

RotoSpa



UK'S ONLY SPA
MANUFACTURER

HOLIDAY AT HOME
IN A ROTOSPA



OWNER'S MANUAL

www.rotospa.co.uk

THE ROTOSPA RANGE



DuoSpa



OrbisSpa



QuatroSpa



DuraSpa

CONTENTS

Welcome	4
Stay safe	5
Electrical safety information	6
Installation	7
Getting started	8
Touchpad layout and functions	10
Taking care of your water	19
Operation	23
Maintenance	24
Troubleshooting / error codes	26
Contact us	27

WELCOME



Congratulations on purchasing your new RotoSpa Hot tub!

RotoSpa UK Ltd are a family run business which was started in 2003. To this day, we remain the only manufacturer of hot tubs in the United Kingdom. We pride ourselves on providing our customers with high quality products coupled with exceptional customer service.

We have taken every care in designing, building and testing your Spa here in the UK to ensure that it operates effectively and offers many satisfying features.

In order to obtain maximum benefit from your RotoSpa we recommend that you read and follow the information contained within this guide.

This guide is not intended to be a complete manual on spa ownership but a general reference on the operation and care of your RotoSpa hot tub.

Please consult your dealer or a spa chemical professional in regard to the most suitable sanitation package for your family and make sure you learn and understand the use and effect of the products.

We sincerely thank you for selecting RotoSpa and hope you enjoy our product and the many benefits to owning one of our spas for many years to come.

Enjoy!

STAY SAFE

Electrical

Your spa and any other equipment or accessories used in conjunction with it should be protected by a Residual Current Device. Users should instruct a qualified electrician to carry out any works necessary and have due regard for the electrical installations regulations. Detailed information about the electrical safety of your spa is listed on pages 6 and 7 of this manual.

Limitations

Do not leave your children in a spa unsupervised; children should be supervised to ensure they do not play with the appliance. This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

Do not consume alcohol if using a spa, do not put your head under the spa water, and do not drink the spa water.

Medical

Consult your GP about any medical consideration such as, but not limited to, pregnancy or high blood pressure before using a spa.

Time and temperature

The higher the water temperature the less time should be spent in the spa. Time can be gradually increased as your body becomes accustomed to the activity just like any exercise but we would suggest initially limiting use to 10mins maximum at higher temperatures, or longer periods at moderate temperatures. If you begin to feel light headed, dizzy, drowsy or nauseous get out immediately, drink clean fresh water and lie down. If this persists then seek medical advice.

Water temperature in excess of 38°C may cause hyperthermia (heat stress).

Thermal cover

Thermal covers are the best way to reduce heat loss from the spa but are also an excellent safety benefit if locked in position when not in use. The cover is not designed to support weight and care should be taken not to place anything on it.

ELECTRICAL SAFETY INFORMATION

For complete safety, there are certain guidelines which must be adhered to when installing your RotoSpa hot tub.

To prevent the risk of electric shock, NEVER place any electrical appliance within 2 metres of your spa.

ALL ELECTRICAL CONNECTIONS MUST BE CARRIED OUT BY A QUALIFIED ELECTRICIAN AND MUST CONFORM TO BS 7671 REGULATIONS. ELECTRICAL EQUIPMENT WITHIN THE SPA MUST HAVE EQUIPOTENTIAL BONDING WHICH COMPLIES WITH THE REGULATIONS OUTLINED IN BS 7671 SECTION 544 "PROTECTIVE BONDING CONDUCTORS" AND SECTION 702 "SWIMMING POOLS AND OTHER BASINS."

The appliance should be supplied through a residual current device (RCD) having a rated residual operating current not exceeding 30ma.

The appliance must be permanently connected to fixed-wiring, and a IP rated, weather protected power supply. Your spa should be powered by its own dedicated circuit incorporating a means for disconnection in accordance with your local wiring regulations, such as a rotary isolation switch. This must not be installed any closer than 2 metres, but no further than 3 metres from the spa. Means for disconnection from the supply mains should have a contact separation in all poles that provide full disconnection under overvoltage category III conditions.

The appliance contains no serviceable parts, therefore do not attempt service of this control pack; contact your spa dealer or RotoSpa directly if you require assistance. Low voltage or improper wiring may cause damage to your appliance. Read and follow all wiring instructions when connecting to the power supply. **Turn the mains power OFF before servicing or modifying any cable connections.**

It is not recommended your spa is supplied through an internal switching device such as a timer, or a circuit that is regularly switched on and off by the utility, as this can create a hazard by inadvertently resetting the thermal cut-out.

If there is any damage to the supply cable, then it must be replaced by RotoSpa, your spa dealer, a licensed electrician or similarly qualified person in order to avoid a hazard.

To prevent an electric shock hazard and/or water damage to your appliance, all unused sockets of the SV Mini controller must have a waterproof seal in place. These are supplied and fitted, and must not be removed.

The appliance must **NOT** be installed within close proximity to highly flammable materials.

Your RotoSpa hot tub is fitted with a two-speed pump and a heater element. Your spa will be factory-programmed to ensure the system does not exceed its rated maximum total load. Therefore the heater will automatically turn off when the user sets the pump to run at its higher speed.

In models where a blower unit has been fitted to the spa, the heater will again automatically switch off when the blower is activated. These load shedding settings can be adjusted, but the factory settings are recommended. If you wish to alter the settings, contact your spa dealer or RotoSpa directly.

To prevent damage to your spas heater element, optical and temperature sensors, good water quality is essential. Chlorine and pH levels must be maintained, and a suitable level of cleanliness to filters must be maintained so that good water purity can be achieved.

An adequate drainage system must be provided where equipment is to be installed in a pit.

INSTALLATION

Choosing a location

When selecting a location for your spa it should be set on a flat and level surface. Concrete, paving slabs, tiles and structurally sound decking are all suitable but it should be considered that although RotoSpa products are relatively lightweight, when filled with water they can weigh well over 1000kg. Siting the spa directly onto grass or earth is not recommended as insects and dust can shorten equipment life. For the same reason unenclosed below ground use is also not recommended.

RotoSpa hot tubs can be sunk into decking but certain considerations need to be taken into account:

- The spa must sit on a patio base or concrete bed
- Access to the full perimeter of the spa is provided for future servicing and maintenance; therefore creating removable decking or an open crawl space underneath the decking is advisable.

If the spa is sited indoors during use then water may splash or drip onto the floor, both around and underneath; therefore appropriate care must be taken to avoid slips and falls. High room humidity might also require good natural or forced ventilation to minimise moisture damage to the building.

Delivery

When your spa is delivered, it will arrive as a single unit and cannot be disassembled. In most circumstances, it can be rolled from kerbside to the dedicated place where it will be situated. The spa is well packaged and will not sustain any damage when rolled across domestic terrains such as grass and pathways. Whilst your RotoSpa will fit through a standard doorway and though some fairly narrow passages, it is recommended you provide clear access to where you would like the spa situated for ease of delivery.

