ▶ To avoid damage to the bottom of the SPA make sure that there are no sharp objects on the surface you chose.
- ▶ Your Idromas Laghetto® must be connected to the power supply correctly. It must be permanently connected to a dedicated current-operated (earth leakage) circuit breaker – use a licensed electrical contractor. **Do not use any extension cord to connect the SPA to its power source.** (The cord may not be properly grounded).
- ▶ For a proper functioning your Idromas Laghetto® must be connected to a dedicated 16 Ampere power supply.
- ▶ Idromas Laghetto® is designed to be installed both indoors and outdoors. In case of indoor installation pay attention to the floor near the SPA which can be wet and slippery:
 - during SPA filling
 - by splashing
 - by increasing humidity (if proper ventilation is not provided)
 - by an exceeding filling of the SPA
 - during SPA emptying
 - by accidental water leakage

IMPORTANT: It is common for condensation to form under your Idromas Laghetto® due to the warm water inside the SPA and the relatively cool surface of the floor and/or improper ventilation of the room. This may produce mildew causing structural damage to the surface chosen for the installation. All the above mentioned damages may result when moving your SPA from the original position.

WARNING: Your Idromas Laghetto® has to be installed on a clean, level, structurally sound surface, constructed of materials that can withstand getting wet; make sure that the surface you chose is strong enough to support the SPA filled with water and people (max. 4 seats). In case of doubt, please consult an engineer or architect to verify your floor rating before filling the SPA. See specification on IDROMAS SPA CHARACTERISTICS section of this manual.

IMPORTANT: It is the sole responsibility of the SPA owner to meet the above installation conditions and to follow all safety and warning instructions. The manufacturer is not responsible for any damage resulting from water spillage, humidity or structural loading, or for any imprudent use of the SPA.

IMPORTANT: Idromas Laghetto® has been designed to be **installed above ground. Do not install under ground!**

3.2 INSTALLING YOUR IDROMAS

- ▶ Remove your Idromas Laghetto® from its packing (follow the instructions on the box). This operation requires at least two people to move the SPA, because of its weight and its size (see IDROMAS SPA CHARACTERISTICS section of this manual).
- ▶ Once you have chosen the site for the installation, make sure that doorways or narrow spaces allow easy passage of the SPA, remove any obstacles in its path (see IDROMAS SPA CHARACTERISTICS section of this manual for Idromas Laghetto® overall dimensions).
- ▶ Gently place your SPA in the chosen site, paying attention to the suggestions in SITE PREPARATION section.

IMPORTANT: make the bottom of the SPA is flat on the ground (**concave part up**).

- ▶ Set the main control panel in a position you can see and reach better.

IMPORTANT: install at least 50 cm from walls so as to leave access for SPA care and maintenance.

3.3 FILLING

- ▶ Fill the SPA up to 50 cm deep. Be careful to maintain this level in order to allow your SPA to function efficiently when used by 1 up to 4 people together (people of about 70 kg each).

IMPORTANT: Before filling the SPA, **check there are no wrinkles in the liner.** It is possible some wrinkles may form during the positioning of your Idromas Laghetto®. In this case smooth them out with your hand towards the opposite side of the SPA. Next, add 5 cm of water and carefully repeat the above operation.

WARNING: once the SPA is filled it is not possible to eliminate wrinkles. It will be necessary to empty and refill it.

IMPORTANT: **Do not fill the SPA with hot water (water temperature higher than 40 °C).** This could alter the thermostat functioning of your Idromas Laghetto.

IMPORTANT: Every single Idromas is tested in our factory, so you may happen to find some **water residues** into the hydraulic system or on the bottom of the SPA.

3.4 CONNECT YOUR IDROMAS

- ▶ Once the SPA is filled connect it to the power supply (plug the SPA power cord into a standard grounded outlet). Idromas must be permanently connected to a dedicated current-operated (earth leakage) circuit breaker. Do not use any extension cord to connect the SPA to its power source. **Leave this operation to a licensed electrician.**
- ▶ Be careful not to put the power cord in front of the main control panel or in any other position hampering your movements near the SPA.

WARNING: If you prefer to keep the power cord on the floor be careful not to stumble over it.

WARNING: **Never connect power to an empty SPA.**

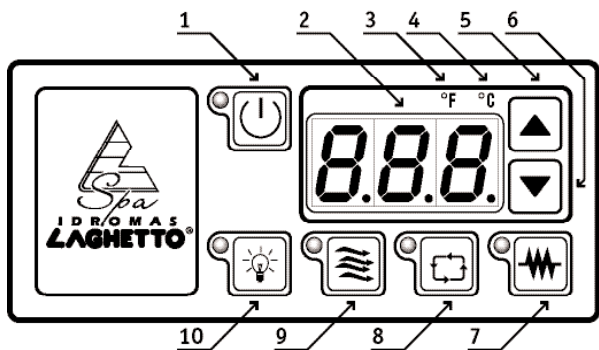
3.5 START-UP

- ▶ If you have followed the above mentioned instructions, your Idromas Laghetto® is ready to be used.
- ▶ Now read carefully the operating instructions for main control panel, to familiarize yourself with the electronic functioning of your SPA.

4. CONTROL PANEL

- ▶ Your Idromas is provided with a soft-touch main control panel, allowing you to easily operate all the functions.
- ▶ SPASIDE CONTROL FUNCTIONS:
 - SWITCHING ON/OFF
 - SPA TEMPERATURE SETTING
 - AUTOMATIC HEATING
 - JET CONTROL
 - PROGRAMMING JET CYCLE
 - SPA LIGHT
 - AUTOMATIC FILTRATION
 - PROGRAMMING FILTER CYCLES

CONTROL PANEL



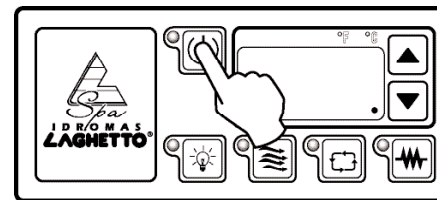
Spaside control keys:

- 1 Switch ON/OFF
- 2 3 digit LED display
- 3 Temperature icon for °F
- 4 Temperature icon for °C
- 5 Up Arrow key
- 6 Down Arrow Key
- 7 Heater key
- 8 Filter Key
- 9 Pump Key
- 10 Light Key

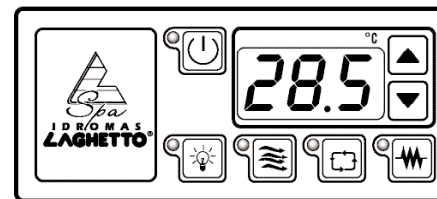
5. OPERATING INSTRUCTIONS

5.1 SWITCHING ON/OFF

- ▶ When the SPA is OFF you will find a light blinking in the left part of your display (2); this means that Idromas Laghetto® is correctly wired to the power supply and is in STAND-BY mode, ready to operate. Switch on the SPA by pushing ON/OFF key (1).



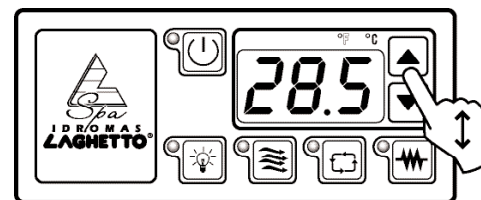
- ▶ The SPA indicator light in the left side of the switch ON/OFF (1) is illuminated and on your display you can read the temperature (in °C) of the water. (**Attention:** be careful to fill your SPA with water before pushing the ON/OFF key).



- ▶ At this point your Idromas Laghetto® is ready to operate.

5.2 SPA TEMPERATURE SETTING

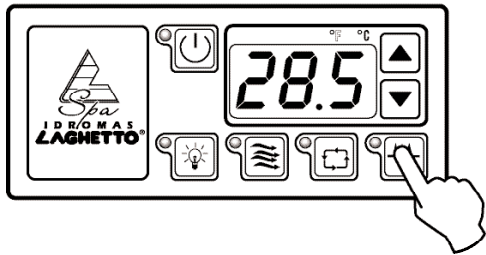
- ▶ You can set the water temperature of your Idromas by pushing, when your SPA is ON, the Up Arrow key (5) or the Down Arrow key (6). Push once the Up Arrow key (5) or the Down Arrow key (6) the control panel will display the temperature you want to set up, and the temperature icon (3) or (4), according to the scale programmed, will start to flash.



