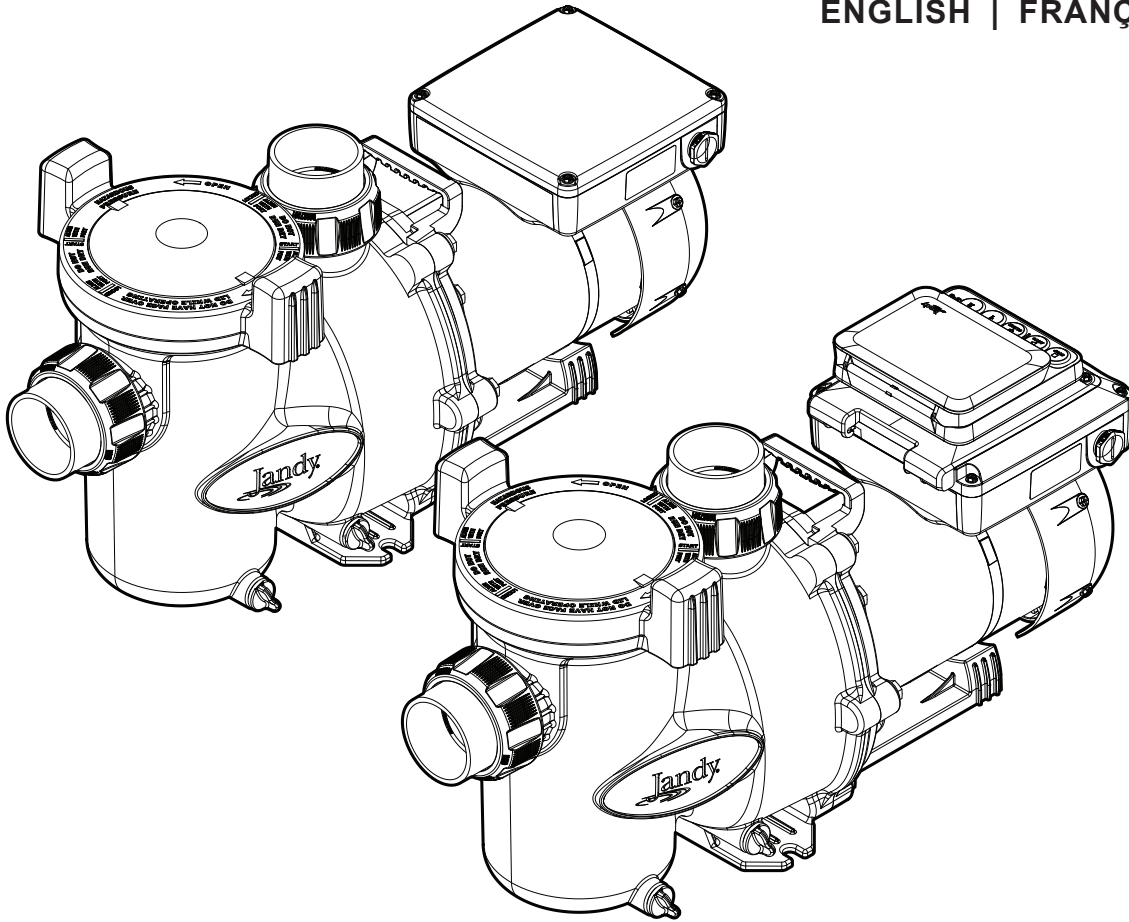




INSTALLATION AND OPERATION MANUAL

ENGLISH | FRANÇAIS | ESPAÑOL



Jandy Variable-Speed Pumps

VSFHP130DV	VSFHP130DVS
VSFHP165DV	VSFHP165DVS
VSFHP185DV	VSFHP185DVS



⚠ WARNING

FOR YOUR SAFETY - This product must be installed and serviced by a contractor who is licensed and qualified in pool equipment by the jurisdiction in which the product will be installed where such state or local requirements exist. The maintainer must be a professional with sufficient experience in pool equipment installation and maintenance so that all of the instructions in this manual can be followed exactly. Before installing this product, read and follow all warning notices and instructions that accompany this product. Failure to follow warning notices and instructions may result in property damage, personal injury, or death. Improper installation and/or operation may void the warranty. **DO NOT MODIFY THIS EQUIPMENT.**



Improper installation and/or operation can create unwanted electrical hazard which can cause serious injury, property damage, or death.

ATTENTION INSTALLER - This manual contains important information about the installation, operation and safe use of this product. This information should be given to the owner/operator of this equipment.

Table of Contents

Section 1. Important Safety Instructions 3	Section 5. Service & Maintenance 17
1.1 Safety Instructions..... 3	5.1 Removing the Pump Lid 17
1.2 Pool Pump Suction Entrapment Prevention Guidelines 5	5.2 Winterizing the Pump 18
Section 2. General Description 6	Section 6. Troubleshooting and Repair..... 19
2.1 Introduction..... 6	6.1 Service Technician Maintenance 20
2.2 Product Dimensions 6	Section 7. Product Specifications and Technical Data 21
2.3 Product Specifications 7	7.1 Exploded Views 21
2.4 Product Contents..... 7	7.2 Performance Curves 22
Section 3. Installation Information..... 9	
3.1 Plumbing 9	
3.2 Electrical Installation.....11	
3.3 Pump DIP Switch Settings..... 14	
3.4 Conduct Pressure Test 15	
Section 4. Operation..... 16	
4.1 Start-up..... 16	

EQUIPMENT INFORMATION RECORD	
DATE OF INSTALLATION	_____
INSTALLER INFORMATION	_____
INITIAL PRESSURE GAUGE READING (WITH CLEAR FILTER)	_____
PUMP MODEL	_____
HORSEPOWER	_____
NOTES:	_____

Section 1. Important Safety Instructions

READ AND FOLLOW ALL INSTRUCTIONS

1.1 Safety Instructions

All electrical work must be performed by a licensed electrician and conform to all national, state, and local codes. When installing and using this electrical equipment, basic safety precautions should always be followed, including the following:

⚠ WARNING

RISK OF SUCTION ENTRAPMENT HAZARD, WHICH, IF NOT AVOIDED, CAN RESULT IN SERIOUS INJURY OR DEATH. Do not block pump suction, as this can cause severe injury or death. Do not use this pump for wading pools, shallow pools, or spas containing bottom drains, unless the pump is connected to at least two (2) functioning suction outlets. Suction outlet (drain) assemblies and their covers must be certified to the latest published edition of ANSI®/ASME® A112.19.8, or its successor standard, ANSI/APSP-16.

⚠ WARNING

To reduce the risk of injury, do not permit children to use this product.

⚠ WARNING

To reduce the risk of property damage or injury, do not attempt to change the backwash (multiport, slide, or full flow) valve position with the pump running.

⚠ WARNING

Jandy pumps are powered by a high voltage electric motor and must be installed by a licensed or certified electrician or a qualified swimming pool service technician.

⚠ WARNING

Due to the potential risk of fire, electric shock, or injuries to persons, Jandy pumps must be installed in accordance with the National Electrical Code® (NEC®), all local electrical and safety codes, and the Occupational Safety and Health Act (OSHA). Copies of the NEC may be ordered from the National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169, or from your local government inspection agency.

⚠ WARNING

RISK OF ELECTRIC SHOCK, FIRE, PERSONAL INJURY, OR DEATH. (For all permanently installed units intended for use on 15 or 20 ampere, 120 through 240 volt, single phase branch circuits). Connect only to a branch circuit that is protected by a ground-fault circuit-interrupter protection for personnel (GFCI). Contact a qualified electrician if you cannot verify that the circuit is protected by a GFCI. 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 electrical shock. Do not use the device. Disconnect the device and have the problem corrected by a qualified service representative before using.

⚠ WARNING

Incorrectly installed equipment may fail, causing severe injury or property damage.

 **WARNING**

- Do not connect the system to an unregulated city water system or other external source of pressurized water producing pressures greater than 35 PSI.
- Trapped air in system can cause the filter lid to be blown off, which can result in death, serious personal injury, or property damage. Be sure all air is out of the system before operating.

 **WARNING**

To minimize the risk of severe injury or death, the filter and/or pump should not be subjected to the piping system pressurization test.

Local codes may require the pool piping system to be subjected to a pressure test. These requirements are generally not intended to apply to the pool equipment such as filters or pumps.

Zodiac® pool equipment is pressure tested at the factory.

However, if the WARNING cannot be followed and pressure testing of the piping system must include the filter and/or pump, **BE SURE TO COMPLY WITH THE FOLLOWING SAFETY INSTRUCTIONS:**

- Check all clamps, bolts, lids, lock rings and system accessories to ensure they are properly installed and secured before testing.
- **RELEASE ALL AIR** in the system before testing.
- Water pressure for test must **NOT EXCEED 35 PSI**.
- Water temperature for test must **NOT EXCEED 100°F (38°C)**.
- Limit test to 24 hours. After test, visually check system to be sure it is ready for operation.

NOTICE: These parameters apply to Zodiac equipment only. For non-Zodiac equipment, consult equipment manufacturer.

 **WARNING**

Chemical spills and fumes can weaken pool/spa equipment. Corrosion can cause filters and other equipment to fail, resulting in severe injury or property damage. Do not store pool chemicals near your equipment.

 **CAUTION**

Do not start pump dry! Running the pump dry for any length of time will cause severe damage and may void the warranty.

 **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.

 **CAUTION**

Do not install within an outer enclosure or beneath the skirt of a hot tub. The pump requires adequate ventilation to maintain air temperature at less than the maximum ambient temperature rating listed on the motor rating plate.

 **CAUTION**

In order to avoid premature failure or damage to the pump motor, protect the pump from direct water exposure from sprinklers, water runoff from rooftops and drainage, etc. Failure to comply may cause pump failure, and may void the warranty.

SAVE THESE INSTRUCTIONS

1.2 Pool Pump Suction Entrapment Prevention Guidelines



⚠ WARNING

SUCTION HAZARD. Can cause serious injury or death. Do not use this pump for wading pools, shallow pools or spas containing bottom drains, unless the pump is connected to at least two (2) functioning suction outlets.

⚠ WARNING

Pump suction is hazardous and can trap and drown or disembowel bathers. Do not use or operate swimming pools, spas, or hot tubs if a suction outlet cover is missing, broken, or loose. The following guidelines provide information for pump installation that minimizes risk of injury to users of pools, spas, and hot tubs:

Entrapment Protection - The pump suction system must provide protection against the hazards of suction entrapment.