If you have any special requirements regarding delivery, ensure you discuss these with your spa supplier well in advance, so the necessary arrangements can be made.

Setting up

Your RotoSpa hot tub is manufactured from a very tough and hard-wearing material that should withstand everyday knocks and bumps but we recommend that care is taken in handling the spa and protecting the surface from scratching to preserve its appearance. Once you have sited your spa the packaging can be removed from it and all of its accessories.

The lockable thermal cover (when supplied) is rigid and is designed to insulate the spa and keep water heat in, it is not suitable to be used for storage of any items placed upon it.

GETTING STARTED

Your RotoSpa will come supplied with its own filter cartridge, suitable for the model you have purchased. The cartridge will be packaged, but inside the filter housing. On the packaging you will find the filter cartridges serial number printed on the label. Remove the packaging from the cartridge. Filter cartridge replacement codes can be found on page 24 of this guide.

Fitting the filter cartridge

DuoSpa models

To fit the filter cartridge on the DuoSpa models, begin by opening the flap on the front of the filter housing, and inserting the cartridge as shown in photo 1.

Once the cartridge has been inserted, place the flow plate on top of it as in photo 2.

Now, rest the filter basket on top of the flow plate (3), making sure the widest lip of the basket is facing forwards.

Finally; close the flap as shown in photo 4.

To avoid any flow restriction, make sure you keep the basket clear of debris by cleaning it with a hose regularly.



OrbisSpa & QuatroSpa

On Orbis and QuatroSpa models, the filter cartridge has an internal thread and simply screws into the housing.

Feed the cartridge into the filter housing, and once it is at the bottom, rotate clockwise until it locks into position.

This does not need to be anything more than hand tight.

With the cartridge located, insert the floating weir over the top so that it is resting within the housing.

Again, keep the weir basket clear of debris by hosing regularly.

DuraSpa models

On DuraSpa models, insert the filter cartridge into the housing so that the top of it sits level with the top lip of the housing.

Next, push the lid firmly onto the housing.

Finally, turn the lock ring clockwise over the thread. There are four equidistant lock points on the housing where the ring can be secured into position. Turn the ring until the spring loaded tag clicks into one of these points.

It is very important that this ring is locked in position, as the DuraSpa models have a pressurised filtration system.



Filling your spa



Do not switch on the power before the spa is filled with water. Running the pump whilst dry will cause severe damage.

When filling your RotoSpa hot tub, make sure the mains plug is safely out of the way, remove the filter cartridge and fill through the spa filter housing. This will ensure that all the pipe work is filled and minimises the potential for airlocks to occur.

Each model from our range of spas has its own specific fill level. To find the correct fill level for your spa, refer to the images below.

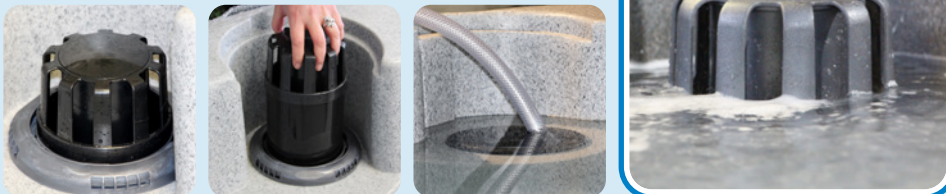
DuoSpa models

Fill the spa to the top of this cut out in the filter housing front plate. Reinsert filter cartridge followed by flow plate. Finally, the filter basket sits on top of the flow plate.



OrbisSpa & QuatroSpa

To gauge whether the spa is full; push the floating vane weir down into the filter housing until it touches the bottom. When half of the weir is submerged, the spa is filled to the correct level.



DuraSpa models

Fill the spa so that the second horizontal slat from the top of the strip skimmer is completely submerged. Reinsert the filter cartridge and secure the lid and lock ring back onto the filter housing. Do not turn on the spa without the filter lid locked into position.





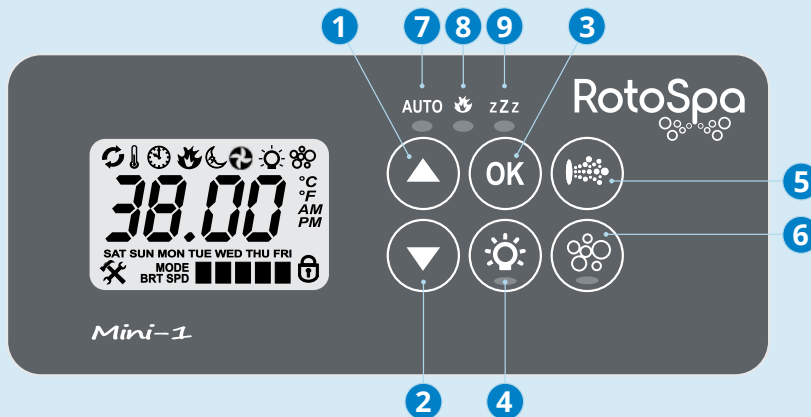
Make sure all adjustable jet faces are in the 'on' position. This can be achieved by turning them anti-clockwise (as shown, left).

All our RotoSpa's, with the exception of the DuoSpa models, are fitted with an air relief valve from the pump. This will help to purge the pump and pipework of any air, relieving the system of airlocks preventing related issues upon start-up.

On the DuraSpa models only; relieve any excess air through the bleed valve located on the filter housing lid. This can be achieved by slowly turning the bleed screw anti-clockwise, allowing the air to slowly escape, and then tightening up by hand before starting up. **Do not tighten.**

TOUCHPAD, LAYOUT AND FUNCTIONS

- 1 UP button
- 2 DOWN button
- 3 OK button
- 4 Light ON/OFF
- 5 Pump A
- 6 Auxiliary
- 7 AUTO mode LED
- 8 Heater On LED
- 9 Sleep Cycle LED



DISPLAY MODE ICONS

- Water temperature
- Set temperature
- Clock

MENU ICONS

- Sleep timer menu icon
- Light menu icon
- Blower menu icon

STATUS ICONS

- Keypad locked
- Sanitise cycle operating
- Filtration cycle operating
- Fault conditions has occurred

LED indicator lights

The topside panel function buttons (i.e. Pumps, Light, and Blower) feature a green LED light to clearly indicate whether the accessory is ON or OFF. The green LED will light up when the accessory is ON. In addition, the topside panels have three red indicator LEDs to advise the user the current status of the spa:

AUTOMATIC MODE

The AUTO LED indicator turns ON when the filtration pump is in automatic mode. In automatic mode the filtration pump will turn on / off as required to satisfy heating and filtration requirements. If the filtration pump is manually turned on or off the AUTO LED indicator turns OFF. The control will automatically return to AUTO mode after a 45 minute idle timeout period if not returned to AUTO mode by the spa user.

HEATER ON



The Heater LED indicator turns ON when the heater element is active. The heater is automatically controlled, it will turn ON and OFF as required (in conjunction with the filtration pump) to maintain the set water temperature. If the filtration pump is manually turned OFF the heater will NOT operate.




