

2019-3490  
2019-10-23

**LABEL – CONTROLLER/CELL**

TMI SALT PURE 2XMCG

AUTOMATIC CHLORINE  
GENERATOR DEVICE

CONTROLS BACTERIA AND ALGAE In  
Swimming Pool/Spa Waters

COMMERCIAL

A maximum of 567,800 L of water can be treated with one TMI SALT PURE 2XMCG Automatic Chlorine Generator.

Maximum output of hypochlorous acid equivalent to 2.4 kg of free available chlorine per day

For swimming pools, a range of 1-3 ppm of free available chlorine must be maintained.  
For spas, a range of 3-5 ppm of free available chlorine must be maintained.

READ THE LABEL AND USERS GUIDE BEFORE USING  
KEEP OUT OF REACH OF CHILDREN

REG. NO. 31159 PCPA WARNING: operating the unit without water flow through the cell can cause a build-up of flammable gases which can result in FIRE OR EXPLOSION.

Do not use this device with bromide products.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the Pest Control Products Act to use this product in a way that is inconsistent with the directions on the label.

TMI Salt Pure Corp P.O.  
Box 433 Manchester WA  
98353 1605 Alaska East  
Port Orchard WA 98366  
(800) 818-8266

IN CANADA, CONTACT:  
TMI Salt Pure Canada 2103  
– 43<sup>rd</sup> St Vernon, BC V1T  
6K7 (877) 938-8955

**LABEL – CONTROLLER/CELL**

Replacement Cell for TMI SALT PURE 2XMCG AUTOMATIC  
CHLORINE GENERATOR  
DEVICE  
COMMERCIAL

Replacement cell for the chlorine generating device TMI SALT PURE XMCG Automatic Chlorine  
Generator REGISTRATION NUMBER 31159, *PEST CONTROL PRODUCTS ACT.*

This cell must only be used on this model of chlorine generating device.

READ THE LABEL AND THE USERS GUIDE & INSTALLATION INSTRUCTIONS of the  
chlorine generating device TMI SALT PURE XMCG Automatic Chlorine Generator  
BEFORE USING KEEP OUT OF REACH  
OF CHILDREN

TMI Salt Pure Corp  
P.O. Box 433  
Manchester WA 98353  
1605 Alaska East  
Port Orchard WA 98366  
(800) 818-8266

IN CANADA, CONTACT:  
TMI Salt Pure Canada  
2103 – 43<sup>rd</sup> St Vernon,  
BC V1T 6K7 (877) 938-  
8955



**TMI SALT PURE®**

***XM*- Series**

**USERS GUIDE &  
INSTALLATION**

**INSTRUCTIONS**

**FOR MODEL:**

***ZX*MC*G* Automatic Chlorine Generator**

**COMMERCIAL REG. NO. 31159 PCPA  
READ LABEL AND THIS BOOKLET BEFORE USING  
KEEP OUT OF REACH OF CHILDREN**

TMI Salt Pure Corp  
P.O. Box 433  
Manchester WA 98353  
1605 Alaska East  
Port Orchard WA 98366  
(800) 818-8266

IN CANADA, CONTACT:  
Tmi Salt Pure Canada 2103  
– 43<sup>rd</sup> St Vernon, BC V1T  
6K7  
(877) 938-8955

## Table of Contents

<b>Packing List.....2</b>	<b>Operation of XMCG.....17</b>
<b>Welcome to Salt Pure®.....3</b>	<b>Trouble Shooting.....18</b>
<b>Overview of the Salt Pure® System.....4</b>	<b>Additional operation.....18</b>
<b>Tools needed for Installation.....4</b>	<b>Flow Indicator.....19</b>
<b>Your TMI Salt Pure® Equipment.....4</b>	<b>System Control (Output Control).....19</b>
<b>Important Safety Instruction .....5</b>	<b>Warning LED.....19</b>
<b>Installation Diagram.....6</b>	<b>Shocking the pool/spa.....20</b>
<b>Installation Summary.....7</b>	<b>Maintenance of your XM equipment</b>
<b>The Components of your XM System.....8</b>	<b>Power Supply.....21</b>
<b>Before Installing Your XM System.....9</b>	<b>Cell.....21</b>
<b>Choosing the CELL Location.....9</b>	<b>Cell Life.....21</b>
<b>Installing the CELL.....10</b>	<b>Cleaning the Cell.....22</b>
<b>Installing the Flow Meter..... 11</b>	<b>Removing the Cell for Cleaning.....22</b>
<b>Installing the “POWER Supply”.....11</b>	<b>How to Clean the Cell.. .....22</b>
<b>Voltage.....12</b>	<b>Maintenance of the Salt Level.....22</b>
<b>Cord Connecting Power Supply.....12</b>	<b>Testing &amp; adding Salt.....23</b>
<b>Bonding Lug Connection.....12</b>	<b>Adding Chemicals to your Pool/spa.....24</b>
<b>Connecting Cell to Power Supply.....12</b>	<b>Warranty Details- Standard .....26</b>
<b>Connecting Power Supply to TMI Controller..12</b>	<b>Technical Information.....27</b>
<b>Adding Salt for Start-up.....13</b>	<b>Installation Diagram 3 D.....28</b>
<b>Installation Check List.....14</b>	<b>Installation Schematic .....29</b>
<b>Installation Trouble Shooting.....14</b>	<b>Contact Us.....30</b>
<b>Manual Start Up Procedure.....14</b>	
<b>Automated Start Up Procedure.....15</b>	
<b>Understanding your Salt Pure® System.....16</b>	

## Important Safety Instructions

1. **WARNING:** To reduce the risk of injury, do not permit children to operate this device.
2. **WARNING:** heavy pool/spa usage and higher temperatures may require higher chlorine output to maintain proper free available chlorine residuals.
3. If additional chlorine is required due to heavy bather loads, use sodium hypochlorite (liquid chlorine) to maintain an appropriate chlorine residual in the water.
4. Maintaining high salt and chlorine levels above recommended range can contribute to corrosion of pool/spa equipment.
5. **DO NOT** add pool/spa chemicals directly to the skimmer. This may damage the cell.
6. Check the expiry date of the test kit as test results may be inaccurate if used after that date.
7. The life expectancy of the electrolytic cell is 8700 hours under normal use conditions.
8. When replacing the cell, only use replacement cells having a label that clearly states that it is a replacement cell for 2XMCG Automatic Chlorine Generator, REGISTRATION NUMBER 31159, *PEST CONTROL PRODUCTS ACT*.

9. Follow all aspects of the local and Canadian Electrical Code(s) when installing XMCG Automatic Chlorine Generator.

10.NOTE: For outdoor pools/spas, chlorine residuals can be protected from destruction by sun light by addition of stabilizer (cyanuric acid).

11.For proper sanitation, spas must be completely drained periodically. The number of days between COMPLETE SPA DRAINAGE is equal to the volume of spa water in litres, divided by 10 times the maximum number of daily spa users. Refill spa with water and repeat DIRECTIONS FOR USE of the device.

Health and Hyperthermia warnings for spas:

1. People with a medical condition should consult a physician before entering pool/spa water.
2. Maximum spa water usage temperature is 40°C. Bathing in spa water at 40°C should not exceed 15 minutes.
3. When installing and using this electrical equipment, basic safety precautions should always be followed, including the following:

1. READ AND FOLLOW ALL INSTRUCTIONS

2. A green colored terminal or a terminal marked G, GR, Ground, Grounding, or the inter national ground symbol is located inside the power control box ('power supply'). To reduce the risk of electric shock, this terminal must be connected to the grounding means provided in the electric supply panel with a continuous copper wire equivalent in size to the circuit conductors supplying this equipment.
3. At least two lugs marked 'Bonding Lugs' are provided on the external surface or on the inside of the power control box ('power supply'). To reduce the risk of electric shock, connect the local common bonding grid in the area of the hot tub or spa or pool to these terminals with an insulated or bare copper conductor not smaller than No. 6 AWG.