Suction Outlet Covers - All suction outlets must have correctly installed, screw-fastened covers in place. All suction outlet (drain) covers must be properly maintained. They must be replaced if cracked, broken, or missing. Drain covers must be listed/certified to the latest published edition of ANSI®/ASME® A112.19.8 or its successor standard, ANSI/APSP-16. The pool must be shut down and bathers must be restricted from entering the pool until any cracked, broken, or missing drain covers are replaced.

Number of Suction Outlets Per Pump - Provide at least two (2) hydraulically-balanced suction outlets, with covers, as suction outlets for each circulating pump suction line. The centers of the suction outlets (suction outlets) on any one (1) suction line must be at least three (3) feet apart, center to center. See Figure 1.

The system **must** be built to include at least two (2) suction outlets (drains) connected to the pump whenever the pump is running. However, if two (2) suction outlets run into a single suction line, the single suction line may be equipped with a valve that will shut off both suction outlets from the pump. The system shall be constructed such that it shall not allow for separate or independent shutoff or isolation of each drain. See Figure 1.

Additional pumps can be connected to a single suction line as long as the requirements above are met.

Water Velocity - The maximum water velocity through the suction outlet assembly and its cover for any suction outlet must not exceed the suction outlet assembly and its cover's maximum design flow rate. The suction outlet (drain) assembly and its cover must comply with the latest version of ANSI®/ASME® A112.19.8, the standard for Suction Fittings For Use in Swimming Pools, Wading Pools, Spas, and Hot Tubs, or its successor standard, ANSI/ASME APSP-16.

Testing and Certification - Suction outlet covers must have been tested by a nationally recognized testing laboratory and found to comply with the latest published edition of ANSI/ASME A112.19.8 or its successor standard, ANSI/APSP-16, the standard for *Suction Fittings For Use in Swimming pools, Wading Pools, Spas, and Hot Tubs*.

Fittings - Fittings restrict flow; for best efficiency use fewest possible fittings (but at least two (2) suction outlets).

Avoid fittings that could cause an air trap.

Pool cleaner suction fittings must conform to applicable International Association of Plumbing and Mechanical Officials (IAPMO) standards.

Section 2. General Description

2.1 Introduction

Jandy® Variable Speed Pumps can be run from 600 RPM to 3450 RPM. This allows you to select the most appropriate speed for your application. The pumps are compatible with all Jandy controllers and Zodiac® automation systems. The pump is driven by a variable speed ECM (Electronically Commutated Motor) directly attached to the pump impeller. The motor spins the impeller which forces water to flow through the pump. As the speed of the motor is varied, the flow through the pump is also varied. The adjustable flow rate allows for optimization of flow during the varying pump cycle requirements. As a result, the energy efficiency of the pump is maximized resulting in cost savings to the pool owner while also helping to save the environment.

This manual contains information for the proper installation, operation, and maintenance of specific Jandy variable-speed pumps. Procedures in this manual must be followed exactly. To obtain additional copies of this manual, visit Jandy.com.

2.2 Product Dimensions

NOTE When installing a pump, leave a minimum of two (2) feet (30 cm) of clearance above the pump for removal of the strainer basket.

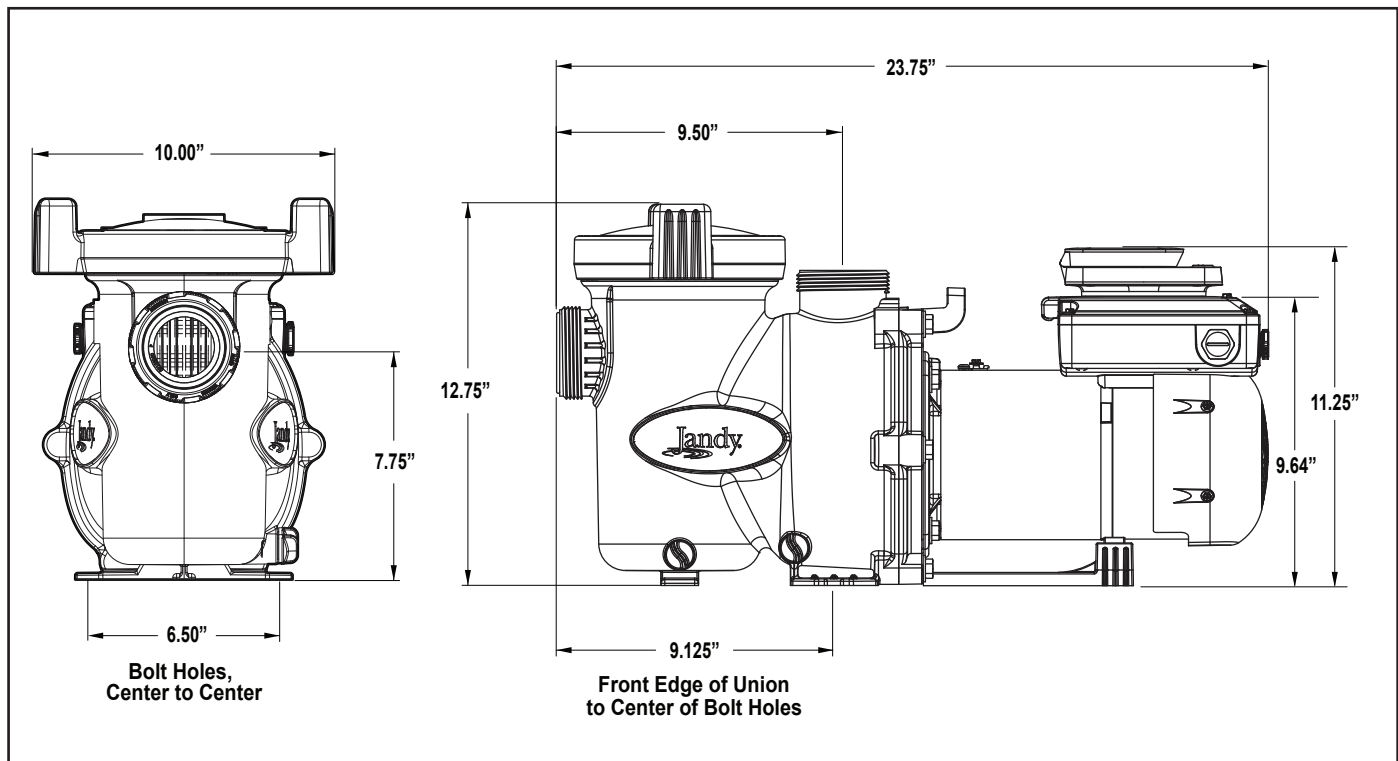


Figure 1. Variable-Speed Pump Dimensions

2.3 Product Specifications

2.3.1 Specifications

Model No.	THP	WEF	Voltage	Max Watts	Max Amps	Union Size	Weight
VSFHP130DV(S)	1.30	11.0	230 VAC	1100	8.6	2"	39.3 lb [17.8 kg]
		10.9	115 VAC				
VSFHP165DV(S)	1.65	9.0	230 VAC	1700	10.5	2"	39.3 lb [17.8 kg]
		9.1	115 VAC				
VSFHP185DV(S)	2.25	8.2	230 VAC	1875	13.5	2"	40.4 lb [18.3 kg]
		8.6	115 VAC				

2.4 Product Contents

ITEM	DESCRIPTION
1	Variable Speed Pump
2	Installation and Operation Manual
3	Large Drawstring Bag
4	Union Nut (2)
5	Tailpiece (2)
6	O-Ring (2)
7	4-Conductor Cable
8	Small Adjustable Base w/Spacers
9	Large Adjustable Base (Optional R0546400)
10	Speedset Variable-Speed Pump Controller

Model No.	1	2	3	4	5	6	7	8	9	10
VSFHP130DV	●	●	●	●	●	●	●	●	Optional	N/A
VSFHP130DVS	●	●	●	●	●	●	●	●	Optional	●
VSFHP165DV	●	●	●	●	●	●	●	●	Optional	N/A
VSFHP165DVS	●	●	●	●	●	●	●	●	Optional	●
VSFHP185DV	●	●	●	●	●	●	●	●	Optional	N/A
VSFHP185DVS	●	●	●	●	●	●	●	●	Optional	●