- ▶ By pushing the Up Arrow key (5) or the Down Arrow key (6) you can modify the temperature.

- ▶ At the end of this operation, the desired temperature will be automatically saved after 5 seconds or when you push the Heater key (7).
- ▶ The temperature range of your SPA is from 15°C to 40°C.
- ▶ Icons (3) and (4) show the temperature scale programmed; there are three possible icon status:
 - **Icon on:** the figure shown is the actual temperature of your SPA.
 - **Icon flashing:** the figure shown is the temperature you want to obtain.
 - **Icon off:** the figure shown is not a temperature.

5.3 AUTOMATIC HEATING

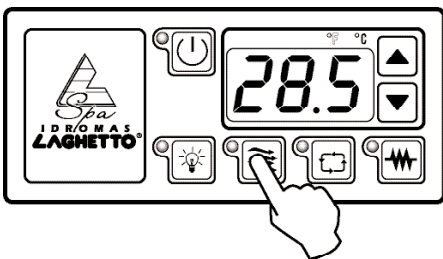


- ▶ You can activate the automatic heater of your Idromas Laghetto® by pushing the Heater key (7), the indicator light on the left side of the Heater key will be ON and the control panel will automatically start the circulation pump and heater.

- ▶ The indicator light shows the status of the heater, there are three possible status:
 - **Indicator light OFF:** heater disconnected.
 - **Indicator light ON:** heater on. During this phase the SPA is regulating the temperature you have chosen.
 - **Indicator light flashing:** heater on, with low power due to inadequate thermic exchange. The electronic control panel of your Idromas comes with an auto-diagnostic system which can specify a possible malfunction.

5.4 JET CONTROL

- ▶ The Pump Key (9) allows you to choose how your Idromas Jets work.
- ▶ The indicator light on the left side of the Pump Key (9) shows the status of the pump, there are three possible status:
 - **Indicator light OFF:** jets OFF.
 - **Indicator light flashing:** jets ON, 2 places with air and 2 places without air.
 - **Indicator light ON:** jets ON, all 4 places with air.



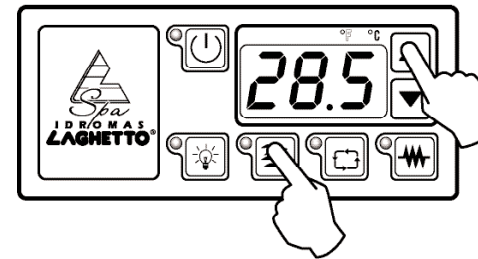
- ▶ At each push of the Pump Key (9) you can change the status of your SPA:

- **1° Status:** seat 1 and seat 2 give air, seat 3 and seat 4 give air and water (see **IDROMAS VIEW** in JETS section of this manual).
- **2° Status:** all 4 seats give air and water.

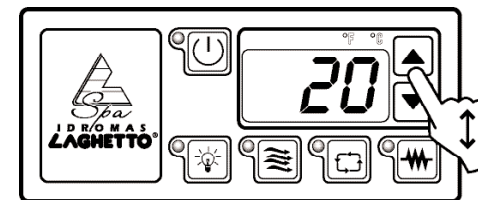
- ▶ Jets Pump is automatically switched off after the programmed period of time (read **PROGRAMMING JETS LENGTH**).

ATTENTION: the status listed above require **that all the jets are correctly opened** (verify the correct opening of all the jets by turning the face plate counter clock wise as far as possible).

5.5 PROGRAMMING JET TIMING

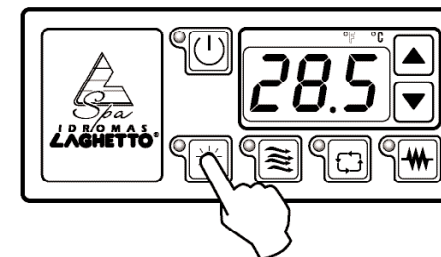


- ▶ User can program the SPA jets time. The times range varies from a minimum of 1 minute up to 20 minutes.
- ▶ You can program the function by pushing together the Pump Key (9) and the Up Arrow key (5) or the Down Arrow Key (6).



- ▶ The control panel display shows the time programmed, by pressing the Up Arrow key (5) or the Down Arrow Key (6) you can vary this figure. After a 5 seconds pause the new value is automatically saved in the Idromas control panel memory.

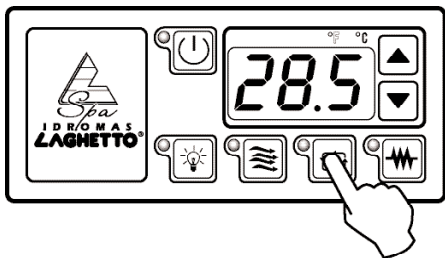
5.6 SPA LIGHT



- ▶ The Light Key (10) is used to turn the light ON or OFF; the first touch of the Light Key (10) turns the light ON, the second turns the light OFF. The indicator light on the left side of the Light Key (10) shows the status of the spotlight.

- ▶ **N.B.:** the spotlight is automatically turned off when the SPA is not in use for more than 2 hours.

5.7 AUTOMATIC FILTRATION



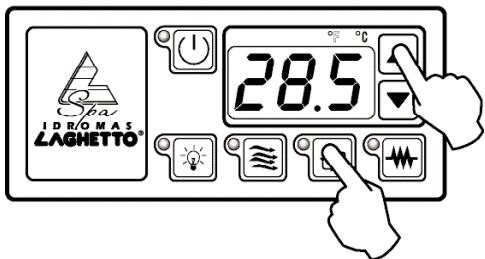
▶ Your Idromas is equipped with an automatic filtering system, the Filter Key (8) switches ON/OFF the automatic system.

- ▶ The indicator light shows the status of the filtering system, there are three possible status:
 - **Indicator light OFF:** automatic filtration not in use.
 - **Indicator light ON:** automatic filtration operating, pump functioning.
 - **Indicator light flashing:** automatic filtration operating, pump not in use. This is the stand-by mode between 2 programmed filtration cycles.

5.8 PROGRAMMING FILTRATION CYCLES

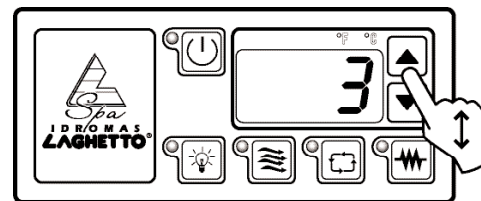
- ▶ The filtering function is programmable according to the siting of your Idromas and to your preference; you can program the number of the daily filter cycles and the length of each cycle.

NUMBER OF FILTERING CYCLES



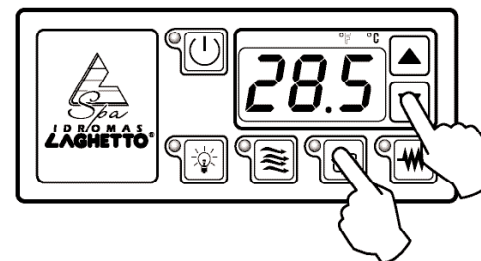
▶ You can program the number of cycles pressing together filtering Key (8) and Up Arrow Key (5).

- ▶ Release the keys and adjust the number of cycles per day, from 1 to 8 cycles, pressing the Up or Down Arrow Key (5) (6).



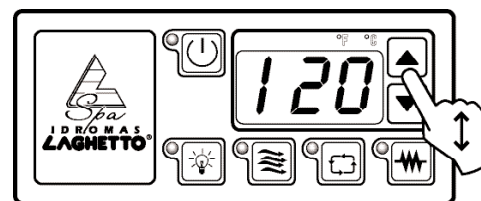
▶ After a 5 seconds pause the new operating mode is saved.

LENGTH OF CYCLES



▶ To adjust the length of each cycle press together Filter Key (8) and Down Arrow Key (6).

- ▶ Press Up (5) or Down Arrow Key (6) until the desired time is obtained. You can program the SPA to filter 30, 60, 90, 120, 150, 180 minutes per cycle.