4. SAVE THESE INSTRUCTIONS

## **PACKING LIST:**

Included with your XMCG system are the following items, please check the contents of the box carefully prior to attempting to install the system:

1. Power Supply
2. Electrolytic Cell & Housing (Fittings)
3. Securing Clamps and Bolts
4. Cell Adaptors (2)
5. Cell Terminal Cable
6. Spare Fuses

## **WELCOME TO TMI SALT PURE® WATER**

We at TMI SALT PURE® are dedicated to providing you with the most reliable pool/spa product and the best after-sales service you could hope for. Reading this Guide will help ensure that your Salt Pure® system functions correctly and efficiently, help avoid the expense of unnecessary service calls and make you aware of certain maintenance procedures which, if left undone, may void warranties offered by the manufacturer. Please refer to the Trouble-Shooting section of this Manual on page 18 before calling for in-field service.

### **TMI Salt Pure® Corporation - Your Aquatic Partner!**

One of the few, if not the only, commercial Aquatic Consulting company that specializes in converting existing and new Aquatic Facilities to Salt Pure® water in the commercial environment, in the United States. To date, we have successfully converted hundreds of commercial Aquatic Centers and Facilities to Salt Pure® water. Many of them are new State of the Art facilities. TMI is able to work with you from conception of your Aquatic Facility to include hydraulic layout, equipment sizing and procurement, builder selection, equipment placement, and training and on-going support. Unlike other consultants, TMI's presence continues to be felt (and relied on) long after the builder and other contractors have left the site. We become your Aquatic Partner, helping you maintain sparkling clear and pure water on an on-going basis.

### **TMI Salt Pure® function and operation**

TMI Salt Pure® Corporation specializes in selecting the most applicable system for your facility and supporting the operation of that system in the Aquatic environment. What distinguishes TMI Salt Pure® Corporation from other Commercial pool/spa companies is that we have been working exclusively with Salt Pure® sanitizers and automation since 1994. We specialize in Salt

Pure® installations and stand behind our sales. We are always available to answer your questions knowledgeably and with courtesy. Each of our staff members is CPO certified and we understand water chemistry, particularly as it pertains to the Salt Pure® environment. We can assist you in solving puzzling chemistry issues.

### **TMI Salt Pure® Chemistry Control**

Since 1994, TMI Salt Pure® Corp has pioneered the use of chemistry controllers with Salt Pure® equipment in the United States. We have spent many hours understanding the associated problems and how to correct them. Although many types of controllers claim to work with Salt Pure® equipment, in our experience, the occasional system- when put together – simply will not work smoothly. We do not walk away from difficult situations but hold ourselves accountable for every system that we sell and are committed to ensure its' proper function in the long term.

### **Preventative Maintenance**

TMI offers a range of Test kits to assist you with understanding and maintaining water balance and problem solving. TMI also offers a range of Specialty chemicals to support a Preventative Maintenance program which allows you to have sparkling clear Salt Pure® water at all times.

# Overview of the TMI SALT PURE® System

When salt (pure, natural evaporated ocean salt) is dissolved in pool/spa water and then subjected to simple electrolysis (by way of the in-line TMI SALT PURE® Cell), the chloride portion of the salt (sodium chloride) is transformed into an effective sanitizer,\* which has the ability to oxidize (kill) bacteria and algae which would otherwise flourish in the water. This process is continual, and the salt will recycle itself back to salt, so does not consume the salt, which is simply used over and over again. Sized to suit your particular pool or spa, your TMI SALT PURE® system will provide all of the sanitizer necessary to maintain your pool/spa water, in an environmentally-perfect manner, by using and recycling a natural product – salt. Your TMI SALT PURE® unit will do exactly the same thing as 'pool/spa chlorine' would do,

\*(HOCl the same effective sanitizer as would result if 'pool/spa chlorine' was added to the water –this is 100% Free Available Chlorine without the additives, fillers or stabilizers associated with manual chlorination – and without the need to handle chemicals.)

## INSTALLATION

### TOOLS NEEDED FOR INSTALLATION (Excluding Electrical Installation)

- **Tape Measure**
- **Phillips & Flathead Screwdrivers**
- **Pliers**
- **Hacksaw**
- **Electric Drill Motor**
- **Volt Meter to determine line voltage of AC wiring to Power Supply**
- **An NSF® approved PVC/CPVC/ABS Cleaner/Primer**
- **An NSF® approved PVC/CPVC/ABS Cleaner/Cement**

## Your TMI SALT PURE® Equipment

When correctly installed, your Salt Pure® system will operate ONLY WHEN THE CIRCULATION PUMP IS OPERATING and water is flowing through the Cell. Your TMI SALT PURE® System must not be able to operate while the filter pump is OFF. If your TMI SALT PURE® System continues to operate after the filter pump is switched OFF (as indicated by bubbling and cloudiness at the Cell), contact your TMI SALT PURE® System Dealer or the person who installed your TMI SALT PURE® System immediately and ensure that the fault is rectified.

## Important Safety Instructions

When installing and using this electrical equipment, basic safety precautions should

always be followed, and a qualified electrician responsible for all wiring including the following:

READ AND FOLLOW ALL INSTRUCTIONS

1 WARNING – To reduce the risk of injury, allow only qualified personnel to operate and work on this equipment

2 WARNING – Risk of electric shock. **Connect only to a grounding type receptacle protected by a ground fault circuit-interrupter (GFCI)**. Contact a qualified electrician if you cannot verify that the receptacle is protected by a GFCI.

3 WARNING – Do not bury cord. Locate cord to minimize abuse from lawn mowers, hedge trimmers and other equipment.

4 WARNING – To reduce the risk of electric shock, use qualified electrician to replace damaged cord immediately.

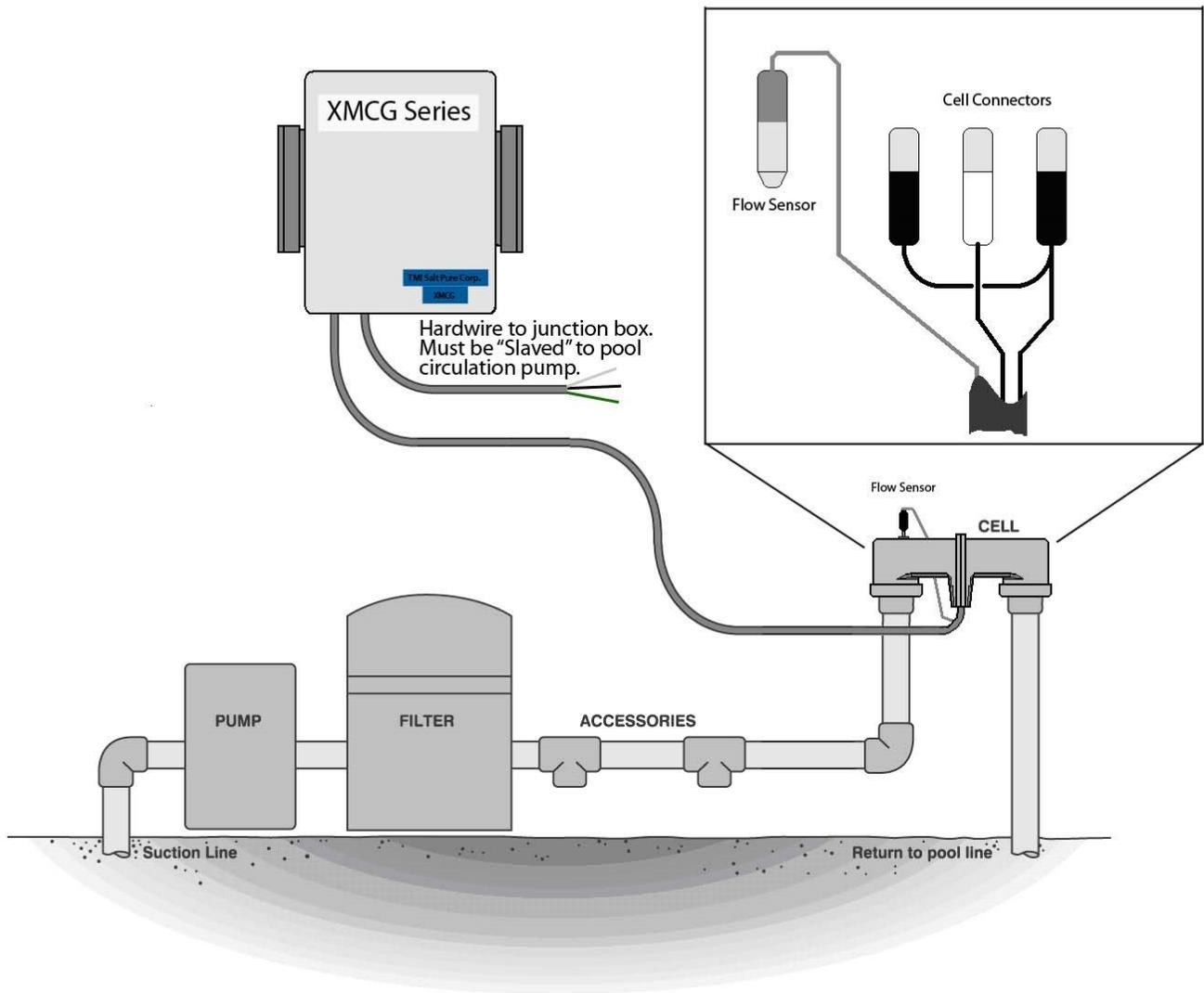
5 WARNING – To reduce the risk of electric shock, do not use extension cord to connect unit to power supply; provide a properly located outlet.