Figure 2. Variable-Speed Pump Carton Contents

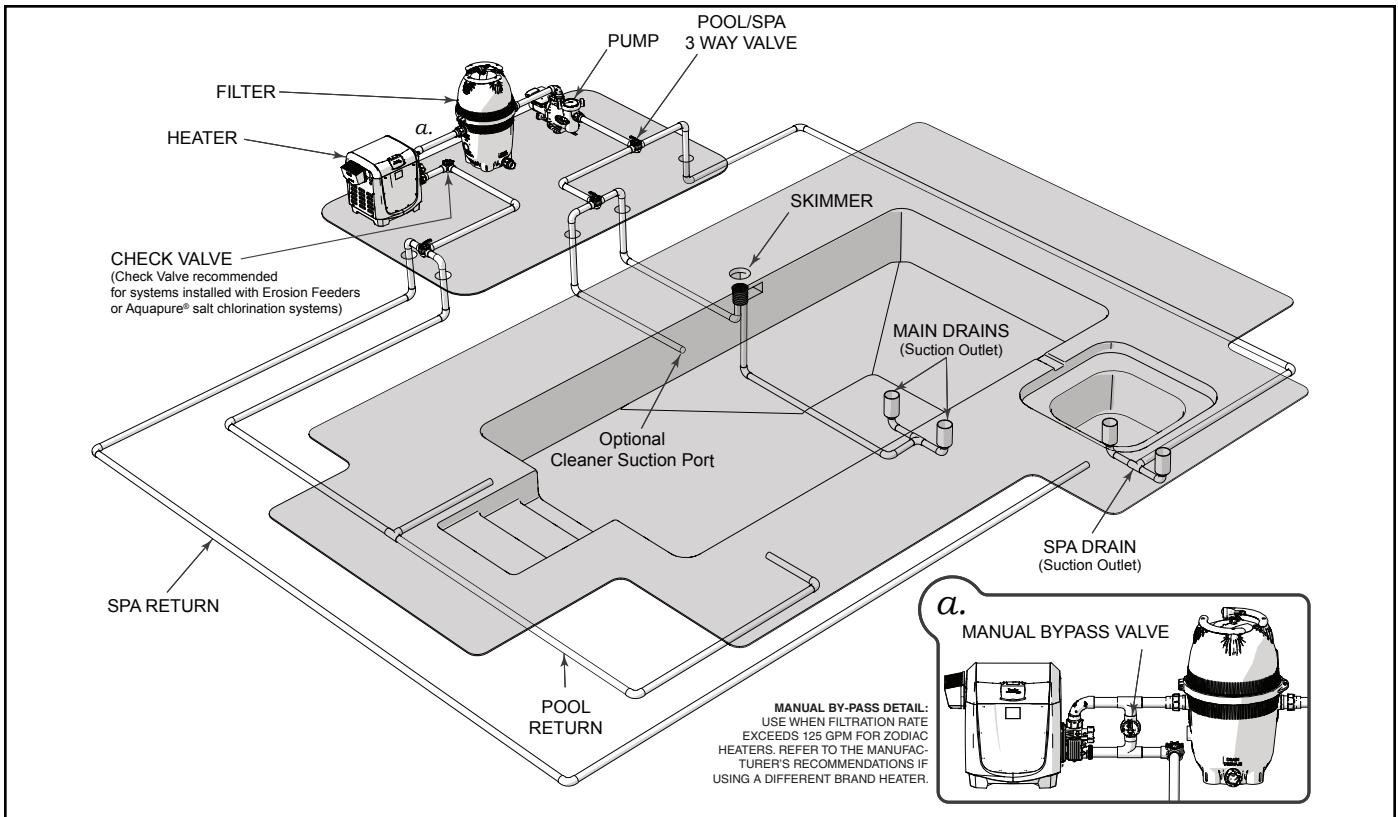


Figure 3. Typical Piping Installation

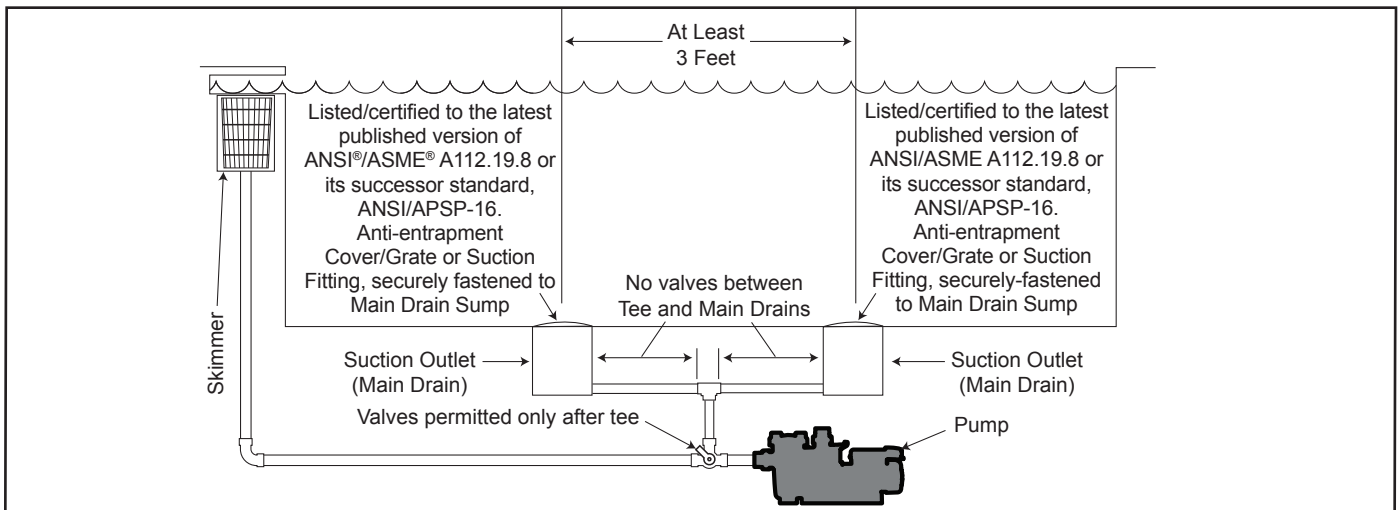


Figure 4. Number of Suction Outlets Per Pump

Section 3. Installation Information

3.1 Plumbing

3.1.1 Preparation Information

1. Check the pump carton for any damage. If any damage is found, contact the shipper or distributor where the pump was purchased.
2. Inspect the contents of the carton and verify that all parts are included.

3.1.2 Pump Location

Zodiac Pool Systems LLC recommends installing the pump within one foot (30 cm) above water level. The pump should not be elevated more than five feet (152 cm). If the pump is located below water level, isolation valves must be installed on both the suction and return lines to prevent back flow of pool water during any routine or required servicing.

⚠ WARNING

A check valve can interfere with the proper operation of certain Suction Vacuum Release System (SVRS) products. To avoid possible entrapment hazard, serious injury, or death, make sure to review the operation/owners manual of your particular SVRS product before installing the check valve.

⚠ WARNING

To Reduce the Risk of Fire, install pool equipment in an area where debris will not collect on or around the equipment. Keep surrounding area clear of all debris such as paper, leaves, pine needles and other combustible materials.

⚠ CAUTION

In order to avoid premature failure or damage to the pump motor, protect the pump from direct water exposure from sprinklers, water runoff from rooftops and drainage, etc. Failure to comply may cause pump failure, and may void the warranty.

NOTE: When the pool equipment is located below the pool surface a leak can result in large scale water loss or flooding. Zodiac Pool Systems LLC cannot be responsible for such water loss or flooding or damage caused by either occurrence.

1. Install the pump such that any disconnecting means and/or junction boxes for power connection are within sight of the pump and at least five feet horizontally from the edge of the pool and/or spa. Choose a location that will minimize pipe turns.

NOTE In Canada, the minimum distance maintained from the edge of the pool and/or spa as noted above must be 3 meters (10 feet), as required by the Canadian Electrical Code (CEC, CSA C22.1).

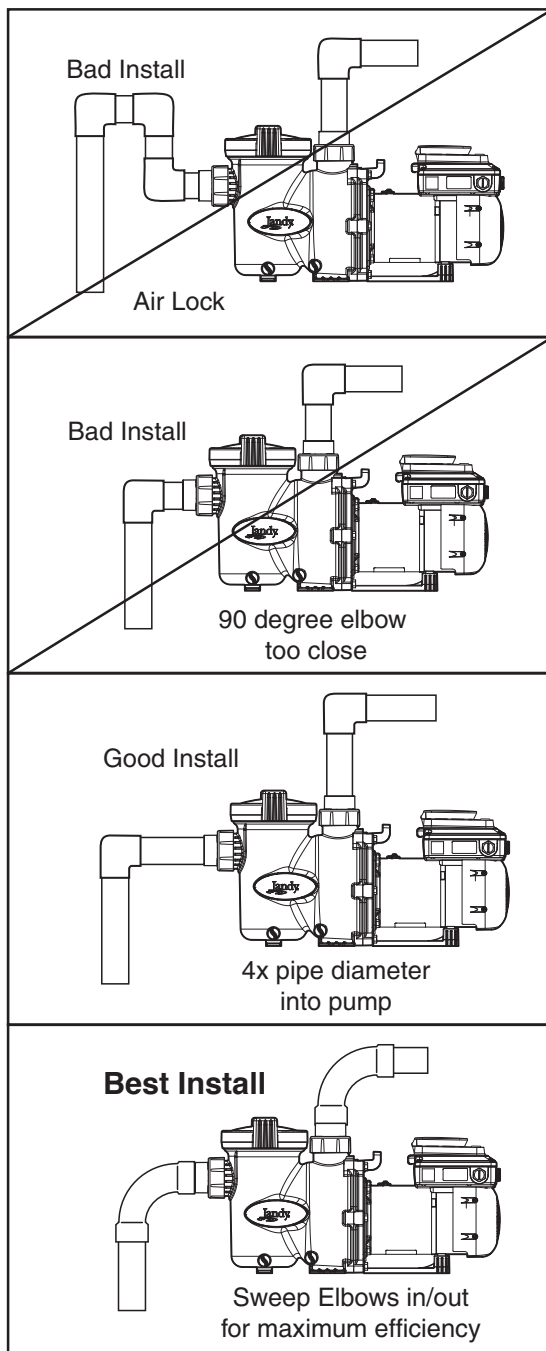
2. Place the pump on a solid foundation that will not vibrate. To further reduce the possibility of vibration noise, bolt the pump to the foundation.
3. Assure that the foundation has adequate drainage to prevent the pump motor from getting wet. The pump needs to be protected from the rain and sun.
4. Make sure the pump has the proper ventilation to prevent the motor from overheating.
5. Allow plenty of space for any maintenances by leaving a clear area around the pump.
6. Provide adequate lighting if the equipment is in a potentially dark area.

Pipe Size	Maximum Flow Suction (6 feet per second)	Maximum Flow Discharge (8 feet per second)
1½" (38 mm)	37 GPM (140 LPM)	50 GPM (189 LPM)
2" (51 mm)	62 GPM (235 LPM)	85 GPM (322 LPM)
2½" (64 mm)	88 GPM (333 LPM)	120 GPM (454 LPM)
3" (76 mm)	136 GPM (515 LPM)	184 GPM (697 LPM)
4" (102 mm)	234 GPM (886 LPM)	313 GPM (1185 LPM)

Table 1. Pipe Sizing Chart for Schedule 40 PVC

3.1.3 Installation Recommendations

1. To help prevent difficulty in priming, install the suction pipe without high points (above inlet of pump - inverted "U"s, commonly referred to in plumbing as an airlock) that can trap air. For installations of equipment up to 100 feet (30 m) from the water, refer to Table 1, the pipe sizing chart. For installations of equipment more than 100 feet (30 m) from the water, the recommended pipe size must be increased to the next size.



2. The unions on both the suction and discharge ports simplify installation and service while eliminating the possibility of leaks at threaded adapters.
3. The pump must be connected to at least two hydraulically-balanced main drains for each pool pump suction line. Each drain (suction outlet) assembly must be provided with covers and must be listed or certified to the latest published edition of ANSI®/ASME® A112.19.8, or its successor standard, ANSI/APSP-16. The suction fittings of the main drains must be at least three feet (1 m) apart or at different planes. The suction fittings can be a drain and skimmer, two drains, two skimmers, or a skimmer with an equalizer line installed. Check the local codes for proper installation.

NOTE To prevent entrapment, the system must be built so it cannot operate with the pump drawing water from only one main drain. At least two main drains must be connected to the pump when it is in operation. However, if two main drains run into a single suction line, the single suction line may be equipped with a valve that will shut off both main drains from the pump.

4. The piping must be well supported and not forced together where it will experience constant stress.
5. Always use properly sized valves. Jandy Diverter Valves and Ball Valves typically have the best flow capabilities.
6. Use the fewest possible fittings and limit the use of 90 degree elbows. Each additional fitting or length of pipe increases resistance to flow which makes the pump work harder.

NOTE If more than ten suction fittings are needed, the pipe size must be increased.