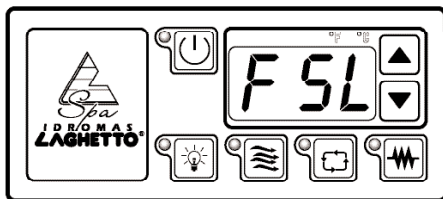
▶ After a 5 seconds pause the new operating mode is saved.

IMPORTANT: All the settings are saved in a memory; in the case of a power failure the settings are NOT cancelled.

IMPORTANT: for a correct WATER AND MAINTENANCE **do not reduce the time of filtration cycles to less than 2 hours and run the filtration cycles at least 4 times per day.** In case of an intense use of the SPA, run the pump continuously (24/24 H). The power consumption of the filtering pump is of 50 W only.

6. CONTROL PANEL ERROR MESSAGES

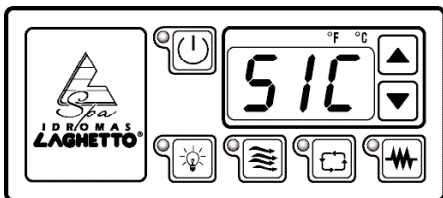
▶ **FLOW SENSOR LOW [FSL]**



Your SPA has a safety device checking the range of the heating system. If the water flow is not sufficient you will see on the display the alarm message **Flow Sensor Low [FSL]**.

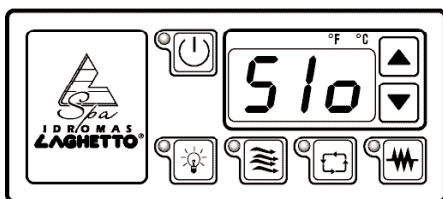
Check the cartridge filter is clean; switch the main control panel off and than on (Key 1) to start the normal function again.

▶ **SENSOR ONE CLOSED [S1C]**



If the sensor fails because of a short circuit, the message **Sensor one Closed [S1C]** will appear on the display.

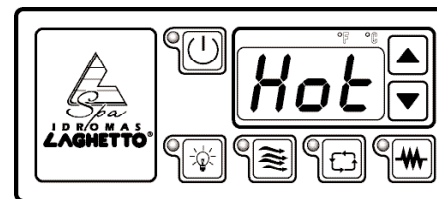
▶ **SENSOR ONE OPEN [S1o]**



If the sensor becomes disconnected, on the display you will read **Sensor one Open [S1o]**.

If a second heater is present, the messages for the protection sound failure will be [S2C] and [S2o].

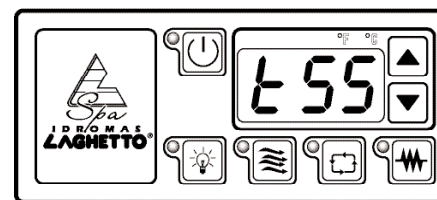
▶ **HOT TEMPERATURE ALARM [Hot]**



If the SPA water temperature exceeds the maximum allowed or the sensor fails, you will read on the display the message **Hot [Hot]**.

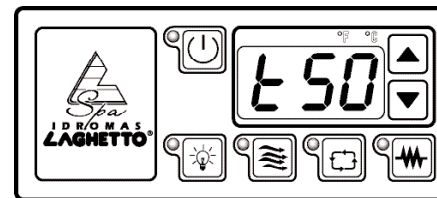
In this case the heater resistor will switch off for safety reasons. To restart Idromas you must first switch off the SPA from main supply.

▶ **TEMPERATURE SENSOR SHORT [TSS]**



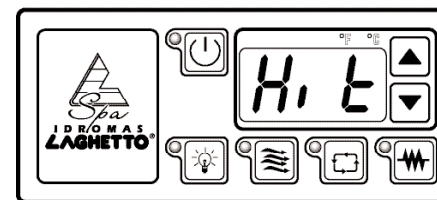
If the temperature sensor short-circuits you will see on the display the flashing message **Temperature Sensor Short [TSS]**.

▶ **TEMPERATURE SENSOR OPEN [tS0]**

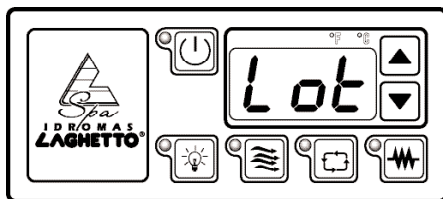


If the temperature sensor becomes disconnected, you will see on the display the flashing message **temperature Sensor Open [tS0]**.

▶ **HIGH-LOW LIMIT TEMPERATURE ALARM [Hit] [Lot]**



If the sensors read a temperature exceeding the High/Low Limit you will read on the display the message **High temperature [Hit]**



If the SPA water temperature is low (inferior to 7°C) you will read the message **Low temperature [Lot]**

IMPORTANT: If alarms are flashing the heater and its pump will be disconnected for safety reasons. **It is absolutely forbidden to bathe when alarm messages are indicated.**

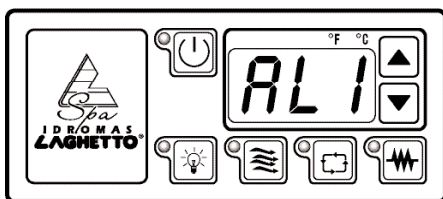
▶ FROST PROTECTION

The SPA has frost protection preventing damage to the hydraulic system when the air temperature falls below zero (0°C). This function automatically starts the hydromassage pump for 20 minutes when the message **[Lot]** appears (**ATTENTION:** the SPA must be switched on). The movement of water and the exchange of heat from the pump guarantee an antifreezing function.

▶ ICE ALARM [ICE]

If you try to switch on the SPA with frozen water (water temperature below 0°C) the outlets will be automatically disconnected and the display shows the message **ICE**.

▶ INSUFFICIENT FILTER FLOW ALARM [AL1]

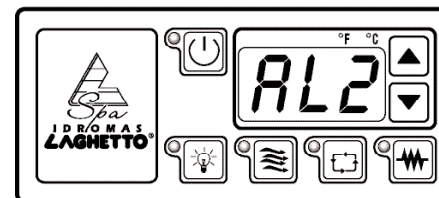


In case of insufficient filter flow, you will see on the display the message **[AL1]**.

The pump will switch off to prevent damage and all other functions will not operate.

Check the cartridge filter is clean; switch off and on the main control panel (Key 1) to reset the normal operating mode.

▶ HEATING SYSTEM MALFUNCTIONING ALARM [AL2]



The protection sensor will register any damage to the heater resistor and the display will show the message **[AL2]**.

The meaning of **[AL3]** is the same for the second heater (optional).

6.1 TROUBLESHOOTING

- ▶ Your Idromas Laghetto® has been designed and tested in our factory to assure you a long and troublefree use with the best reliability warranty. Occasionally you may experience some problems or anomalies which require the help of your authorized Idromas Dealer. The following table should help with most of the error messages (do not hesitate to contact your authorized Idromas Dealer when you are unable to resolve the problem).

IMPORTANT: NEVER open the pump compartment door of your SPA. **Any unauthorized opening will void the WARRANTY.**

- ▶ Idromas malfunctioning may be:

- 1) **Electronic troubles**, connected with the main control panel
- 2) **Operating troubles in general**

▶ **ELECTRONIC TROUBLES (MAIN CONTROL PANEL)**

ERROR MESSAGE	SOLUTION
Flow Sensor Low [FSL]	<ul style="list-style-type: none"> ▶ Clean the filter (SEE PARAGRAPH) Switch ON/OFF Key to reset the normal operating mode (if the pumps run the problem is resolved, otherwise contact your authorized dealer)
Sensor 1 Closed Alarm [S1C]	<ul style="list-style-type: none"> ▶ Switch ON/OFF Key to reset the normal operating mode If the SPA will not restart, please contact your authorized dealer
Protection Sensor disconnected alarm [S1o]	<ul style="list-style-type: none"> ▶ Switch ON/OFF Key to reset the normal operating mode If the SPA will not restart, please contact your authorized dealer
Hot temperature Alarm [Hot]	<ul style="list-style-type: none"> ▶ Switch ON/OFF Key to reset the normal operating mode If the SPA will not restart, please contact your authorized dealer
Temperature Sensor short-circuit [tSS]	<ul style="list-style-type: none"> ▶ Switch ON/OFF Key to reset the normal operating mode If the SPA will not restart, please contact your authorized dealer
Temperature Sensor Disconnected [tSO]	<ul style="list-style-type: none"> ▶ Switch ON/OFF Key to reset the normal operating mode If the SPA will not restart, please contact your authorized dealer
Off-Limits temperature Alarm [Hit] [Lot]	<ul style="list-style-type: none"> ▶ Switch ON/OFF Key to reset the normal operating mode If the SPA will not restart, please contact your authorized dealer
ICE Alarm [ICE]	<ul style="list-style-type: none"> ▶ Contact your authorized dealer
Insufficient filter flow alarm [AL1]	<ul style="list-style-type: none"> ▶ Filter Cleaning (SEE PARAGRAPH) Switch ON/OFF Key to reset the normal operating mode If the SPA will not restart, please contact your authorized dealer
Heating system malfunctioning alarm [AL2]	<ul style="list-style-type: none"> ▶ Switch ON/OFF Key to reset the normal operating mode If the SPA will not restart, please contact your authorized dealer