6 This unit is to be installed in accordance with these Installation Instructions, the National Electrical Code and the requirements of the authority having jurisdiction.

7 The 'Cell' cord shall be located at least 1.5 metres (5 feet) from the inside walls of the pool/spa.

SAVE THESE INSTRUCTIONS

# INSTALLATION DIAGRAM FOR 2XMCG Series SYSTEM:



# INSTALLATION SUMMARY

This is a quick guide as to how the TMI SALT PURE® System should be installed. Refer to the following pages for detailed instructions and helpful hints.

- 1 Install the TMI SALT PURE® System 'Cell' into the return line, downstream from all other equipment. The 'Cell' must be horizontal. We suggest positioning the cell as per diagram on page 6. Inlet and outlet piping to be a minimum of 15 cm (6") in length (to provide for easy Cell Housing replacement if this becomes necessary in the future). Refer to following pages for details.
- 2 Mount the Power Supply onto a wall, fence or post, etc., within reach of the 'Cell' cord. Connect to power so that Power Supply receives power only when the filter pump is operating (both components should switch on and off coincidentally). Refer to following pages for important wiring instructions.
- 3 Connect 'Cell' to Power Supply. Refer to following pages for connection details.
- 4 Install Flow Meter as per manufacturer's instructions before the electrolytic cell
- 5 Install SaltSecure before the electrolytic cell (one required per body of water)
- 6 Add salt to the pool/spa water. Quantity of salt required  $3 \times \text{Pool Volume (m}^3\text{)} = \text{kg}$ , e.g.  $250\text{m}^3$  requires 750 kg of salt. (Gallons X 8.35 X .0045 = pounds) Refer to the following pages regarding type of salt and how to dissolve.

## The Components of Your TMI SALT PURE® XM System

### The Power Supply

The Power Supply (or Control Head) contains the electrical components which transform the mains to the low voltage DC current required to operate the TMI SALT PURE® System Cell, as well as the other various operating and control functions of the TMI SALT PURE® System

### The Cell

The TMI SALT PURE® System Cell is the component which comes into contact with the pool/spa water and which, through a process of electrolysis, produces (from the 'natural' salt dissolved in the water) the sanitizer/oxidizer necessary to maintain the water parameters. The Cell is comprised of sophisticated materials specifically designed and engineered for TMI SALT PURE® System's intended purpose.

### The Salt

A basic ingredient of the TMI SALT PURE® System process is SALT (nature's own salt, pure evaporated ocean salt, or table salt – sodium chloride). The salt is added directly into the pool or spa water to produce the water salinity required to enable your TMI SALT PURE® System to function properly. Salt is available at most pool/spa supply stores, home improvement centers, hardware stores, etc., usually in 11 kg (25 lb.), 18 kg (40 lb.), 22 kg (50 lb.), or 36 kg (80 lb.) bags – and is the same salt sold for use in most domestic water softeners, Be sure to use 'sodium chloride' and not 'potassium

chloride'. Salt should be 99+% pure NaCl (sodium chloride) fine or medium grade, and free from iodine or YPS. (Yellow Prussiate of Soda), and anti-caking agent.

## BEFORE INSTALLING YOUR XM SYSTEM

### **How good is the water in your pool/spa?**

In most instances, pools/spas can be simply converted to the TMI SALT PURE® System without the need to change the pool/spa water. However, if the water has been subjected to high degrees of chemical dosing, or has been kept in generally poor condition, you may want to consider partially dumping that water and refilling. Some pool/spa water has a tendency to become 'harder' over time. Evaporation leaves the 'calcium' in the water and when top-up water is added to the pool/spa, additional calcium can be added. This additional hardness, together with residuals from previous chemical treatments etc. can make the pool/spa generally more difficult to maintain (regardless of the purification method being used). If the Calcium Hardness exceeds 300 ppm, it is recommended that you contact TMI SALT PURE® or your TMI SALT PURE® Dealer for a solution.

***Note: Pools/spas that have been sanitized with non-chlorine systems may need be drained and refilled before converting to salt sanitation.***

## Choosing the CELL Location

The location in which the Cell is to be installed is important. The Cell must be located as follows:

- 1 In the return-to-pool/spa line (the pipe carrying filtered water back to the pool/spa)
- 2 AFTER (down-stream from) all other equipment (filter, heater etc.). Contact your TMI SALT PURE® System Dealer for instructions if the Cell cannot be located AFTER all other equipment.
- 3 Locate the Cell so that its cord (attached to Power Supply) can reach the 'Cell' from the Power Supply location.
- 4 The Cell cord must be at least 1.5 metres (5 feet) distance from the inside walls of the pool/spa (at least 1.5 metres (5 feet) from the nearest water in the pool/spa).

### **Other considerations regarding Cell location:**

When correctly installed, the Cell will produce sanitizer only when water is flowing through it – and, obviously, the sanitizer is carried in the water, to wherever the water is being directed. If there is a solar heater attached to the pool/spa, locate the Cell so that it has water flowing through it whenever the filter pump is operating regardless of whether water is flowing through the solar heater panels.

## Installing the Cell

Once the correct location for the Cell has been established, the Cell must be installed into the plumbing at that selected location. The clear plastic Cell Housing is PVC compatible, so use ordinary PVC solvent (glue) to attach the Cell Housing to

the plumbing.

**IMPORTANT The Cell Housing must be installed as follows:**

- 1 Cell Housing must be installed in a HORIZONTAL position.
- 2 See Diagram on page 6 for cell direction
- 3 The Inlet and outlet pipes must be pointing vertically DOWN, to form an inverted 'U' configuration with the Cell Housing
- 4 The vertical inlet and outlet PVC piping must be a minimum of 15 cm (6") in
- 5 Cell comes with either 51 mm (2") or 76 mm (3") unions
- 6 The Cell Housing shall be free standing and not secured to any rigid backing surface (such as a wall).
- 7 Installation should allow easy removal of the cell from the housing.

**Water Flow:** In most cases (for 38 mm (1.5") and 51 mm (2") PVC) the total water flow can be directed through the Cell without significantly affecting the flow rate and/or back-pressure on the filter etc. However, **if flow rate is a concern** (high horse-power pump, large diameter piping etc.), the **Cell should be installed on a by-pass** (using a valve to direct the appropriate amount of water (see Flow Rates below). In the cases of the 76 mm (3") cell, a bypass installation may be necessary as the flow rate for the cell is most likely far lower than that needed for full circulation/filtration.