7. Every new installation must be pressure tested according to local codes.

3.1.4 Adjustable Bases (VS FloPro™ Models Only)

To replace an existing pump with different dimensions, use the adjustable bases to correctly align the suction and discharge ports with existing plumbing. The VS FloPro base and spacers increase the total height of the pump and the height of the suction side port of the pump. See Figure 5 and Table 3.

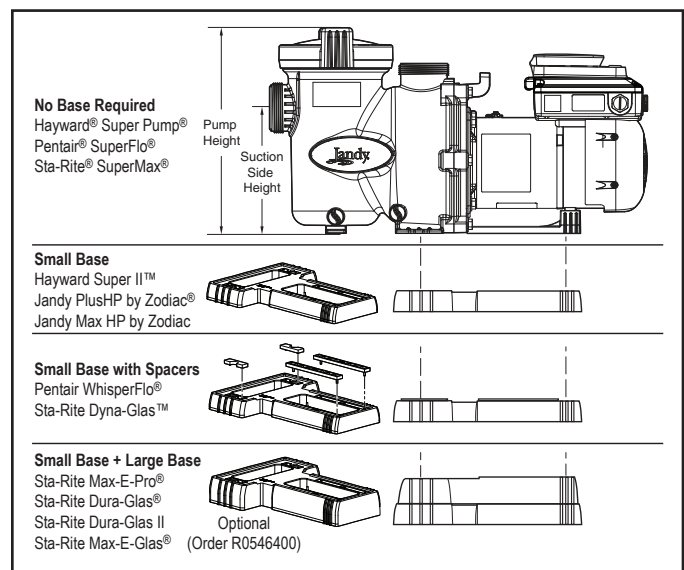


Figure 5. Base Configurations (VS FloPro Models Only)

Pump Model	Distance from Sub-Panel		0-50 feet (15 meters)		50-100 feet (15-30 meters)		100-200 feet (30-60 meters)	
	Inverse - Time Circuit Breaker or Branch Fuse AMPs Class: CC, G, H, J, K, RK, or T		Voltage		Voltage		Voltage	
	230 VAC	115 VAC	230 VAC	115 VAC	230 VAC	115 VAC	230 VAC	115 VAC
VSFHP130DV VSFHP130DVS	15A	20A	14 AWG (2.1mm ²)	12 AWG (3.3mm ²)	12 AWG (3.3mm ²)	10 AWG (5.3mm ²)	10 AWG (5.3mm ²)	6 AWG (5.3mm ²)
VSFHP165DV VSFHP165DVS	20A	30A	12 AWG	10 AWG	12 AWG	8 AWG	10 AWG	6 AWG
VSFHP185DV VSFHP185DVS	20A	30A	12 AWG	10 AWG	12 AWG	8 AWG	10 AWG	6 AWG

*Assumes three (3) copper conductors in a buried conduit and 3% maximum voltage loss in branch circuit. All National Electrical Code® (NEC®) and local codes must be followed. Table shows minimum wire size and branch fuse recommendations for a typical installation per NEC.

Table 2. Minimum Wire Size and Minimum Overcurrent Protection*

Base Configuration	Suction Side Height	Pump Height
1. Pump without Base	7 3/4"	12 3/4"
2. Pump with Base	8 7/8"	13 7/8"
3. Pump with Base and Spacers	9 1/8"	14 1/8"
4. Pump with Small + Large Base	10 3/4"	15 3/4"

Table 3. Adjustable Base Dimensions (VS FloPro™ Models Only)

- Using a hand cutter tool, cut the plastic bars connecting the top and bottom sets of spacers, as shown in Figure 6.
- Push the two top spacers and two bottom spacers out of the base.
- Align the pins in the four spacers with the holes in the base. Snap the spacers into place. See Figure 7.

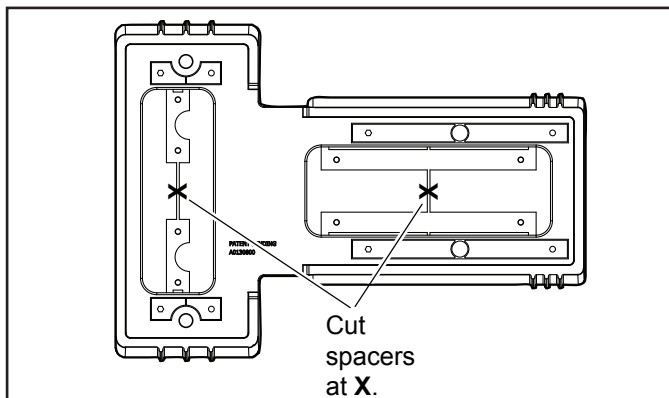


Figure 6. Cut Sets of Spacers Out of Base

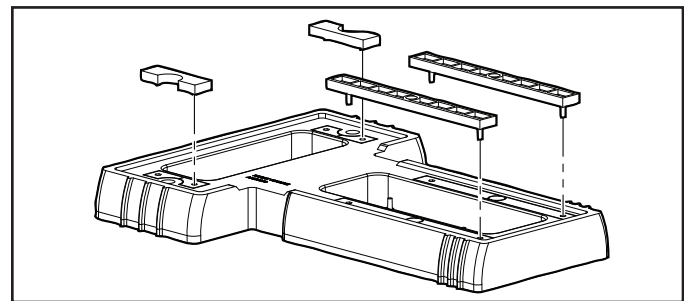


Figure 7. Snap Spacers into Place

3.2 Electrical Installation

3.2.1 Voltage Checks

The correct voltage, as specified on the pump data plate, is necessary for proper performance and long motor life. Incorrect voltage will decrease the pump’s ability to perform and could cause overheating, reduce the motor life, and result in higher electric bills.

It is the responsibility of the electrical installer to provide data plate operating voltage to the pump by ensuring proper circuit sizes and wire sizes for this specific application.

The National Electrical Code® (NEC®, NFPA-70®) requires all pool pump circuits be protected with a Ground Fault Interrupter (GFCI). Therefore, it is also the responsibility of the electrical installer to ensure that the pump circuit is in compliance with this and all other applicable requirements of the National Electrical Code (NEC) and any other applicable installation codes.

⚠ CAUTION

Failure to provide data plate voltage (+/- 10%) during operation will cause the motor to overheat and may void the warranty.

3.2.2 Bonding and Grounding

In addition to being properly grounded as described in the *Electrical Wiring* section, and in accordance with the requirements of the National Electrical Code (NEC), or in Canada the Canadian Electrical Code (CEC), the pump motor must be bonded to all metal parts of the swimming pool, spa or hot tub structure and to all electrical components and equipment associated with the pool/spa water circulation system. The bonding must be accomplished by using a solid copper conductor, No. 8 AWG or larger. In Canada No. 6 AWG or larger must be used. Bond the motor using the external bonding lug provided on the motor frame. See Figure 8.

National Electrical Code® (NEC®) requires bonding of the Pool Water. Where none of the bonded pool equipment, structures, or parts are in direct connection with the pool water; the pool water shall be in direct contact with an approved corrosion-resistant conductive surface that exposes no less than 5800 mm² (9 in²) of the surface area to the pool water at all times. The conductive surface shall be located where it is not exposed to physical damage or dislodgement during usual pool activities, and it shall be bonded in accordance with the bonding requirements of NEC Article 680. Refer to locally enforced codes for any additional bonding requirements.

⚠ WARNING

Always disconnect the power source before working on a motor or its connected load.

⚠ WARNING

Make sure that the control switch, time clock, or control system is installed in an accessible location, so that in the event of an equipment failure or a loose plumbing fitting, the equipment can be turned off. This location must not be in the same area as the pool pump, filter, and other equipment.

⚠ CAUTION

The pump must be permanently connected to a dedicated electrical circuit. No other equipment, lights, appliances, or outlets may be connected to the pump circuit.

3.2.3 Electrical Wiring

The Jandy pump models covered in this installation and operation manual provide separate compartments for high voltage and low voltage wiring.

The low voltage sections provides two (2) 1/2" NPT conduit ports (threaded). A liquid tight cord grip is included (see Figure 8).

The high voltage section provides two (2) 1/2" NPT conduit ports (threaded). Conduit fittings are not provided (see Figure 9).

1. Secure the pump using the green screw provided. Ground before attempting to connect to an electrical power supply. Do not ground to a gas supply line.
2. Wire size must be adequate to minimize voltage drop during the start-up and operation of the pump.
3. Insulate all connections carefully to prevent grounding or short-circuits. Sharp edges on terminals require extra protection. For safety, and to prevent entry of contaminants, reinstall all conduit and terminal box covers. Do not force connections into the conduit box.

NOTE When power alone is supplied to this pump, it will not operate. It requires a digital command sent to it by either a variable speed controller (SpeedSet, JEP-R, iQPUMP01), or an automation system (See Figures 8-9 for RS-485 wiring illustrations for a local controller or automation system.).

3.2.4 Pump Controller / Automation System Setup

Pumps in this manual are compatible with the following local Jandy controllers and automation systems:

- SpeedSet Controller (local)
- iQPUMP01 (local)
- JEP-R (local)
- All Jandy Automation Systems

Each motor is equipped with an auto-sensing power circuit which automatically determines if 10v of power should be supplied to the RS-485 wiring in order to power a local controller interface, or to suppress the 10v power supply when connected to a Jandy Automation System.

This auto sensing power circuit eliminates the need for Dip Switches 1-2 that are present on other Jandy Pumps.

Ensure power to the pump is disconnected and remove the access cover on the motor. Connect the RS-485 cable through the liquid tight cord grip fitting supplied as shown in Figure 8. Wire the cable to the RS-485 connector in order Red(1), Black(2), Yellow(3), Green(4). Secure the access cover back onto the motor and resupply power.

Refer to the user interface or automation system manual

for detailed instructions on installation and programming.