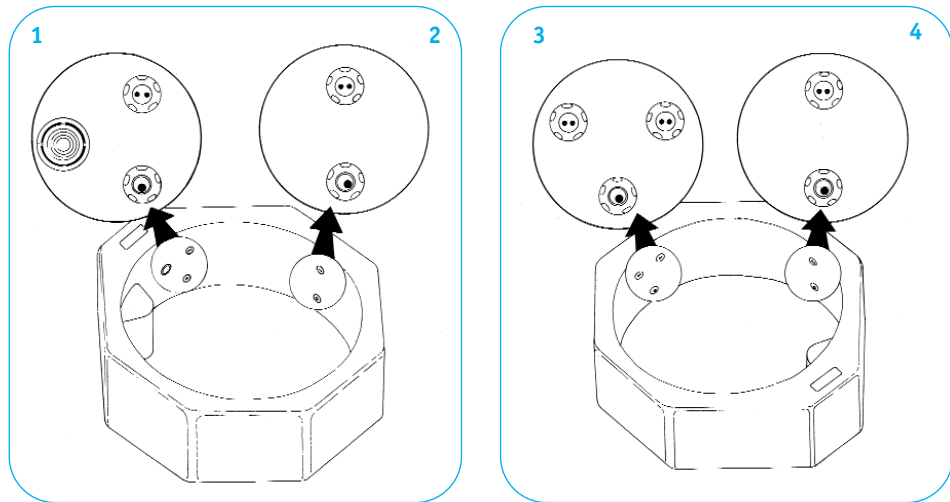
IMPORTANT: Most of the Error Messages appearing on the main control panel may occur because of the **domestic electric system changes in current**. When you see an Error Message on the display, always try to switch ON/OFF Key on the main control panel to reset your Idromas normal operating mode.

▶ **OPERATING PROBLEMS**

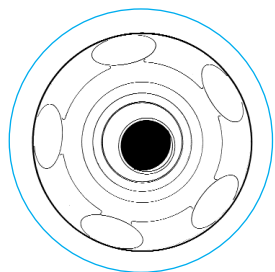
PROBLEM	SOLUTION
The main control panel doesn't switch on	<ul style="list-style-type: none"> ▶ Check power source Contact your Idromas authorized dealer
Loss of power in massage jets	<ul style="list-style-type: none"> ▶ Check that the nozzles are fully open Contact your Idromas authorized dealer
Leaking SPA	<ul style="list-style-type: none"> ▶ Switch off the SPA immediately Contact your Idromas authorized dealer
No filtration	<ul style="list-style-type: none"> ▶ Clean or change the cartridge filter Raise water level (it's possibly too low) Contact your Idromas authorized dealer
Light doesn't work	<ul style="list-style-type: none"> ▶ Contact your Idromas authorized dealer
No air in the jets	<ul style="list-style-type: none"> ▶ Contact your Idromas authorized dealer

7. JETS

- ▶ Idromas Laghetto® is equipped with 4 separate groups of jets. They come with 9 adjustable nozzles and changeable jets (rotary/fixed). Three places are provided with 2 jets; the fourth one comes with 3 jets (see pictures below).



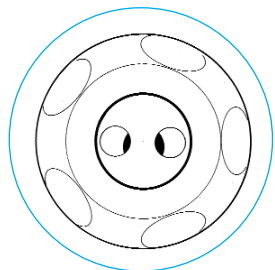
- ▶ Your SPA is equipped with the following JETS:



ADJUSTABLE JETS: You can change the direction of the water flow by pushing on the side of the small hole in the centre of the jet.

ATTENTION: do this when the jets are switched off!

You can also adjust the volume of water from these jets by turning the face plate clockwise to decrease the volume of water (until the jet is closed) and counterclockwise to increase it.



ROTARY JETS: One-way rotary jets for an amazing massage effect. You can adjust the volume of water from these jets by turning the face plate clockwise to decrease the volume of water (until the jet is closed) and counterclockwise to increase it.

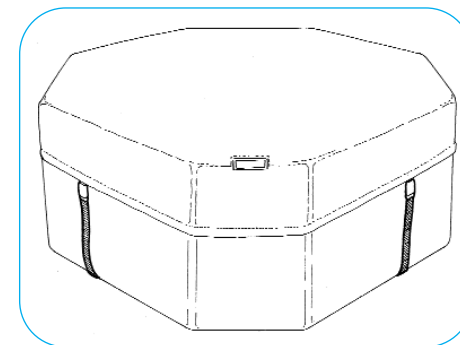
IMPORTANT: Idromas Laghetto® Jets System allows you to increase the power of the massage effect for one or more places simply by closing the jets for the places which are not in use.

WARNING: don't close all the jets of your Idromas.

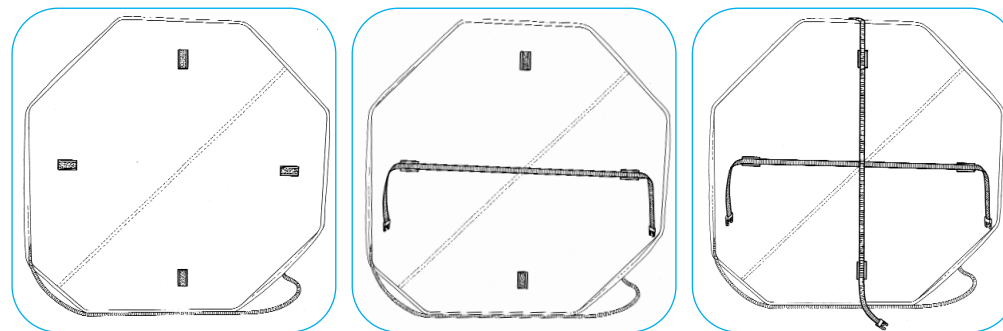
IMPORTANT: All the jets of your Idromas Laghetto® are interchangeable. Please contact your authorized Idromas dealer to change the lay-out of the seats.

B. COVER USE

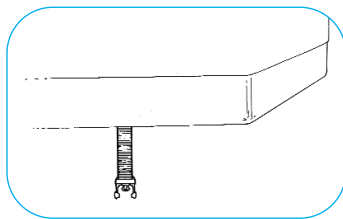
- ▶ Idromas Laghetto® is delivered with a cover, equipped with a combination lock and with two hooking bands that are attached under the bottom of the SPA. Ensure that the straps are pulled out from under the SPA before filling it.



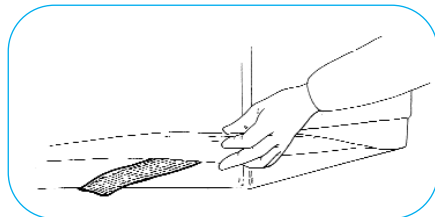
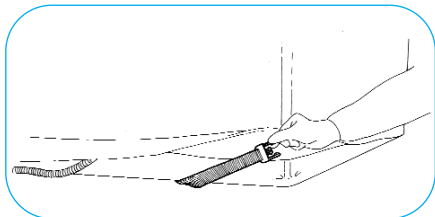
- ▶ If the straps are not pre-installed it's first necessary to apply them under the bottom of Idromas. Put the empty SPA in a vertical position (keep on the ground the main control panel side, the most heavy one) and attach the bands to the 4 velcro® on the bottom (see pictures).



