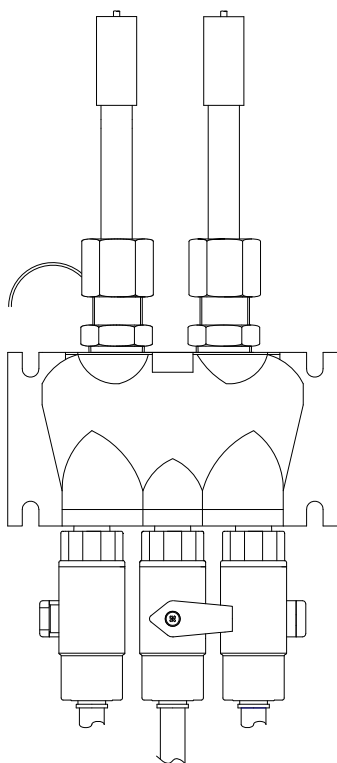


# ROLA-CHEM<sup>®</sup>

## GLOBE FLOWCELL



## Operating Manual

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### 1. SAFETY

**See controller manual for additional safety instructions.**

**1.1 WARNING!** Do not shut down circulating and control system immediately after using pool, spa or hot tub. Systems must operate until water chemistry is stable. Systems must be restarted before water chemistry is out of NSPI recommended ranges or water chemistry must be manually corrected.

**1.2 WARNING!** Removing power from circulating pump must also remove power from the controller. Provide a properly located outlet controlled by the circulating pump circuit.

**1.3 WARNING!** Use a device such as a flow switch to remove power from the controller in the event of pool pump or circulation failure. It is not safe to automatically dispensed chemicals into a circulating system that is not running.

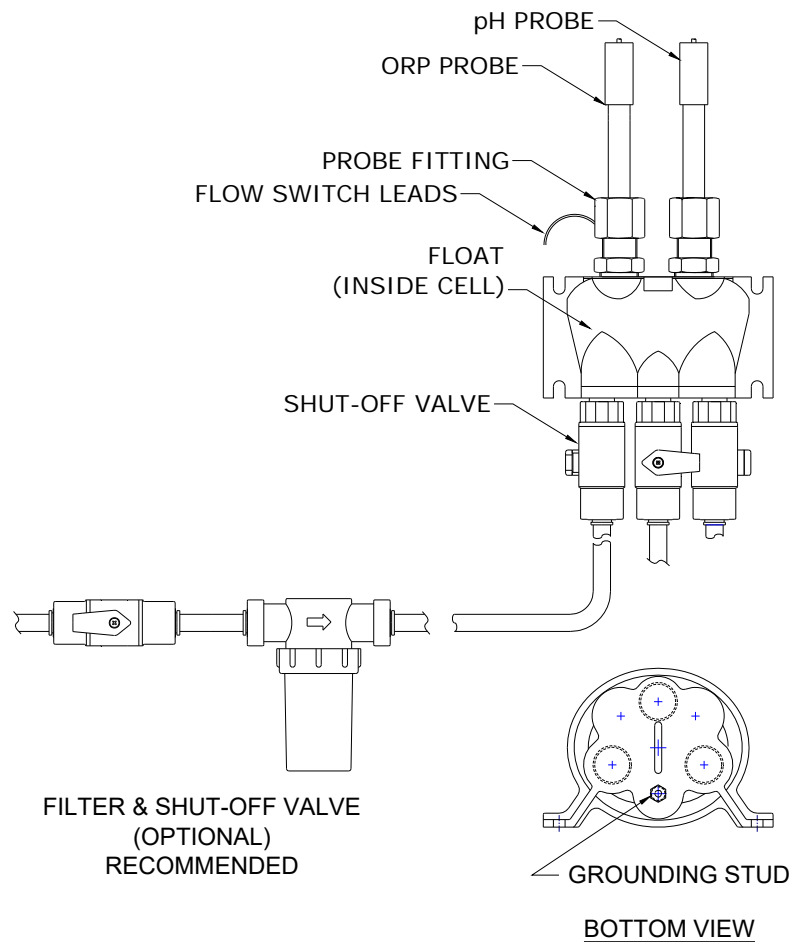
### 2. Description

The Flowcell is designed to be used with a controller as part of a chemical automation system, which continuously monitors and maintains pH balance and sanitizer level in a swimming pool or spa.

### 3. Installation

#### 3.1 Mount Flowcell

Pre-mark hole locations for Flowcell mounting screws using the Flowcell. The Flowcell should not be above the controller unit or other equipment or electrical devices. Flowcell holes will accept #10 screws.