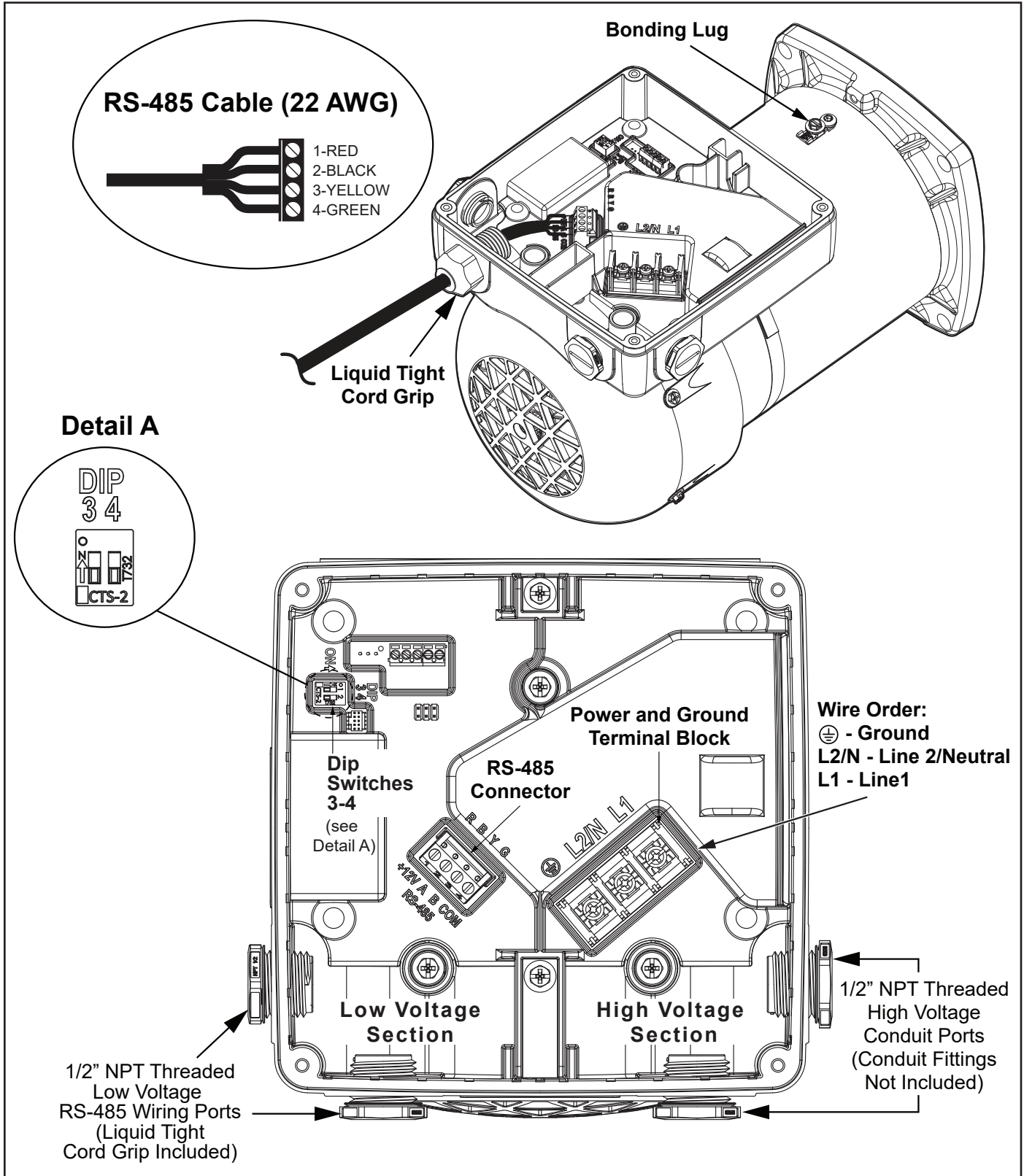


Figure 8. Wiring Diagram (115v/230v Main Power and RS-485 Connection)

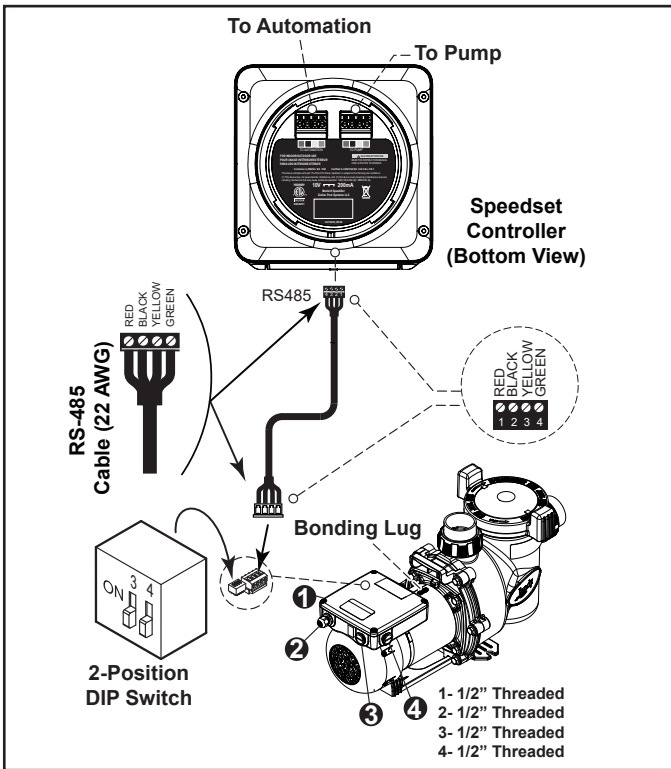


Figure 9. Wiring to a Controller

3.3 Pump DIP Switch Settings

3.3.1 DIP Switch Settings with Local Controller

Please refer to the following table for required settings for DIP switches 3-4 when the pump is connected to a local controller.

Controller	Switch	Pump Address
JEP-R	OFF	OFF
IQPUMP01	OFF	OFF
SpeedSet	DIP Switch 3-4 settings should both be OFF unless connected to a Jandy automation system using SpeedSet automation passthrough wiring connection on the bottom of the controller. If applicable, please see the following sections.	

Table 4. Local Controller DIP Switch Settings

3.3.2 DIP Switch Settings with Automation

DIP Switches 3-4 setting rules are not common across all Jandy automation systems. Read the following sections to understand the required settings.

For Jandy AquaLink RS Automation System users, a 2022 mid-year update alters the method in which pumps in this manual interact with Jandy AquaLink RS systems. Refer to the RS manual for more information.

3.3.3 Pre-2022 AquaLink® RS Firmware Rev V and Earlier

AquaLink RS systems using Firmware Rev V and earlier, manufactured prior to mid-year 2022, support up to four (4) variable-speed pumps. Each pump is assigned an address of 1 through 4 using DIP switches 3-4 on the pump. Use Table 4 for pump address assignment settings.

These settings are used when connected to the RS-485 connection on the pump or when connected to the pump using a SpeedSet™ controller's automation passthrough wiring connection on the bottom of the controller.

Address	Switch 3	Switch 4
PUMP 1 (Factory Default)	OFF	OFF
PUMP 2	ON	OFF
PUMP 3	OFF	ON
PUMP 4	ON	ON

Table 5. DIP Switch Settings

3.3.4 2022 AquaLink RS Firmware Rev W and Later

AquaLink RS systems using Rev W and later, manufactured after mid-year 2022, support of up to sixteen (16) variable-speed pumps that utilize a pre-assigned SERIAL ADDRESS. DIP Switches 3-4 are not utilized. Pumps in this manual are all assigned a unique SERIAL ADDRESS at the factory. The SERIAL ADDRESS label can be found on the pump motor (see Figure 10).

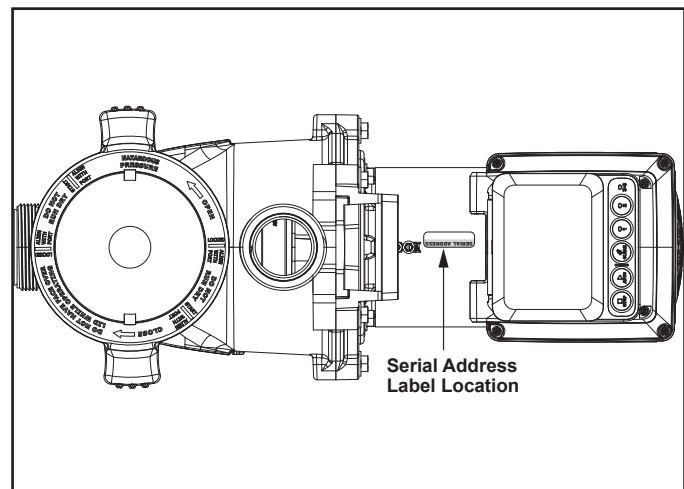


Figure 10. Serial Address Label Location

When setting up pumps using this method, the SERIAL ADDRESS of each pump will initially appear in the unassigned pumps section of the iAquaLink App or other automation setup devices. Utilize the App or other device to complete pump setup.

3.3.5 AquaLink TCX

AquaLink TCX supports a single variable-speed pump. DIP Switches 3-4 must always be set in the OFF position when the pump is connected to a TCX Automation System. This is true even when connected to a TCX system using the automation passthrough wiring on a Jandy SpeedSet controller.

3.3.6 Other Jandy Automation Systems

Other Jandy automation systems support up to four (4) variable-speed pumps utilizing DIP Switches 3-4 in the same manner as defined in Section 3.3.3.

3.4 Conduct Pressure Test

⚠ WARNING

When pressure testing a system with water, air is often trapped in the system during the filling process. This air will compress when the system is pressurized. Should the system fail, this trapped air can propel debris at a high speed and cause injury. Every effort to remove trapped air must be taken, including opening the valve on the filter and loosening the pump basket lid while filling the pump.

⚠ WARNING

Trapped air in the system can cause the filter lid to be blown off, which can result in death, serious injury, or property damage. Be sure all air is properly purged out of the system before operating. **DO NOT USE COMPRESSED AIR TO PRESSURE TEST OR CHECK FOR LEAKS.**

⚠ WARNING **ELECTRICAL SHOCK HAZARD**

Do not pressure test above 35 PSI. Pressure testing must be done by a trained pool professional. Circulation equipment that is not tested properly might fail, which could result in severe injury or property damage.

⚠ WARNING

When pressure testing the system with water, it is very important to make sure that the pump basket lid is completely secure.

1. Before pressurizing the system, ensure the lock ring "locked" indicators align with the suction and pressure side ports on the pump.
2. Fill the system with water to eliminate trapped air.
3. Pressurize the system with water to no more than **35 PSI**.
4. Close the valve to seal the water in the system.
5. Observe the system for any leaks or pressure decay.
6. If there are lid leaks, repeat this procedure. For Zodiac Technical Support, call 800.822.7933

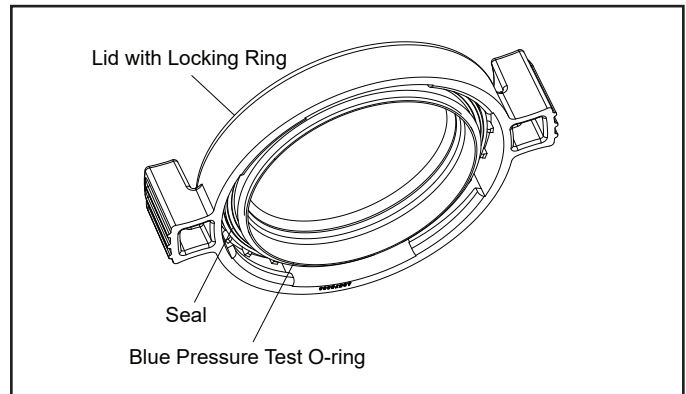


Figure 11. Blue Pressure Test O-Ring

⚠ WARNING

ELECTRICAL SHOCK HAZARD

Due to the potential risk of fire, electric shock, or injuries to persons, Jandy® Pumps must be installed in accordance with the National Electrical Code® (NEC®), all local electrical and safety codes, and the Occupational Safety and Health Act (OSHA). Copies of the NEC may be ordered from the National Protection Association, 1 Batterymarch Park, Quincy, MA, 02169, or from your local government inspection agency.

