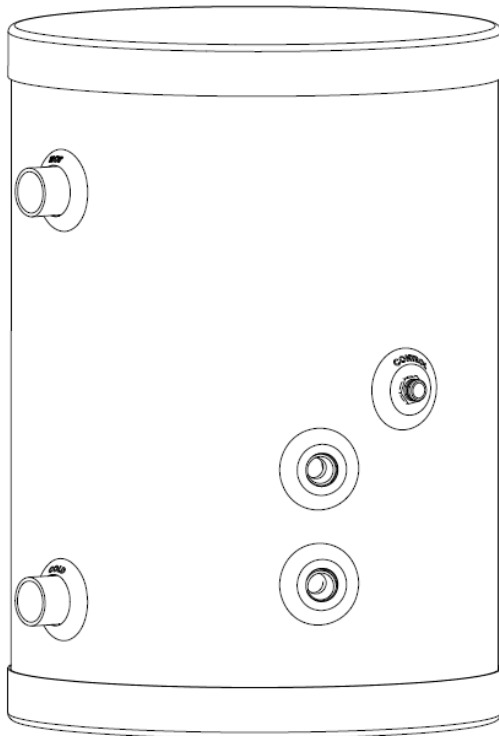




SuperStor Pool Heater



INSTALLATION

START-UP

MAINTENANCE

PARTS

**Model
SSU-20PH**

CAUTION

The use of a salt chlorine generator is prohibited in a system serviced by this pool heater. Salinated water will cause corrosive damage to the pool heater tank and component parts, and possibly lead to premature failure. Such failure is NOT covered by warranty. Please seek an alternative sanitation method.

NOTICE: HTP reserves the right to make product changes or updates without notice and will not be held liable for typographical errors in literature.

NOTE TO CONSUMER: PLEASE KEEP ALL INSTRUCTIONS FOR FUTURE REFERENCE.

SPECIAL ATTENTION BOXES

The following defined terms are used throughout this manual to bring attention to the presence of hazards of various risk levels, or to important product information.

DANGER

DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

CAUTION

CAUTION used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

FOREWORD

This manual is intended to be used in conjunction with other literature provided with the SuperStor Pool Heater. This includes all related control information. It is important that this manual, all other documents included with this system, and additional publications including the *Code for the Installation of Heat Producing Appliances* (latest version), be reviewed in their entirety before beginning any work.

Installation should be made in accordance with the regulations of the local code authorities which pertain to this type of water heating equipment.

FOR THE INSTALLER

WARNING

This manual must only be used by a qualified heating installer/service technician. Read all instructions in this manual before installing. Perform steps in the order given. Failure to comply could result in substantial property damage, severe personal injury, or death.

This water heater must be installed by qualified and licensed personnel. The installer should be guided by the instructions furnished with the water heater, and with local codes and utility company requirements.

INSTALLATIONS MUST COMPLY WITH:

Local, state, provincial, and national codes, laws, regulations and ordinances.

The latest version of the *National Electrical Code, NFPA No. 70*. In Canada, refer to *Canadian Electrical Code C 22.1*, from Canadian Standards Association, 5060 Spectrum Way, Suite 100, Mississauga, Ontario, Canada L4W 5N6.

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PART 1 – GENERAL SAFETY INFORMATION

This pool heater and control are intended to be connected to an existing/new boiler. Basic operation requires a boiler that has adequate BTU capacity and a properly sized circulator to transfer the BTUs to the pool heater.

An optional control is available to monitor pool water temperature when the pool filter pump is on. This system won't operate if the boiler or pool filter pump is not operating.

Optional pool control with sensor and transformer – Part # SP-30-GL-235-x284

A. PRECAUTIONS

WARNING

INSTALLER – Read all instructions in this manual before installing. Perform steps in the order given.

USER – This manual is for use only by a qualified heating installer/service technician. Have this heater serviced/inspected by a qualified service technician annually.

FAILURE TO ADHERE TO THE GUIDELINES ON THIS PAGE CAN RESULT IN SUBSTANTIAL PROPERTY DAMAGE, SEVERE PERSONAL INJURY, OR DEATH.

⚠ WARNING

NOTE: If the heater is exposed to the following, do not operate until all corrective steps have been made by a qualified serviceman:

1. FIRE
2. DAMAGE
3. WATER

Any claims for damage or shortage in shipment must be filed immediately against the transportation company by the consignee.

DO NOT USE THIS WATER HEATER IF ANY PART HAS BEEN UNDERWATER. Immediately call a qualified service technician.

