

# IMPORTANT PUMP WARNING AND SAFETY INSTRUCTIONS



## IMPORTANT NOTICE

**Attention Installer:** This guide contains important information about the installation, operation and safe use of this product. This information should be given to the owner and/or operator of this equipment after installation or left on or near the pump.

**Attention User:** This manual contains important information that will help you in operating and maintaining this product. Please retain it for future reference.

Please refer to [www.pentairpool.com](http://www.pentairpool.com) for all warnings and instructions related to the pump.

## READ AND FOLLOW ALL INSTRUCTIONS SAVE THESE INSTRUCTIONS



This is the safety alert symbol. When you see this symbol on your system or in this manual, look for one of the following signal words and be alert to the potential for personal injury.

### **⚠ DANGER**

Warns about hazards that can cause death, serious personal injury, or major property damage if ignored.

### **⚠ WARNING**

Warns about hazards that may cause death, serious personal injury, or major property damage if ignored.

### **⚠ CAUTION**

Warns about hazards that may or can cause minor personal injury or property damage if ignored.

### **NOTE**

Indicates special instructions not related to hazards.

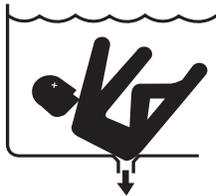
Carefully read and follow all safety instructions in this manual and on equipment. Keep safety labels in good condition; replace if missing or damaged.

### **⚠ WARNING**

Before installing this product, read and follow all warning notices and instructions which are included.

Failure to follow safety warnings and instructions can result in severe injury, death, or property damage. Call (800) 831-7133 for additional free copies of these instructions. It is absolutely critical that the suction plumbing be installed in accordance with the latest national and local codes for swimming pools.

These instructions contain information for a variety of pump models and therefore some instructions may not apply to a specific model. All models are intended for use in swimming pool applications. The pump will function correctly only if it is properly sized to the specific application and properly installed.



## General Warnings

- Never open the inside of the drive motor enclosure. There is a capacitor bank that holds a 230 VAC charge even when there is no power to the unit.
- The pump is not submersible.
- The pump is capable of high flow rates; use caution when installing and programming to limit pumps performance potential with old or questionable equipment.
- Code requirements for electrical connection differ from country to country, state to state, as well as local municipalities. Install equipment in accordance with the National Electrical Code and all applicable local codes and ordinances.
- Before servicing the pump; switch OFF power to the pump by disconnecting the main circuit to the pump.
- This appliance is not intended for use by persons (including children) of reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning the use of the appliance by a person responsible for their safety.

### **⚠ DANGER**

This pump produces high levels of suction, which can pose extreme danger if a person comes in close proximity to an open pool or spa drain or a loose or broken drain cover or grate. The pump, when installed according to the manufacturer's instructions, is designed to help prevent injuries caused by body entrapment in pools. This pump does not, however, protect against limb entrapments, disembowelments (when a person sits on a broken or uncovered pool drain) or hair entanglements.

**The Virginia Graeme Baker (VGB) Pool and Spa Safety Act** creates new requirements for owners and operators of commercial swimming pools and spas.

Commercial pools or spas constructed on or after December 19, 2008, shall utilize:

(A) A multiple main drain system without isolation capability with suction outlet covers that meet ASME/ANSI A112.19.8a Suction Fittings for Use in Swimming Pools, Wading Pools, Spas, and Hot Tubs and either:

- (i) A safety vacuum release system (SVRS) meeting ASME/ANSI A112.19.17 Manufactured Safety Vacuum Release systems (SVRS) for Residential and Commercial Swimming Pool, Spa, Hot Tub, and Wading Pool Suction Systems and/or ASTM F2387 Standard Specification for Manufactured Safety Vacuum Release Systems (SVRS) for Swimming pools, Spas and Hot Tubs or
- (ii) A properly designed and tested suction-limiting vent system or
- (iii) An automatic pump shut-off system.

Commercial pools and spas constructed prior to December 19, 2008, with a single submerged suction outlet shall use a suction outlet cover that meets ASME/ANSI A112.19.8a and either:

- (A) A SVRS meeting ASME/ANSI A112.19.17 and/or ASTM F2387, or
- (B) A properly designed and tested suction-limiting vent system, or
- (C) An automatic pump shut-off system, or
- (D) Disabled submerged outlets, or
- (E) Suction outlets shall be re-configured into return inlets.

**For more information about the Act, contact the Consumer Product Safety Commission at 301-504-7908 or visit [www.cpsc.gov](http://www.cpsc.gov).**

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## **⚠ DANGER**

This pump is not a substitute for properly installed and secured pool drain covers. An ANSI/ASME A112.19.8 approved anti-entrapment drain cover must be used for each drain. Pools and spas should utilize two drains per pump. If a drain cover becomes loose, broken or is missing, close the pool or spa immediately and shut off the pump until an approved anti-entrapment drain cover is properly installed with the manufacturer's supplied screws.