In Canada, Jandy Pumps must be installed in accordance with the Canadian Electrical Code (CEC).

⚠ WARNING

ELECTRICAL SHOCK HAZARD

Turn off the pump and the main breaker in the pump electrical circuit before starting the procedure. Failure to comply may cause a shock hazard, resulting in severe personal injury or death.

Section 4. Operation

4.1 Start-up

CAUTION

Never run the pump without water. Running the pump “dry” for any length of time can cause severe damage to both the pump and motor and may void the warranty.

If this is a new pool installation, make sure all piping is clear of construction debris and has been properly pressure tested. The filter should be checked for proper installation, verifying that all connections and clamps are secure according to the manufacturer’s recommendations.

WARNING

To avoid risk of property damage, personal injury or death, verify that all power is turned off before starting these steps.

4.1.1 Pump Below Water Level

1. Ensure the pump lid is secure by verifying the “locked” indicators are aligned with the pump’s ports. **Hand tighten only**, do not use tools. Make sure valves are open and the pump unions are tight.
2. Open any isolation valves that may be in place between the pump and the pool’s main drain(s) and skimmer(s).
3. Open the air relief valve on the filter. This will allow air to begin to escape the system and fill the pump with water for priming.
4. Restore power to the pump and start the pump.
5. When water starts to come out of the air relief valve on the filter, close the air relief valve.
6. Inspect system for any leaks.

4.1.2 Pump Above Water Level

1. Open the air relief valve on the filter.
2. Remove the pump lid and fill the basket with water.
3. Prior to replacing the lid, check for debris around the lid O-Ring seat. Debris around the lid O-Ring seat may cause an air leak and will make it difficult for the pump to prime.
4. Tighten the lid by verifying the “locked” indicators on the lid are aligned with the pump’s ports. **Hand tighten only**, do not use tools. Make sure all valves are open and the pump unions are tight.
5. Restore power to the pump and start the pump.
6. Once the pump has primed and water comes out of the air relief valve on the filter, close the air relief valve and inspect the system for any leaks.

NOTE All pumps in this manual are NSF-certified as being able to prime at heights up to 10 ft above the pool water level, at sea level. However, to achieve better self-priming, install the pump as close as possible to the water level of the pool.

See Installation Recommendations in Section 3.1.3 for proper elevation and pipe size.

The default priming speed is 2750 RPM. The pump will take approximately 15 minutes to prime at this priming speed when the pump is located 10 feet above the pool water. If priming speed is adjusted to 3450 RPM, the pump should prime within 8 minutes at 10 feet above the water level.*

If the pump does not prime and all the instructions to this point have been followed, check for a suction leak. If there is no leak, repeat Steps 1 through 5.

For technical assistance, call Zodiac Technical Support at 800.822.7933.

NOTE If system plumbing is greater than 2", the pump may take approximately 20 minutes to prime at 3450 RPM.

Section 5. Service & Maintenance

⚠ CAUTION

To avoid damage to the plastics, do not use lubricant or sealant on the o-ring. Only soapy water should be used to install and lubricate the o-ring.

Clean Pump Basket

Debris that accumulates in the pump filter basket will begin to block the flow of water. For optimal pump performance, the pump filter basket needs to be inspected and cleaned on a weekly basis. Depending on the location and environment of the pool, more frequent inspection may be required.

1. Inspect the pump filter basket for debris by looking through the clear pump lid. This can be done with or without the pump running. If debris has accumulated, proceed to step 2.
2. Turn off the power to the pump. If the pump is located below the water level, close the isolation valves on the suction and discharge sides of the pump to prevent backflow of water.
3. Turn the locking ring counter-clockwise until 'START' aligns with the ports. Remove the lid.
4. Lift the basket out of the pump.
5. Dispose of the debris and thoroughly clean the basket, making sure all the holes are open. Using a garden hose, spray the basket from the outside to help clear the holes. Remove any remaining debris.
6. Replace the basket in the pump by aligning the opening with the suction pipe. If aligned properly, the basket will drop easily into place. Do not force it into place.

⚠ CAUTION

A misaligned basket will cause the lid to be improperly seated, allowing an air leak, which could result in pump damage.

7. Remove the lid seal and remove debris around the lid seal seat, as this can allow air to leak into the system. Clean the lid seal and place it on the lid.
8. Replace the lid with locking ring. Hand-tighten the lid to make an air-tight seal. Do not use any tools to tighten the lid: **Hand-tighten only**.
9. Verify that all valves have been returned to the proper position for normal operation.
10. Open the pressure release valve on the filter, and make sure it is clean and ready for operation.
11. Turn on the power to the pump. Once all the air has been evacuated from the filter, close the pressure release valve.

5.1 Removing the Pump Lid

1. Make sure that the pump is turned OFF.
2. Make sure that the switch to the circuit breaker to the motor is turned OFF.
3. Make sure all necessary isolation valves are closed to prevent water from reaching the pump.
4. Following the markings on the locking ring, turn the ring counter-clockwise until the 'START' markings align with the ports. See Figures 13-15.
5. Carefully remove the lid with locking ring.

⚠ WARNING

ELECTRICAL SHOCK HAZARD

Turn off all switches and the main breaker in the variable-speed pump electrical circuit before starting the procedure. Failure to comply may cause a shock hazard resulting in severe personal injury or death.

⚠ WARNING

ELECTRICAL SHOCK HAZARD

Due to the potential risk of fire, electric shock, or injuries to persons, Jandy® Pumps must be installed in accordance with the National Electrical Code® (NEC®), all local electrical and safety codes, and the Occupational Safety and Health Act (OSHA). Copies of the NEC may be ordered from the National Protection Association, 1 Batterymarch Park, Quincy, MA, 02169, or from your local government inspection agency.

In Canada, Jandy Pumps must be installed in accordance with the Canadian Electrical Code (CEC).

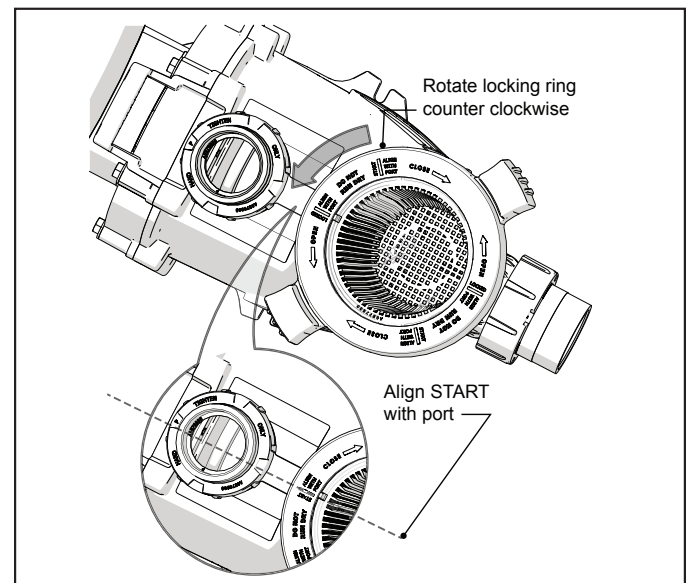


Figure 12. Disengage Lock Ring

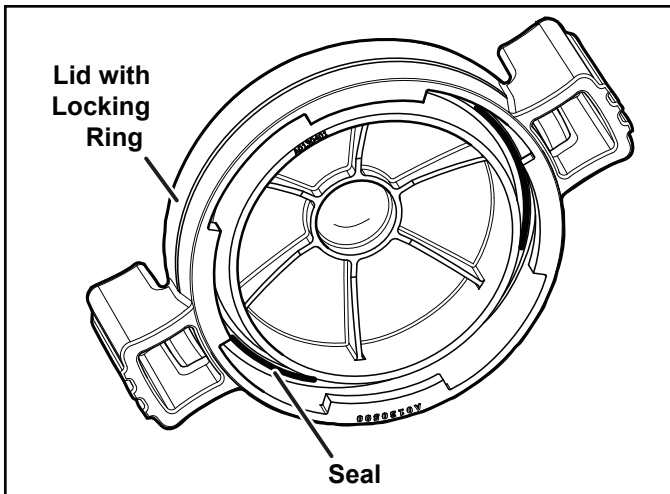


Figure 13. O-Ring in Lid Assembly

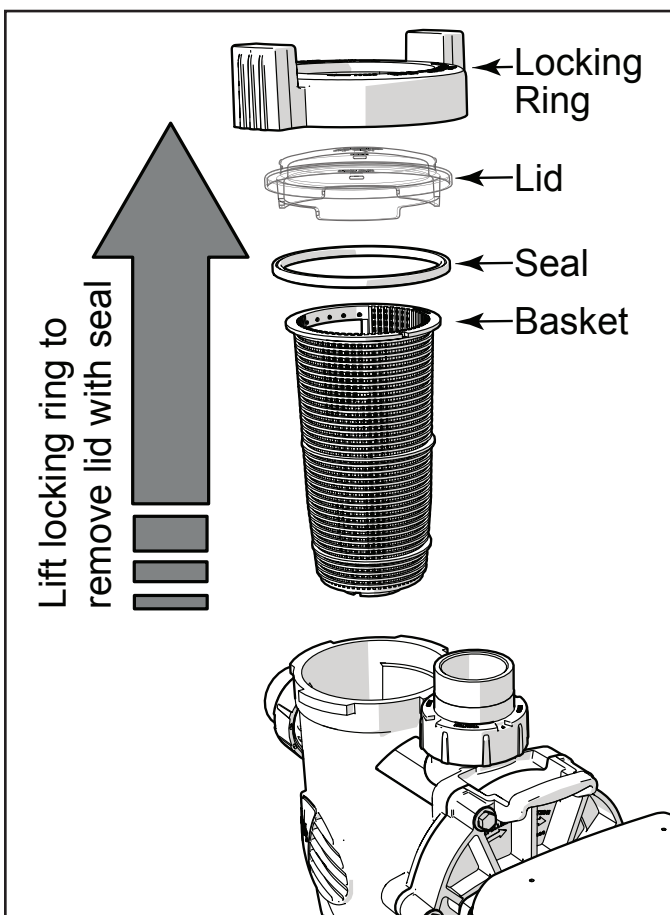


Figure 14. Remove Pump Lid

5.2 Winterizing the Pump

⚠ CAUTION

The pump **must** be protected when freezing temperatures are expected. Allowing the pump to freeze will cause severe damage and may void the warranty.