Flow Rates for Optimum Cell Efficiency XMCG 170 LPM (45 GPM)

## Installing the Flow Meter

Note flow meters should only be used on the size and type of pipe for which they are intended. Follow all installation instructions that accompany the Flow Meter that has been specified for your particular installation. **INSTALL BEFORE THE ELECTROLYTIC CELL.** We recommend that you use a Digital Flow meter for accuracy

## Installing the SaltSecure

An in-line zinc anode called SaltSecure should be installed in-line and will serve as a sacrificial component. It is housed in a 51 mm (2") or 76 mm (3") slip tee with clear PVC for visual inspection. The SaltSecure should be glued in-line prior to the electrolytic cell. Install one SaltSecure per each body of water. The anode itself shall have a permanently attached bonding lug which shall be connected to the main bonding loop with a #8 bonding wire. The SaltSecure should be fitted with a manual bleeder valve for the installer to ensure, post installation, that the air is removed from the tee and the zinc makes contact with the water flow.

# Installing the POWER SUPPLY

Location of the Power Supply: Select a location to mount the Power Supply onto a wall or fence etc., as follows:

- The Cell location should already have been selected (see page 10). The Cell power cord must reach the Cell
- For cord-connected units, locate the Power Supply so its cord is within reach of the point where it is to be connected to mains power (e.g.: Chemistry Controller(ORP)).
- The Power Supply is not designed to be installed outdoors. If necessary a shelter providing shade and weather protection will be necessary
- It is important to ensure that Power Supply be located in a well ventilated area – and that air can circulate between the back of the Power Supply and the surface onto which it is mounted (stand-offs on back of Power Supply provide ventilation for wall-mounted units).

Once a suitable location for the Power Supply has been selected, use 2 - #8 screws to attach Power Supply to a wall, fence or post etc. (using anchors if necessary).

**IMPORTANT:** It is essential that your TMI SALT PURE® System gets power ONLY WHEN THE FILTER PUMP IS 'ON' and water is flowing through the Cell. The power supply to the TMI SALT PURE® System Power Supply must therefore be controlled by the same switch or timing device which controls power to the filter pump.

## Voltage

TMI SALT PURE® System Power Supplies have been designed to operate on 220/240V AC.

## Cord Connected Power Supply

The Power Supply comes with a power cord which is to be terminated into a Junction Box which will be connected to the same breaker or power connection as the filter pump

– to ensure that when pump is powered down, the power is shut down to the Power Supply.

## Must be connected to a GFCI (Ground Fault Circuit Interrupter)

Refer to IMPORTANT SAFETY INSTRUCTIONS at front of these instructions.

## Bonding Lug Connection (if applicable)

The Power Supply comes with Bonding Lugs & they **must be connected to the local common bonding grid** (which includes all metal parts of the swimming pool/spa structure and to all electrical equipment, metal conduit and metal piping) in the area of the equipment, using either insulated or bare copper No. 8 AWG conductor which is acceptable to the local inspection authority.

## Connecting Cell to Power Supply

The Cell connecting lead is factory-attached to the Power Supply, with connectors at

the end of the lead for attachment to Cell head.

Fit the BLACK & WHITE connectors to either titanium rod. The BLUE Flow Sensor should be pushed onto the threaded shaft of the small bolt.

**NOTE:** Your TMI SALT PURE® System requires a **minimum** water salinity of 4,000 ppm but will operate effectively up to a maximum of 6000 ppm. NOTE that salt levels maintained **BELOW** recommended levels **WILL DAMAGE, AND SHORTEN THE LIFE OF, YOUR CELL** – and void cell warranty.

## How Much Salt To Add

Calculate the salt required in your pool/spa

$$3x \text{ Pool Volume (m}^3\text{)} = \text{kg}$$

e.g. 250m<sup>3</sup> requires 750kg of salt

**(Gallons x by 8.380 x .0045 = pounds of salt to be added)**

If you under-estimate the amount of salt required, your TMI SALT PURE® System will indicate 'Low Salt'. Simply add more salt (first being sure that original salt is properly dissolved) until the TMI SALT PURE® System indicates sufficient salt

## Adding and Dissolving the Salt

- 1 Add the salt directly from each bag into the pool/spa water.
- 2 Sweep the salt around the floor of the pool/spa to help dissolve.
- 3 A short while after the salt has been added it will no longer be visible, however, the heavier-than-water syrup which forms initially will sit on the floor at the deep end until properly mixed throughout the pool/spa. Dissolve by directing filter suction to the floor drain in the pool/spa (if your pool/spa has one) or by vacuuming the pool/spa.

*NOTE: Newly plastered pools/spas should run on traditional chlorine to "cure" the plaster for at least 2 to 4 weeks before adding the salt. Consult with the Pool/Spa Company for exact timing to ensure you do not void your warranty. Be sure to check for calcium buildup in the cell every 2 weeks.*

## Installation Check List

Your TMI SALT PURE® System installation is complete when the following have been completed:

- 1 Cell Housing installed into plumbing
- 2 Cell properly in place in Cell Housing
- 3 Power Supply mounted in place
- 4 Power Supply connected to main power (correct voltage)
- 5 Cell connected to Power Supply
- 6 SaltSecure and Flow Meter installed
- 7 Sufficient salt dissolved into pool/spa water
- 8 You have checked and confirmed that your TMI SALT PURE® System Power Supply switches ON and OFF coincidentally with the circulation pump.
- 9 You have checked all connections and joints for leaks (including Cell head O-ring).

# Installation Trouble Shooting

## Unit does not come ON when filter switched ON

1. Check ON/OFF switch on front panel of Power Pack
2. Power supply not properly connected to incoming power (check line voltage)
3. Check fuse (front panel of Power Supply)

## Unit starts up with 1 Operation LED and 5 Production LEDs

1. Incorrect voltage to Power Supply. Check incoming voltage and connection.
2. Unit preparing to cut-out. Check salt level.

# Start Up (Manual Operation, not connected to ORP)

Once your TMI SALT PURE® System is operational, test the chlorine level in the water. If the existing `chlorine' reading is low or zero, set the System Control to MAX and run the system until the chlorine level is between 1 and 3 ppm for swimming pools or between 3-5 ppm for spas. Free available chlorine levels should be tested daily. It is best to check the sanitizer level at approx.. the same time of day (mornings are best) so you get a consistent indication of the chlorine. If the Chlorine reading is high, the System control can be set lower, or if too low adjusted to a higher level. It is best to make small adjustments to the Output Control so as not to create spikes in the chlorine levels. If there is way too much the TMI SALT PURE® System can be left OFF until the chlorine level drops.

## Manual - Ongoing Adjustment of the TMI SALT PURE® System

Repeat the above (testing sanitizer level daily) until you get a consistent sanitizer reading each day. The Output Control will then only need to be altered according to fluctuations in pool/spa use, seasonal changes in the weather and pool/spa water temperature. Your pool/spa test kit is a good indicator as to whether the Output Control needs to be altered.

# UNDERSTANDING THE TMI SALT PURE® SYSTEM

Your TMI SALT PURE® System uses the dissolved salt in the water to produce the sanitizer necessary to maintain your pool/spa water. The amount of sanitizer produced by the TMI SALT PURE® System and the quantity of salt (the salinity) in the water are related, but must be maintained and controlled as two separate factors:

## Sanitizer:

The amount of sanitizer required for your pool/spa varies from time to time and depends upon a number of variables, including the number of swimmers in the pool/spa, water temperature, etc. To determine whether your TMI SALT PURE® System is producing sufficient sanitizer for your pool/spa, the sanitizer level in the pool/spa must be measured daily using a chlorine test kit. The sanitizer level in the water can then be adjusted up or down as desired, by adjusting the quantity of sanitizer being produced by the TMI SALT PURE® System (refer to **System Control**). Note if you are utilizing an ORP Chemistry

Controller, it will control the chlorine output of the system

**Low sanitizer levels should not be confused with a low salt level, and adding more salt will not necessarily increase the sanitizer level.** The salt level should be controlled and maintained separately – see below.

### **Salt Level (Salinity):**

Your TMI SALT PURE® System Control Panel will indicate whether the salt level in the water has fallen below the minimum operating level of 4000ppm. The system will continue to produce sanitizer in low salt conditions (at a decreased rate, and only until the automatic Cut-Out applies) but low salt conditions cause increased wear on the 'Cell' and will shorten the life of the 'Cell'. When your TMI SALT PURE® System indicates a Low Salt condition, add salt to the water to correct the situation. Measure and control sanitizer levels separately, as described above.