NOTE: In some configurations, engaging high speed on a 2 speed pump or operating multiple pumps will cause the heater to load shed and turn OFF (even if heating is required) to keep the system within its rated power supply.

SLEEP CYCLE ON


The Sleep Cycle LED indicator turns ON when the spa control is within a designated sleep cycle (if set). During a sleep cycle, all automatic system operation will stop so that the spa is silent – i.e. filtration and heating will not occur.


Display modes


The SV Mini has three (3) x display modes. The spa user can scroll through the different displays by pressing a short single press of either the UP  or DOWN  button. Each display has a unique icon to indicate the current mode being viewed. As you scroll through each mode a brief title screen will be shown followed by the actual display mode (note change in icon). The available display modes are as follows:


ICON	TITLE	DISPLAY	NOTE:
	W.TMP	Water temperature	1. The default display mode is (W.TMP) water temperature. 2. There is a 10 second inactivity timeout on all non-default displays. No button press for 10 secs display reverts to default. 3. If no icon is displayed the temp shown is from when the filter pump last ran. Once the filter pump next runs for 10 mins the temp will update and W.TMP icon will return.
	S.TMP	Set temperature	
	TIME	Clock	

OTHER DISPLAY ICONS

 **Filtration cycle**
The spa is carrying out filtration.

 **Sanitise cycle**
The spa is carrying out a sanitisation cycle.

 **Keypad locked**
The keypad has been locked.

 **System error**
A fault has been detected. The system has halted so that corrective action can be taken. Take note of scrolling error code and consult the trouble shooting.



Set date/time before using the spa

Vital control functions require the date & time to be set correctly. Be sure to accurately set the date and time before operating the spa.

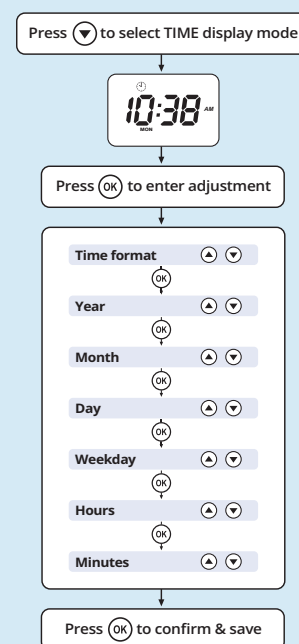
Water chemistry maintenance

It is your responsibility to regularly check and maintain the chemical water balance of the spa pool to ensure it remains within reasonable pH (acid/alkaline) limits. A pH of 7.2 is ideal. Unbalanced water chemistry greatly accelerates corrosion and may lead to early product or component failure. **Product or component failures caused as a result of poor water chemistry maintenance will NOT be covered by the RotoSpa warranty.** We recommend you carry out a daily water chemistry test to correctly maintain the pH balance within reasonable limits.

Setting the date/time

Be sure to set the date and time before operating the spa. Vital functions such as filtration, sanitisation cycles and sleep timer settings depend on the time and date being set correctly.

- Press a short single press of the DOWN button to change display to Time/Clock setting.
- Press the OK button to enter date/time adjustment.
- The settings appear in the following order:
 1. Time Format (24hr / 12hr)
 2. Year (yyyy)
 3. Month (mm)
 4. Day (dd)
 5. Weekday (mon-sun)
 6. Hours (xx:00)
 7. Minutes (00:xx)
- Press the UP or DOWN buttons to adjust each setting.
- Press the OK button to confirm each setting and skip to the next one.
- Once the minutes have been selected and confirmed the system will exit the date/time adjustment and the display will return to the default display mode.



NOTE:

1. Leap years are taken into account.
2. The system does not automatically adjust for daylight savings times. User must adjust manually.
3. The date/time clock has a capacitor backup which will hold the date/time even if mains power is turned off. The capacitor backup will last 8-12 hours. If power remains off for longer than this period the date/time may need to be set again.

Automatic heating/filtration

The SV Mini spa controls have been designed with simplicity in mind. Their intelligent software constantly monitors the spa water, automatically controlling the heater and filtration pump to ensure the desired set water temperature is maintained and required level of daily filtration achieved.

With set-and-forget technology, the spa user simply selects their desired water temperature

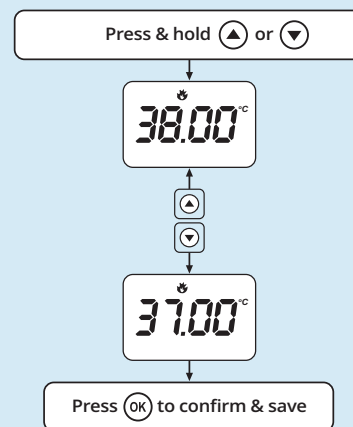
(10°C - 41°C. Default = 38°C) and thereafter the spa control will automatically heat to and maintain that selected water temperature. This is called demand heating - the filtration pump and heater will be activated when required to maintain the set water temperature. The time spent heating the pool and running the filtration pump under normal operation will be taken into account and where required the pump will run for additional periods every three hours to maintain the minimum level of daily filtration as set by the user.

Dependant on the amount of normal spa use, set water temperature, minimum hours of filtration per day, climatic conditions and season being experienced, the spa control will engage the heater and / or filtration pump for differing periods of time, at differing times of day. The advanced software constantly monitors and recalculates after each heating / filtration cycle to ensure the correct daily filtration time is achieved and desired set water temperature is maintained.

Unless adjusted the SV controller will automatically heat to and maintain the default temperature of 38°C. The water temperature set point can be adjusted from 10°C to 41°C in steps of 0.2°C increments.

Adjusting set temperature

- Press and hold the UP or DOWN button to begin set temperature adjustment.
- The display will show the (S.TMP) set temperature indicator icon, the main digits flash and temperature will begin adjusting.
- Press the UP or DOWN buttons to adjust the set temperature by 0.2°C increments to your desired temperature.
- Press OK to confirm and save setting, or wait for the 10 second idle timeout. The main digits will stop flashing and display returns to default display mode.



NOTE:

1. During a heating cycle the SV Mini may raise the water temperature up to 0.5°C above set temperature point to provide an average water temperature of set point at most times.
2. If an optional heat pump is NOT fitted the spa controller has NO ability to cool the spa water. Lowering the set temperature point will NOT cause the water to cool.
3. If an optional heat pump IS fitted the spa water CAN be cooled as well as heated. Lowering the set temperature point will ensure the heat pump engages/disengages a cooling cycle (if required) to maintain the desired set water temperature so long as H.PMP mode is set to AUTO.
4. If the spa control has been in standby mode (idle) for some time and the set temperature point is adjusted, the filtration/circulation pump may run for up to ten (10) minutes to complete a mixing cycle before the heater / heat pump engages to heat or cool (heat pump only) the water. To skip this mixing cycle and begin heating / (cooling) immediately press the PUMP A button multiple times to toggle the filtration pump through ON/OFF/AUTO. Once AUTO is re-engaged the heater will activate immediately.

