



# WATER HEATER FOR POOL & SPA

## GENERAL CHARACTERISTICS MODÈL A

- The stainless steel tank provides sturdiness and
- The galvanized tank increases the life expectancy of the water-heater.
- Contains two thermals circuit breaker and one pressure Switch
- Available power : 6 to 72 kW.
- Models are available for both interior or exterior pools and hot tubs.
- CSA approved
- 2 years warranty



\*Made in Québec

## HOW TO DETERMINE THE RIGHT POWER RATING OF YOUR VAL THERM POOL HEATER

The following factors will influence the power needed for your pool heater: Pool dimension, average depth, wind exposure, period of utilization, ground composition, weather, etc...

With normal weather conditions as in our regions, we will be able to determine the power needed for your pool heater, based on empirical method or mathematical formulas.

### EMPIRICAL METHOD

Our experience shows that according to your utilization period, the power for your Heater should be as follow:

- 4 months utilization: 1.0 kw per 4500 litres  
(1000 imperial gallons)
- 5 months utilization: 1.5 kw per 4500 litres  
(1000 imperial gallons)
- 6 months utilization: 2.5 kw per 4500 litres  
(1000 imperial gallons)

## MATHEMATICAL METHOD

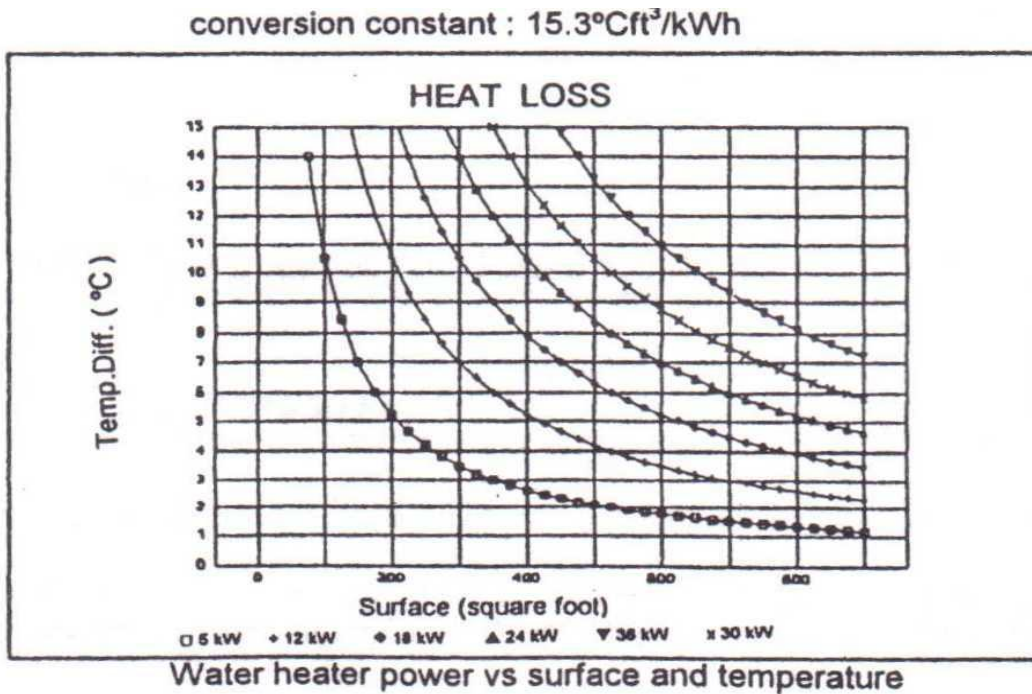
You can determine your heater power and also weather elevation rate for a given heater by applying this formula:

- **How to establish the heater power:**

$$\text{Power (KW)} = \frac{K (\text{W}/^{\circ}\text{Cft}^2) \times \text{temp.diff. } (^{\circ}\text{C}) \times \text{surfpool. (ft}^2\text{)}}{1000 (\text{W/KW})}$$

K: Conversion constant:  $5.715 \text{ W}/^{\circ}\text{ft}^2$   
Temp. Diff.: Temperature spread between water surface and ambient air. Normal use is generally between  $5^{\circ}\text{C}$  and  $8^{\circ}\text{C}$ .

