



Flow Xtreme

48SM I , 48SM II

SWIMMING POOL PUMPS

INSTRUCTION MANUAL



VER.0418

NE4491/4492/4493/4494
NE4495/4496/4497/4498

CONGRATULATIONS!

YOU HAVE PURCHASED A HIGH QUALITY REPLACEMENT PUMP FROM BLUE WAVE. ALL PUMPS COVERED IN THIS MANUAL HAVE FULL RATED MOTORS AND HAVE BEEN MANUFACTURED AND TESTED TO OFFER MANY YEARS OF TROUBLE FREE SERVICE.

IMPORTANT – READ THIS MANUAL CAREFULLY

NOTE – To prevent potential injury and to avoid unnecessary service calls, read this manual carefully and completely.

SAVE THIS INSTRUCTION MANUAL

Use of unauthorized replacement parts voids warranty.

ATTENTION INSTALLER – THIS MANUAL CONTAINS IMPORTANT INFORMATION ABOUT THE INSTALLATION, OPERATION, AND SAFE USE OF THIS PUMP THAT MUST BE FURNISHED TO THE END USER OF THIS PRODUCT. FAILURE TO READ AND FOLLOW ALL INSTRUCTIONS COULD RESULT IN SERIOUS INJURY.

THIS MANUAL IS BROKEN INTO SEVERAL SECTIONS:

- 1. Safety Instructions & Warnings**
- 2. General Installation Instructions**
- 3. Electrical & Wiring Instructions**
- 4. Start-Up & Operation**
- 5. Maintenance, Storage & Winterization**
- 6. Shaft Seal Chang Instructions**
- 7. Technical Data for FlowXtreme 48SM-I&48SM-II Pumps**
- 8. Part List & Diagram for FlowXtreme 48SM-I&48SM-II Pumps**
- 9. Trouble Shooting – FAQs**
- 10. Warranty information**

Section #1, Safety Instructions

WARNING – To reduce risk of injury, do not permit children to use or climb on this product. Closely supervise children at all times. Components such as the filtration system, pumps, and heaters must be positioned to prevent children from using them as a means of access to the pool.

CAUTION – This pump is intended for use on permanently installed In Ground or Above Ground swimming 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 is capable of being readily disassembled for storage and reassembled to its original integrity. Though this product is designed for outdoor use, it is strongly advised to protect the electrical components from the weather. Select a well-drained area, one that will not flood when it rains. It requires free circulation of air for cooling. Do not install in a damp or unventilated location. If installed within an outer enclosure or beneath the skirt of a hot tub or spa, adequate ventilation and free circulation of air must be provided to prevent overheating of the motor.

WARNING – Pool and spa components have a finite life. All components should be inspected frequently and replaced at least every ten years, or if found to be damaged, broken, cracked, missing, or not securely attached

WARNING – Risk of Electric Shock.

Hazardous voltage. Can shock, burn, or cause death. To reduce the risk of electric shock, do NOT use an extension cord to connect unit to electric supply. Provide a properly located outlet. It is required that licensed electricians do all electrical wiring. All electrical wiring MUST be in conformance with applicable local and national codes and regulations. Before working on pump or motor, disconnect motor wiring.

WARNING – To reduce the risk of electric shock replace damaged cord immediately. Do NOT bury cord. Locate cord to prevent abuse from lawn mowers, hedge trimmers and other equipment.

WARNING – Connect only to a grounding type receptacle protected by a Ground Fault Circuit Interrupter (GFCI).

Contact a licensed electrician if you cannot verify that the receptacle is protected by a GFCI.

WARNING – Failure to bond pump to pool structure will increase risk for electrocution and could result in injury or death. To reduce the risk of electric shock, see installation instructions and consult a professional electrician on how to bond pump.

Also, contact a licensed electrician for information on local electrical codes for bonding requirements.

Use a solid copper conductor, size 8 or larger. Run a continuous wire from external bonding lug to reinforcing rod or mesh. Connect a No. 8 AWG (8.4 mm²) solid copper bonding wire to the pressure wire connector provided on the motor housing and to all metal parts of swimming pool, spa, or hot tub, and to all electrical equipment, metal piping (except gas piping), and conduit within 5 ft. (1.5m) of inside walls of swimming pool, spa, or hot tub. **IMPORTANT** - Reference NEC codes for all wiring standards including, but not limited to, grounding, bonding and other general wiring procedures. **NOTE** - The National Electrical Code (NEC) permits use of a cord with a maximum 3 ft. (1 m) length. If your pump is equipped with a cord complying with the NEC, the preceding four (4) hazards apply.

WARNING – Suction Entrapment Hazard.

Entrapment in suction outlets and/or suction outlet covers, which are damaged, broken, cracked, missing, or unsecured can cause severe injury and/or death due to the following entrapment hazards:

Hair Entrapment- Hair can become entangled in suction outlet cover.

Limb Entrapment- A limb inserted into an opening of a suction outlet sump or suction outlet cover that is damaged, broken, cracked, missing, or not securely attached can result in a limb becoming entrapped.

Body Suction Entrapment- A pressure applied to a large portion of the body or limbs can result in an entrapment.

Mechanical Entrapment- There is potential for jewelry, swimsuits, hair decorations, fingers, toes, or knuckles to be

caught in an opening of a suction outlet cover resulting in mechanical entrapment.