Pump operation

A designated filtration pump (pump 1) will automatically switch on and off as required to perform filtration and heating functions. All pump(s) will also operate for a short period during the daily sanitise cycle. In addition, the following manual pump controls are provided and will override automatic control.

The pump buttons are located on the right-hand side of the topside panels. The functions of the pump buttons change depending on pump configuration, however the Pump-A button is used to control the filtration pump (pump 1). For every press of a pump button the screen will temporarily display the selected pump state: ON, OFF, LOW, HIGH or AUTO and then revert to the default display mode. Possible pump configurations & button sequences are referenced in the tables below:

SV Mini 1 pump buttons


SPA CONFIGURATION	PUMP 'A' BUTTON	AUXILIARY BUTTON
Pump 1 = 2 speed Aux = Not Fitted	2 Speed pump: Low / High / Off / Auto	-
Pump 1 = 2 speed Aux = Blower	2 Speed pump: Low / High / Off / Auto	Blower: On / Off


NOTE:

1. If left ON, pumps automatically turn OFF after a 30 minute time-out period from the last button press.
2. If pump 1 is operating and heater is ON and pump is to be switched OFF, the pump will turn off after a 5 second delay – to allow the heater to cool down.
3. In some configurations, engaging high speed on a 2 speed pump or operating multiple pumps will cause the heater to load shed and turn OFF (even if heating is required) to keep the system within its available power supply.

Blower operation

Some of our models feature a dedicated air blower power socket and button. The blower button is used to toggle the air blower ON/OFF.

Press  to turn blower ON

Press  again to turn blower OFF

NOTE:


If left ON, blower will automatically turn OFF after a 30 minute time-out period from the last button press.



Light operation

Multi-colour LED lighting effects

The light button is used to toggle the spa light(s) ON / OFF and to access the light mode menus. The features that can be adjusted are the light colour, light effect mode, light effect transition speed, and light brightness. All light settings are saved and will be restored the next time the light is turned ON, for future ON / OFF use.

Selecting Light Colour or Effect Mode

Press the LIGHT  button to turn light(s) on/off => light will display last used light mode. If no changes are required there is no need to do anything further. If however you wish to adjust the light settings refer below:

Use the UP  or DOWN  buttons to toggle between the two light modes:

TITLE	MODE	DESCRIPTION
U.CLR	User Colour	Select from 7 possible colours
FADE	Fade Effect	Fade transition through all colours

User colour mode

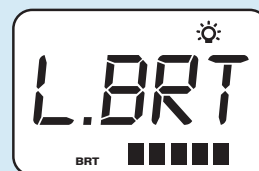
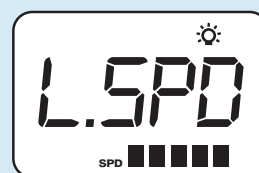
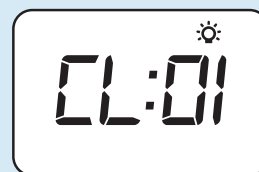
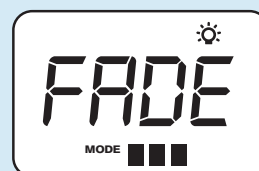
If user colour mode is selected press OK or wait 10 seconds for the display to show the current selected colour number. There are 7 colours to choose from (CL:00 – CL:07). Use the UP or DOWN buttons to adjust the colour. Press OK to confirm and skip to the light brightness adjustment or wait for the 10 second inactivity time out.

Fade effect mode

If fade effect mode is selected press OK or wait 10 seconds for the display to show the light speed (L.SPD) adjustment screen where the speed of the fade transition between colours can be adjusted. Use the UP or DOWN buttons to increase or decrease the transition speed to your desired level. Press OK to confirm and skip to the light brightness adjustment or wait for the 10 second inactivity time out.

Light brightness

Once light mode and colour or light speed has been selected the controller offers a light brightness adjustment. Use the UP or DOWN buttons to increase/decrease the light brightness to your desired level. Press OK to confirm or wait for the 10 second inactivity timeout.



NOTE:

1. The light mode / user colour / light speed / light brightness adjustment screens are only displayed for 10 seconds each when the light(s) are first turned ON. If no adjustment is made the light(s) will run as per the last used settings, and the screen will time-out and revert to the default display mode. If you wish to adjust the light(s) settings once the light(s) have been running for a period of time, the light(s) must be turned OFF and back ON again to restore the light mode adjustment screens.
2. If left ON, the light(s) will automatically turn OFF after a 45 minute time out period from the last button press.

Keylock function

How to set full or partial keylock

The keypad buttons can be locked to prevent accidental key presses or to limit access to certain controller functions. This feature is helpful where children are present or spa is used by many people.

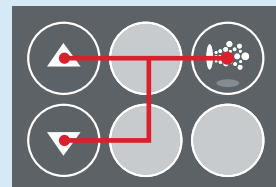
There are two types of keylock:

Full lock - All buttons are disabled.

Partial lock - Allows use of pumps, blower and light but locks out settings and temperature adjustments.

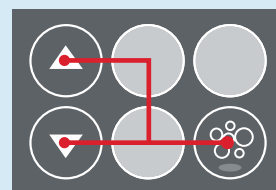
Full lock

- Press and hold UP + DOWN + PUMP A until LOCK appears on the display.
- Once locked if any button is pressed the key stroke will be ignored and display will show LOCK.
- To unlock press and hold UP + DOWN + PUMP A.



Partial lock

- Press and hold UP + DOWN + AUX until LOCK appears on the display.
- Once locked only pumps, blower and light can be used. Other key strokes will be ignored and display will show LOCK.
- To unlock press and hold UP + DOWN + AUX.



Auto daily sanitise

The controller will automatically run a 10 minute sanitise cycle every day at 9:00am. This sanitisation cycle runs the filtration pump and ozone to filter the pool water to restore and refresh water quality. If pump 1 is a 2 speed pump the pump will run in high speed for the duration of the cycle. In addition at the start and end of the cycle the controller will sequentially run any additional accessories (auxiliary, pump2, pump3 or blower if fitted) for one minute each to purge the plumbing and clear any unfiltered water trapped in those accessory lines.

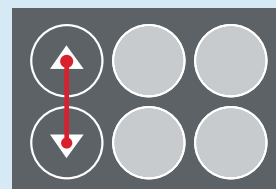
NOTE:

1. If the controller is in a programmed sleep period at 9:00am it will wait until the sleep period ends before the daily sanitise cycle runs.
2. If the spa is in use prior to the 9:00am sanitise cycle start time the cycle is cancelled for the day. Spa in use = button has been pressed and spa has not had the 45 minute inactivity time out expire since the last button press.

Setup menu

The SV Mini controllers feature a setup menu which allows customisation of adjustable software settings. These settings do not need to be modified often and in most cases the default settings are all that is required, however if the spa owner wishes to customise any settings it is completed through the setup menu.