**Note: Never add salt in order to increase sanitizer level. Only add salt, as necessary, to maintain minimum salt level.**

### **The Amount of Sanitizer Produced by TMI SALT PURE® Salt Pure® System Depends Upon:**

1. The System Control setting (high or low)
2. The condition of the TMI SALT PURE® System 'Cell' (clean or dirty)
3. The setting and function of your TMI SALT PURE® ORP Chemistry Controller, if so equipped.

If your TMI SALT PURE® System is producing TOO MUCH SANITIZER, turn the **System Control** DOWN, or reduce the SET POINT on your ORP Chemistry Controller. Call TMI SALT PURE® Corporation or your TMI SALT PURE® Dealer for remote assistance, if required.

If your TMI SALT PURE® System is producing TOO LITTLE SANITIZER, turn the **System Control** UP, or increase the SET POINT on your ORP Chemistry Controller. Call TMI SALT PURE® or your TMI SALT PURE® Dealer for remote assistance, if required.

### **OPERATION OF 2XMCG SYSTEM:**

**Cell Output** is displayed on a bar meter, with five **LEDs**, on the face of the Power Supply. Normal Cell operation is indicated by at least four LEDs being on. The Unit is fitted with an electronic control and warning system. This regulates the output of the Unit to the preset maximum. The warning system consists of an **LED** which will glow Green or Red to indicate possible faults with the Unit or damaging operating conditions.

Once the salt level in the pool/spa is correct the Unit may be switched On. The **OPERATION LED** will be Green and no **Cell Output** will be seen for approx. 30 seconds. This allows the pump and filter to prime and the Cell Housing to fill with water. After this start-up delay the bar meter should light up showing at least four LEDs. At this point the **OPERATION LED** should be Green; if not there is a problem. (Refer table).

<b>BAR METER</b>	<b>OPERATION LED</b>	<b>REASON / ACTION</b>
Off	Green	1. Start – up delay functioning. 2. <b>System Control</b> set below max. Cell is currently turned off. (Refer <b>System Control</b> page 7).
Off	Red	1. Flow issue detected. Check pump/pipes for damage. 2. Flow sensor not connected to cell
4 or 5 LEDs on	Green	System operating normally & producing chlorine
1 to 5 LEDs on	Red	1. Salt level too low. Measure Salt, add necessary amount to reach 4000ppm 2. Cell is calcified. Clean cell. 3. Water temperature low 4. Cell is failing. Work with TMI to verify voltage.

The XMCG system uses a patented **Electronic Self Cleaning** system to clean your Cell and therefore you should not have to clean your SC cell frequently unless you have extreme water conditions. **Note: an 2XMCG Self cleaning cell must be used with an 2XMCG Unit.**

## **TROUBLE SHOOTING:**

### **No Chlorine Production - Check for**

1. Main power outlet switched off
2. Chlorinator not plugged into main outlet
3. Pump not operating
4. Power switch turned Off
5. **System Control** turned to "Min" setting
6. Chlorinator 7 amp slow blow fuse blown
7. Dirty Cell
8. Filter needs backwashing
9. Flow Sensor not connected

### **Low Chlorine Production - Check for**

1. Dirty Cell - clean if required
  2. Filter needs backwashing
  3. Display not at correct production level/Cell failing
1. Pool/Spa stabilizer too low
  2. Salt level too low
  3. XMCG running time inadequate
  4. **System Control** turned too low

## Additional Operation

The 2X<sup>M</sup>CG Model has the following additional features:

- a) **System Control:** When the **System Control** is being adjusted, the 2X<sup>M</sup>CG unit will indicate (flashing) the percentage of time that the Cell will operate during the filtration cycle (for a few seconds, then display reverts to Cell Output display).
- b) **Cell Cleaning:** The 2X<sup>M</sup>CG unit uses a patented Electronic Auto-Cleaning system for the 'Cell'. 'Cells' may eventually scale in extreme hard water conditions and will require manual cleaning if this occurs.
- c) The second **Low Salinity** warning phase (Red + Red LED's) is very short. Therefore on first warning phase (Red + Green LED's) prompt action is recommended to avoid **Cut-Out**.
- d) The **Operation** indicator will be ON when the Unit is preparing to produce sanitizer. This will be either during the system's initial **Start-Up** or when the Cell is in an OFF cycle during the filtration cycle (refer **System Control**). Stand-By indicator can also be ON after System Protection Cut-Out has activated. (ie: when unit has shut down).

## Flow Indicator

If there is a problem with water flow in the Cell Housing the **Red Flow** indicator will be ON. When this occurs the pump or pipes should be inspected for damage and the **Flow Sensor** on the Cell checked for correct connection (and scale build-up on bolt head).

**SYSTEM CONTROL: The System Control varies the amount of time the Cell operates during the filtration cycle.**

When the **System Control** is set to MIN, the Cell will be OFF. When the **System Control** is set to MAX, the Cell will be ON.

Using the previous example (at 60%), the Cell will operate for about 36 minutes each hour. This 36-minute operating time will be made up of a number of smaller operating periods. As an example, the Cell may turn ON 12 times (for a period of 3 minutes each time) over the hour to make up the 36 minutes. This enables the electronic circuitry to re - adjust to any changes in the pool/spa water condition. For example, dilution from winter rains, the addition of salt etc.

If the Cell is OFF and you wish to check its operation, simply turn the **System Control** to MAX and the Cell will turn ON. Once checked, adjust the **System Control** back to the desired position and after a few minutes the Cell will turn OFF again.

To turn the Cell OFF, simply turn the **System Control** to MIN. This will be convenient for backwashing.

### **OPERATION LED**

Your XMCG Chlorinator is fitted with a number of protective systems including the **OPERATION LED**. As the salt level in the pool/spa decreases, the wear on the Cell increases. Although salt is not consumed in the XMCG process, it is lost through splashing, back - washing and on bathers as they leave the pool/spa. The salt level is also reduced by rain, which causes dilution. Salt is not lost to evaporation. As the salt level in the pool/spa falls toward the minimum required level, the **OPERATION LED** will turn RED. This is a failsafe and should not be used as an indication to add salt. Salinity levels should be checked and maintained the same as the other common pool/spa factors. If the system does reach this point, the salt level should be increased to a minimum concentration of 4000ppm. The addition of salt during operation should not affect the XMCG as it is protected against overloads. If no action is taken and the salt level continues to fall, damage to the system may result. (see warranty section on damage from negligence)

There are other factors that can cause the Unit not to work correctly:

1. **Heavy Rain** - can cause very diluted pool/spa water to pass over the Cell due to surface skimming.
2. **Scaled Cell** - a scaled Cell will not draw as much electrical current as a clean Cell when first started.
3. **Cold Water** - cold pool/spa water reduces the ability of a Cell to carry electrical current.
4. **Failing Cell** -as the Cell ages there will come a time when the electrical current draw will drop. This can be compensated for with the addition of extra salt. A Cell is considered failed when it draws less than 80% of maximum current. To keep a failing Cell in operation extra salt can be added. There will come a time when the Cell will not respond to extra salt. It will then need to be replaced.

Please note that the **OPERATION LED** is not like T.D.S. meters, which are temperature compensated Scientific Instruments. The accuracy will be within 500ppm salinity and it is water temperature dependent.

### **SAFETY NOTICE:**

Certain local electrical regulations state "If the supply cord is damaged, it must be replaced by a special cord available from the manufacturer or its service agent".

## **Shocking the Pool/Spa**

Periodically, especially in very hot climates and if the pool/spa is heavily used, it may be necessary to boost the amount of sanitizer in the pool/spa in order to maintain absolute sanitation of the water. This can be achieved simply by operating the TMI SALT PURE® System for an extended period (say 24 hours) with the System Control set at MAXIMUM.

NOTE: this cannot be effectively done if using an ORP Controller. Shocking for a Biological Incident must follow guidelines set by your Provincial guidelines.

## **Maintenance**

### **MAINTENANCE OF POWER SUPPLY:**

Little or no maintenance is normally required with the exception of replacing blown **Fuses**. These **7 Amp Slow Blow Fuse** can be sourced from TMI Salt Pure®. However it is essential that the wall to which the Unit is installed be sprayed (not the Unit itself) periodically with a good surface type insect repellent, since penetration by insects may cause damage which is not covered by your warranty.