## **⚠ DANGER**

The SVRS (Safety Vacuum Release System) feature of this pump is inactive during priming. The SVRS feature is an integral part of a complete safety system. During priming mode, the pump does not monitor blocked suction or discharge system conditions. Swimmers should not be allowed in the pool during the "inactive" SVRS mode. When "SVRS" text is not displayed on the control panel screen, the SVRS system is disabled.

### **Entrapment Avoidance Notice:**

## **⚠ DANGER**



The covers used on suction outlets should be approved and listed as conforming to the currently published edition of ANSI/ASME A112.19.8 Standard. These covers should be inspected regularly and replaced if cracked, broken or older than the design lifetime indicated on them by the manufacturer. The

maximum possible flow rate of this pump should be less than or equal to the maximum approved flow rate indicated on the suction outlet cover by the manufacturer. **THE USE OF UNAPPROVED COVERS OR ALLOWING USE OF THE POOL OR SPA WHEN COVERS ARE MISSING, CRACKED OR BROKEN CAN RESULT IN BODY OR LIMB ENTRAPMENT, HAIR ENTANGLEMENT, EVisCERATION AND DEATH.**

## **⚠ WARNING**

**RISK OF ELECTRICAL SHOCK.** Connect only to a branch circuit protected by a ground-fault circuit interrupter (GFCI). Contact a qualified electrician if you cannot verify that the circuit is protected by a GFCI.

## **⚠ WARNING**

This unit must be connected only to a supply circuit that is protected by a ground-fault circuit-interrupter (GFCI). Such a GFCI should be provided by the installer and should be tested on a routine basis. To test the GFCI, push the test button. The GFCI should interrupt power. Push the reset button. Power should be restored. If the GFCI fails to operate in this manner, the GFCI is defective. If the GFCI interrupts power to the pump without the test button being pushed, a ground current is flowing, indicating the possibility of an electric shock. Do not use this pump. Disconnect the pump and have the problem corrected by a qualified service representative before using.

### **RISK OF ELECTRICAL SHOCK OR ELECTROCUTION**

## **⚠ DANGER**



This pool pump must be installed by a licensed or certified electrician or a qualified pool service person in accordance with the current National Electrical Code and all applicable local codes and ordinances. Improper installation will create an electrical hazard which could result in death or serious injury to pool users, installers, or

others due to electrical shock, and may also cause damage to property.

**Always disconnect power to the pool pump at the circuit breaker and remove the RS-485 communication cable from the pump before servicing the pump. Failure to do so could result in death or serious injury to serviceman, pool users or others due to electric shock.**

## **⚠ DANGER**



Water temperature in excess of 100° Fahrenheit may be hazardous to your health. Prolonged immersion in hot water may induce hyperthermia. Hyperthermia occurs when the internal temperature of the body reaches a level several degrees above normal body temperature of 98.6° F. (37° C.).

## **⚠ DANGER**

The effects of hyperthermia include:  
1) Unawareness of impending danger. 2) Failure to perceive heat. 3) Failure to recognize the need to leave the spa. 4) Physical inability to exit the spa. 5) Fetal damage in pregnant women. 6) Unconsciousness resulting in danger of drowning.

## **⚠ WARNING**

- Suction check valves and hydrostatic valves shall not be used with this pump;
- When check valves are installed on the discharge side of the pump a SVRS Check Valve Kit (P/N 350250Z) must be installed.

## **⚠ WARNING**

Never open the inside or the drive motor enclosure. There is a capacitor bank that holds a 230 VAC charge even when there is no power to the unit.

## **⚠ WARNING**

The pump is capable of 174 GPM or 104 feet of head; use caution when installing and programming to limit pumps performance potential with old or questionable equipment.

## **⚠ WARNING**

SVRS (Safety Vacuum Release System) feature is DISABLED during priming. When "SVRS" text is not displayed on the control panel screen, the SVRS feature is disabled.

## **⚠ DANGER**



### **HAZARDOUS PRESSURE: STAND CLEAR OF PUMP AND FILTER DURING START UP**

Circulation systems operate under high pressure. When any part of the circulating system (i.e. locking ring, pump, filter, valves, etc.) is serviced, air can enter the system and become pressurized. Pressurized air can cause the pump housing cover, filter lid and valves to violently separate which can result in severe personal injury or death. Filter

tank lid and strainer cover must be properly secured to prevent violent separation. Stand clear of all circulation system equipment when turning on or starting up pump.