- To access the setup menu press and hold the UP + DOWN buttons simultaneously until display shows FILT.
- Use the UP or DOWN buttons to navigate through setup menu items.
- Press the OK button to enter setting adjustment.
- Press the UP or DOWN buttons to adjust setting.
- Press the OK button to confirm and save the setting adjustment.



Refer to the table on page 16 for details on setup menu items.

Setup menu list

ITEM	SETTING	AUXILIARY BUTTON
FILT	Hours of filtration per day	Adjustable from 1 to 24 hours
SNZE	Sleep Timer Menu	
1.SNZ	Sleep timer 1	[1.DAY] Days of week, [1.BGN] Begin Time, [1.END] End Time
D.DIS	Default display mode	Water Temp (W.TMP) / Set Temp (S.TMP) / Clock (TIME)
WIFI	Wi-Fi Setup Menu	
HOT	Hot spot mode	Activates hot spot mode for Wi-Fi setup process
INFR	Infrastructure mode	Force a disconnect/reconnect to Wi-Fi server to refresh connection
RSET	Reset Wi-Fi module	Deletes all settings and prepares Wi-Fi module for setup process
H.PMP*	Heat pump mode	Auto (heat & cool) / Heat only / Cool only / Off (HP disabled)
H.ELE*	HP + element boost	Off = heat pump only, electric heater disabled (default setting) On = heat pump + electric heater combined for heating

*H.PMP and H.ELE setup menu items will only be visible if a SV Series heat pump is installed and connected to the SV Mini control.

NOTE:

1. The setup menu settings are stored in non-volatile memory (EEPROM) and are remembered when the mains power is turned OFF. No need to reprogram settings when power is restored.
2. A ten (10) second idle menu time out period exists. If a button press is not detected for 10 seconds the menu will time out and the screen will return to the default display mode.

FILT – Filtration (total hours per day)

Automatic filtration is provided to ensure that the pool water is filtered for at least a minimum number of hours each day. Total daily runtime can be adjusted from 1-24 hours (default = 2 hours). Total filtration runtime is broken into smaller blocks which occur every three hours. All time spent running the pump under normal operation (manual use, heating, sanitise cycle) will be taken into account and where required the pump will run for additional periods throughout the day to maintain the minimum level of daily filtration as specified by the user.

SNZE – Sleep timer

The sleep timer is a very handy feature that enables the user to stop all spa activity and silence the spa during certain times of day or night. While the controller is sleeping NO automatic heating or filtration maintenance will occur, however the spa can still be operated by manual use without the need to adjust sleep time settings. The sleep timer setup consists of defining days of operation and begin time and end time of sleep period. Use the UP or DOWN button to adjust each setting within the sleep setup and press OK to confirm and skip to the next setting. Sleep timer settings are referenced in the table below:

ITEM	SETTING	OPTIONS
1.DAY	Selected days of operation	Sat-Fri (7 days), Sat-Sun (weekend), Mon-Fri (weekdays), OFF
1.BGN	Time sleep period begins	Adjustable to any time 0:00 to 23:59 (Default = 22:00 PM)
1.END	Time sleep period ends	Adjustable to any time 0:00 to 23:59 (Default = 07:00 AM)

NOTE:

1. SV Mini is pre-set with a default sleep timer – 7 days a week, begin 22:00 (10PM), end 07:00 (7AM).
2. Set 1.DAY=OFF to disable sleep timer.
3. If spa in use at begin time of sleep period, spa will not sleep until 45 min inactivity timeout has elapsed.

D.DIS – Default display

The user can adjust the default display mode to show their preferred selection of either: **W.TMP** (water temperature), **S.TMP** (set temperature) or **TIME** (current time and day).

WIFI – Wi-Fi setup

This menu is only of use if the optional SpaNET SmartLINK or SmartSTREAM Wi-Fi module has been installed and connected to the SV Mini. This menu has three commands that can be executed. Use the UP or DOWN buttons to select desired command and press the OK button to execute – display will show WAIT whilst the Wi-Fi module carries out the command.

- HOT** Puts Wi-Fi module in hot spot mode for initial app setup. Note: Once initial app setup has been completed if the HOT command is executed again all Wi-Fi settings will be lost and the app setup process must be run again.
- INFR** Forces Wi-Fi module to disconnect/reconnect from the SpaNET app server to refresh connection if spa is not automatically coming online once the app setup process has been completed.
- RSET** Deletes programmed settings from Wi-Fi module and returns the module to its factory default state. Note: If this command is executed settings are lost and the app setup process must be run again.

H.PMP – Heat pump mode

This setting is only visible if a SV Series heat pump is connected and defines heat pump operating mode. The available operating modes are as follows:

- AUTO** Heat pump will heat and cool
- HEAT** Heat pump will only heat (Default)
- COOL** Heat pump will only cool
- OFF** Heat pump disabled

H.ELE – Heat pump + SV element boost

This setting is only visible if a SV Series heat pump is connected and defines how the SV Mini electric heating element operates with a heat pump. By default, this setting is set to OFF which disables the electric heater using only the heat pump for heating. Set to ON to allow the electric element to run in conjunction with the heat pump to boost heating speed if the water temperature is 2°C or more below set temperature point or the heat pump has been operating for more than 1 hour and set point has not been achieved. The H.ELE setting choices are:

- OFF** SV element disabled (heat pump only)
- ON** SV element + Heat Pump for heating

Heating control and protection

Fast Heat Cycle / Freeze and Overheat Protection Fast Heat Cycle. After initial mains power on the SV Mini will perform a fast heat up cycle that enables continuous demand heating regardless of programmed/default sleep timer. Once the set temperature has been reached the fast heat up cycle is cancelled and normal operation resumes and sleep timer is obeyed. The purpose of a fast heat up cycle is to help the spa reach set temperature as soon as possible after it has been powered up. For new spas or spas refilled with cold water it is desirable not to have sleep time delaying the time to takes for the spa to reach set temperature point.

NOTE:

1. A fast heat up cycle is cancelled by manually forcing the filtration pump to OFF via the keypad
2. For new spas or when a spa has just been refilled it is common for spa users to test the operation of each pump when the power is first turned on. This process will cancel the fast heat up cycle. After completing testing of the spa functions remember to reset mains power if you wish to reactivate fast heat up cycle.

Freeze protection

Freeze protection will be activated whenever the water temperature drops below 4°C. It runs back to back 10 minute sanitise cycles and displays "WARM" on the LCD. It also runs each spa accessory (i.e. jet pumps and air blower) in sequence to run water through the pipe work whilst running the filtration pump and heater. During the "WARM" cycle the heater and heat pump (if fitted) will operate however heater load shedding may occur when accessory pumps are running depending on control and load shed settings.

At the end of each 10 minute "WARM" cycle the water temperature is checked. If it is above 4°C freeze protection stops and the controller returns to its prior state. If the temperature is not above 4°C another cycle will run.

NOTE:

Freeze protection overrides the sleep timer- if the water temperature drops below 4°C and the controller is in a sleep period it will wake up. So even if high amounts of sleep time and a low set temperature point have been programmed, the SV Mini will always maintain the water temperature at least above 4°C.