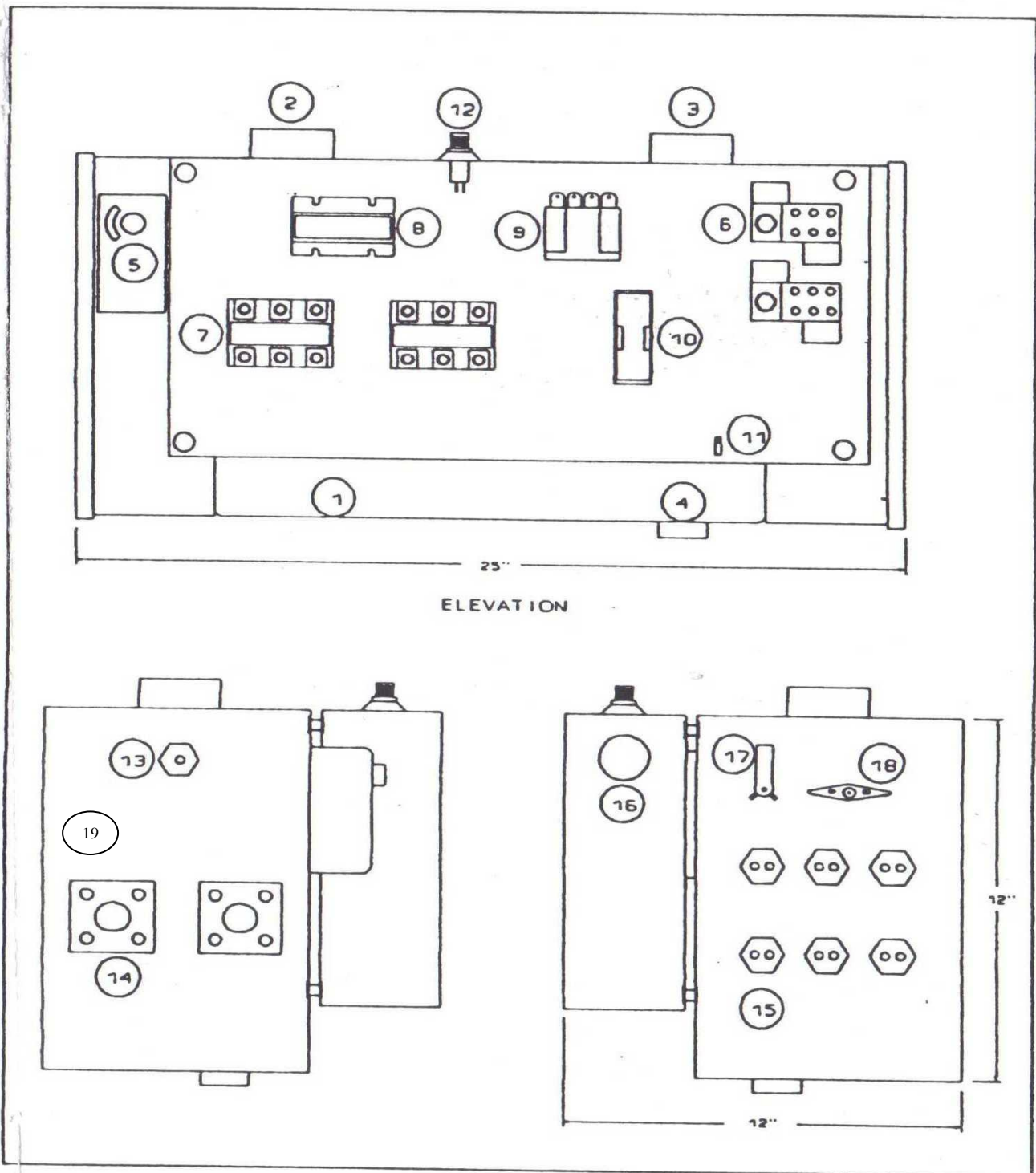
K:



- **How to determine temperature elevation rate:**

$$\text{Elevation } (^{\circ}\text{C}/\text{hour}) = \frac{K (^{\circ}\text{Cft}^3/\text{KWH}) \times \text{Power (KW)}}{\text{Surf.pool (ft}^2\text{)} \times \text{av.depth (ft)}}$$

# PHYSICAL DIAGRAM



## Component List

### 1-WATER TANK

Water tank made of ¼ thick soft galvanised steel

### 2-WATER INLET

Female threaded socket of 1½ N.P.T.

### 3-WATER OUTLET

Female threaded socket of 1½ N.P.T.

### 4-DRAINING PLUG

Female threaded socket of 1 N.P.T.

### 5- THERMOSTAT

Adjustable with a precision of 2°F

### 6-TERMINAL BLOCK

Terminal block for electricity supply

### 7-MAGNETIC CONTACTOR

Allow the activation of the heating elements. Contactors are engage through the thermostat.

### 8- TRANSFORMER CONTROL

Only used for the 600 volts Water-heater. Allows supply the solenoid contactor.

### 9-TIME CONSTANT

Allows a sequential activation of the heating elements (Water-heater with 208 and 240 volts with 21kw of power or more).

## Component List

### 10-FUSE BOX

Protects the control circuit against electric overloads.  
(600 volts Water-heater only)

### 11-GROUND BOX

Make sure that the ground box is in the ground to prevent any electrocution.

### 12-PILOT LIGHT

Indicates that the Water-heater is operating.

### 13-THERMAL PROBE

When water is inferior of the temperature assign, it allows the activation of the elements though the thermostat.

### 14-HEATING ELEMENT

Triple phased 600 volts element, with a power 6 or 9 kw.

### 15- HEATING ELEMENT

Single phased 240 volt element, with 3kw power.

### 16-OPENING

1½`` diameter opening allowing the passage of alimentation cables.

### 17-THERMAL PROTECTION

High temperature circuit breaker with automaitc reengagement.

### 18-TERMAL PROTECTION

High temperature circuit breaker with manual reengagement.

### 19-PRESSURE SWITCH

A cut-off switch when water is low.

## TROUBLESHOOTING

If water stays cold and pilot light is off:

- 1- Check the voltage
- 2- Check circuit breaker, main fuses and replace if necessary
- 3- Check the “High Temperature Cut off Switch with Manual Reset” (refer to the physical diagram).
- 4- Check thermostat.
- 5- For the 600 volts water-heater, checks the circuit breaker located in inside the control box and if necessary, replace it.

If water does not heat as wanted and pilot light is on:

- 1- Check voltage
- 2- Check thermostat
- 3- Check heating elements. You should obtain the following readings in regards of elements type:

Electrical characteristic of Heating Elements

TYPE	Power (KW)	Voltage L-L (V)	Line current (A)	Resistance (Element disconnected)
240v-1ph	3,0	240	12,5	19,0
208v-1ph	3,0	208	8,3	14,4
600v-3ph	6,0	600	5,8	5,7
600v-3ph	9,0	600	8,7	8,6

