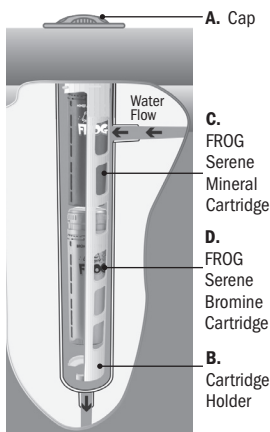


# FROG Serene™ In-Line System Operating Instructions



**Cleaner**  
because it kills bacteria two ways  
**Clearer**  
because it helps keep pH balanced  
**Softer**  
because there's up to 50%\* less bromine  
**Easier**  
with pre-filled cartridges for no mess, or measuring



Cut-away view of cartridges snapped into holder and placed into the FROG® Serene™ In-Line System.

The In-Line System is made up of:

(A) a **cap** that is easily distinguishable among the fittings on the top of the hot tub

(B) a **cartridge holder** that pulls out of the system

(C) a **FROG Serene Mineral Cartridge** that helps control bacteria in the water

(D) a **FROG Serene Bromine Cartridge** that helps support the minerals while oxidizing contaminants like body oils and ammonia compounds responsible for smelly chloramines. The cartridges are adjustable to meet your specific hot tub water care needs.

Ver la versión en español de este manual en [frogproducts.com](http://frogproducts.com)

## Step 1: Prepare the Hot Tub

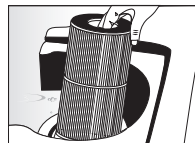
1.



**Fill hot tub with fresh water.**

If using source water that is high in iron or other metals, see your dealer before filling the hot tub. It may require the use of a metal control product.

2.



**Clean or replace filter cartridges when dirty.**  
(Follow manufacturer's instructions).

3.

**Balance water by following STEPS a — d in order.**

**IMPORTANT:** Always follow printed instructions on the balancing chemical packages. Add balancing chemicals in small increments one at a time with the jets on and wait 6 hours before testing again and adding any additional balancing chemicals.

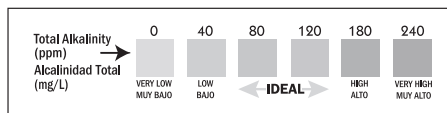
### Water Balance Guidelines

pH:	7.2 - 7.8
Total Alkalinity:	80 - 120 ppm
Hardness:	150 - 250 ppm
Total Dissolved Solids:	<1500
Cyanuric Acid:	0 - 50 ppm

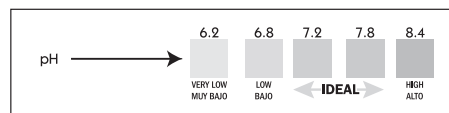
**a.** Take a water sample from the hot tub and dip a FROG Test Strip into it.



**b.** Look at the **Total Alkalinity** reading first. Adjustments should be made to bring the Total Alkalinity in the **range of 80 - 120 ppm** prior to making any adjustments to pH even if it throws pH off further.



**c.** After Total Alkalinity is in range, **test for pH**. It should be **between 7.2 and 7.8**. If higher or lower, add a pH adjuster.



**d.** Lastly **test for Hardness**. It should be **between 150 and 250 ppm**. If higher, partially drain the hot tub (about 6 inches) and fill with water low in calcium. If lower, add Calcium Increaser.

**If balancing takes longer than 2 days, shock the water and maintain a chlorine level while continuing balancing.**

4.



**Very Important!** After balancing and before using cartridges, establish an initial residual of 1.0 - 2.0 ppm free chlorine with FROG Jump Start® start-up shock that quickly dissolves with an effervescent fizzing action – one packet per 600 gallons.

5.

Heat water to the manufacturer's recommended temperature.

## Step 2: Set the Cartridges



**Set the blue FROG Serene Mineral Cartridge** to #6 (hold the bottom and turn the top until 6 appears in the window). No further adjustments are necessary for the life of the cartridge.

System Setting Chart	
200 Gallons	0
250 Gallons	1
300 Gallons	1
350 Gallons	2
400 Gallons	3
450 Gallons	4
500 Gallons	5
550 Gallons	5
600 Gallons	6

**Set the green FROG Serene Bromine Cartridge** to the setting that matches your hot tub size in gallons.

For one week test the water daily with FROG Test Strips and adjust cartridge up or down by 1 setting per day until the color on the test strip matches the ideal FROG bromine range of 1.0 to 2.0 ppm.

## Step 3: Put the System to Work

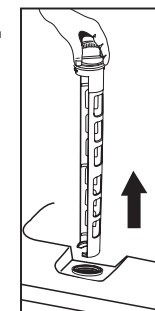
1.



Open cap of In-Line System and set aside.

