



## Semi-Automatic Controllers

**RC-1** Semi-Automatic dosing pump for Chlorine

**RC-1A** Semi-Automatic dosing pump for Acid

**RC-DPS** Semi-Automatic dosing pumps for Chlorine and Acid

**RC-2** Automatic ORP (Chlorine) Controller

**RC-5** Automatic ORP (Chlorine) and Semi-Automatic pH Controller



HURLCON Manufacturing & Sales Pty. Limited. A.B.N. 97 007 284 504

Information and specifications subject to change without notice.

**Victoria:**

Ph: (03) 9765 9700

Fax: (03) 9765 9770

**New South Wales:**

Ph: (02) 9853 2100

Fax: (02) 9853 2170

**Queensland:**

Ph: (07) 3308 5400

Fax: (07) 3309 5470

**South Australia:**

Ph: (08) 8349 2500

Fax: (08) 8349 2500

**Western Australia:**

Ph: (08) 9350 2600

Fax: (08) 9350 2670

**Dear Customer,**

Congratulations, you have made a good choice in purchasing a Hurlcon controller.

Your Hurlcon machine will monitor and control the pH or Sanitiser level or both.

This depends on the model you have chosen.

Swimming pool chemistry is quite interesting and dynamic. There is no one setting that is right for every swimming pool or spa. Let the Hurlcon machine settle down over a couple of days and then if necessary alter the setting to suit your pool or spa. In the automatic models, the chlorine level is controlled using the ORP principle, which is a better measure of the sanitising ability of chlorine.

- ORP (Redox) measures **ACTIVITY** in millivolts (mV) of all oxidising chemicals. Test Kits and strips measure **QUANTITY** of Chlorine/Bromine only.
- ORP of 650mV or above means water is clean and safe, regardless of qty. of chlorine/bromine, provided ORP sensor is clean, calibrated and functioning OK.
- ORP readings can vary depending upon water chemistry like pH, TDS, T.A. and stabiliser levels, ensure that these levels are correct. Consult your shop/technician.

If large quantities of chemicals are dumped in the pool water, this excess quantity should be circulated well and then, allowed to settle down before this machine starts to give true readings.

If you have any questions please contact your Hurlcon supplier or us directly.

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## STARTING UP

Before starting up your Hurlcon controller, it is advisable that the pool water be balanced.

Recommended chemical ranges (depending on pool location and pool surface) are:

**CHLORINE:** 1 - 3ppm    **pH** 7.2 - 7.8

**STABILISER:** 30 - 50 mg/L

**TOTAL ALKALINITY:** 80 - 150 mg/L

**CALCIUM HARDNESS:** 90 - 300 mg/L

## INSTALLATION

PLEASE READ ALL THESE INSTRUCTIONS CAREFULLY BEFORE INSTALLING & OPERATING THE UNIT AND LEAVE THE MANUAL ON SITE FOR OWNER/OPERATOR'S USE

**ROLA CHEM SYSTEMS SHOULD OPERATE ONLY WHEN THE POOL FILTER IS OPERATING. THE UNIT MUST NOT BE CONNECTED WITHOUT ADEQUATE EARTH CONNECTIONS AND A VOLTAGE OTHER THAN 230-250V**  
(Unless other voltage specified)

**IF THE MAINS ELECTRICITY SUPPLY CABLE IS DAMAGED IN ANY WAY PLEASE RETURN THE MACHINE TO THE SUPPLIER FOR REPLACEMENT.**

Before installing the unit in position on the wall or post, the length of the PVC tubing provided should be measured and taken into consideration. To avoid loss of water from the system, close all stop valves before cutting any lines.

### Connection of lines (see illustration page 5)

Install the "T" pieces into the "return" line. Cut an appropriate piece out of this line and glue the "T" piece in position, using a PVC adhesive. Thread the PVC tube through the hole in the cap or shoulder of the chemical container and fit the non-return or check valve and the weight. Ensure that the non-return valve is fitted correctly (arrow indicates the direction of flow) Drop the weight, with the non-return valve into the bottom of the container.