### 3.2 Install pH and ORP Probes

Special gold tipped probes are recommended for application with Salt Chlorine Generators. Note: standard probes have platinum tips.

Probe ends should not be allowed to dry out. They are packaged within a jar to keep the ends wetted during shipment and storage. Remove the probes from wetting jars by unscrewing the jar cap. Remove the jar cap and grommet from the probe. (Save for future probe storage.) Close left and right Flowcell valves, and open the center Flowcell valve.

Remove nuts from probe fittings and slide onto probes, noting direction of nut thread. Insert the pH probe into the right probe receptacle. Probe should slide freely through the fitting and into the Flowcell until it bottoms out inside the Flowcell. Then raise the probe about 1/8", hold in position and finger-tighten the nut onto the fitting. Use a wrench to tighten the cap about another 1/4 turn.

**DO NOT OVER TIGHTEN.**

Repeat the procedure for the ORP probe in the left probe fitting.

### 3.3 Install Flowcell Connections to the Pool Water System

Turn off the pool's pump system during this procedure.

Check that sufficient tubing (supplied) is available for connecting Flowcell prior to drilling holes. Additional tubing may be obtained –see parts list for part numbers.  
Do not exceed a total of 40' of tubing.

Select installation points in the Pool Circulation System for the fitting that will provide flow into the Flowcell. The inlet to the Flowcell should be at a higher pressure than outlet of the Flowcell to provide flow through the Flowcell. Assuming the inlet connector will be located upstream of the pool filter and the outlet connector will be located downstream from the pool filter, proceed as follow:

Cut a length of black plastic tubing long enough to reach from the left (inlet) Flowcell Valve to the installation point on the upstream side of the pool filter.  
Install this piece of tubing into the left Valve of Flowcell. (Turn this Valve 'off.')

Cut a length of black plastic tubing long enough to reach from the right (outlet) Flowcell fitting to the installation point on downstream side of the pool filter.  
Install this piece of tubing into the right Valve of Flowcell. (Turn this Valve 'off.')

A length of tube can also be added to the center Flowcell Valve for convenience of water sampling.

Drill and tap a 1/4" NPT thread into a straight section of water pipe at both installation points.

Screw in 1/4" MNPT x TUBE fitting and tighten.

Note: use Teflon<sup>®</sup> tape on pipe threads and **DO NOT OVER TIGHTEN.**

Connect the tubes coming from the Flowcell Valves into the fittings.

Open both the left and right Valves on the Flowcell (close the center Valve).

Turn on the Pool's pump system and check for water leaks. Fix leaks as required.

If flow is backwards, the Float will not move up. Reverse the tubes if needed.

Connect the two Probe cables to controller. The pH Probe cable connects to the mating jack on the bottom of the controller labeled "pH." Push the connector onto the jack and turn clockwise about 1/4 turn. The ORP Probe cable connects to the mating jack on the bottom of the controller labeled "ORP."

### 3.4 Connect Flow Switch

Although the Float is an integral part of the flow switch, it is visible through Flowcell wall and may also be used as a manual flow indicator. On Controllers with a flow switch feature, connect the two lead wires as specified in the Controller manual.

### 3.5 Connect Grounding/Bonding Stud

The Flowcell is supplied with a titanium grounding/bonding stud. It is recommended that this stud be used to ground/bond the Flowcell process water to earth ground.

Grounding/bonding the Flowcell helps to eliminate ground loop problems that could potentially damage probes and/or cause erroneous readings.

## 4. Use of Flowcell

### 4.1 Flowcell Inlet and Outlet Valves

#### 4.1.1 Adjusting flow through Flowcell

Turn left Valve to full on position.

Close the right Valve and then open it until the Float rises to the top of its chamber. The Float will not rise if flow is not sufficient or is backwards.

#### 4.1.2 Removing Probes

The Valves allow the operator to remove Probes without shutting down the pool pump. Close both left and right Valves before loosening the Probe fittings.

Whenever re-inserting Probes in Flowcell, open center Flowcell Valve before and during insertion to relieve pressure, then close the center Valve after Probe insertion is complete.

### 4.2 Sampling Water Using Sampling Valve

The center Valve on the Flowcell can be used to conveniently take water samples from the pool water.

**NOTE: Globe Flowcell valves should be closed when back flushing filter to prevent damage to probes.**

## 5. Maintenance

### 5.1 Cleaning

Periodically (approx. every month) remove Probes from Flowcell and clean them using cotton swab or cloth. Clean more frequently as required (i.e. if bathers use large amounts of oils and sun tan lotions in the pools).