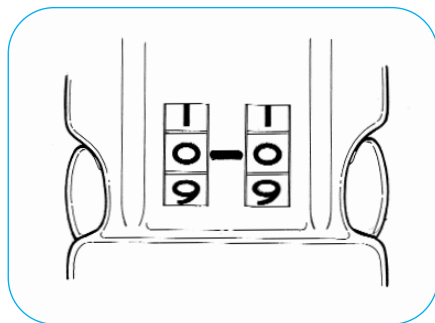
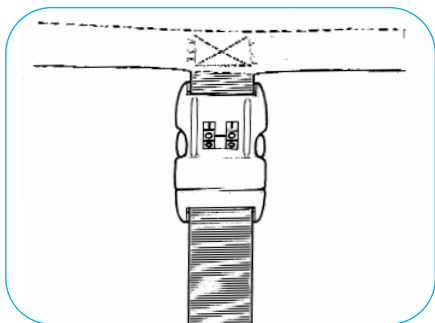
- ▶ Now put Idromas again in horizontal position, keeping the bands stretched out (see picture on the right).



- ▶ When your SPA is not covered, you can easily put the bands under the external coating (inserting them under the inferior edge) (see below).



- ▶ The combination of locks is set at ZERO-ZERO (see picture).



▶ **Do:**

- Lock your Idromas Laghetto® with the safety combination lock when not in use.
- Release and unfasten all of the four locks before opening Idromas cover.
- Cover your SPA with its cover when not in use both when it is full and empty.
- Do not put heavy objects on the cover.
- Do not climb, walk or sit on the cover.
- To clean it use the suggested detergents (see CARE OF THE COVER section).

- Do not use hard, sharp, metal or abrasive objects to remove ice or snow which may collect on Idromas cover.
- Follow the important **SAFETY INSTRUCTIONS** in this MANUAL (paying attention to children's safety and injury prevention).

IMPORTANT: The use of the cover when the SPA is not in use **reduces the heat loss and consequently the energy cost.**

9. SPA CARE AND MAINTENANCE

9.1 GENERAL INFORMATION

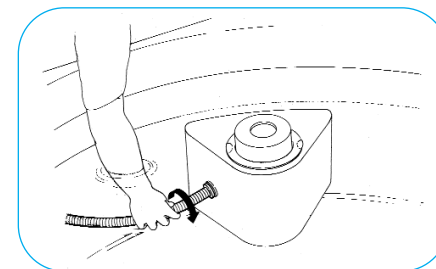
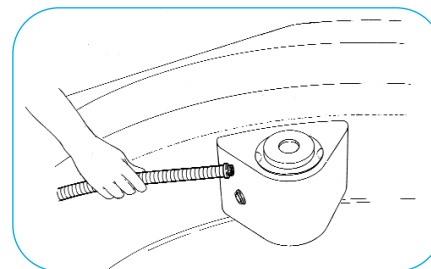
- ▶ Your Idromas Laghetto® is made of very high quality materials. For a long and trouble free use of your SPA follow carefully the instructions in this **MANUAL**.

9.2 CHANGING THE WATER

- ▶ Water may gradually become turbid because of detergents on bathing suits, the use of oils or perfumed essences, soap, cream or cosmetics residues. Water should be normally changed after 6-8 weeks of use. Drain your Idromas, see the next paragraph, and then fill it up again. Before refilling you must switch off the control panel. To reduce detergent residue on your body take a shower with water only, before entering your SPA.

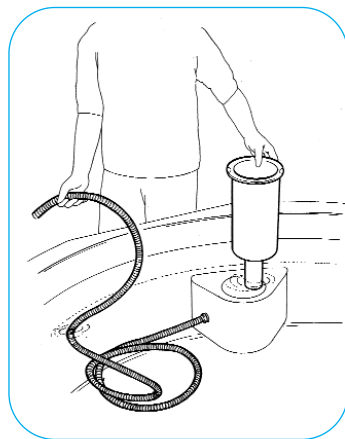
9.3 DRAINING YOUR IDROMAS

- ▶ Your Idromas Laghetto® is equipped with a blue hose for self draining. This hose has a screw connection to be attached to the skimmer.



- ▶ First switch off your Idromas SPA pressing the ON/OFF Key on the main control panel. Insert the pipe in the proper connection on a side of the skimmer and gently screw till it's tight (**see picture above**).

WARNING: Put the other end of the pipe into the nearest drain.



- ▶ Remove the basket from the skimmer (**see picture**). Now switch on Idromas pressing the ON/OFF Key on the main control panel. Start the filtering function pressing Filter Key (8). **Water will begin to flow from the connected hose.**

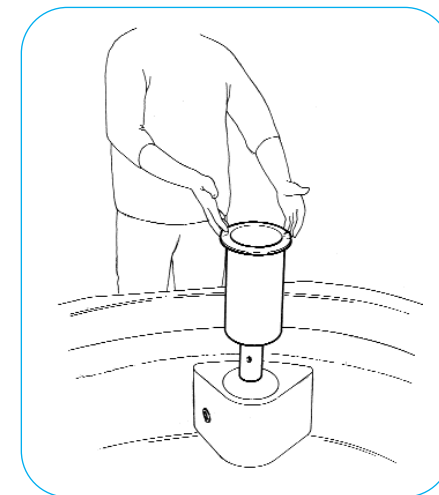
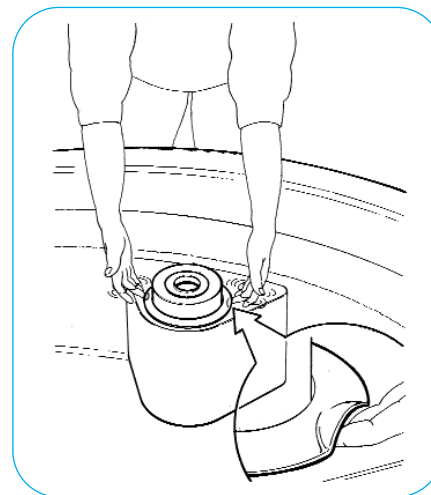
WARNING: The point where you want to drain the water (sink, manhole cover, etc.) should not be higher than 1,2 meter of the surface where your Idromas is installed.

WARNING: To drain your SPA the **Filter Key has to be ON**. Check it is on the main control panel.

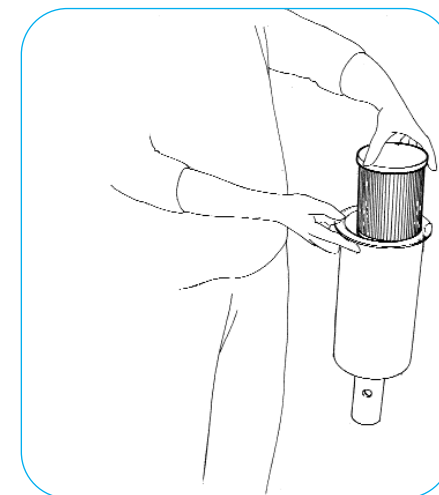
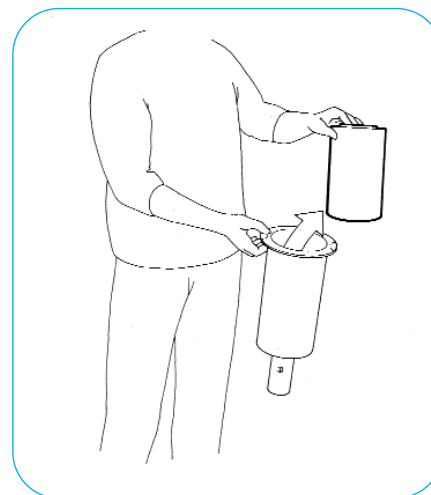
IMPORTANT: This process allows you to drain your SPA almost completely. At the end of the draining some water may remain on the bottom or in the hydro jets hydraulic system. Remove the remaining water away from the bottom with the help of a soft sponge or paper towels. **DO NOT use any abrasive materials to drain the SPA.**

9.4 FILTER SYSTEM/FILTER CLEANING

- ▶ Your Idromas Laghetto® has a CARTRIDGE filter.
- ▶ To clean the filter, first switch off your Idromas Laghetto® pressing ON/OFF Key on the main control panel.



- ▶ When your SPA is off, remove the basket with the filter; put your fingers under the projecting tongues on the sides of the basket (**see picture**). In this way the dirt remaining in the skimmer is not tipped back into the SPA again.