⚠ CAUTION

Do not use antifreeze solutions in the pool, spa, or hot tub systems. Antifreeze is highly toxic and may damage the circulation system. The only exception to this is Propylene Glycol. For more information, see your local pool/spa supply store or contact a qualified swimming pool service company.

1. Drain all water from the pump, system equipment, and piping.
2. Remove the two (2) drain plugs. Store the drain plugs in a safe location and reinstall them when the cold weather season is over. **Ensure the drain plugs and O-Rings are not misplaced.**
3. Keep the motor covered and dry. Do not cover the pump with plastic, because this will create condensation that may damage the pump.

NOTE Zodiac Pool Systems LLC recommends having a qualified service technician or electrician properly disconnect the electrical wiring at the switch or junction box. Once the power is removed, loosen the two (2) unions and store the pump indoors. For safety, and to prevent entry of contaminants, reinstall all conduit and terminal box covers.

4. When the system is reopened for operation, have a qualified technician or electrician make sure all piping, valves, wiring and equipment are in accordance with the manufacturer's recommendations. Pay close attention to the filter and electrical connections.
5. The pump must be primed prior to starting. Refer to Section 4.1, Start-up.

Section 6. Troubleshooting and Repair

Zodiac Pool Systems LLC strongly recommends that you call a qualified service technician to perform any repairs on the filter/pump system. To locate a qualified technician, check your local yellow pages or visit *ZodiacPoolSystems.com* or *ZodiacPoolSystems.ca* and click on “Find a Dealer.”

Symptom	Possible Cause/Solution
<p>Motor won't start or the controller does not detect the motor</p>	<p>No power to the motor. Have a certified professional check the voltage on the main power terminal with the breaker on. The voltage must be within 10% of the motor rating plate voltage.</p>
	<p>The motor experienced an error. Power cycle the motor. If the motor has experienced an error, a fault code may appear on the controller. In order to clear the error, turn off the main breaker connected to the motor. Wait at least 5 minutes before returning power to the motor. The voltage in the capacitors must be completely drained for a proper power cycle.</p>
	<p>Improper low voltage wiring. The RS-485 connection must be secure with no broken wires. Inspect the low voltage wiring for signs of corrosion. If necessary cut the wires off and strip new leads. Make sure there are not any broken pieces of wire inside the RS-485 connector.</p>
	<p>Broken low voltage wiring. The wire may have breaks somewhere between the motor and the controller. With all power off, take a multimeter and set it to Ohms/Continuity. Check continuity of each of the low voltage lines from the motor side to the controller side. Replace the RS-485 wires completely if necessary.</p>
	<p>Improper low voltage wiring. Check the wiring of the RS-485 connector. Wire colors for pins 1-4 should be Red, Black, Yellow, Green.</p>
	<p>Test the drive with the RS-485 jumper method. Using small sections of 22 AWG wire, jump pins 1 to 3 and 2 to 4. These wires can be made by cutting off a section of the RS-485 wires. Re-install the connector and attach the access cover. Apply power to the motor. The motor should spin at 2600 RPM indefinitely. If the motor works, there is a problem with the RS-485 line or with the controller. Contact Zodiac Technical Support at 800.822.7933</p>
	<p>DIP switches in the wrong configuration. The variable speed drive has two DIP switches; 3 and 4. These must both be in the OFF position for Pump 01. This is the configuration for all controllers that are not automation and the first pump for automation. If more than one variable speed pump is being controlled with an automation system, they must be in the proper configuration. Refer to the DIP switch section of the manual to configure the other motors.</p>
	<p>Check the schedule. The motor will only turn on during programmed times set in the controller. Verify that the motor is scheduled to turn on at that time.</p> <p>If the motor still has problems starting or continues to show faults, contact Zodiac Technical Support at 800.822.7933</p>
<p>Motor starts but shuts off soon after</p>	<p>Debris may be stuck between the impeller and the diffuser. This will prevent the drive shaft from spinning and will cause the motor to experience an error. Have a certified professional check to see if the drive shaft is seized with all power off. A quick test can be inserting a 5/16" allen wrench through the back of the fan housing and into the drive shaft. Manually spin the drive shaft to check if it is seized. If large amounts of debris are found, check your strainer basket for breaks. Replace the strainer basket if necessary.</p>
	<p>If the motor still has problems starting, contact Zodiac Technical Support at 800.822.7933</p>

Symptom	Possible Cause/Solution
The motor gets hot and shuts off periodically	Make sure that there is adequate room around the motor to circulate air and keep the motor cool. Have a qualified electrician check for loose connections and check the voltage at the motor while it is in operation. If the main voltage is outside of 10% of the motor rating plate, the motor may be experiencing excessive loads. Contact your local power surface provider.
No power to controller	This is exclusive to any controller that is not an automation system. The motor has the ability to power controllers through the RS-485 line. Have a certified electrician test the voltage on the RS-485 line while there is power to the motor. There should be between 8 and 12 Volts DC between pins 1 and 4. If the voltage is below or non-existent, contact Zodiac Technical Support at 800.822.7933.
	Improper low voltage wiring. Check the wiring of the RS-485 connector. Wire colors for pins 1-4 should be Red, Black, Yellow, Green.

6.1 Service Technician Maintenance

CAUTION

This pump must be serviced by a professional service technician qualified in pool/spa installation. The following procedures must be followed exactly. Improper installation and/or operation can create dangerous electrical hazards, which can cause high voltages to run through the electrical system. This can cause property damage, serious personal injury, and/or death. Improper installation and/or operation may void the warranty.

WARNING

Before servicing the pump, switch off the circuit breakers at the power source. Severe personal injury or death may occur if the pump starts while your hand is inside the pump.

6.1.1 Blocked Impeller

1. Turn off the pump. Switch off the circuit breaker to the pump motor.
2. Remove the lid and basket.
3. Look inside the pump and remove any debris.
4. Replace the basket and lid.
5. Switch on the circuit breaker to the pump motor.
6. Turn on the pump, and see if the problem is solved.
7. If the impeller is still blocked with debris and it is not possible to remove the debris using Steps 2 through 4, the pump will need to be disassembled in order to access the inlet and outlet of the impeller.

Section 7. Product Specifications and Technical Data

Exploded view for general reference only. Specific models may differ. Please refer to the contact information below to obtain spare parts information for specific pump models. For a complete list of replacement parts, please visit www.Jandy.com or contact Zodiac Technical Support at 1.800.822.7933 or email productsupport@fluidra.com. In Canada, please call 1.888.647.4004 or email customer.service@fluidra.com.

7.1 Exploded Views

- 1 - Motor, Drive
 - 2 - Motor Hardware
 - 3 - Fan Shroud
 - 4 - Motor Mounting Foot
 - 5 - Backplate Hardware
 - 6 - Backplate
 - 7 - Backplate O-Ring
 - 8 - Impeller and Hardware
 - 9 - Diffuser and Hardware
 - 10 - Diffuser O-Ring
 - 11 - Pump Body
 - 12 - Locking Ring and O-Ring
 - 13 - Pump Debris Filter Basket
 - 14 - Tail Piece (2), O-Ring (2) and Union Nut (2)
 - 15 - Mechanical Seal
 - 16 - Drain Plug with O-Ring (2)
 - 17 - Small adjustable base w/spacers (VSFHP Models Only)
 - 18 - User Interface Bracket
 - 19 - User Interface
 - 20 - Liquid-Tight Cord Grip
- * - Large Adjustable Base (Optional part # R0546400 for use with VSFHP Models Only)