The Unit will become warm to hot when in operation, this is normal.

### **MAINTENANCE OF ELECTROLYTIC CELL:**

The cell is composed of specialty materials, and although proper maintenance can prolong its life to the maximum, eventually the process of electrolysis will wear away its delicate coating, at which time it gradually ceases to produce chlorine.

Mineral salts and calcium (scale) are deposited on the outer and the inner plates as electrolysis takes place. This build up will interfere with the flow of electrical current in the Cell and thus lowers sanitizer production. It is essential to inspect the Cell regularly and clean when necessary. The rate at which deposits will form on the plates differs with each pool/spa and can be influenced by the following:

- Calcium hardness of the water
  - Water Temperature
  - pH control
  - Water which has been chlorinated with calcium hypochlorite for an extended period
- Calcium in the plaster surfaces of a concrete pool/spa

Because these conditions vary so much, check the Cell at least weekly initially to determine if/when either scale or a blue/green soapy substance appears on the plates. You will then be able to determine the cleaning cycle necessary for your pool/spa

The intervals between cleaning could get longer to the point where cleaning is only necessary a few times each year. One exception is the use of bore water or ground water, in which case cleaning may always need to be as frequent as once a week.

Life of XMCG electrolytic cells will vary substantially from one installation to another due to variations in operating time, water quality and composition, system and cell maintenance. Please ensure that when cell replacement is necessary you use the correct genuine XMCG replacement cell to match your system.

**Please Note** that unless you have extreme water conditions the Cell should not become scaled and you should not have to clean the Cell often. In areas of very hard water it may be necessary to clean your cell periodically. Refer below.

**To clean Cell** it should be disconnected from the Power Supply Unit and removed from the pool/spa return line by undoing the unions. Take care not to lose the o-rings and always make sure the pump is turned off or that the bypass valves have been turned. Ensure that you close the valve on the influent side prior to close the valve on the effluent side.

## METHOD

Add 1 part HYDROCHLORIC ACID to 10 parts WATER in a suitable container. The Cell should be placed on a surface that allows it to form a U shape and some of the solution can be poured into the up-turned cell. Take care when doing this as the solution can foam and create a spill which must be cleaned up by dilution. As an alternative the Cell can be immersed completely in a container. When clean the Cell should be rinsed thoroughly and the connection should be dried carefully to avoid connector corrosion. It should not take longer than a few minutes to clean; if it does the Cell should be cleaned more frequently. Return the Cell to its position and re-connect it.

## SAFETY DEVICE:

Hydrogen Gas is a by-product of the chlorine producing process. A Gas Sensor has been incorporated into the Unit and Cell, which will switch off chlorination if gas is detected in the Cell Housing or there is no water flow.

## Maintaining the Salt Level

It is important to always maintain at least the minimum recommended salt level of 4,000 ppm in the pool/spa water. Follow the advice of your pool/spa maintenance person and/or your pool/spa contractor or pool/spa equipment supplier.

Operating your TMI SALT PURE® System at lower than recommended salinity level will shorten the life of your Cell and will void warranties on the Cell. Salt levels up to 6000 ppm are acceptable and will not harm the TMI SALT PURE® System.

## Checking the Salt Level

Your TMI SALT PURE® System has a **OPERATION LED**. When the level of salt in the water falls below the minimum level, the Warning **LED** will turn RED. The Unit will continue to produce sanitizer, but the situation should be corrected quickly. Otherwise the **Low Salinity Cut-Out** will shut down the TMI SALT PURE® System. The **Low Salt Indicator** (LSI) has been factory calibrated (plus or minus) to the minimum salt level 4,000 ppm so could therefore activate at slightly higher salinity than the designed minimum salinity. If the LSI activates when you think there is sufficient salt in the water, a Digital Conductivity Meter is useful to determine the true level (before questioning the **LED** indicators)

## Testing Salt Level

You should measure (test) the salt level in the pool/spa water WEEKLY or if/when you backwash the Filters. In some cases operators opt to check the salt level with every pool/spa reading to stay ahead of trends or to pick up on leaks that are causing the salt level to drop. Using

### **How Salt Is Lost From Your Pool/Spa**

The TMI SALT PURE® System process does not consume the salt – it merely re-uses it over and over. No salt is lost through evaporation. However, salt is lost from the pool/spa when water is lost – back-flushing filter, splash-out, overflow in rainy periods, leaks in the pool/spa.

*Note: Always test your salt level after each back-flushing of the filter.*

### **Adding Salt To The Water**

Salt is generally available in 11 kg (25 lb.), 18 kg (40 lb.), 22 kg (50 lb.), ou de 36 kg (80 lb.) bags - available at most pool/spa supply stores, home improvement centers, hardware stores, etc. TMI SALT PURE® recommends locating 99%+ Solar Salt without Iodine or YPS (Yellow Prussiate of Soda) as additives, as they can cause unsightly staining. Call TMI SALT PURE® or your TMI SALT PURE® Dealer for assistance in locating a source of salt. Add the salt by pouring it directly into the pool/spa. If using Fine grade salt it will dissolve readily. While pouring it into the water move along the edge of the pool/spa to avoid adding it to the same place in the pool/spa. Dissolve by sweeping the salt to the deep-end floor drain and/or by vacuuming the pool/spa. The heavier-than-water saline 'syrup' will remain on the floor of the pool/spa if not mixed properly.

### **How Much Top-up Salt To Add**

When adding to the salt level, we suggest testing the water with a Digital Conductivity Meter before adding salt. Remember: A slight excess of salt is not a problem, but too little salt causes damage to the Cell. When the added salt is dissolved, check that the **OPERATION LED** remains GREEN. Measure the salinity if in doubt. DO NOT continue to add salt if the **OPERATION LED** remains RED. Measure salinity before adding more salt to prevent over-salting the pool/spa.

### **Conditioner/Stabilizer (Outdoor Pools only!)**

It is important to maintain 15-100 ppm of conditioner (Cyanuric acid) in the pool/spa water, in order to prevent the sunlight from destroying the sanitizer (especially important in hot, sunny areas). If the conditioner level is too low, you will find it difficult to maintain a good residual of sanitizer in the water – and your TMI SALT PURE® System will need to work twice as hard as it would if the conditioner level was correct.

### **pH Level**

Pool/spa water pH should be maintained in the range 7.2 - 7.8. At higher pH levels, sanitizer loses its effectiveness, allowing algae growth etc. even though your Test Kit may indicate sufficient sanitizer in the water. These water parameters are to be maintained as part of daily maintenance.

### **Total Alkalinity (TA)**

(TA) determines the speed and ease of pH change. The ideal range for TA is generally 100-120 ppm for both swimming pools and spas, but is dependent on the Calcium Hardness (CH) of the water. These water parameters are to be maintained as part of daily maintenance.

<b>If the TA is TOO LOW</b>	<b>If the TA is TOO HIGH</b>
pH 'bounce'	Almost constant acid demand
Stains on plaster walls	Promotes 'Cell' scaling
Etching of plaster walls	
Corrosion of metal parts	

### **Calcium Hardness (CH)**

Calcium Hardness if too high, can promote scaling. The ideal range for CH is 200-300 ppm for swimming pools and 150-200 ppm for spas. These water parameters are to be maintained as part of daily maintenance.

### **Sanitizer**

Recommended Level of free available chlorine of 1 – 3 ppm for pools and 3-5 ppm for spas. These water parameters are to be maintained as part of daily maintenance.

### **Phosphates**

Phosphates in swimming pool/spa water can reduce the level and effectiveness of sanitizer in pools/spas, causing the TMI SALT PURE® System to work harder than necessary; any amount (over 200 **ppb**) of phosphate should be removed by using a phosphate-removing chemical. We recommend having your pool/spa water tested for phosphates to ensure good performance and long cell life.

## **WARRANTY DETAILS**

### **STANDARD WARRANTY – 3 year limited**

#### **1st Year Full Warranty**

TMI Salt Pure Corp warrants to the original purchase of the TMI Salt Pure®

*ZXM*CG, that if any component, other than fuses, proves to defective within a period of 12 months from the date of purchase, that the defect will be repaired or the product replaced free of charge.