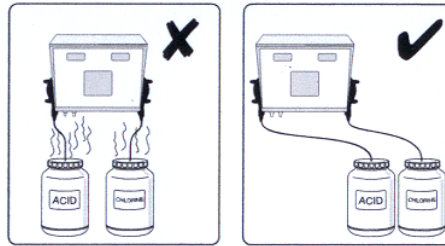
**TIP:** Soaking the ends of the PVC tubing in hot water or gentle heating with a lighter makes it easier to push onto the barb. When installing chemical containers (especially acid), in filter enclosures, which have no ventilation, it is recommended that the hole in the cap of the container is cut to fit tightly around the tubing, so that fumes from the acid or chlorine will not corrode the equipment. It will be necessary to drill a second hole in the cap fitted tightly with a length of tubing which should then be vented outside the filter enclosure. This procedure is recommended only where the filter enclosure has no ventilation and is to protect the equipment.

**IMPORTANT: Hurlcon pumps dose against a maximum pressure of 150-175 kPa (20-25 psi), avoid excessive pressure situations such as:**

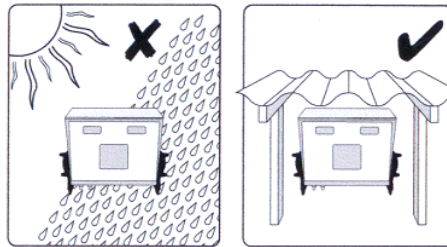
**In-floor cleaners (when using for pool applications): The recommended position of the injection point and probe is on the suction line.**

- ACID SHOULD BE DILUTED MINIMUM 1:2, MORE DILUTION IS OK
- ALWAYS ADD ACID TO WATER (NOT WATER TO ACID)
- NEVER MIX CHEMICALS