Note: When using di-chlor or tri-chlor products clean probes every 2 to 3 weeks. Clean Probes with dishwashing liquid and cotton swab or cloth, then soak end for three minutes in a solution of muriatic acid diluted 20:1. Then rinse with water.

**WARNING!** Always add acid to water. Never add water to acid. (e.g. fill container with water then add acid) Wear protective clothing, gloves and safety glasses.

### 5.2 Do not let Probe ends dry out

At year end shutdown, remove Probes from Flowcell and return to wetting jars. If it is expected that Flowcell may go dry for a long period (several hours), remove them from the Flowcell and submerge tips in water. Use pH buffer solution in wetting jar to protect Probes. Drain the Flowcell to prevent freeze damage. Plug Probe fitting openings in Flowcell to minimize contamination.

### 5.3 Test flow switch monthly

Close left-hand valve on Flowcell and confirm the flow light turns off. Then re-open valve and confirm that light turns back on. A properly installed and functioning flow switch will disconnect power to chemical feeders if there is no water flow in the circulation plumbing.

### 5.4 Refer to Feeder and Controller manuals for their maintenance

## 6. Troubleshooting

### 6.1 If Controller doesn't appear to be reading correctly:

6.1.1 Inspect Probes. See Cleaning in Maintenance section.

6.1.2 Check the pH Probe with 7.2 pH buffer solution.

The ORP Probe can be checked with a solution of 1 drop 5.25% bleach (i.e. household bleach) and 1 pint water. This should provide a 1-2 ppm free chlorine solution (check with test kit) Add one drop of chlorine at a time to adjust test mixture as required. Put ORP Probe in mixture. The ORP reading should be 600 to 800 mV.

Note: It may take three to five minutes for Probes to respond to solution. If it takes longer you should replace the Probes.

6.1.3 Adjust flowrate through Flowcell. Incorrect ORP/pH reading can occur if water is flowing too fast in the Flowcell. Variable speed circulation pumps can cause Float to indicate incorrectly. See Adjusting flow in Use of Flowcell section.

6.1.4 Verify that Probe ends are in the flow stream of the Flowcell.

### 6.2 If Controller flow light is not on:

6.2.1 Confirm that adequate flow is going through the Flowcell.

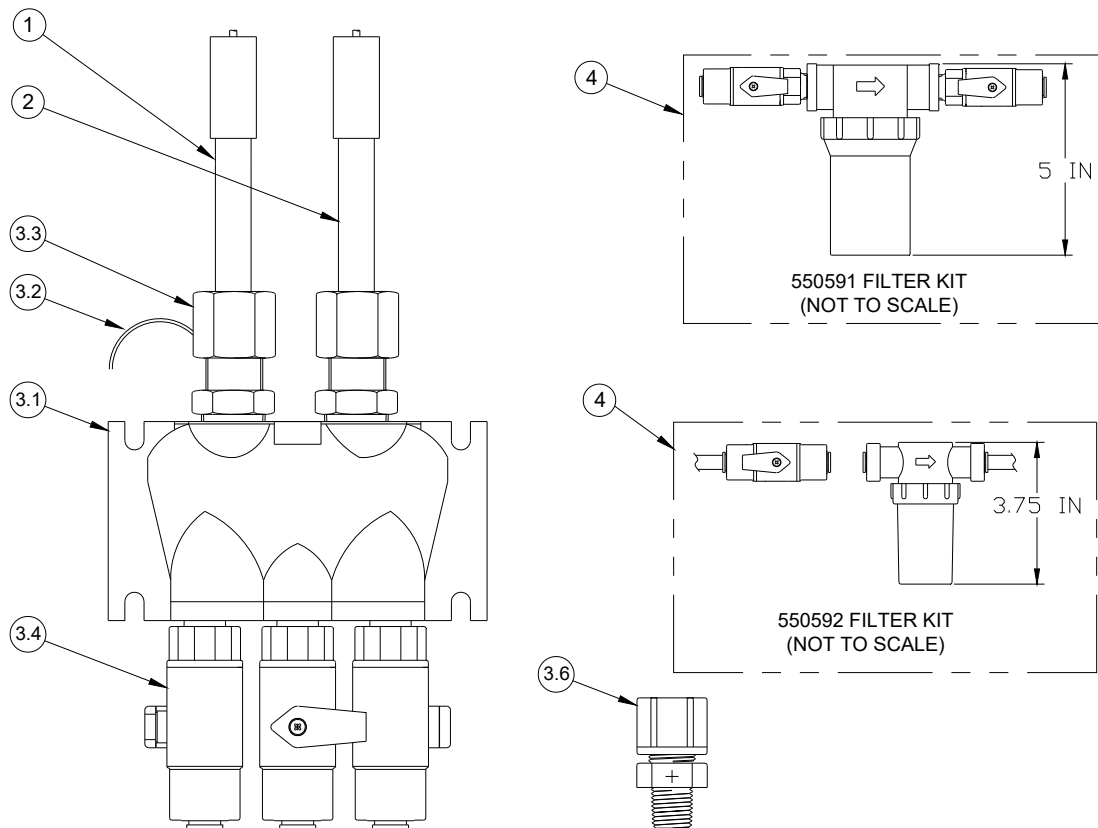
Open center Sampling Valve on the Flowcell. If light turns on, this may indicate a blockage between right (outlet) Flowcell fitting and the installation point on downstream side of the pool filter.