- ▶ Take the floating head and the cartridge filter away. Wash the filter with high pressure hose, cleaning carefully each fold.
For a longer use of the cartridge filter, please, clean it periodically as suggested below.
Soak the cartridge filter in acidified water with our **Laghetto FILTER CLEANER** Laghetto for some hours. Then rinse it carefully with running water, in order to remove invisible calcareous incrustations which, with the passing of time, could definitely block the cartridge.
- ▶ Once the filter is clean, put it back into the skimmer basket, (fixing it into round housing at the base of the basket), insert the floating head and the basket into the skimmer (the correct position is reached when the upper edge of the basket is sitting on the fixed part of the skimmer).
You may restart your Idromas Laghetto® with ON/OFF Key on the main control panel.

IMPORTANT: DO NOT sit on the skimmer and DO NOT cover over the floating head (**DANGER OF THE FILTERING SYSTEM OVERHEATING**, with consequential damage to the pump).

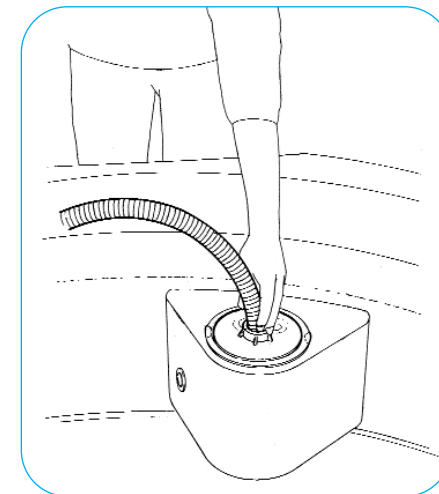
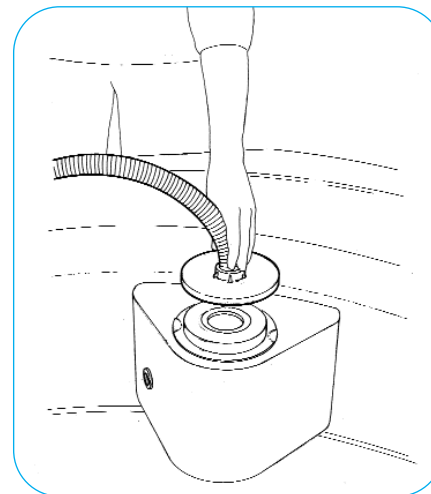
ATTENTION: The regular cleaning of the SPA cartridge filter is essential for the correct functioning of your Idromas, for water sanitation, and to obtain the best performances from the jets. Clean the filter regularly for the best performances of your SPA.

The frequency of the cleaning depends on the length and duration of the SPA use and from the number of people using it.

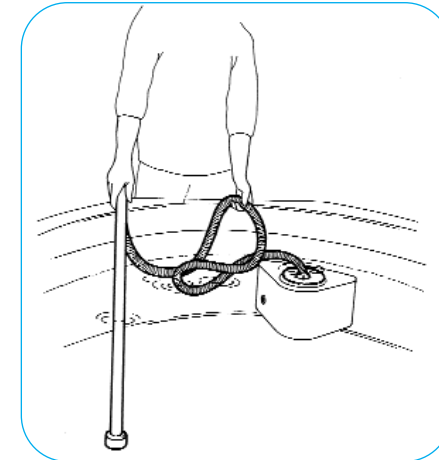
9.5 CARE OF THE BOTTOM OF YOUR SPA

- ▶ Your Idromas Laghetto® is equipped with a bottom cleaning system made up of:
 - 2 rigid pipes for vacuum cleaner
 - 1 vacuum cleaner brush
 - 1 white suction pipe with skimmer plate
- ▶ Cleaning the bottom:
 - 1) Assemble the vacuum cleaner connecting the head to the two rigid pipes and to the flexible suction hose (push the suction hose into the rigid tube).

- 2) Put the skimmer disk on the skimmer floating head to make the filter system begin to suck the dirt up from the head.



- 3) Use the head like a normal vacuum cleaner; move it slowly and gently on the bottom of the SPA, in order not to stir up dirt.



- 4) Once you have cleaned the bottom of your Idromas Laghetto®, switch off the SPA by pressing ON/OFF Key on the main control panel and then remove the vacuum cleaner (**never remove it while the pump is running**).

- ▶ Clean the filter, see FILTER SYSTEM/FILTER CLEANING section, than you can start Idromas again.

9.6 CARE OF THE INTERNAL/EXTERNAL COVERING

- ▶ For your Idromas Laghetto® internal/external cover cleaning:
 - use our special product **Laghetto SOFT CLEANER**.
- ▶ To clean the **internal liner** do as follows:
 - Spray on the bottom and on the inside walls our **Laghetto SOFT CLEANER** and clean with a non-abrasive sponge and/or cloth. Rinse abundantly the spa and then fill it up again.
- ▶ To clean the **external covering**:
 - Spray our **Laghetto SOFT CLEANER** and clean with a non-abrasive sponge and/or cloth.

IMPORTANT: for a right cleaning, a complete rinse and sanitization use our specific product **SPA CARE Laghetto SOFT CLEANER**. It is a not foamy, easily rinsing, liquid cleaner with an **antibacterial** effect.

9.7 CARE OF THE COVER

- ▶ Follow all the steps described for the external covering cleaning. Use a non-abrasive sponge or a cloth.

WARNING: with the help of **Laghetto SOFT CLEANER** remove immediately spots, leaves, birds' excrements, etc. from the cover of your Idromas, as they can damage its aesthetic aspect.

9.8 VACATION CARE INSTRUCTIONS

- ▶ If you are planning to be away from home, please follow these instructions to ensure that the water quality of your SPA is maintained.
- ▶ **SHORT ABSENCE (3-5 DAYS)**
 - 1) Adjust the PH by following the instructions outlined in the WATER QUALITY AND MAINTENANCE section.
 - 2) Sanitize the water by following the **SHOCK TREATMENT** procedures described in 10.6 section.

- 3) Lock your Idromas Laghetto® with its cover.
- 4) Upon your return, sanitize the water by following the shock procedures (test, if necessary, the chemical levels of the water) and balance the PH.

▶ LONG ABSENCE (5-14 DAYS)

- 1) For a long absence switch off your Idromas or set the temperature to around 20°C (in order to keep the chemical products active for a longer period).
- 2) Sanitize the water by following the shock procedures and balance the PH
- 3) Upon your return, reset the water temperature to the desired level, sanitize the water by following the shock procedures if necessary (test the chemical level of water), and balance the pH.
- 4) In case of a long absence, longer than two weeks, with no maintenance service in the meantime, we recommend that you change the water on your return or to drain the SPA before leaving. (make sure you lock your Idromas with its cover).

9.9 PREVENTION OF FREEZING

- ▶ Your Idromas Laghetto® has an anti-freezing function, which prevents damage to the hydraulic system when the SPA is placed outdoors (or anywhere the temperature may go below 0°C). This function automatically starts the hydromassage pump for 20 minutes when the message **[LoT]** appears on the display. The movement of water together with heat exchange from the pump assures an antifreezing action.

WARNING: To have this function start, the SPA must be switched on. If the SPA is OFF, the water freezing in the pump, in the heater and in the pipes can **permanently** damage your SPA.

10. WATER QUALITY AND MAINTENANCE

- ▶ Water quality and maintenance is very important to enjoy the best performances of your Idromas Laghetto®. It is fundamental to have clean and sanitized water, both for your health and your comfort. Clean water with the right chemical values preserves your SPA better, avoiding problems to the liner, to the hydraulic system and to the filter.
- ▶ Follow the instructions in this section of the MANUAL for a correct water treatment and maintenance. This program may vary according to the hardness of water you use (minerals present in the water), from the frequency of use, from the

number of people using it. If you have doubts or problems regarding water treatment and maintenance do not hesitate to call your Idromas Laghetto® authorized dealer.

10.1 GENERAL INFORMATION

- ▶ In this section of the **OWNER'S MANUAL** you will find some suggestions for the best treatment of the water in your SPA.
- ▶ Topics are:
 - How to measure the chemical level in the water
 - How to sanitize the water
 - A correct use of the chemicals
 - Idromas ideal level for chemicals
 - Shock treatment with chemicals
 - Perfumed essences: how to enjoy them in your Idromas Laghetto®

IMPORTANT: Always keep the water of your Idromas Laghetto® clean and treated with sanitizing products. Warm water can be the ideal place for bacteria to breed. It is entirely your responsibility to maintain the correct chemical level recommended for the use of Idromas Laghetto®. **The manufacturer and the dealers are not responsible for any damage caused by non treated water.** If you have doubts or problems regarding water treatment and maintenance do not hesitate to call your Idromas Laghetto® authorized dealer.