B. WHEN SERVICING THE WATER HEATER

- To avoid electric shock, disconnect electrical supply before performing maintenance.
- To avoid severe burns, allow heater to cool before servicing.

C. HEATER WATER

- Do not use petroleum-based cleaning or sealing compounds in a water heating system. Gaskets and seals in the system may be damaged. This can result in substantial property damage.
- Do not use “homemade cures” or “heater patent medicines”. Damage to heater, substantial property damage, and/or serious personal injury may result.

PART 2 – PREPARE THE WATER HEATER

CAUTION

UNCRATING HEATER – Any claims for damage or shortage in shipment must be filed immediately against the transportation company by the consignee.

CAUTION

COLD WEATHER HANDLING – If the heater has been stored in a very cold location (BELOW 0°F) before installation, handle with care until the plastic components come to room temperature.

Remove all sides of the shipping crate to allow the heater to be moved into its installation location.

A. DIMENSIONS AND SPECIFICATIONS

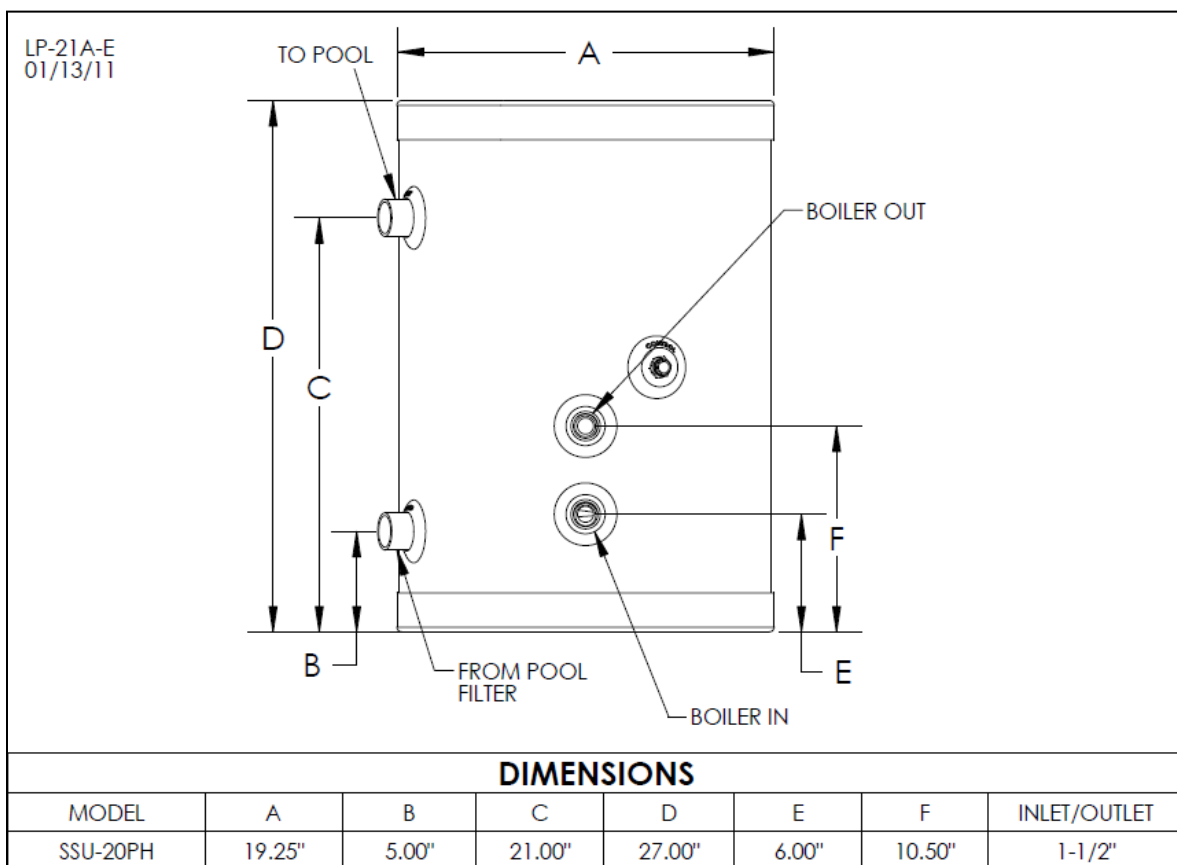


Figure 1

B. LOCATING THE WATER HEATER

If the pool heater is to be located outdoors, it must be in a covered area, protected from the rain and sun.