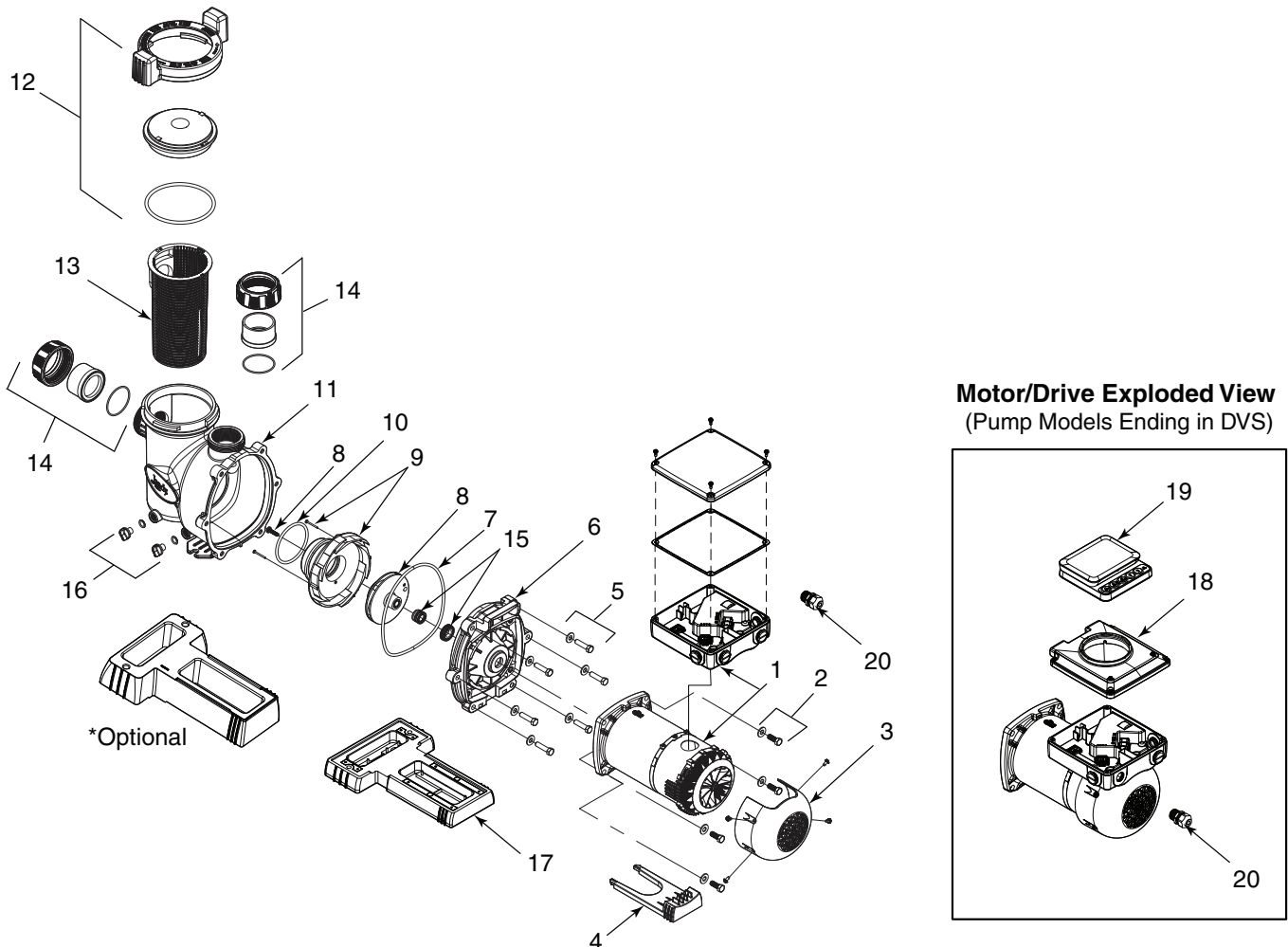
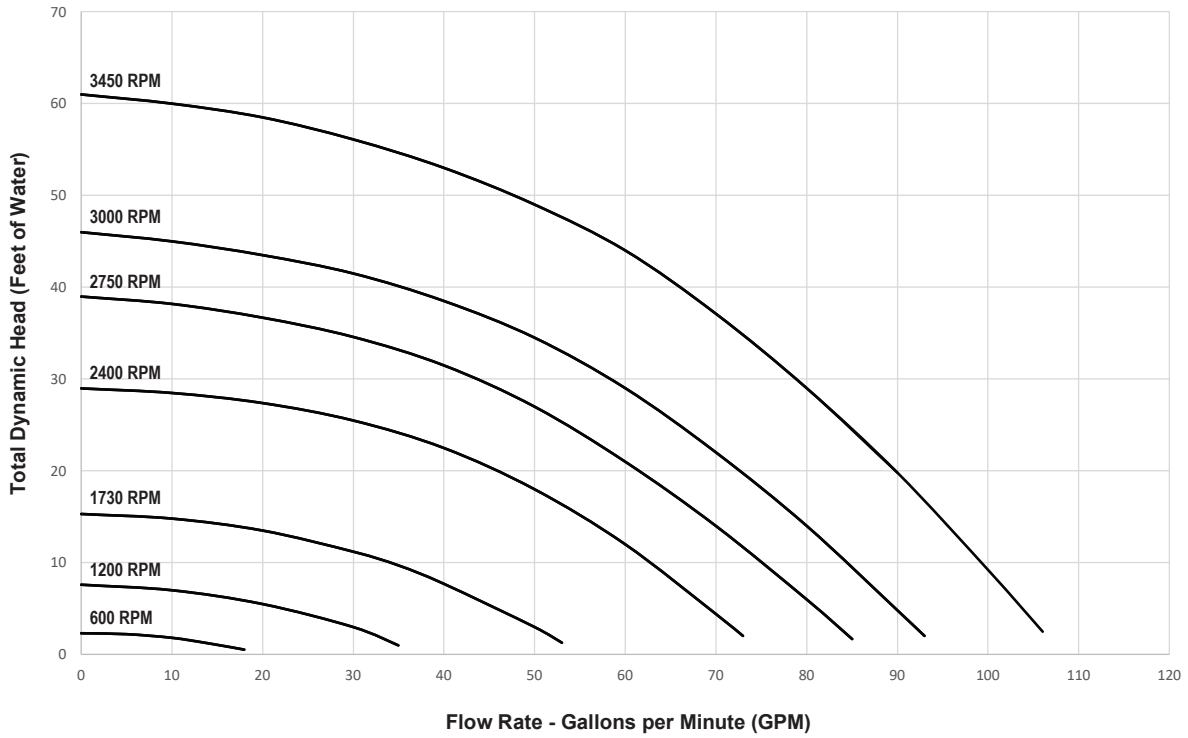


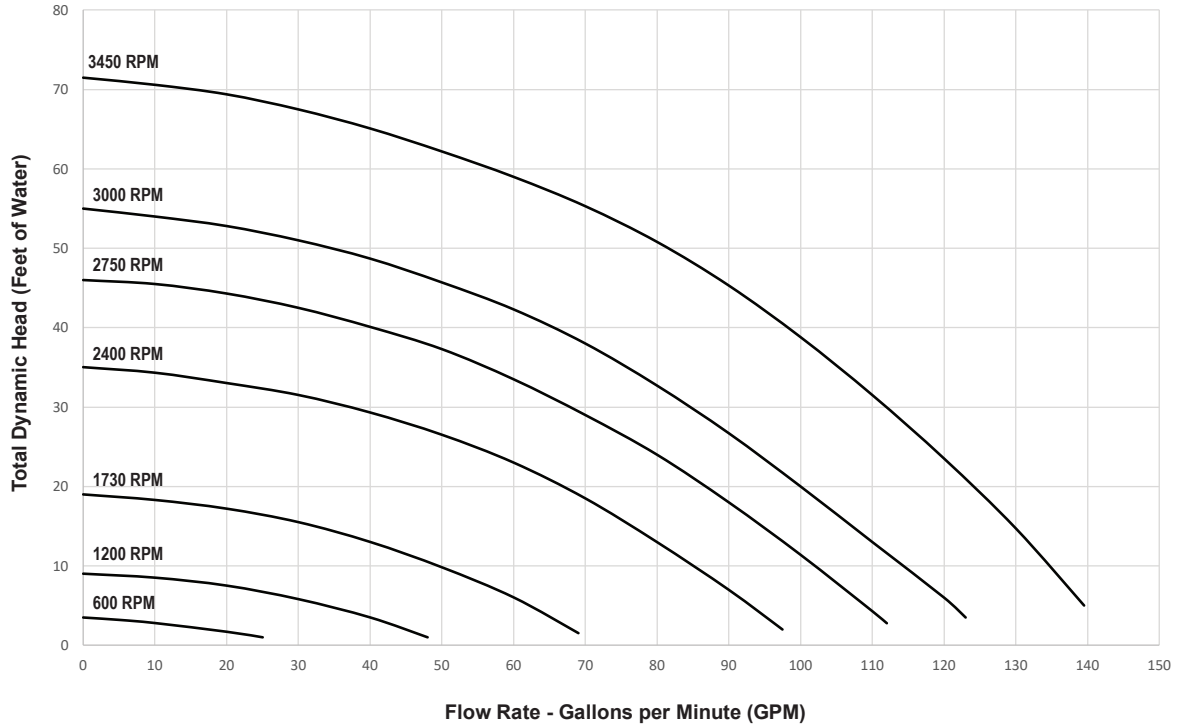
Figure 16. Jandy Variable Speed Pump Exploded View (Specific models may differ slightly from illustration)

7.2 Performance Curves

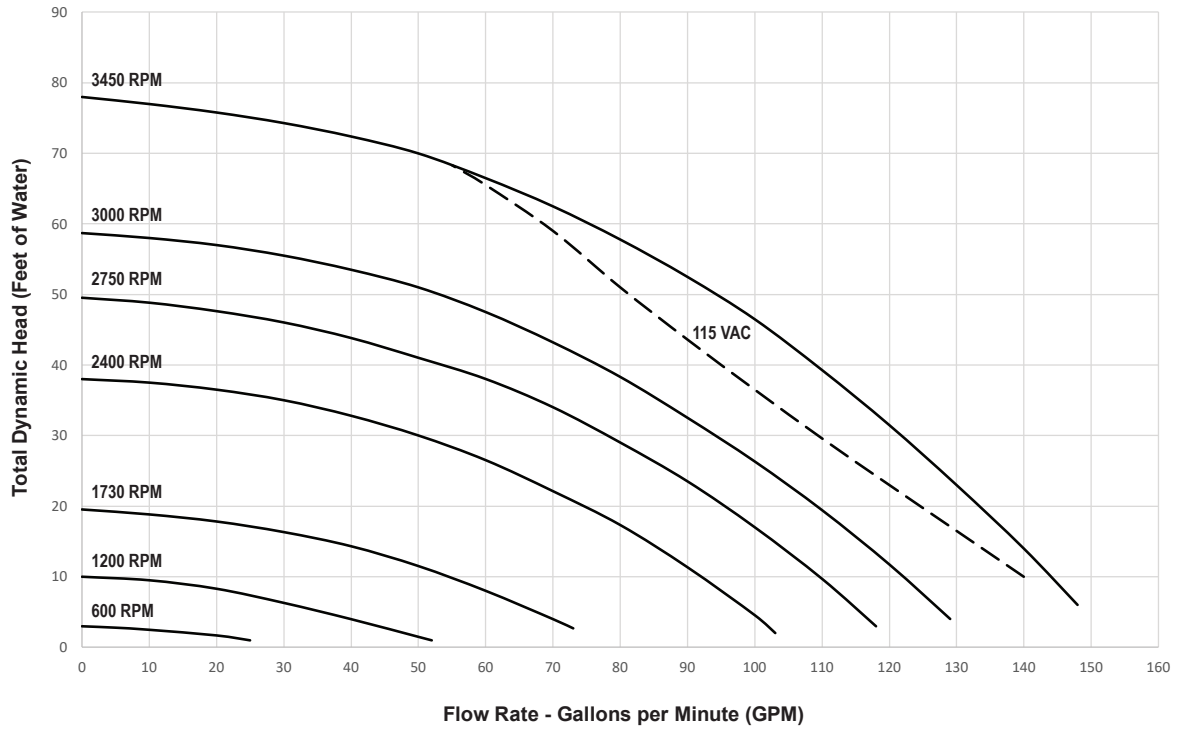
VSFHP130DV(S) Pump Curves - 115V/230V



VSFHP165DV(S) Pump Curves - 115V/230V



VSFHP185DV(S) Pump Curves - 115V/230V



Zodiac Pool Systems LLC
2882 Whiptail Loop #100, Carlsbad, CA 92010

Zodiac Pool Systems Canada, Inc.
2-3365 Mainway, Burlington, ON L7M 1A6 Canada

USA | Jandy.com | 1.800.822.7933
Canada | Jandy.ca | 1.888.647.4004

©2023 Zodiac Pool Systems LLC. All rights reserved. ZODIAC® is a registered trademark of Zodiac International, S.A.S.U., used under license. All other trademarks are the property of their respective owners.
H0719301 REV A



ETL LISTED
CONFORMS TO
UL STD 1081

Certified to
CAN/CSA C22.2
No. 108