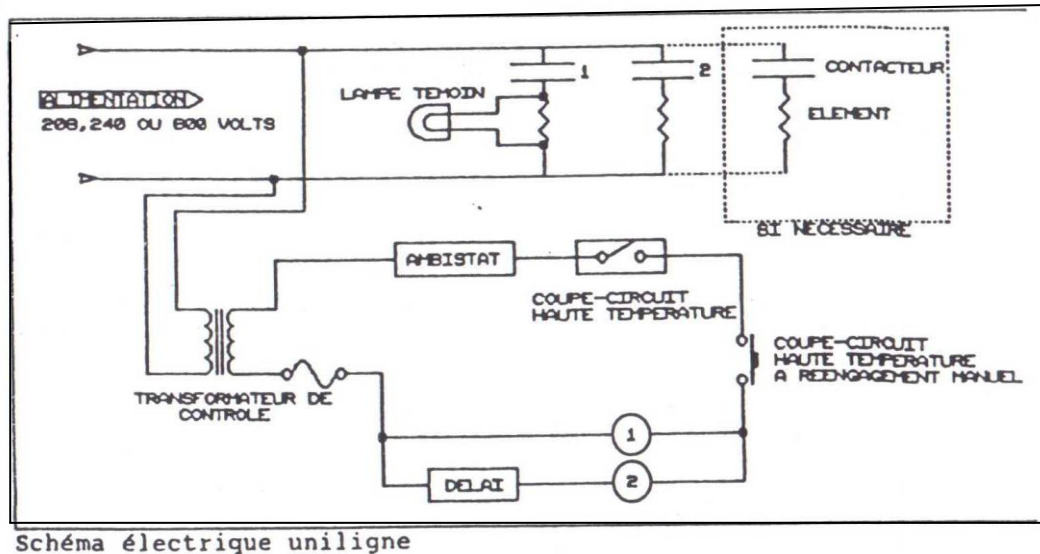
## INSTALLATION - LOCATION SITE

This Val Therm water heater can be installed either inside or outside. We strongly recommend sheltered from rain. It is important that all safety and installation standards be respected.

The water heater must be positioned vertically and at the filter end. A free space of 12'' all around the heater must be accessible for maintenance.

## ELECTRICITY

The electrical wirings must be performed by qualified electrician.



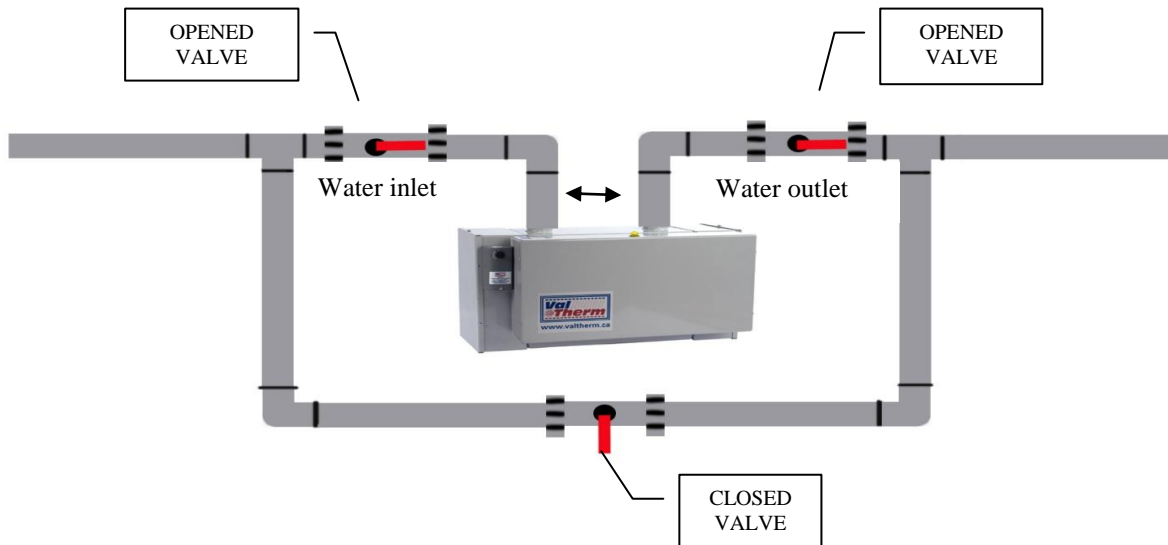
## PLUMBING

The inlet and outlet of the pool heater are connected to two 1 1/2'' N.P.T. threaded cap is included with all models for emptying convenience.