During the Warranty period any defective product shall be returned by the customer, accompanied by proof of date of purchase. TMI will, at its option, authorize either replacement or repair of the defective product. Shipping not included. Labor is included in year one only.

## **Two Year Pro-Rated Warranty**

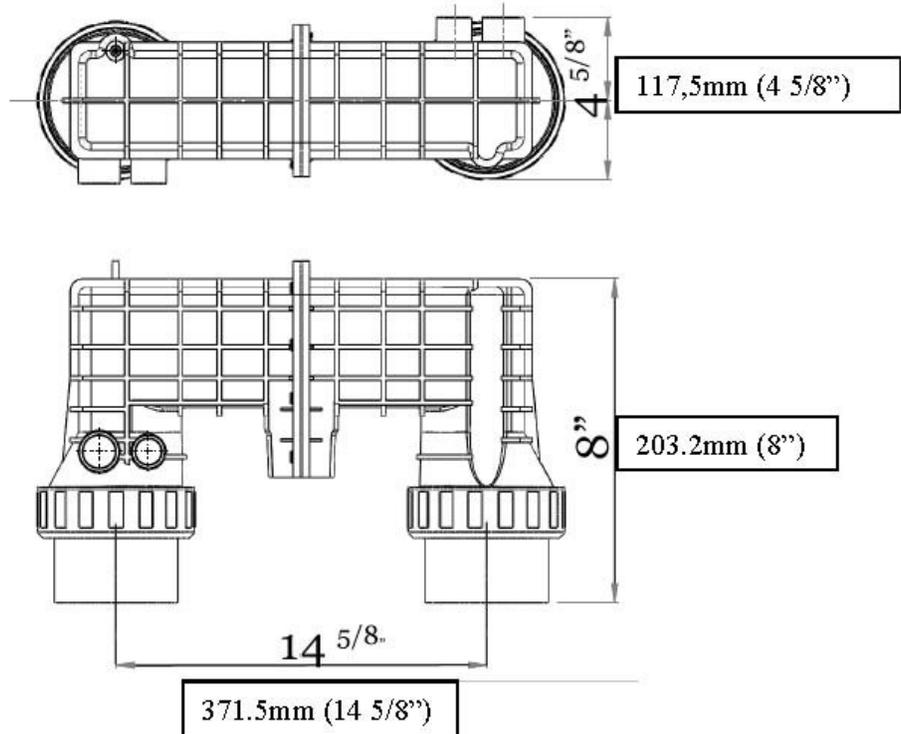
**TMI extends the factory warranty by an additional TWO years pro-rated at 70%.** Pro-rated warranty means that the owner will pay for 70% of the value of the purchase as listed on the TMI price list should a part be defective and need to be replaced. Shipping to and from the factory for the products repair will be at the customer's own expense. Labor (factory or onsite) is not included.

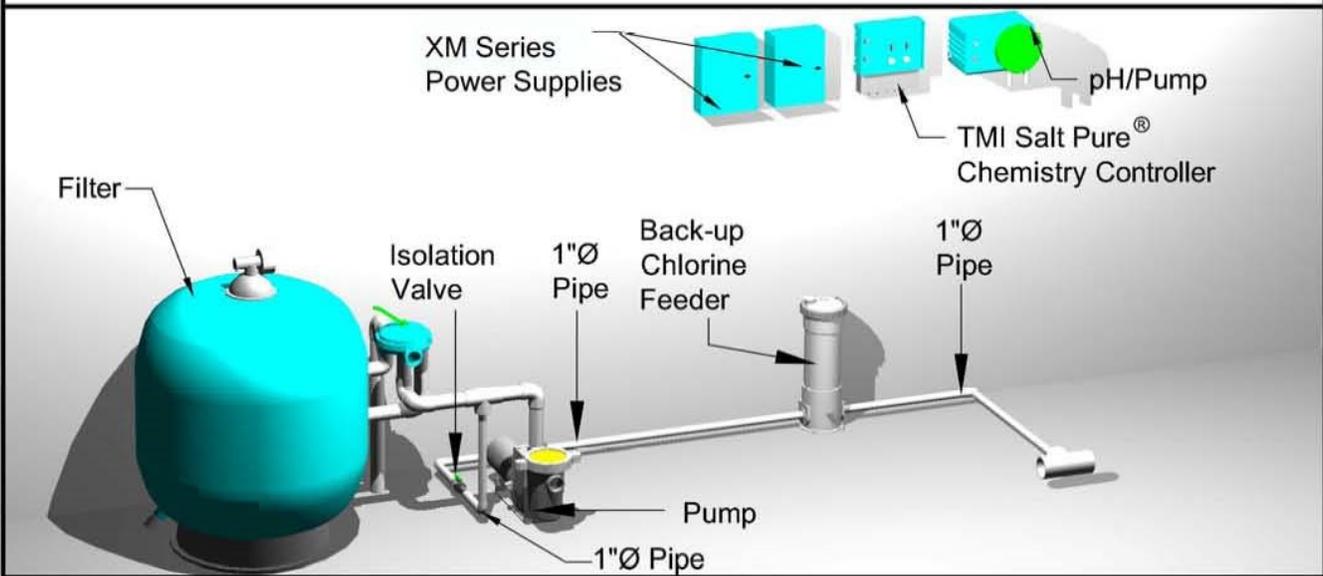
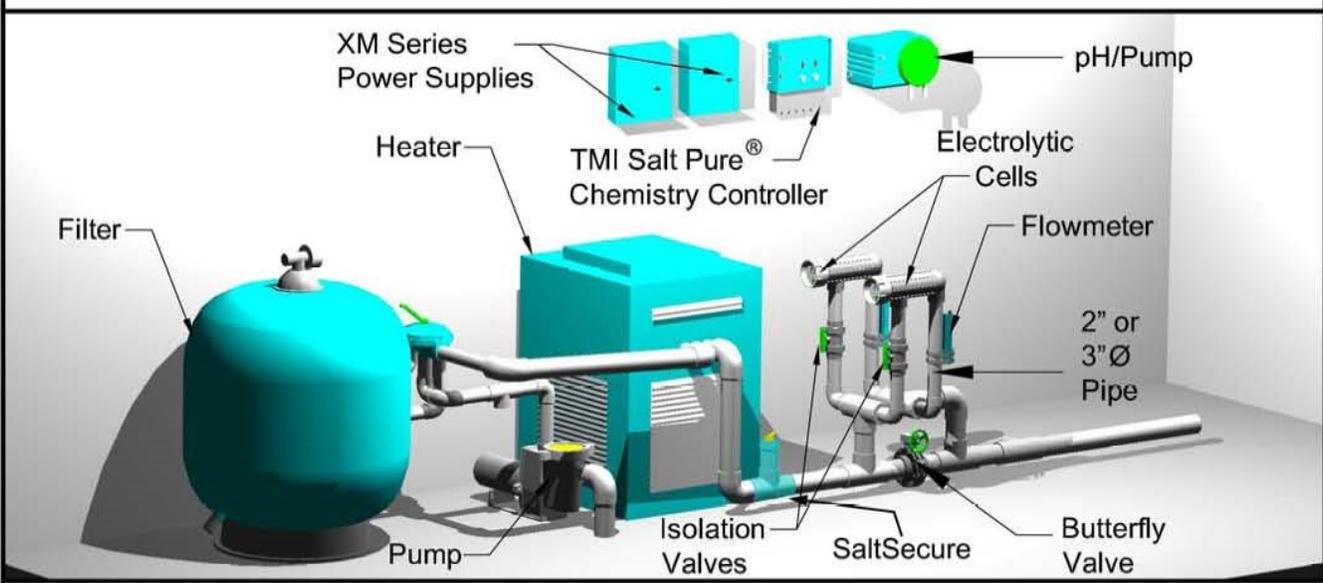
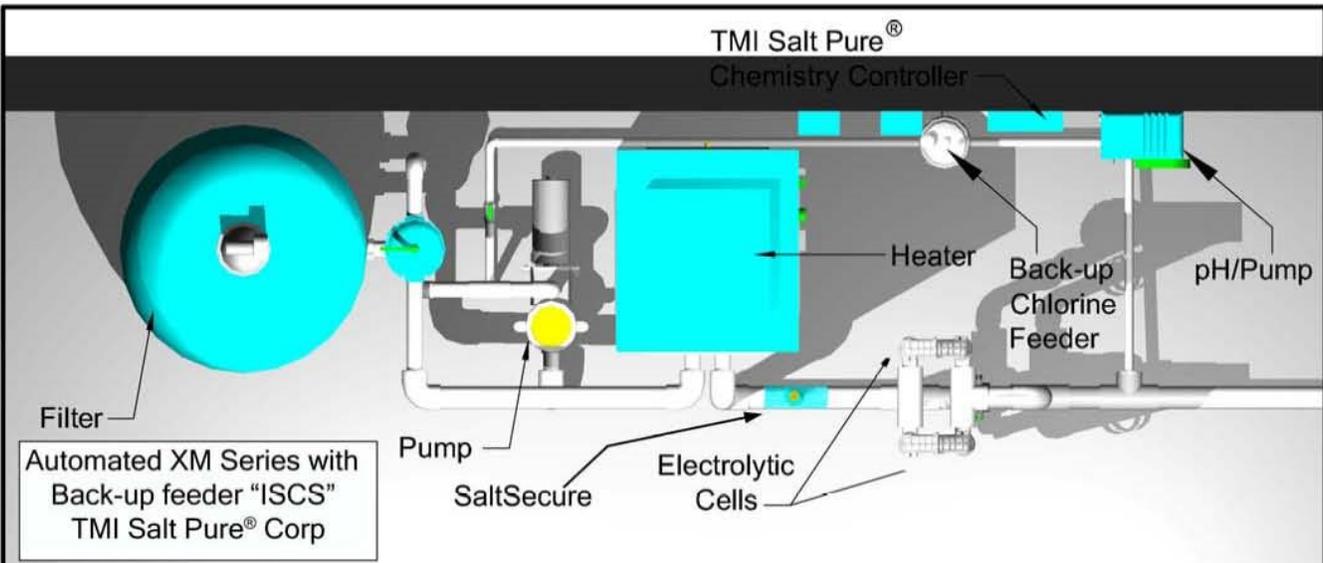
TMI accepts no responsibility other than the repair or replacement of defective product and this Warranty specifically excludes product failure due to accidental damage, abuse, misuse, negligence, damage due to non-compliance with Installation or Operating /Maintenance Instruction or unauthorized alterations or modifications to the product.