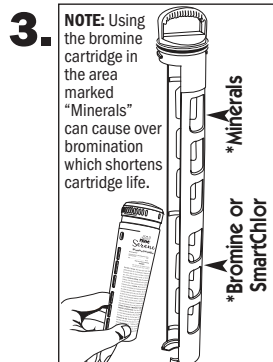
DO NOT OPEN CAP WHILE JETS ARE ON.

2.

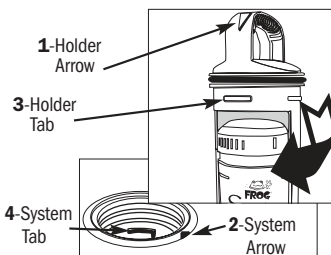
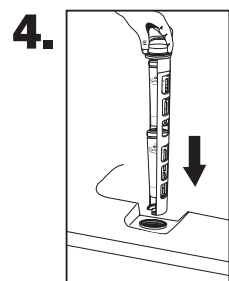


Remove holder by pushing down and turning counter clockwise 1/8th turn before pulling out.

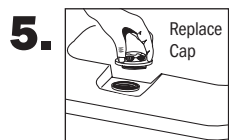
### Step 3 Continued . . .



Snap the FROG Serene Mineral Cartridge into the area marked "Minerals" (top portion) and the FROG Serene Bromine Cartridge into the area marked "Bromine or SmartChlor" (bottom portion) making sure to line up the indentation at the top of the cartridges with the raised area on the holder.



Slowly insert holder into system. Line up **holder arrow (1)** with **system arrow (2)**. Push down until **holder tabs (3)** go past **system tabs (4)** and turn holder to the right (clockwise) until it stops. To ensure a locked position, attempt to pull holder up. If it stays in place, the lock is secure.



### Replacing Cartridges

**Replace blue FROG Serene Mineral Cartridge every 4 months or when draining and refilling hot tub.**

- Discard it in the trash even if it appears to have media left inside.
- Don't attempt to reuse: the minerals are spent after 4 months.

**Replace green FROG Serene Bromine Cartridge when empty.**

- Life of cartridge varies depending on hot tub size and number of users.
- Drain water from cartridge to ensure it is empty.
- Discard in trash or offer for recycling if available.

## Step 4: Routine Hot Tub Care



Drain and refill hot tub as directed by your hot tub manufacturer. Whenever you drain and refill, make sure to replace your FROG Serene Minerals.



Run filtration system as recommended by your hot tub manufacturer to maintain proper water flow through the system.

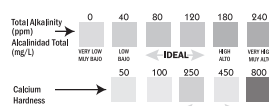


Regularly test water with FROG Test Strips and follow directions in Step 1 for maintaining pH, Total Alkalinity and Calcium Hardness.

**NOTE:** pH is affected by bather load, chemicals used, evaporation and the make-up of your source water so maintaining water balance regularly is important.

## Troubleshooting

### • Cloudy Water or Low-Bromine Levels



- Check water balance. pH and Total Alkalinity need to be in the proper ranges for the FROG Serene In-Line System to work correctly.

- Check FROG Serene Bromine Cartridge and replace if empty, replace following directions in Step 3.



- Make sure your FROG Serene Mineral Cartridge is not older than 4 months as it will be ineffective and more bromine will be required to maintain the hot tub until you replace the minerals.
- Shock the hot tub with FROG Maintain, a non-chlorine shock.

**4.** Maintain at least a 1.0 ppm bromine level at all times.  
**Note:** Bromine levels are lower only when used with FROG minerals.



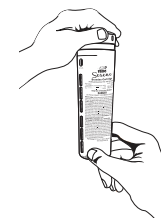
**5.** Shock the hot tub once a week or as needed with FROG Maintain™, a non-chlorine shock for easy single-dose shocking. Additional shocking may be required if the hot tub is under heavy use.



**6.** Replace FROG Serene Mineral Cartridge and FROG Serene Bromine Cartridge as directed in Step 3: Put the System to Work.

**7.** Lubricate in-line holder o-ring twice a year with a silicone lubricant.

### • High Bromine Levels



- Remove the FROG Serene Bromine Cartridge from the In-Line System until the bromine level is down to 2.0 ppm.

- Lower the FROG Serene Bromine Cartridge setting by 1 number and replace cartridge in the In-Line System.

- Test in 24 hours. Repeat process until bromine level stays within 1.0 to 2.0 ppm.



**Manufactured by: King Technology, Inc.**

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Ver la versión en español de este manual en [frogproducts.com](http://frogproducts.com)

Learn more at [frogproducts.com](http://frogproducts.com) or call 800.222.0169

\* Compared to the minimum ANSI recommended bromine or chlorine level of 2.0 ppm in a residential hot tub.

∞ For pools and hot tubs.

Made in U.S.A. Patents: [kingtechnology.com/IP](http://kingtechnology.com/IP)

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