Note: Use only Teflon tape to assure water tightness of pipes connections. Tight pipes properly, and use tools when necessary, eg. Pipe wrench.

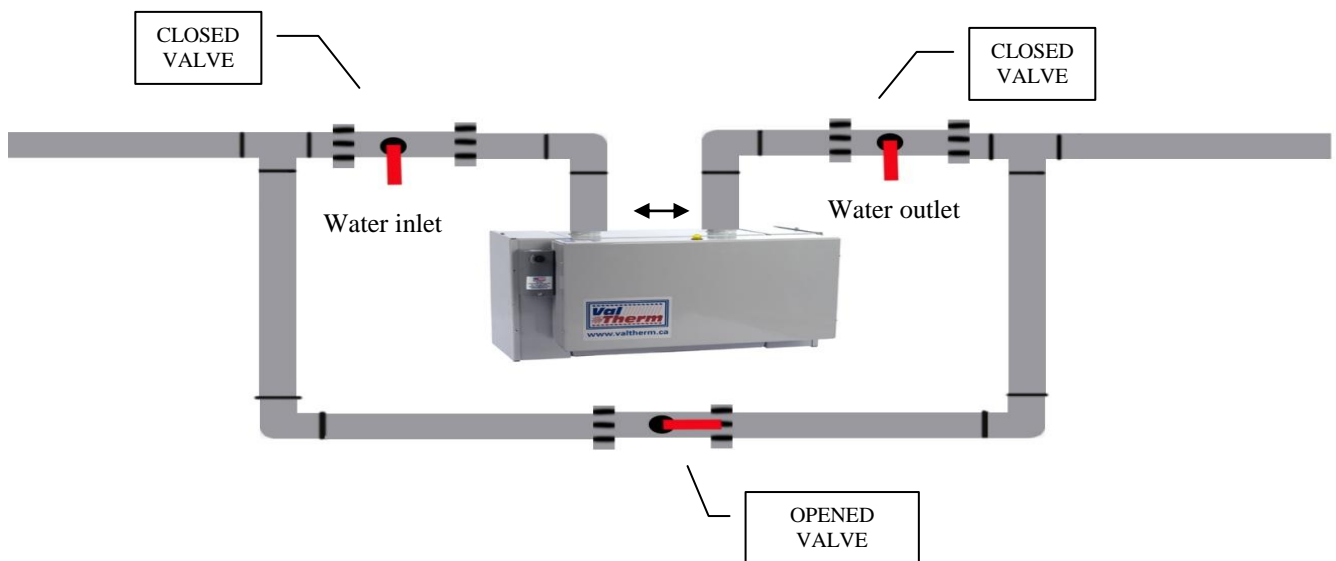


## PLUMBING SKETCH FOR THE WATER HEATER MODEL A



**It is recommended to install a by-pass on the plumbing of the water heater.**

## DÉVIATION



**It is recommended to isolate your water heater on the water by-pass when you do your shock treatment at the opening of your pool not to damage the component.**

## STAR UP

- 1- Before switching on pool heater, activate the pump of the filter and ensure that no air remains inside the water heater. This can be checked when no more bubbles appear at the pool when water recycles back to the surface.
- 2- Adjust the thermostat to the desired temperature level. The time to reach the desired temperature varies, depending on initial temperature of the water, weather conditions, etc...

For security, Two reset button protect the machine against high temperature elevation 120 C°, the reset button shot off automatically the circuit, so you have to restart by pushing the red button. The third security, It's a pressure switch for the lower water pressure in the water tank. This unit require a minimum flow of 35 gallons per minute.

- 3- Maintain proper water chemical balance: pH level: 7.2-7.6, alkalinity: 80-140, salinity: 180-260, otherwise internal parts may deteriorate prematurely, those damages are bit covered by the warranty.
- 4- Tank should be full of water before starting up, otherwise permanent damage to parts occurs. Such damage is not covered by the warranty.