For winterizing, the pool heater must be completely drained and have one gallon of non-toxic, food-grade propylene glycol, FDA rated as GRAS (Generally Recognized As Safe) pumped into the heat exchanger to prevent freezing.

Choose a location for the water heater as centralized to the piping and electrical system as possible. Carefully consider how boiler and pool piping will be routed before choosing final pool heater location. Place the water heater so that the drain, controls, and inlets/outlets are easily accessible for service.

This water heater must be installed vertical on a level surface.

CAUTION

Locate the water heater where any leakage from the related piping, tank, or connections will not result in damage to surrounding areas or lower floors. HTP WILL NOT be held liable for leakage damages.

⚠ DANGER

This water heater must not be located near flammable liquids such as gasoline, butane, liquefied propane, adhesives, solvents, paint thinners, etc., as the controls of this water heater could ignite these vapors and cause an explosion, resulting in property damage, severe personal injury, or death.

PART 3 – HEATER PIPING

It is mandatory that all plumbing be done in accordance with federal, local, and state plumbing codes and practices. Failure to properly install the water heater WILL VOID the warranty. It is also necessary to use both thread tape and pipe dope on all mechanical plumbing connections.

A. PIPING TO THE POOL FILTER

The pool water side piping (pool in and pool out, see Figure 2) is recommended to be 1 ½" PVC. A bypass will be necessary between the inlet and outlet of the pool heater (see Figure 2). The bypass will allow the boiler to keep up with the pool heater. If the bypass is not installed, the boiler may not be able to provide adequate temperature.

B. PIPING TO THE BOILER

Piping between the boiler and pool heater should be 1 ¼" copper. It is very important to properly size the boiler circulator to match total system flow rates, pressure drop (feet of head), and boiler output (see Table 1). For example, if the boiler is 100,000 BTU/H, the system requires a 6 GPM flow rate through the heat exchanger. If the boiler is 125,000 BTU/H, the system requires a 7 GPM flow rate through the heat exchanger.

To achieve proper flow rates, calculate friction loss for the length of piping, plus the number of fittings, elbows, tees, pool heat exchanger, etc. Pool heat exchanger friction loss is 4.5' at 6 GPM, 7' at 7 GPM, and 9.2' at 8 GPM. The minimum boiler temperature must be maintained at 160°F or higher. Low boiler temperature will dramatically reduce the life of the boiler.

MODEL	REQ. BTU OUTPUT	RECC. FLOW RATE	HEAT EXCH. PRESSURE DROP	DIMENSIONS	
				DIA.	HEIGHT
SSU-20PH	100,000	6	4.5'	19 1/4"	27"
	125,000	7	7.0'	19 1/4"	27"
	150,000	8	9.2'	19 1/4"	27"
	195,000	9	10.6'	19 1/4"	27"
	200,000	10	12.5'	19 1/4"	27"

Table 1 – Pressure Drop through the Heat Exchanger

CAUTION

Use two wrenches when tightening water piping at heater. Use one wrench to prevent the heater return or supply line from turning. Failure to prevent piping connections from turning could cause damage to heater components.