6.2.2 Confirm that Flow Switch float is free to move.

6.2.4 A filter on the inlet to the Flowcell can reduce contamination that can cause Flow Switch float to stick.

**NOTE: It is recommended that an inline filter be used to help keep the Globe Flowcell (including probes) and flow switch free from debris. Debris may cause obstruction in flow switch and prevent the switch from functioning.**

## 7. Parts List



ITEM NO.	PART NO.	DESCRIPTION
1	550136	ORP PROBE- HEAVY DUTY, 8 FT CABLE
1	550209	ORP PROBE- HEAVY DUTY, 3 FT CABLE
1	550201	ORP PROBE- GOLD TIP, 8 FT CABLE
2	550135	pH PROBE- HEAVY DUTY, 8 FT CABLE
2	550208	pH PROBE- HEAVY DUTY, 3 FT CABLE
3	550180	FLOWCELL ASSEMBLY, 3/8 TUBE (INCLUDES 3.1 THRU 3.6)
3.1	550181	FLOWCELL, CLEAR GLOBE
3.2	550183	FLOW SWITCH
3.3	550089	PROBE FITTING (qty 2)
3.4	7125190	VALVE, SHUT-OFF, PVC-3/8 TUBE X 1/4 NPT (qty 3)
3.5	550194	TUBING,PE, 3/8 OD x 40 FT
3.6	550193	FITTING,PP, 3/8 TUBE X 1/4 NPT (qty 2)
4	550591	FILTER KIT, 3/8 TUBE (LARGE FILTER) (OPTION)
4	550592	FILTER KIT, 3/8 TUBE (SMALL FILTER) (OPTION)

### ITEMS USED ON FLOWCELLS WITH 1/4 TUBING

550054	VALVE, SHUT-OFF, PVC-1/4 TUBE X 1/4 NPT
550027	TUBING, PE, 1/4 OD x 40 FT
550026	FITTING, 1/4 TUBE X 1/4 NPT

## 8. Warranty and Service

### Limited Warranty:

ROLA-CHEM<sup>®</sup> warrants the original purchaser that this unit is free from manufacturing defects in material and workmanship from the date of the original purchase for one (1) year.

If this unit fails within the one (1) year period, it will be repaired or replaced (ROLA-CHEM<sup>®</sup> option) at no charge, when returned to ROLA-CHEM<sup>®</sup> with proof of purchase receipt. This warranty does not apply to any product damage caused by improper use, accident, misuse, improper line voltage, fire, flood, lightning, earthquake, other acts of nature, or if product was altered or opened by anyone other than qualified ROLA-CHEM<sup>®</sup> personnel.

All expendable items (tubing, etc.) are not covered under this warranty.

Heavy duty probes are warranted from the date of original purchase for one (1) year. Standard duty probes are warranted from the date of original purchase for 90 days.

ROLA-CHEM<sup>®</sup>, under no circumstances, shall be liable for any consequential damages directly or indirectly caused by this unit. Please observe all rules and regulations required by state and local regulations, building codes, health codes, OSHA, etc.

**Service Procedure:** For operation assistance in the United States please call: (800) 549-4473, Monday through Friday 8:00 am-5:00 pm Central Time or email: [info@rola-chem.com](mailto:info@rola-chem.com). Have model number and serial number available.

ROLA-CHEM<sup>®</sup> has specialized knowledge and equipment to test and diagnose your product. Contact our service personnel as noted above for assistance. If you are directed to ship the product to ROLA-CHEM<sup>®</sup> and given an RGA#, please note RGA# on the package and ship freight pre-paid to:

ROLA-CHEM<sup>®</sup>  
5858 Centerville Road  
St. Paul, MN 55127-6804

[www.rola-chem.com](http://www.rola-chem.com)