## WINTERIZING

Empty heater tank draining plug to prevent water freezing inside tank during winter.

## SAFETY

Before opening the pool heater, make sure it is not plugged in.

This unit require a minimum flow of 35 gallons per minute.

Part replacement with original only

Do not install two heaters on the same line because it could lower the water pressure and cause damage.

# POOL HEATER WATER LIST

## 240 VOLTS – 1 PHASE

<i>Puissance</i>	<i>Line current</i>	<i>BTU/ hour</i>	<i># model</i>
6 kw	25,0 A	20 427	A1P2-6
9 kw	37,5 A	30 708	A1P2-9
12 kw	50,0 A	40 944	A1P2-12
15 kw	62,5 A	51 180	A1P2-15
18 kw	75,0 A	61 416	A1P2-18
21 kw	87,5 A	71 652	A1P2-21
24 kw	100,0 A	81 888	A1P2-24
27 kw	112,5 A	92 124	A1P2-27
30 kw	125,0 A	102 360	A1P2-30
33 kw	137,5 A	112 596	A1P2-33
36 kw	150,0 A	122 832	A1P2-36
39 kw	162,0 A	133 068	A1P2-39
42 kw	175,0 A	143 304	A1P2-42
45 kw	187,5 A	153 540	A1P2-45

## 208 VOLTS – 3 PHASES

<i>Puissance</i>	<i>Line current</i>	<i>BTU/ hour</i>	<i># model</i>
9 kw	25,0 A	30 708	A3P3-9
15 kw	50,0 A	51 180	A3P3-15
18 kw	50,0 A	61 416	A3P3-18
24 kw	75,0 A	81 888	A3P3-24
27 kw	75,0 A	92 124	A3P3-27
33 kw	100,0 A	112 596	A3P3-33
36 kw	100,0 A	122 832	A3P3-36

## 600 VOLTS – 3 PHASES

<i>Puissance</i>	<i>Line current</i>	<i>BTU/ hour</i>	<i># model</i>
9 kw	8,7 A	30 708	A3P3-9
12 kw	11,5 A	40 944	A3P3-12
15 kw	14,4 A	51 180	A3P3-15
18 kw	17,3 A	61 416	A3P3-18
21 kw	20,2 A	71 652	A3P3-21
24 kw	23,1 A	81 888	A3P3-24
27 kw	26,0 A	92 124	A3P3-27
30 kw	28,9 A	102 360	A3P3-30
36 kw	34,6 A	122 832	A3P3-36
45 kw	43,3 A	153 540	A3P3-45

- Other models available on demande. // Model number : P= pool T=tourbillon
- Current mesured at the nominal tension. // Voltage:1= 240 V, 3=208V & 600V

# WARRANTY

THIS WATER HEATER IS QUARANTIED FOR TWO (2) YEARS AGAINST MANUFACTURING DEFAULT (EXEPT HAETING ELEMENTS).

NO GUARANTEE ON THE WATER-HEATERS WHEN SALT MACHINE IS INSTALL.

ANY DEFECTIVE UNIT WILL BE RETURNED, PREPAID, TO US FOR REPAIRS. VLAT THERM IS NOT RESPONSIBLE FOR THER REMOVAL AND REINSTALLATION OF SUCH UNIT.

CUSTOMER NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

DEALER NAME : \_\_\_\_\_

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Water heater:      Pool (   )      SPA (   )

Capacity (kw) : \_\_\_\_\_

Model: \_\_\_\_\_

Serial number: \_\_\_\_\_

## IMPORTANT:

Warranty is void if the following conditions are not met:

- Before starting up, tank must be filled or water. Otherwise, permanent damage may occur to parts.
- Maintain proper water chemical balance: pH level: 7.2-7.6, alkalinity: 80-140, salinity: 180-260. Otherwise internal parts may deteriorate prematurely.
- For pools or spas with salt machine: do not go over 3200 PPM