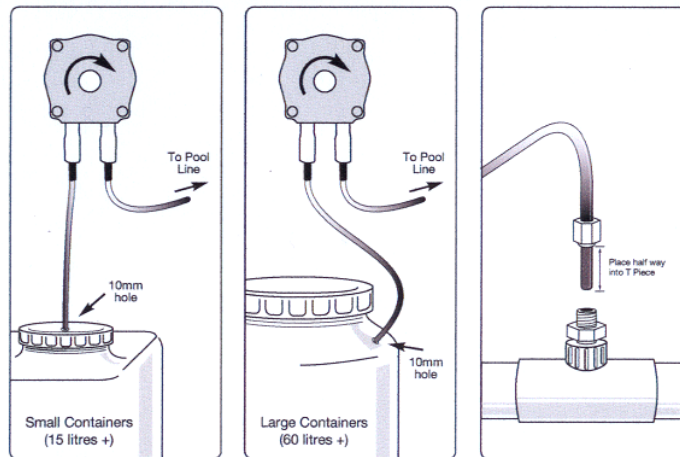
### Placement of Chemicals



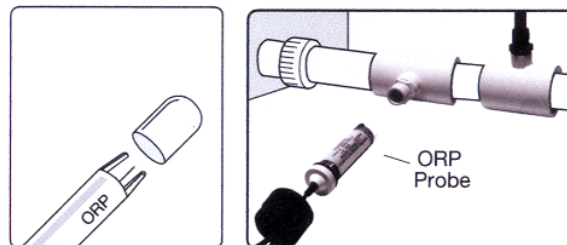
### Placement of Rola Chem Unit



### Connection of Lines



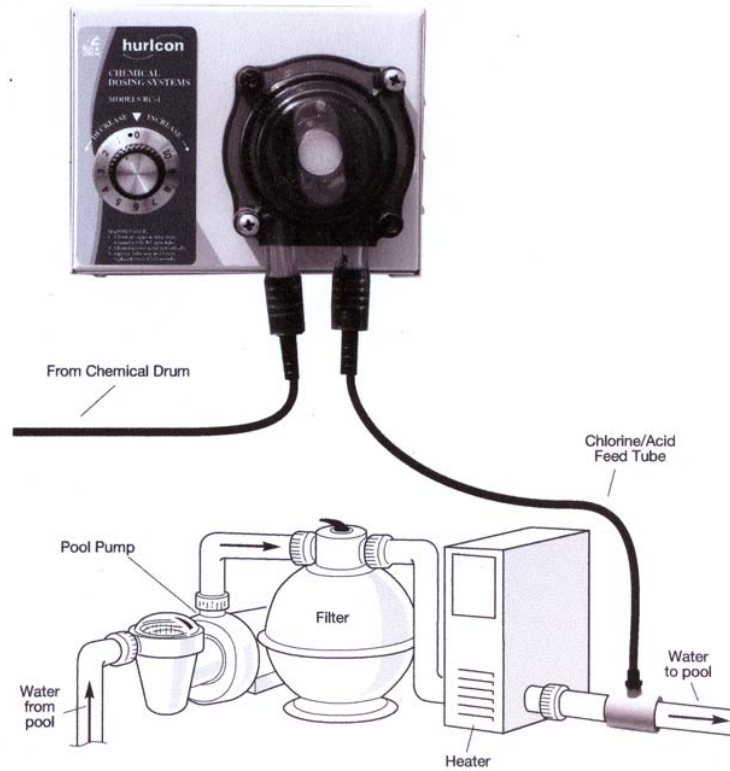
### Connecting Probes



Remove protective caps

Make sure the probes are horizontal to the flow of the water

**RC-1, RC-1A and RC-DPS – TYPICAL INSTALLATION**



Select number 10 setting on the control dial. The machine will commence to draw the chemical from the controller when the chemical begins to drop down the PVC tubing reset the dial to the desired level.

KNOB SETTING	APPROX TIME ON	APPROX TIME OFF	APPROX VOLUME PER HOUR (5 RPM)
1	2 Sec	50 Sec	60ml
2	9	45	150ml
3	16	40	255ml
4	21	33	330ml
5	27	29	435ml
6	32	22	540ml
7	38	17	645ml
8	44	10	720ml
9	52	4	825ml
10	Continuous	-	900ml

Volume outputs are approximate to calculate volume outputs for other pumps (motor) RPM, multiply or divide accordingly (e.g. 20RPM motor at 1 setting will be  $60 \times 4 = 240\text{ml}$  approximately).

**Recommended Dial Settings**

For Domestic Pools (approx 60,000L) on an 8 hour filter cycle

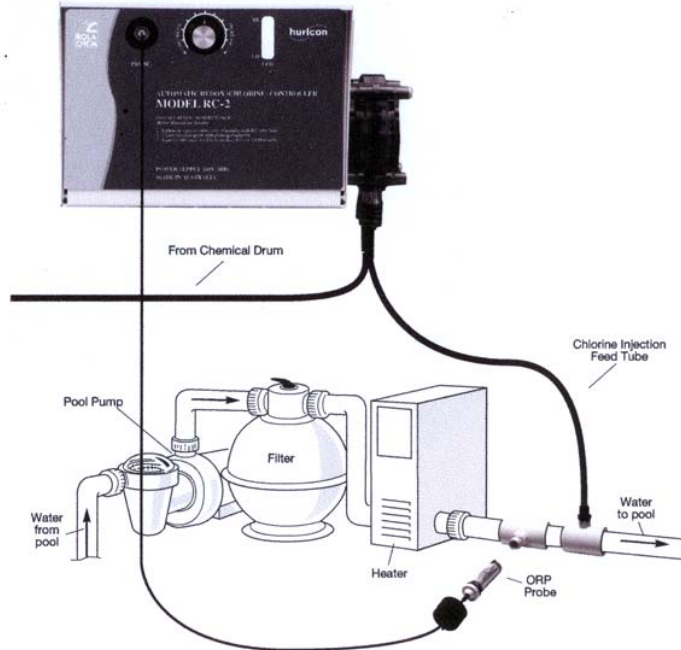
**SUMMER** For Chlorine: No. 2 - 3 For Acid: No. 1 - 1.5

**WINTER** If filter running time is reduced as is the normal practice. No change of settings is required. If filter time is unchanged drop settings lower. Test the Pool for 5-7 days. If the correct chlorine and/or acid levels are

maintained no other adjustments are required. However during heavy bathing periods and excess rain/sunshine, further adjustments may be necessary.