Before servicing equipment, make note of the filter pressure. Be sure that all controls are set to ensure the system cannot inadvertently start during service. Turn off all power to the pump. **IMPORTANT: Place filter manual air relief valve in the open position and wait for all pressure in the system to be relieved.**

Before starting the system, fully open the manual air relief valve and place all system valves in the "open" position to allow water to flow freely from the tank and back to the tank. Stand clear of all equipment and start the pump. **IMPORTANT: Do not close filter manual air relief valve until all pressure has been discharged from the valve and a steady stream of water appears.** Observe filter pressure gauge and be sure it is not higher than the pre-service condition.

## **⚠ WARNING**

SVRS devices shall only be installed in conjunction with ASME A112.19.8 suction fitting, or a 12 in. x 12 in. (305 mm x 305 mm) drain grate or larger, or an approved channel drain system at each suction outlet or drain outlet.

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**⚠ WARNING** All SVRS devices shall be factory set or field adjusted to site-specific hydraulic conditions. Once installed, the system shall be tested by simulating an entrapment event.

**⚠ WARNING** A ball, butterfly, or sliding gate valve shall be installed within 2 ft. (0.6m) upstream from the SVRS (between the SVRS and the protected suction outlet), or a test mat shall be used to cover the suction outlet to simulate an entrapment event. There shall be three simulated entrapment tests conducted to verify proper adjustment and operation of the device.

**⚠ WARNING** The pump has been designed to specifically operate with Pentair Water Pool and Spa control systems. Operating the pump with other manufacturers' controllers may cause software failure of the pump, drive or other system components. Such failure can result in severe personal injury (i.e., failure of the SVRS system, electrical shock) or death. If installed properly, an IntelliComm® Communication Center may be used to integrate other manufacturer's controllers.

**⚠ WARNING** **HAZARDOUS PRESSURE: Stand Clear of Pump and Filter During Startup**



Install all electrical controls at equipment pad, such as on/off switches, timers, and control systems, etc. to allow the operation (startup, shutdown, or servicing) of any pump or filter so the user does not place any portion of his/her body over or near the pump strainer lid, filter lid or valve closures. This installation should allow the user enough space to stand clear of the filter and pump during systems startup, shutdown or servicing of the system filter.

**⚠ WARNING** **The presence of a hydrostatic valve in the suction piping has been shown to prolong the high vacuum present at the drain, even through the drain was protected by an SVRS device.**

**⚠ WARNING** Pumps improperly sized or installed or used in applications other than for which the pump was intended can result in severe personal injury or death. These risks may include but not be limited to electric shock, fire, flooding, suction entrapment or severe injury or property damage caused by a structural failure of the pump or other system component.

**⚠ WARNING** The use of alcohol, drugs, or medication can greatly increase the risk of fatal hyperthermia in hot tubs and spas.

**⚠ WARNING** Do not permit children to use this product.

**⚠ WARNING** For units intended for use in other than single-family dwellings, a clearly labeled emergency switch shall be provided as part of the installation. The switch shall be readily accessible to the occupants and shall be installed at least 5 feet (1.52m) away, adjacent to, and within sight of, the unit.

**⚠ WARNING** A clearly labelled emergency shut-off switch for the pump must be in an easily accessible, obvious place. Make sure users know where it is located and how to use it in case of emergency.

**⚠ WARNING** When setting up pool water turnovers or flow rates the operator must consider local codes governing turnover as well as disinfectant feed ratios.

**⚠ CAUTION** Install the pump a minimum of five (5) feet from the inside wall of the pool and spa. Canadian installations require a minimum of three (3) meters from pool water.

**⚠ CAUTION** A No. 8 AWG or larger conductor must be wired to the motor bonding lug.

**⚠ CAUTION** This pump is for use with permanently installed pools and may also be used with hot tubs and spas if so marked. Do not use with storable pools. A permanently installed pool is constructed in or on the ground or in a building such that it cannot be readily disassembled for storage. A storable pool is constructed so that it may be readily disassembled for storage and reassembled to its original integrity and has a maximum dimension of 18 feet (5.49m) and a maximum wall height of 42 inches (1.07m).

**⚠ CAUTION** For hot tubs and spa pumps, do not install within an outer enclosure or beneath the skirt of a hot tub or spa unless so marked.

**⚠ CAUTION** Pump is capable of generating systems pressures up to 50 psi. Installers must ensure that all system components are rated to withstand at least 50 psi. Over pressurizing the system can result in catastrophic component failure or property damage.

## Two Speed Pump Controls Notice (Title 20 Compliance)

Please read the following important Safety Instructions (See page 16 for pump speed setup). When using two-speed pumps manufactured on or after January 1, 2008, the pump's default circulation speed **MUST** be set to the **LOWEST SPEED**, with a high speed override capability being for a temporary period not to exceed one normal cycle, or two hours, whichever is less.

## SAVE THESE INSTRUCTIONS