10.2 METHODS FOR TESTING THE SPA WATER

- ▶ We recommend you regularly test the water of your SPA in order to follow a correct maintenance program. You should test:
 - pH level (acidity/alkalinity)
 - Total alkalinity (total amount of carbonates, bicarbonates and hydroxides)
 - Hardness (calcium/magnesium)
 - - Level of the sanitizing product you used (bromine/chlorine or chlor-active)
- ▶ There are two methods to measure the above levels:
 - **TEST KIT with REACTIVE AGENTS:** it is a method which guarantees a good precision in measurement, but which is limited to pH, BROMINE or CHLORINE level measurement (see SUGGESTED SANITIZATION METHODS section).

- **TEST STRIPS:** they generally measure the alkalinity and hardness of water. This is an accurate method only if the strips are protected against humidity, dampness can effect their measurement precision. You can find them in specialized shops.

10.3 BASIC CHEMICAL SAFETY

- ▶ When using chemicals pay attention to the label and follow all the instructions on them. Chemicals protect you and your SPA, but they can be dangerous if misused.
- ▶ Be careful to:
 - Ensure they are handled by responsible people. **KEEP AWAY FROM CHILDREN.**
 - Measure the suggested quantities exactly. Never exceed.
 - Handle chemicals with care and store them in a dry cool place.
 - Do not inhale. Avoid contact with eyes, throat or nose. Wash your hands immediately after use.
 - Follow the safety instructions on the chemical labels. In case you touch or swallow chemicals accidentally, call a doctor or go to the nearest First Aid. Bring the chemical box with you in order to show the substance you touched, inhaled or swallowed.
 - Do not smoke near to the chemicals.

10.4 SUGGESTED SANITIZATION METHODS

- ▶ Agrisilos S.r.l. suggests you use the following sanitization methods for the water quality and maintenance of your SPA:
 - 1) **BROMINE/CHLORINE:** recommended treatment: you'd better use our **Laghetto HALOCYDE TABS®**, they are SPECIFIC TABLETS FOR Laghetto SPAS.
 - 2) **CHLOR-ACTIVE GRANULAR®:** it's one of the two proposed solutions, but it is limited if compared with the most current **Laghetto HALOCYDE TABS®**.
- ▶ **HOW TO TREAT YOUR IDROMAS WATER:**
 - 1) **INITIAL TREATMENT:** please follow the instruction you find in **SHOCK TREATMENT** section.

2) IDEAL CHEMICAL LEVEL MAINTENANCE:

- If you use **HALOCYDE TABS®**, put 1 or 2 tablets in the skimmer of your Idromas; replace the tablets before the first ones have completely dissolved.
- If you use only **CHLOR-ACTIVE GRANULAR®**, add 1 paper directly into the skimmer of your Idromas when the value of chlorine is too low.

IMPORTANT: Before entering the SPA, always test water quality for ideal chemical levels (see section).

WARNING: Do not bathe if the quantity of Bromine or Chlorine is too high. First adjust the quality of water by switching the jets on for one or more cycles (20 minutes each), or changing some water in the spa.

NOTE: Chemicals (except **HALOCYDE TABS®** or **CHLOR-ACTIVE GRANULAR®**) have always to be previously dissolved in hot water in the middle of the spa (**not in the skimmer**). We recommend you to make this operation with the jets off and to pay attention in order to avoid splashes.

3) WATER BALANCE ADJUSTMENT (SHOCK TREATMENT):

- See **SHOCK TREATMENT** section.

10.5 RECOMMENDED CHEMICAL LEVELS

- ▶ The ideal range for proper water maintenance is as follows:

- ▶ **Characteristics elements** (noticeable with the help of tester)
pH: 7.2 - 7.8 Bromine: 3 - 6 mg/l (ppm) Chlorine: 2 - 5 mg/l (ppm)
- ▶ **Standard elements** (water 20-25° F)
Total Alkalinity: 80 - 120 mg/l (ppm)
Total Hardness: 150 - 250 mg/l (ppm)
Total dissolved Solids: below 1500 mg/l (ppm)

- ▶ We recommend you regularly test the water quality of your SPA, paying attention to:
 - pH balance, measuring the total Alkalinity/Acidity of water. The pH of the water you put in the spa can be optimized with specific products used for SPAs, such as our Laghetto **pH MENO**, a product useful to lower the pH (each paper lowers it of 0,5).
 - **The ideal level of sanitizing products (Bromine and Chlorine) must be kept all the time, except during the first phase or during the SHOCK TREATMENT.**

10.6 SHOCK TREATMENT

- ▶ Sometimes your SPA may need a **SHOCK TREATMENT**, much more intense than the usual maintenance treatment for water quality.
- ▶ When **SHOCK TREATMENT** is necessary:
 - With a newly filled SPA
 - To reset ideal chemical levels after a lack in maintenance
 - Intensive use of the SPA
 - To kill some bacteria or alga which became resistant to the normal sanitizing products levels
- ▶ **SHOCK TREATMENT:**
 - If you use **HALOCYDE TABS®**, put 2 tablets + 1 paper of **CHLOR-ACTIVE GRANULAR®** in the skimmer of your Idromas.
 - If you use only **CHLOR-ACTIVE GRANULAR®**, add 2 papers directly into the skimmer of your Idromas.

IMPORTANT: Always test water quality to be sure chemical levels are correct before entering the SPA (SEE SECTION).

WARNING: Do not bathe if the quantity of Bromine or Chlorine is too high. First adjust the quality of water by switching the jets on for one or more cycles (20 minutes each), or changing some water in the spa.

IMPORTANT: Chemicals (except **HALOCYDE TABS®** or **CHLOR-ACTIVE GRANULAR®**) have always to be previously dissolved in hot water in the middle of the spa (**not in the skimmer**). We recommend you to make this operation with the jets off and to pay attention in order to avoid splashes.

10.7 IDROMAS LAGHETTO® AROMASPA ESSENCES

- ▶ Thanks to Idromas **Laghetto® AROMASPA** essences you can enjoy their beneficial properties. These essences are made with a basis of essential oils, they are neither foamy, nor oily, nor inflammable. They do not contain soluble substances and they do not change the chemical balance of water. The coloring is of a cosmetic type. In the suggested quantities they do not irritate your eyes and skin. They are completely soluble in water in any quantity.

WARNING: AROMASPA must be used diluted, as they are very concentrated. Do not use directly on your skin. **AROMASPA** essences are especially made for Idromas Laghetto®; they are compatible with the SPA materials, they do not clog the filter, they do not degrade the chemicals in the water, they rapidly dissolve.

11.3 SYSTEM DESCRIPTION

- ▶ This paragraph describes the SPA hydraulic system. The system has been divided into two circuits: filter/heating and hydromassage circuit. Here below you can find the functions described.
- ▶ **FILTER / HEATING CIRCUIT**
The filtering circuit makes the water run through the skimmer, the temperature sensor and the heater/s because of the pump action. A protection sensor, placed on a heating resistor, measures the water flow and the thermic exchange efficiency.
- ▶ **HYDROMASSAGE CIRCUIT**
Hydromassage circuit is boosted by the 950W pump, raising the water pressure and directing water towards the hydro jets. On the exit there is an electric valve that injects air into the hydro jets, using Venturi's system.
- ▶ **AUXILIARY CIRCUITS**
The SPA is equipped with a low tension halogen lamp for the SPA lighting.