- **ACID SHOULD BE DILUTED MINIMUM 1:2, MORE DILUTION IS OK**
- **ALWAYS ADD ACID TO WATER (NOT WATER TO ACID)**
- **NEVER MIX CHEMICALS**

## RC-2 – TYPICAL INSTALLATION



This model is installed in the same way as the RC-1. The additional installations are as follows:

**FITTING THE PROBE/SENSOR:** Remove the rubber cap from the ORP probe and insert in a horizontal position with the flow of the water (see illustration Page 5). Plug the BNC connector into the probe socket on the face of the RC-2 with a push and twist action. After switching on the power, the LED indicator (red light) will flash for some seconds, then remain steady. (The LED indicator may move around when the probe lead or the BNC connector is touched, this is normal)

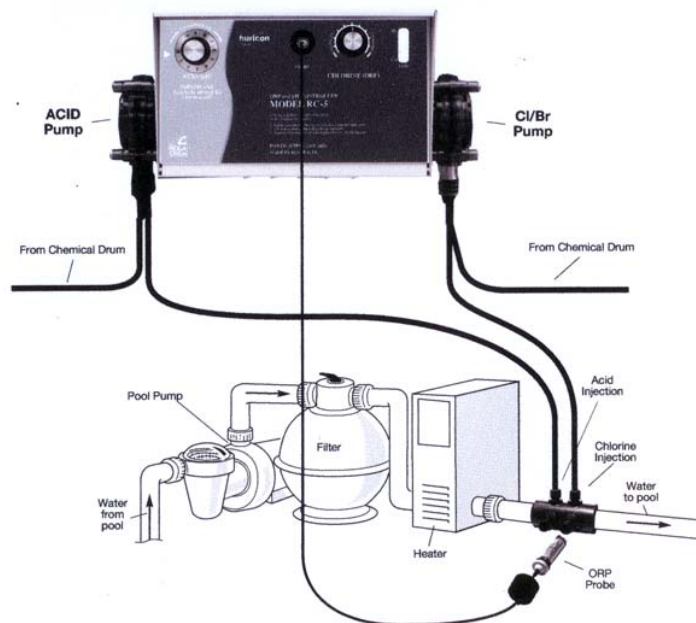
Set the control dial to the 12 o'clock position. This setting corresponds to the desired ORP (Chlorine) level for the average domestic pool (equals app 1.5-2 ppm of chlorine), provided the pool chemistry i.e. pH, Alkalinity, TDS, etc is correct. The LED would read 3-4 bars (approximately) from the top of the scale if the chlorine activity is at the correct level. The LED can show 2 bars illuminated on occasions. This is normal.

**IMPORTANT:** Maintain the correct pH (between 7.4 - 7.6, lower for some pools). As conditions vary from pool to pool, test the pool for the next 7 days and adjust the control dial very slightly to achieve the required OPR/Redox (chlorine activity level). This may mean that the dial is set higher or lower than the recommended position (12 o'clock) and the LED light is corresponding higher or lower.

To maintain the correct pH level is essential. If the pH is above the 7.8, the activity of the chlorine can be reduced by as much as 80%. If there is a low reading on the LED and the RC-2 will pump in more chlorine, even if the chlorine level in the pool is high to compensate for low activity resulting in excess chlorine usage. If the pH is below 7, the opposite will occur.

Please note that the RC-2 does not run on a continuous basis, but on a cyclic ON/OFF timing.

## RC-5 – TYPICAL INSTALLATION



### **RECOMMENDED DIAL SETTING FOR THE ACID SIDE FOR A 60,000 Litre DOMESTIC POOL** No. 1-1.5 on an 8 hour filter cycle.

The RC-2 and RC-5 can save 25% or more on chemical costs, as these only dispense chemicals as and when required. In Winter and during slow bathing loads, you will discover that chlorine usage is much less, but the pool remains in good shape.