Defrost Cycle (heat pump models only)

During periods of low ambient temperatures defrost cycles may be required to prevent the heat pump's condenser from freezing. Ambient and condenser temperatures are constantly monitored and defrost cycles will be automatically activated if certain conditions are met. Defrost cycles run for a minimum of 3 minutes to a maximum of 10 minutes.

Overhead protection

All SV controllers feature three forms of overheat protection:

1. If sensed water temperature within the heater unit exceeds safe working limits the heating element will be disabled and the controller will shut down and latch fault code (ER4 - Thermal Trip). Normal operation will not resume until heater element has cooled and mains power is reset.
2. If sensed water temperature exceeds 42°C filtration is stopped until the temperature falls below 42°C to prevent heat rise from filtration pump operation.
3. If sensed water temperature exceeds 45°C the controller will shut down and latch fault code (ER5 - pool too hot). Normal operation will not resume until mains power is reset.

TAKING CARE OF YOUR WATER

Initial start up procedure

After first filling your spa, dose either RotoSpa Granular Shock or RotoSpa Non-Chlorine Shock while the pump (only) is running and this procedure ensures that any water remaining in the spa (from factory testing) is immediately treated and bacteria free. Begin bathing only when you have followed the guidance below and chlorine or bromine levels fall back to the normal range.

The importance of circulation and filtration

Your spa will include a pump and a filter chamber as standard, and some models will include a blower. It is a combination of circulating the water through the cartridge, to collect suspended particles and grease, together with good chemical water treatment, that helps you maintain clear, clean and healthy water.

It is advised to run your spa's circulation every day. Whilst your spa is factory-programmed to run a filtration cycle at regular intervals throughout the day, it is worth noting that if the filter cartridge is dirty, filter efficiency and circulation are impaired often leading to poor water quality. Typically, cartridges need deep cleaning every 4-6 weeks, but more regularly when usage or contamination is high. We recommend having a spare filter so that you always have a clean, dry filter on hand. If you do not currently have a spare filter, these are available from our online shop.

Water testing and ideal chemical levels

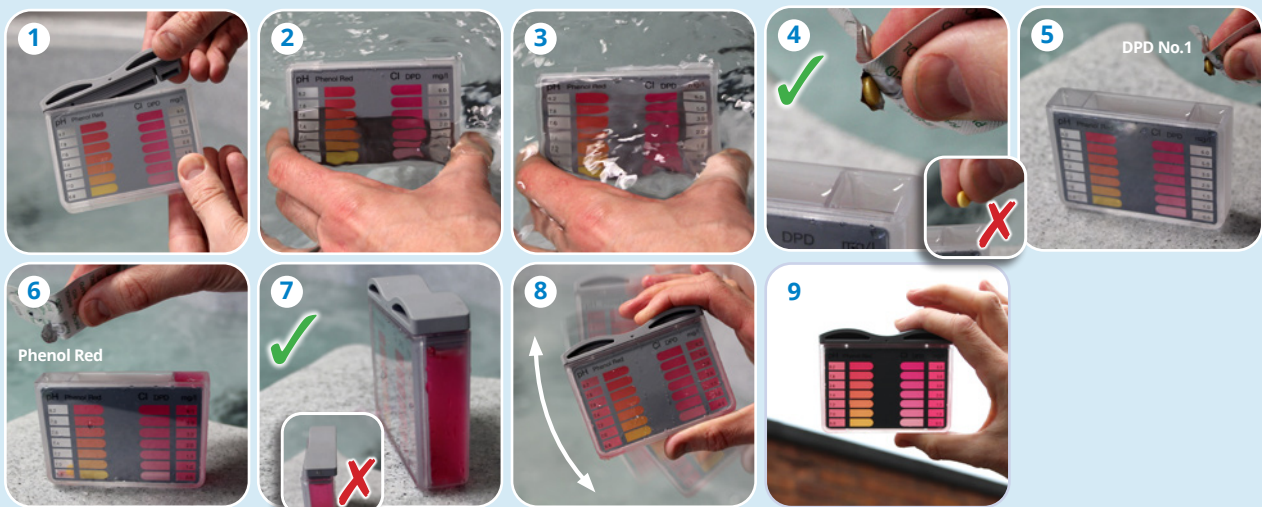
A guide to testing your water

We recommend that you use our Lovibond Pool Tester. This unit tests both the pH levels and the sanitiser levels (Bromine or Chlorine). These are far more accurate than using test strips and are very easy to use. Please see the diagram on the following page for how to use the test kit.

Depending on your usage of the spa, water testing procedures will vary. Domestic users are advised to follow the guidelines on the next page of this guide.

In commercial installations, HSE guidelines regarding spa water testing must be adhered to.

Using the Lovibond tester



Test daily whether the spa is in use or not, to keep on top of requirements as warm water will need regular sanitisation.

TEST	IDEAL READING
Free Chlorine	3-5 ppm* *ppm = parts per million
Bromine	4-6 ppm
pH	7.2 - 7.6
Total Alkalinity	80 - 150 ppm

Chemical water treatments

Bacteria Control – Use either RotoSpa Stabilised Chlorine granules, or RotoSpa Bromine infused granules directly into your spa or alternatively Bromine tablets via a floating or inline dispenser, to disinfect your spa water and keep it free from bacteria. Pre-mix sanitiser in a plastic container, then turn the pump on and deposit near the suction point.

To raise your spa water by 1 ppm of chlorine, add 2g per 1000 litres

To raise your spa water by 1 ppm of bromine, add 3g per 1000 litres

To ensure the correct reading is maintained, it is advised that you should aim for the higher end of the recommended range (5 ppm of chlorine, 6 ppm of bromine). This will act as a useful buffer for fluctuating conditions, such as high bather loads and hot weather.

The rate of chlorine/bromine consumption can and does vary depending on different conditions and they will be consumed even when there is no bathing (i.e. just sunlight or heat). Because of this, the only way to be sure that there is sanitiser present in the water is by testing regularly.

Oxidising – Regular oxidation, either weekly or fortnightly, is recommended to remove any excess contamination and/or remove non filterable wastes. Two ideal products are RotoSpa Granular Shock, or RotoSpa Non-Chlorine Shock.

pH Control and water balance – The pH scale of 0-14 measures acidic or alkali conditions respectively. The middle reading of 7 is neutral, so spa water with a pH below 7 is acidic and spa water with a pH above 7 is alkaline.

For spa users, the ideal pH level is slightly alkaline, between 7.2 – 7.4, ensuring protection of the spa equipment and bather comfort is maintained. We recommend always aiming for 7.2 on the pH scale, as this is the point at which chlorine is most effective.

Maintaining ideal TA (total alkalinity) and total hardness levels will ensure fully balanced water. Low levels tend to lead to aggressive water, with high levels leaving to scale formation.