C. PIPING DETAIL

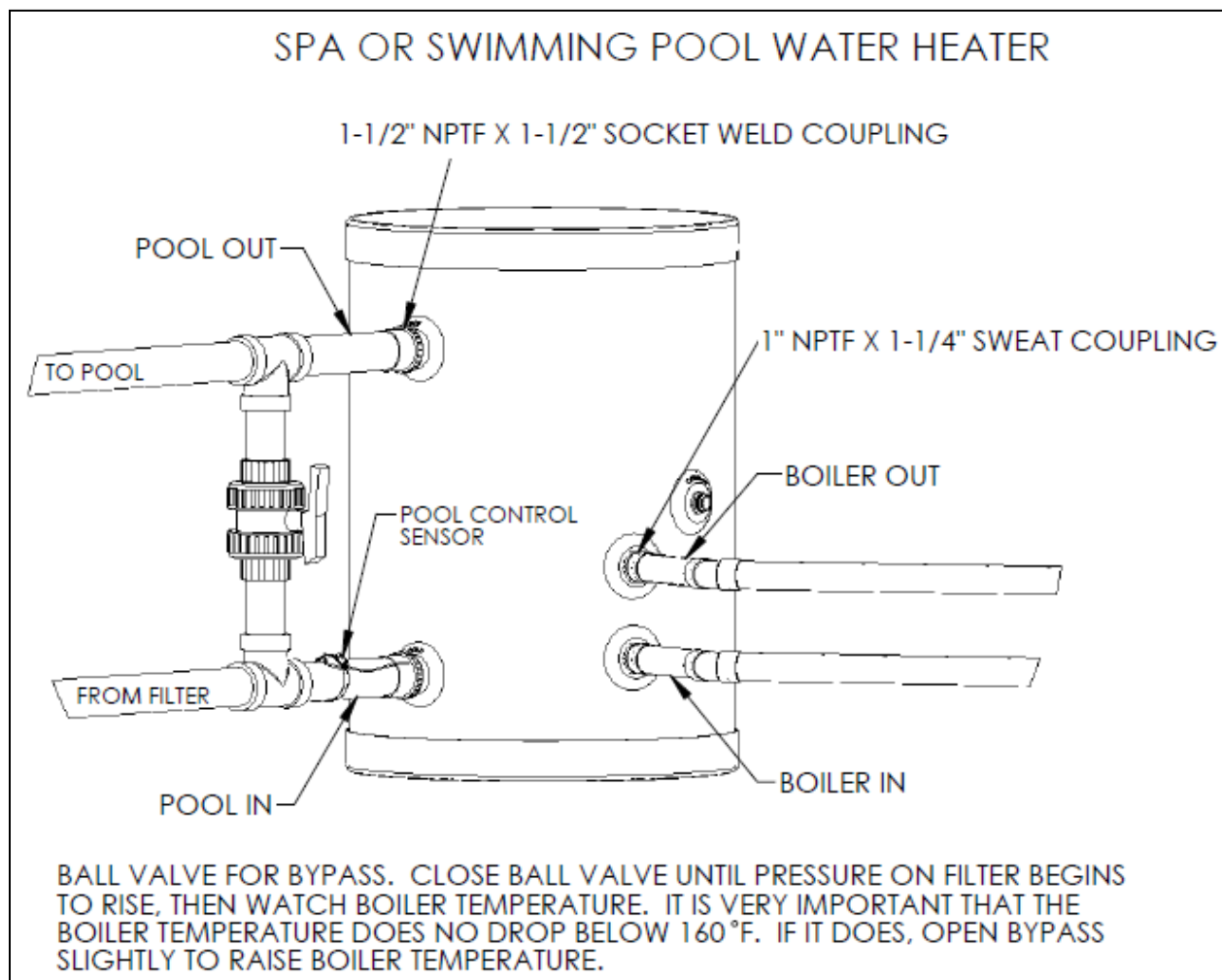


Figure 2 – Water Heater Piping

PART 4 – HEATER CONTROL

A. WIRING THE CONTROL

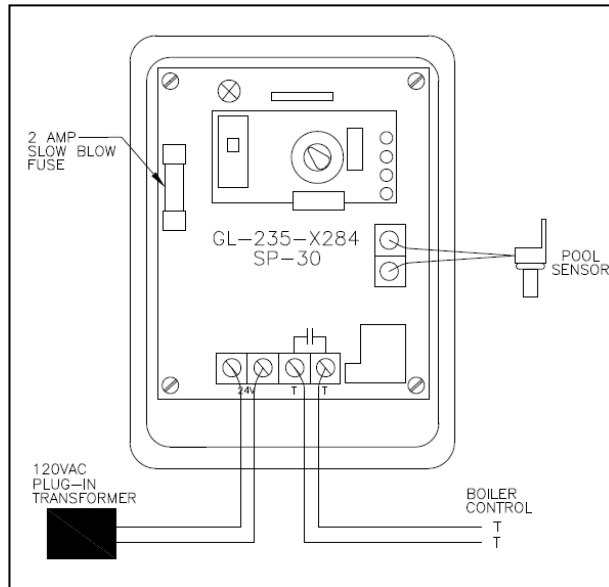


Figure 3 – Control Wiring

If the pool heater control is to be located outdoors, it must be located in a covered area, protected from the rain and sun. However, the control transformer must be kept indoors. A ground fault outlet is mandatory. The control probe needs to be installed onto the inlet line of the pool heater. This probe monitors incoming water temperature to the pool heater only when the pool filter is running. See Figure 3 for control wiring.

At the beginning of the season, it may be necessary during start-up to leave the pool filter on for a few days to heat the pool. See Table 2 to determine actual heating time.