The basic installation and maintenance is the same as the RC-1 and the RC-2. Additional information for RC-5 is as follows:

1. Two “T” pieces are provided with the kit, one has dual injection points for the acid and chlorine. The other has the opening for the ORP/Chlorine probe. This should be fitted in the return-to-pool line after the filter and heater. If an in-floor cleaning system is fitted, the injection T piece as well as the probe should be fitted in the suction line, as there is excessive pressure in the return line.
2. The “T” piece with the acid injection must be upstream before the chlorine injection and probe (the second “T” piece)
3. The chlorine side is fully automatic, similar to the RC-2 model (see page 7)

The pH is controlled on the acid side, with the turn of the dial. The higher the dialled number the more acid is added and the pH becomes lower.

- **ACID SHOULD BE DILUTED MINIMUM 1:2, MORE DILUTION IS OK**
- **ALWAYS ADD ACID TO WATER (NOT WATER TO ACID)**
- **NEVER MIX CHEMICALS**

To maintain the correct pH level is essential. If the pH is above the 7.8, the activity of the chlorine can be reduced by as much as 80%. If there is a low reading on the LED the machine will pump in more chlorine, even if the chlorine level in the pool is high to compensate for low activity resulting in excess chlorine usage. If the pH is below 7, the opposite will occur.

Please note that the RC-5 does not run on a continuous basis, but on a cyclic ON/OFF timing.



## MAINTENANCE

1. The injection point (where the chlorine discharges into the pool line) should be checked periodically for any build up of solid matter like Calcium at the end of the PVC tubing and kept clean. This may otherwise cause blockage hindering the passage of chlorine into the pool and shorten the life of the pump tube and roller block. While unscrewing the black injection nut, take care not to lose the rubber grommet and silver ring.
2. Lubricate the squeeze (pump) tube every 6 months. More often in commercial applications. Use only the recommended lubricant RC Tube Lube, available from Hurlcon, or any compatible silicone lubricant, otherwise damage can result.
3. Depending on usage, the squeeze (pump) tube may need replacement after 1-2 years on a domestic pool installation, after 6 months on a commercial installation. Before replacing the tube make sure that any stop valves in the filter system are closed. Otherwise water loss may occur.

(To replace this tube, remove the retaining screws or wing nuts and the plastic face plate and pull the tube free. Disconnect the squeeze tube from the barbs and reconnect the new squeeze tube, making sure that the new squeeze tube is correctly connected to the PVC tubing as per instructions. Reposition the squeeze tube in the unit as before, lubricate the new squeeze tube with the recommended lubricant. Replace the plastic face plate and retaining screws.

**PLEASE DO NOT OVERTIGHTEN THESE SCREWS OR WING NUTS.**

### **ADDITIONAL FOR RC-2 AND RC-5 MODELS.**

The probe which is a very sensitive electronic instrument, should be cleaned periodically with JIFF cream diluted with water using a soft cloth. If the probe tip is contaminated (generally observed by copper or brownish coating) a false reading may be relayed to the system, causing no dosing or overdosing. Ensure the tip is 'silvery' again before putting the probe back in. Please do not clean the probe tip with anything else other than JIFF cream or Acid. Jiff Cream is the preferred option.

Copper based algaecides should be avoided, but if used, the cleaning procedure should be more frequent, as copper will contaminate the tip more rapidly.

**USE OF A SUNSCREEN CHEMICAL (CYANURIC ACID) FOR OUTDOOR POOLS IS RECOMMENDED. CHECK WITH YOUR LOCAL POOL SHOP AND USE THE CORRECT DOSAGE. MAKE SURE YOUR POOL WATER IS BALANCED.**