It is easier to raise the chemical levels, but more difficult to lower them without draining/diluting the spa. However, high levels of hardness associated with hard water may be countered by regular treatment with RotoSpa scale inhibitor. Alternatively, use a Pure stream Pre-Filter (available from www.rotospa.co.uk/shop/) when filling the spa, ensuring you adhere to the instructions.

High pH	Risk of...
High TA	> Skin/eye irritation
High Hardness	> Scale formation
7.2-7.4	→ Ideal pH
Low Ph	Risk of...
Low TA	> Reduces effectiveness of chlorine
Low Hardness	> Equipment corrosion, especially metals
	> Unpleasant odours and bather discomfort
	> Chlorine used up rapidly

Adjusting for water balance

If the pH of your spa water is above 7.6, then use RotoSpa pH minus to reduce it, using the instructions on the container. If the pH is below 7.2, then use RotoSpa pH plus to increase it, again adhering to the instructions. If TA or hardness are below 80 and/or 100 respectively, then use RotoSpa spa alkalinity increaser and/or RotoSpa spa Hardness increaser to raise.

Also be aware that continued use of the hydro jets where the air control(s) are turned on, will cause the pH to naturally rise, so always ensure these are turned off when you are not using the spa.

Foam control

Foam appearing on the surface of the water can be unsightly. Due to warmer spa water, the build-up of foam agents from bodily oils, cosmetics etc, can sometimes exceed the spa filter cartridge's ability to remove them. In such cases an easy remedy is available using RotoSpa FoamAway, dosed as below for effective foam control.

	DOSE	SPA VOLUME
INITIAL DOSE	100ml	1000 litres / 220 gallons
WEEKLY DOSE	50ml	1000 litres / 220 gallons

Cleaning and maintenance

Periodic cleaning of waterline grease using RotoSpa Surface Cleaner will not only help your spa look good but will also optimise the use of your chemicals and help to reduce the time in which your filter cartridge becomes dirty.

Always use RotoSpa cleaning products as household products often contain detergents that cause foam.

Draining, re-filling and cleaning cartridges

Over time, water absorbs minerals, chemicals and other soluble materials that lead to an increase in Total Dissolved Solids (TDS) in spa water, This, in turn, reduces chemical effectiveness, can create dull water and makes spas hard to maintain correctly.

To avoid this; as a guide, drain and re-fill the spa every 2-3 months, although poorer quality water may require more frequent draining. For commercial installations, please refer to the relevant HSE guidelines with regard to draining your spa.

It is advised to periodically, and at least once per year, purge spa pipe work by adding RotoSpa Spa Flush prior to draining the hot tub. We would advise you book a service with us to carry out this procedure for the best results. When cleaning dirty cartridges, on draining down, it is prudent to always have a spare cartridge to readily load into the filter housing. This allows thorough cleaning of the dirty cartridge and for it to fully dry out before being used again.

We advise that you should carry out cleaning the filter cartridge weekly, but more so if needed. Cleaning should consist of rinsing the cartridge with a high-pressure hose and allowing it to dry before reinsertion. For a deeper clean, soak the cartridge overnight in a large enough container with some RotoSpa cartridge cleaner. Rinse with a high-pressure hose, again allowing it to dry before reinsertion.

RotoSpa hot tub volumes

DuoSpa	500 litres / 110 gallons
OrbisSpa	850 litres / 187 gallons
QuattroSpa	1000 litres / 220 gallons
DuraSpa	1000 litres / 220 gallons

Safety tips

Chemical handling

- Read instructions thoroughly on each product before use
- When pre dissolving chemicals always add chemicals to water and not vice versa
- Never mix different chemicals in concentrated forms including RotoSpa kit products but also with other products like bleach or weedkillers, -a dangerous reaction may occur
- Always pre-dissolve chemicals in a clean, plastic container in a well-ventilated area.
- Avoid spillages but in the event of a spillage clean up using clean receptacles and dispose in the spa. Flush cleaned spill areas with water
- Never use unlabelled chemicals
- Wash hands after handling spa chemicals.

Storing chemicals

- Store chemicals well away from children and pets
- Store in a secure, cool and dry place.

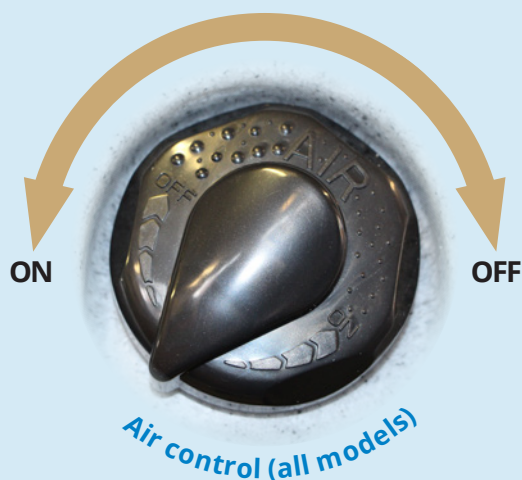
SYMPTOM	CAUSE	REMEDY
Green water/cloudy water	Inadequate sanitiser. Algae may be present	Shock dose with RotoSpa Granular Shock or RotoSpa Non-Chlorine Shock
Too much chlorine	Overdose	Allow time to naturally dissipate or buy a chlorine reducer
pH Hard to control	Alkalinity low	Use RotoSpa Scale inhibitor to raise alkalinity
Cannot maintain chlorine levels	Chlorine demand of water too high at start up, after holidays or due to excessive contamination or neglect	Shock dose with RotoSpa Granular shock or RotoSpa Non-Chlorine Shock. Or use a double dose of RotoSpa Stabilised Chlorine Granules/RotoSpa Bromine Granules
Foaming water	Oils/detergents present	Clean cartridges or consider if time to drain and refill. Retest water and add chemicals if necessary
Rough spa sides/edges	Scale formation	Ensure pH levels are correct and if scale persists use RotoSpa ScaleAway to stop calcium precipitating out of water
No colour change during test procedure	Chlorine level too high bleaching indicators (Over 15 ppm chlorine)	Check expiry date on test tablets. Wait for chlorine level to drop and retest.
Test results vary	Air bubbles can increase pH temporarily and reduce alkalinity	Test when system turned off for true results

OPERATION

General

When freshly filled with water (or left with the power off with the water cooling to ambient temperature); your spa will need to run between 6 and 12 hours to reach a temperature of around 37°C, which is an ideal operating temperature. Heating should always occur with the thermal cover fitted and any air controls set to the OFF position to optimise energy efficiency.

Your spa should never be set to a temperature of over 40°C as your normal body temperature is around 37°C, and setting the temperature to match this will be the most comfortable. Please note that if the temperature in the spa reaches above 43°C the heater will switch off until the water temperature drops.



Hydro jet system

Your spa will be fitted with either one, two or three air controls depending on your model. These can be adjusted to increase or decrease the air content in the jet streams. They do this by introducing external air into the system when the air control is turned on. This air gets drawn into the passing water under the Venturi effect which increases the intensity of the massage. With the air control dial (pictured left) turned to 11 o'clock, the hydro-air will be turned on fully. To turn the air control off, turn the dial to 1 o'clock.