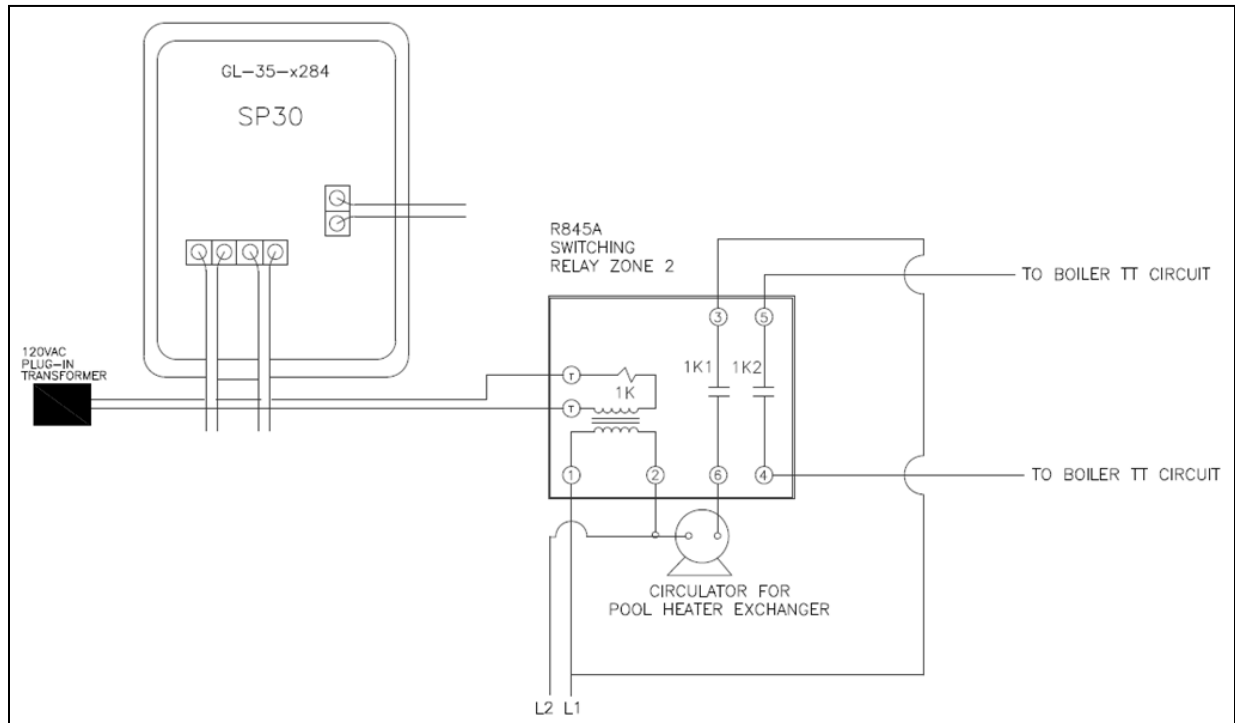


Figure 4 – Pool Heater Control to Boiler Control Wiring

B. SENSOR INSTALLATION

Proper sensor installation is critical for reliable and efficient operation. The sensor should be located as close to the inlet of the pool heater (pipe running from the pool filter) as possible.

Mount sensor by following instruction in Figure 4. If the wiring needs to be longer, use commonly available thermostat "TT" wire on the transformer line to the boiler. If a standard control is used, install a tee in the inlet line and use a standard aquastat well to mount the control bulb.