## TROUBLE SHOOTING GUIDE

<b>TROUBLE</b>	<b>POSSIBLE CAUSE/SOLUTION</b>
<b>Hurlcon runs continuously on lower settings of the dial and dispenses excess chemicals (Model RC-1, RC-DPS and RC-5 acid side)</b>  <b>It should run continuously on "FULL" setting</b>	<ol style="list-style-type: none"> <li>1. ECM (Time Switch) faulty</li> <li>2. ECM needs replacement</li> </ol>
<b>The roller Block on the inside of the unit rotates but does not dispense chemicals</b>	<ol style="list-style-type: none"> <li>1. No chemicals in the tank</li> <li>2. Tubing in the tank coiled up (must maintain a straight line)</li> <li>3. Injection point blocked</li> <li>4. Air leak at the connection where the tube from the drum connects onto the pump (squeeze) tube</li> <li>5. Chemical container airtight (air must enter container)</li> <li>6. Non return valve fitted incorrectly (check arrow direction)</li> <li>7. Roller block broken or worn</li> <li>8. Pump head cracked</li> <li>9. Squeeze tube needs replacement.</li> </ol>
<b>Water returns to the chemical drum</b>	Check points 7, 8 and 9 above. Replace non-return valve, if fitted. If not please fit
<b>Hurlcon pump does not rotate</b>	Refer to the manufacturer
<b>RC-2 AND RC-5 ADDITIONAL INFORMATION</b>	
<b>LED on "HI" level but no chlorine in pool</b>	<ol style="list-style-type: none"> <li>1. Probe contaminated, Clean probe</li> <li>2. pH incorrect (low), rectify pH level</li> <li>3. Probe faulty, have it tested. Replace if faulty</li> </ol>
<b>LED on "LO" level but high chlorine in pool</b>	<ol style="list-style-type: none"> <li>1. Probe contaminated, Clean probe</li> <li>2. pH incorrect (high), rectify pH level</li> <li>3. Probe faulty, have it tested. Replace if faulty</li> </ol>
<b>No LED light or power</b>	Check fuse if blown, replace with 3amp fuse

**IMPORTANT:** ELECTRICAL SPIKES/SURGES OR SIMILAR SITUATIONS CAN EFFECT THE ELECTRONICS & SENSORS AND CAUSE THE MACHINE TO MALFUNCTION. IT IS NECESSARY TO CHECK THE WATER CHEMISTRY, ESPECIALLY PH AND CHLORINE LEVELS REGULARLY WITH A GOOD QUALITY TEST KIT AND LOOK OUT FOR ANY MALFUNCTIONS.

IF THE PH AND/OR ORP READING ON THE RC MACHINE ARE OUT OF NORMAL RANGE PLEASE TURN THE MACHINE OFF AND CALL A POOL TECHNICIAN OR HURLCON

ALWAYS USE GENUINE HURLCON PARTS. RETURN TO HURLCON EVERY FIVE YEARS FOR GREASE AND OIL SERVICE

## WARRANTY



*Hurlcon undertakes under this Warranty to rectify, free of charges any defects caused solely by faulty workmanship or materials. This Warranty is for a period of 12 months from the date of purchase, as long as the product is subjected to normal use and service.*

*Hurlcon accepts no responsibility under this Warranty for damage, including consequential damage resulting from misuse, incorrect usage and use of other than Hurlcon parts. Hurlcon is also unable to accept responsibility under this Warranty if the Unit is not installed correctly in accordance with the "Installation Instructions" provided or from work carried out by unauthorised persons.*

*The liability under this Warranty does not include any costs, contingent or otherwise or liability for damage sustained by the customers or others, whether or not these costs or damages are due to the malfunction, wrong operation or actions by our Agents or Distributors, but shall be limited solely to the repairs or replacement of the product.*

*All Warranty/Service calls or freight charges within the Australian metropolitan area are free. If the unit is outside the metropolitan area, the purchaser is responsible for the costs and risks in returning the unit to Hurlcon for repairs.*

*Purchased from:*

*Date of Purchase:*

*Model No:*

*Serial No:*

### **Hurlcon Manufacturing & SalesPty. Limited**

<b>Victoria:</b>	<b>New South Wales:</b>	<b>Queensland:</b>	<b>South Australia:</b>	<b>Western Australia:</b>
Ph: (03) 9765 9765	Ph: (02) 9674 8544	Ph: (07) 3393 3233	Ph: (08) 8345 5755	Ph: (08) 9258 9322
Fax: (03) 9764 9009	Fax: (02) 9674 8522	Fax: (07) 3393 3255	Fax: (08) 8345 5211	Fax: (08) 9258 9344

**Website:** [www.hurlcon.com.au](http://www.hurlcon.com.au)

**Email:** [service@hurlcon.com.au](mailto:service@hurlcon.com.au)