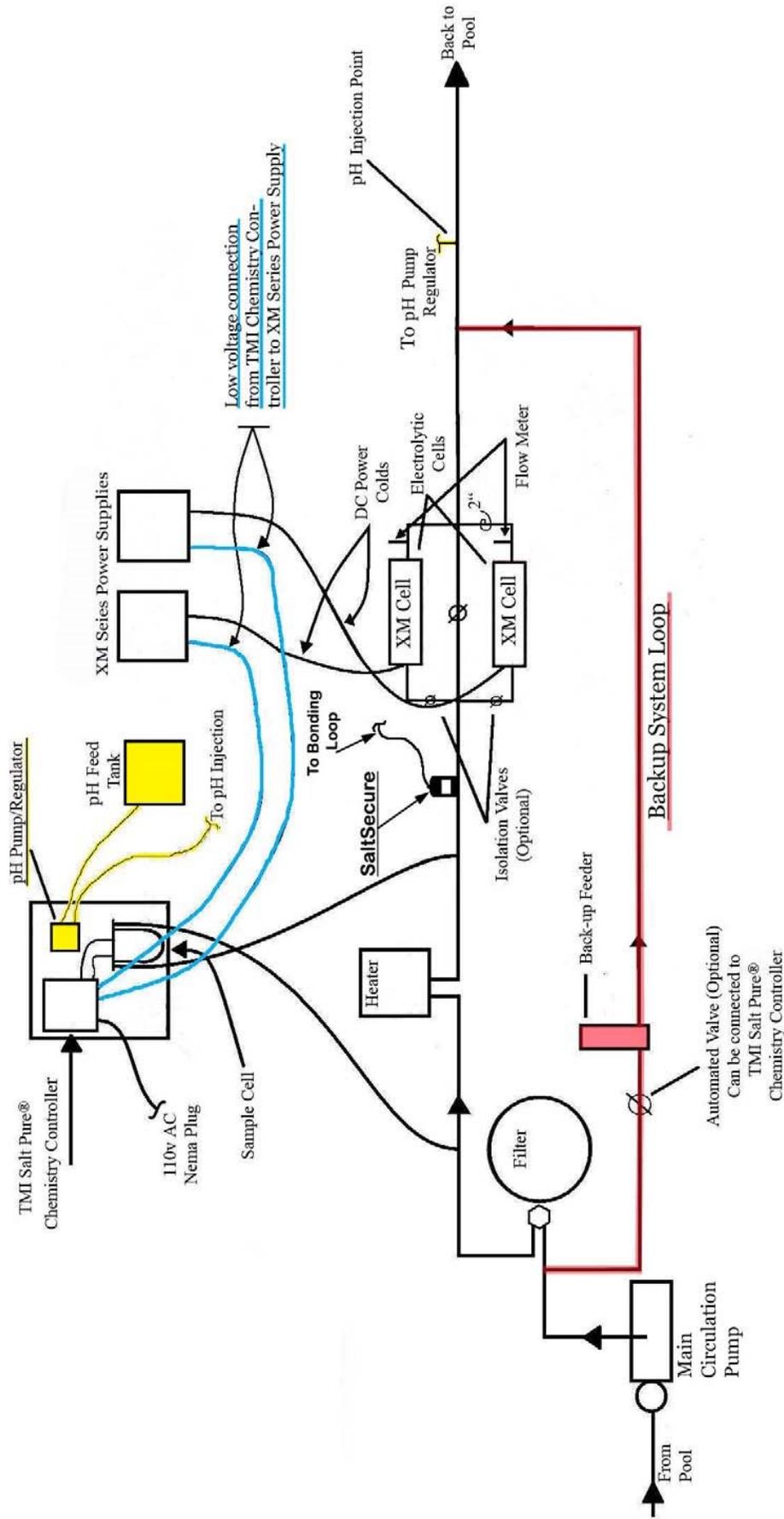
**TECHNICAL INFORMATION:** (specifications subject to change without notice):

<b>DIMENSIONS AND WEIGHT:</b>	<b>Width cm (in)</b>	<b>Height cm (in)</b>	<b>Depth cm (in)</b>	<b>Approximate Weight kg (lbs.)</b>
Power Supply 2XMCG	36 (14)	39 (15.5)	21 (8.25)	17 (37)
Cell 2XMCG	12.5 (4.9)	20.6 (8.1)	41.4 (16.3)	3.4 (7.5)
<b>Model</b>	<b>2XMCG</b>			
Power Consumption	1.15kW			
Output 100% equivalent Chlorine per hour	100			
Output 65% equivalent Granulated Chlorine	155			

All systems require 208v or 220/240V volt single phase 50 or 60 cycle power supply.







# Salt Pure® XM Flow Rates

XMCG	2XMCG
Optimal 45GPM	Optimal 63 GPM

Automated XM Series  
with Back-up Feeder -  
"ISCS"  
TMI Salt Pure® Corp

Not to Scale

**Questions? Call TMI Support (800)456-1285**

## **CONTACT TMI**

**Ask Tech Support for your support web link!!**

### **CORPORATE**

TMI Salt Pure Corp  
P.O. Box 433 Manchester WA 98353 1605  
Alaska East Port Orchard WA 98366  
Phone: (800)818-8266  
Admin: (800)248-1766  
Fax: (360)871-6871  
email: techsupport@tmaquatics.com  
[www.tmiaquatics.com](http://www.tmiaquatics.com)

### **TECH SUPPORT**

TMI Salt Pure Corp  
P.O. Box 433  
Manchester WA 98353  
(800)818-8266  
techsupport@tmiaquatics.com (866)543-  
6543 Fax  
email: techsupport@tmisaltpure.com  
[www.tmisaltpure.com](http://www.tmisaltpure.com)