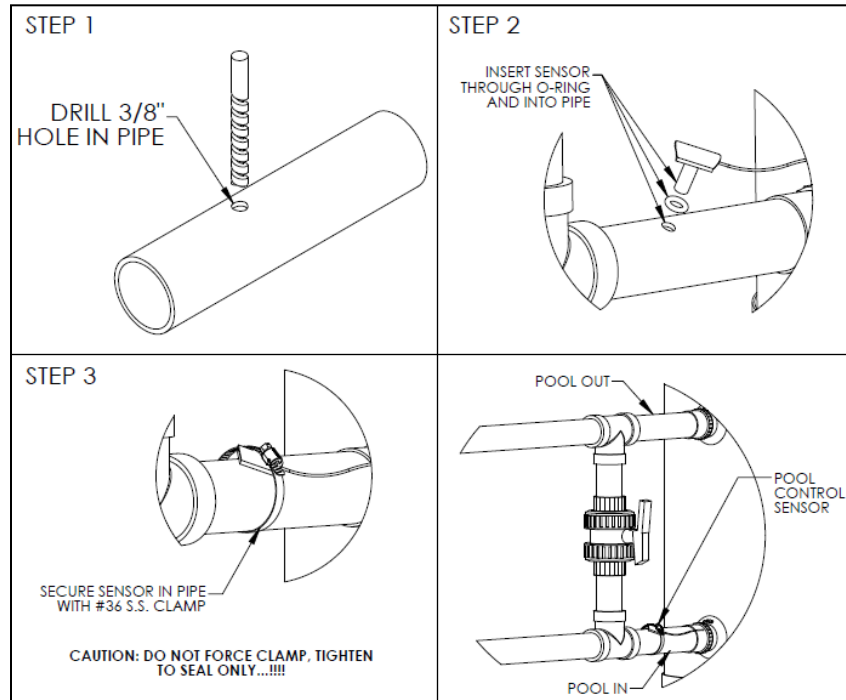


Figure 5 – Sensor Mounting and Installation

PART 5 – SIZING THE POOL HEATER

WATER HEATER SIZING FOR SWIMMING POOLS AND BAPTISTRIES						
HEATING TIME IN HOURS	FACTOR					
	20 DEG. F. RISE	25 DEG. F. RISE	30 DEG. F. RISE	40 DEG. F. RISE	50 DEG. F. RISE	60 DEG. F. RISE
6	40	50	60	80	100	120
12	20	25	30	40	50	60
24	10	12.5	15	20	25	30
48	5	6.3	*7.5	10	12.5	15
72	3.4	4.25	5.1	6.8	8.5	10.2
96	2.5	3.0	3.75	5.0	6.25	7.5
120	1.7	2.0	2.5	3.3	4.25	5.0
144	1.4	1.7	2.2	2.8	3.5	4.25
168	1.3	1.6	2.1	2.7	3.4	4.1
192	1.2	1.5	2.0	2.6	3.3	4.0
216	1.1	1.4	1.9	2.5	3.2	3.9
240	1.0	1.25	1.8	2.4	3.1	3.8

Table 2 – Water Heating Sizing - *Depending on Chart

NOTE: THE SSU-20PH CAN TRANSFER A MAXIMUM OF 200,000 BTU FROM THE BOILER. PLEASE MAKE SURE TO CORRECTLY SIZE THE CIRCULATOR OFF THE BOILER (SEE TABLE 1).

NOTE: The following is presented as a guide to determine the heating time in hours for water heaters used to heat swimming pools and baptisteries:

EXAMPLE FORMULA TO ESTABLISH RECOVERY OF POOL:

Boiler 84,000 (BTU/hour) divided by pool capacity (gallons) = factor

TO FIND POOL CAPACITY IN GALLONS

1. Find volume of pool (or baptistery tank) in cubic feet. Length x width x average depth = cubic feet of water.
2. Convert cubic feet of water to gallons = multiply by 7.5.
3. Use SSU-20PH, i.e. 84,000 BTU/h.
4. To determine how long it is going to take to heat up pool, divide 84,000 (BTU/h using SSU-20PH) into pool capacity (in gallons). The answer should be matched with the figures in the above chart under the required temperature rise column.

Example:

7500 gallon pool needs to be heater from 40°F to 70°F (30°F rise) = 84,000 BTU divided by 7500 gallons = 11.2* (*see table above) under 30°F rise columns. In less than 48 hours, this temperature rise can be accomplished.

5. The boiler must supply enough BTUs for the gross output of the selected SuperStor. Once the pool is at temperature (70oF in this example), the SuperStor will require very few BTU/h to maintain the pool at that temperature.

PART 6 – MAINTENANCE

When heater is not used during winter months, turn off power to heater and drain water from the tank and piping to prevent freezing.

For winterizing, disconnect tank and pump one gallon of non-toxic, food-grade propylene glycol, FDA rated as GRAS (Generally Recognized As Safe) into the heat exchanger to prevent freezing.

HTP CUSTOMER INSTALLATION RECORD FORM

The following form should be completed by the installer for you to keep as a record of the installation in case of a warranty claim. After reading the important notes at the bottom of the page, please also sign this document.

Customer's Name:	
Installation Address:	
Date of Installation:	
Installer's Code/Name:	
Product Serial Number(s):	
Comments:	
Installer's Phone Number:	
Signed by Installer:	
Signed by Customer:	

IMPORTANT:

Customer: Please only sign after the installer has reviewed the installation, safety, proper operation, and maintenance of the system. In the case that the system has any problems, please call the installer. If you are unable to make contact, please contact your HTP Sales Representative.

Distributor/Dealer: Please insert contact details.