11.4 ELECTRICAL REQUIREMENTS

GENERAL CHARACTERISTICS:		CON.	N°
Current tension	▶ 230V	▶	
Net frequency	▶ 50/60Hz	▶	
Power absorbed (electronic control only)	▶ 2.5VA	▶	
Keyboard tension	▶ 5V (150mA max)	▶	
Storage Temperature	▶ -20÷75°C	▶	
Humidity	▶ 0÷85% without condensation	▶	

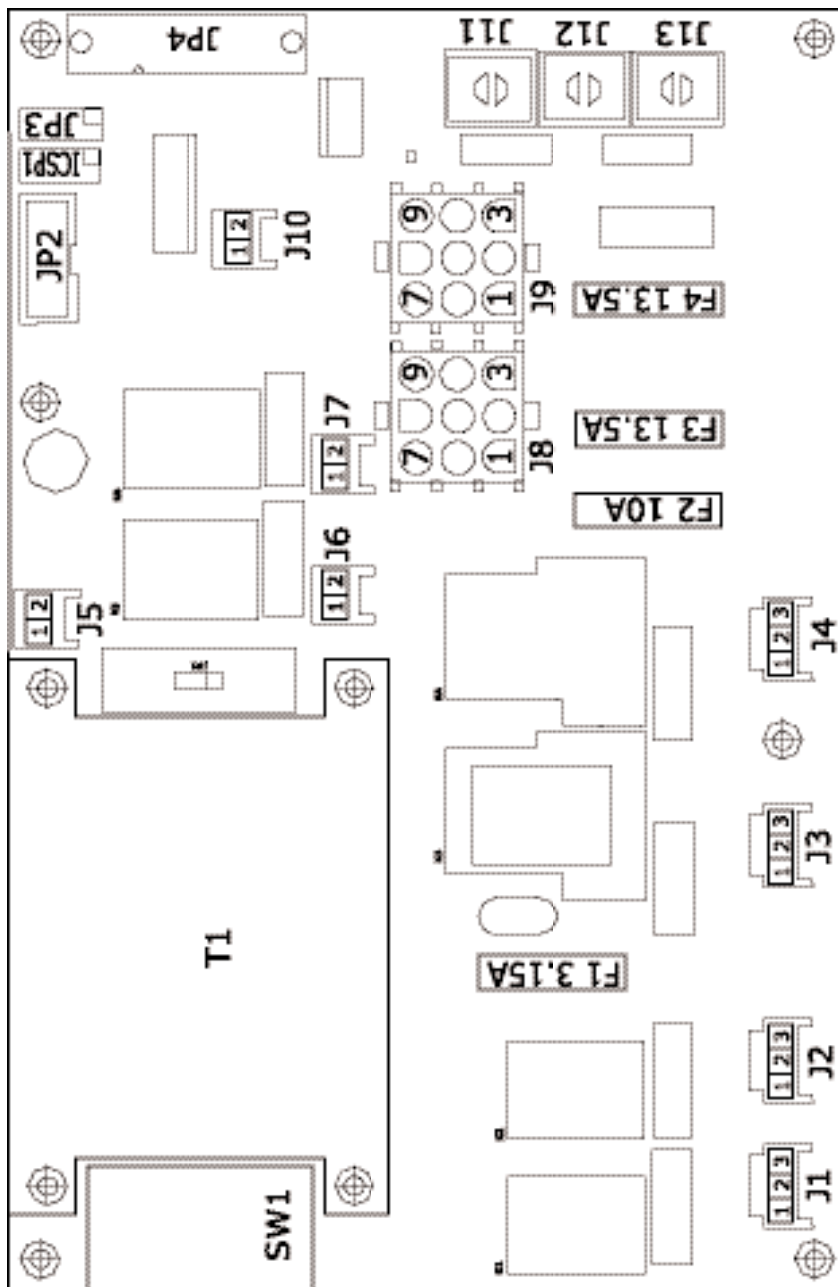
OUTLETS:		CON.	N°
UV lamp control	▶ Relè 10A AC1 (1/4HP) 250V	▶ J1	3
Recovery pump control	▶ Relè 10A AC1 (1/4HP) 250V	▶ J2	2
Heating/filtering pump control	▶ Relè 30A AC1 (2HP) 250V ¹	▶ J3	5
Hydromassage pump control	▶ Relè 30A AC1 (2HP) 250V	▶ J4	8
Auxiliary BT Outlet	▶ 12V direct Max 45VA	▶ J5	
Water inlet electric valve control	▶ Relè 10A AC1 12V	▶ J6	9
Spa lights control	▶ Relè 10A AC1 12V	▶ J7	10
Main heater control	▶ TRIAC 16A 600V AC (assembled on the heater)	▶ J8	6
Second heater control (optional)	▶ TRIAC 16A 600V AC (assembled on the heater)	▶ J9	7

- ▶ 1. Otherwise you can install a 10A AC1 (1/4HP) 250V relè.

AUXILIARY INLETS:		CON.	N°
Water temperature sensor inlet	▶ NTC 4K7@25°C	▶ J10	4
Secondary heater temperature sensor inlet	▶ NTC 4K7@25°C	▶ J9	6
Main heater temperature sensor inlet	▶ NTC 4K7@25°C	▶ J8	7
Scale and precision:	▶	▶	
Temperature scale	▶ 0°C÷50°C < 32°F÷120°F	▶	
Resolution	▶ 0,5°C < 0,5°F	▶	
Precision	▶ 3%	▶	

11.5 MOTHERBOARD

▶ In the following picture you can find the positions and the functions of the electronic motherboard connectors.



CONNECTORS:

CON.	DESCRIPTION	
J1	UV lamp outlet	▶ 1 Phase ▶ 2 Neutral ▶ 3 Earth
J2	Water recovery pump outlet	▶ 1 Phase ▶ 2 Neutral ▶ 3 Earth
J3	Heater/filter pump outlet	▶ 1 Phase ▶ 2 Neutral ▶ 3 Earth
J4	Hydromassage pump outlet	▶ 1 Phase ▶ 2 Neutral ▶ 3 Earth
J5	Outlet 12Vac Max 45VA	▶ 1 12V AC ▶ 2 0V AC
J6	Air electric valve outlet	▶ 1 12V AC ▶ 2 0V AC
J7	Spa light outlet	▶ 1 12V AC ▶ 2 0V AC
J8	Principal heater outlet	▶ 1 Phase ▶ 2 Earth ▶ 3 Neutral ▶ 4 NTC CORRAZ. ▶ 5 OPTO DRIVE - ▶ 6 NTC TEMP. ▶ 7 NTC CORRAZ. ▶ 8 OPTO DRIVE + ▶ 9 NTC TEMP.
J9	Secondary heater outlet ²	▶ 1 Phase ▶ 2 Earth ▶ 3 Neutral ▶ 4 NTC CORRAZ. ▶ 5 OPTO DRIVE - ▶ 6 N.C. ▶ 7 NTC CORRAZ. ▶ 8 OPTO DRIVE + ▶ 9 N.C.
J10	Entrance NTC 4K7@25°C water temperature	
J11	Feeding entrance, Phase	
J12	Feeding entrance, Earth	
J13	Feeding entrance, Neutral	

▶ 2. Optional heater outlet.

EXPANSION AND PROGRAMMING CONNECTORS:

CON.	DESCRIPTION	
JP2	Outlets expansion connector (not assembled)	▶ SPI 5V+12V
JP3	Serial Connector I/O (not assembled)	▶ TTL232 5V
JP4	Keyboard Connector	▶ TTL 5V
ICSP1	Circuit serial programming connector	▶ TTL 5V

FUSES:

ID.	DESCRIPTION	VALUE
F1	Minor charges fuse <ul style="list-style-type: none"> • Transformer • Recovery pump • Filter Pump/ UV Lamps • Heater pump 	▶ 3.15Amp.
F2	Hydromassage pump fuse	▶ 10Amp.
F3	Secondary heater fuse	▶ 13.5Amp.
F4	Principal heater fuse	▶ 13.5Amp.

12. WARRANTY

- ▶ We offer you a 2 years warranty on all Idromas Laghetto® components.

ATTENTION: Any misuse of the SPA which does not conform to the instructions in this manual will void the warranty.
Any abuse or alteration to the SPA will void the warranty.
Any unauthorized attempt to open the electric and electronic components housing door will void the warranty.
Any alteration due to natural climatic events, any damage caused by animals, rodents or insects have to be considered abuses and are not consequently covered by this warranty.
- ▶ To take advantage of Idromas Laghetto® warranty:
 - Follow the instructions in this **MANUAL**.
 - Use original Idromas Laghetto® accessories and recommended chemicals and detergents only.
 - Do not use Idromas for anything other than which it has been designed for.
 - Do not open the SPA electric and electronic housing door.