The power of most jets (with the exception of any small, fixed ozone jets) can be individually adjusted by a part turn of the fascia of the jet. The massage jets can be closed by turning the face in a clockwise direction, or opened by turning the face in an anti-clockwise direction (see page 11).

On the QuatroSpa only, the large master massage jet can be turned off by turning the handle of the diverter valve to 9 o'clock. This jet can be opened partially when the handle is turned to 12 o'clock, or fully in the 3 o'clock position. Turning this jet on fully isolates the flow from every other jet in the spa to concentrate all of the power through the master massage.

MAINTENANCE

Once your spa is filled with water it is essential to keep the water clean and hygienic by paying regular attention to the water chemistry and filtration systems. Although your spas ozone generator will do a very good job of killing bacteria and oxidising the water, this needs to be supplemented by the use of chlorine or bromine.



Chemicals

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Filtration

Your spa is factory set to run a filtration cycle every 2 hours and this will prove adequate to trap most solids and debris from the water. The presence of body oils or other materials that are too small to be removed may result in undesirable water conditions such as foaming or dull water. A product such as chlorine shock can be purchased to rid your spa of unfilterable wastes; other products are also available such as de-foamer, water clarifier and cartridge cleaning materials.

It is recommended regular spa users replace the filter cartridge once every 12 months with regular cleaning.



DuoSpa models
FILT 0019



Orbis & QuattroSpa
FILT 0020



DuoSpa models
FILT 0019

Replacement filter codes are as follows:

For a wide selection of genuine, RotoSpa approved products; visit our convenient online shop at:
www.rotospa.co.uk/shop/

Cleaning

The filter in your spa should be cleaned at least once a week or more regularly for heavy users and spas with high bather loads. When removing the filter, **ALWAYS ENSURE THAT THE SPA IS SWITCHED OFF**. Clean the filter by hosing with fresh water and, if greasy, soak overnight in a dedicated filter cleansing agent. Rinse thoroughly and refit the filter cartridge (see pages 8 & 9).

The suction grate in the base of your spa is also designed to trap debris to prevent damage to the massage pump, and this will require cleaning at regular intervals.

Cleaning your spa

The spa surface can be cleaned by using a micro-fibre cloth with a dedicated spa surface cleaner. This can be best done when the spa is empty and should be rinsed out well before re-filling. The thermal cover can be cleaned using a sponge with a mild non-abrasive liquid detergent in warm water. You should also clean your spa cover once a week with a solution of 10mg/l of free chlorine to disinfect it.

Draining

For regular users, we recommend replacing the water approximately six times per year to reduce the build-up of total dissolved solids, including wastes such as perspiration and cosmetics. To empty the spa, simply attach a hose pipe to the drain valve, and open the tap. On DuoSpas only, you will need to remove the cap from the drain valve first, and screw on the supplied hose adapter.

Alternatively a good quality electric submersible pump will empty the spa very quickly. Any excess water can be scooped and sponge-soaked from the recesses within the spa shell.

Winterisation

To obtain the maximum benefits of spa ownership, RotoSpa recommends continued use of your hot tub throughout the winter months; however, if you do not intend using your spa during the winter, simply reduce the temperature so there are no issues with freezing pipes.

Should you prefer to turn the power off and drain your spa completely; we recommend you contact RotoSpa on 0121 354 3428. We will send an engineer to carry out this task thoroughly, draining not only the spa basin, but all of the internal pipework as well by undoing unions to the pump and heater to allow further drainage. The spa will then be placed on its side.

PLEASE NOTE: Any damage caused by freezing pipes as a result of incorrect drainage is not covered by the manufacturer's warranty.

TROUBLESHOOTING / ERROR CODES

ERROR	PROBLEM	CAUSE	SOLUTION(S)
ER-2 HEATER PLUG	No heater sensor communication.	Sensor cable is not correctly connected to the spa controller or is damaged.	Contact your spa pool supplier.
ER-3 WATER PRIME	Water prime has failed.	Airlock in pipework, water level too low, dirty filter cartridge.	<ul style="list-style-type: none"> • Check the spa water level and top up if necessary. • (On DuraSpas only) open the slow release valve on the filter housing lid to bleed any air out of the system, and re-tighten. • Press 'Pump A' button to retry water prime. • Remove filter cartridge and press pump 'A' button to retry water prime. • Ensure waterfall (if present) is turned on. • Turn off mains, and restart.
ER-4 THERMAL TRIP	The heater thermal trip has activated. The heater has been active and has had insufficient water flow over the element. Slow or no water flow has caused the temperature of the water inside the heater tube to exceed its maximum limit and the spa controller has shut down operation to prevent any damage to the heater unit.	Low water level, airlock in pipework, closed jet faces, dirty or clogged filter cartridge, pump has failed or operation intermittent, closed waterfall.	<ul style="list-style-type: none"> • Check water level and top up if necessary. • Check all jet faces are in the on position. • Remove filter cartridge and clean as per manufacturer's recommendations, or replace if required. • Bleed any airlocks out of the system (see ER-3 solutions). • Ensure waterfall (if present) is turned on. • Turn off mains, and restart. • Contact you spa pool supplier if the problem persists.
ER-5 POOL TOO HOT	Pool over-temperature. Temperature sensor is reading 45°C or above.	High ambient temperatures (most likely during summer months) have caused the water temperature to rise above its set point. Excessive filtration time, pump has been operated for extended periods of time with the spa cover still on.	<ul style="list-style-type: none"> • Turn off mains power, remove the spa cover and allow the spa to cool down before turning back on. • Check the daily filtration time settings and reduce the filtration time if required. (Refer to SpaNet SV Mini user manual). • Check spa cover is not resting on the touchpad buttons causing the pump to start when cover is on. Use key lock function to lock keypad buttons when the spa is not in use. • Contact your spa pool supplier if the problem persists.

ERROR	PROBLEM	CAUSE	SOLUTION(S)
ER-6 12V OVERLOAD	12V port current draw over 1A limit.	Total 12V current drawn by touchpad, lights, expansion ports and temperature sensor is excessive, 12V power supply is overloaded, too many LED bulbs installed, faulty LEDs.	<ul style="list-style-type: none"> • Turn off spa and restart to see if the problem reoccurs. • Systematically unplug LEDs, touchpad and expansion port loads from the control box PCB (one by one) to identify the faulty 12V device. • Contact your spa pool supplier if the problem persists.
ER-8 CTRL FAULT HVS	Heater relay is on when it should be off.	Power surge, periods of low or high voltage, water on spa pack terminal block causing a short circuit, faulty relay.	<ul style="list-style-type: none"> • Turn the spa off and on again to see whether the spa control recovers from the ER8 fault. • Contact your spa pool supplier if the problem persists.

CONTACT US

A downloadable version of this document is available via our website www.rotospa.co.uk, however if you require any further assistance with your RotoSpa Hot tub please don't hesitate to get in touch with us.

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