WARNING – Reduce the risk of Entrapment Hazards:

- When outlets are small enough to be blocked by a person, a minimum of two functioning suction outlets per pump must be installed. Suction outlets in the same plane (i.e. floor or wall), must be installed a minimum of three feet (3') [0.91 meter] apart, as measured from near point to near point.
- Dual suction fittings shall be placed in such locations and distances to avoid “dual blockage” by a user.
- Dual suction fittings shall not be located on seating areas or on the backrest for such seating areas.
- The maximum system flow rate shall not exceed the values shown in the “Pipe Sizing Chart” found at the bottom of page 5 of this manual.
- Never use pool or spa if any suction outlet component is damaged, broken, cracked, missing, or not securely attached.
- Replace damaged, broken, cracked, missing, or not securely attached suction outlet components immediately.
- In addition to two or more suction outlets per pump installed in accordance with latest IAF (formerly NSPI) standards and CPSC guidelines, follow all national, state, and local codes applicable.
- Installation of a vacuum release or vent system, which relieves entrapping suction, is recommended.

WARNING – Hazardous Pressure.

Pool and spa water circulation systems operate under hazardous pressure during start-up, normal operation, and after pump shut-off. Stand clear of circulation system equipment during pump start-up. Failure to follow safety and operation instructions could result in violent separation of the pump housing and cover due to pressure in the system, which could cause property damage, severe personal injury, or death. Before servicing pool and spa water circulation system, all system and pump controls must be in off position and filter manual air relief valve if part of the filtration system must be in open position. Before starting system pump, all system valves must be set in a position to allow system water to return back to the pool. Do not change filter control valve position while system pump is running. Before starting system pump, fully open filter manual air relief valve. Do not close filter manual air relief valve until a steady stream of water (not air or air and water) is discharged. All suction and discharge valves **MUST** be **OPEN** when starting the circulation system. Failure to do so could result in severe personal injury and/or property damage.

WARNING – Separation Hazard.

Failure to follow safety and operation instructions could result in violent separation of pump components. Strainer cover must be properly secured to pump housing with strainer cover lock ring. Before servicing pool and spa circulation system, all system and pump controls must be in off position and filter manual air relief valve must be in open position. Do not operate pool and spa circulation system if a system component is not assembled properly, damaged, or missing. Do not operate pool and spa circulation system unless filter air relief valve body is in closed position. All suction and discharge valves **MUST** be **OPEN** when starting the circulation system. Failure to do so could result in severe personal injury and/or property damage.

WARNING – Never operate or test the circulation system at more than 40 PSI.

WARNING – Fire and burn hazard.

Motors operate at high temperatures and if they are not properly isolated from any flammable structures or foreign debris they can cause fires, which may cause severe personal injury or death. It is also necessary to allow the motor to cool for at least 20 minutes prior to maintenance to minimize the risk for burns.

WARNING – Failure to install according to defined instructions may result in severe personal injury or death.

Section #2, Installation Instructions

WARNING – This product should be installed and serviced only by a qualified professional.

Pump Location

Locate pump as close to pool as practical and run suction lines as direct as possible to reduce friction loss. Suction lines should have continuous slope upward from lowest point in line. Joints must be tight (but not over-tightened). Suction line diameter must equal or be larger than the discharge line diameter.

Though the pump is designed for outdoor use, it is strongly advised to protect the electrical components from the weather. Select a well-drained area, one that will not flood when it rains. **Do NOT install pump in a damp or non-ventilated location.** Keep motor clean. Pump motors require free circulation of air for cooling.

Pump Mounting

Install pump on a firm, level base or pad to meet all local and national codes. Fasten pump to base or pad with screws or bolts to further reduce vibration and stress on pipe or hose joints. The base **MUST** be solid, level, rigid, and vibration free.

Pump mount must:

- ☐ Allow pump inlet height to be as close to water level as possible.
- ☐ Allow use of short, direct suction pipe or hose (to reduce friction losses).
- ☐ Allow for gate valves in suction and discharge piping for In Ground pump installations.
- ☐ Be protected from excess moisture and flooding.
- ☐ Allow adequate access for servicing pump and piping.

Pipe Sizing Chart

MAXIMUM RECOMMENDED SYSTEM FLOW RATE BY PIPE SIZE					
Pipe Size	Flow rate	Pipe Size	Flow rate	Pipe Size	Flow rate
[mm]	GPM[Liter/Min]	[mm]	GPM[Liter/Min]	[mm]	GPM[Liter/Min]
1"	20	1 1/2"	45	2 1/2"	110
[32]	[75]	[50]	[170]	[75]	[415]
1 1/4"	30	2"	80	3"	160
[40]	[110]	[63]	[300]	[90]	[600]

NOTE - It is recommended that a minimum length of piping, equivalent to 10 pipe diameters, be used between the pump suction inlet and any plumbing fittings.

WARNING – Hazardous Pressure.

Pumps, filters, and other equipment/ components of a swimming pool filtration system operate under pressure. Incorrectly installed and/or improperly tested filtration equipment and/or components may fail resulting in injury and/or property damage.

Plumbing

Use “Teflon” tape, available at any plumbing or hardware store, to seal threaded connections on molded plastic components. All plastic fittings must be new or thoroughly cleaned before use. **NOTE - Do NOT use Plumber’s Pipe Dope as it may cause cracking of the plastic components.** When applying “Teflon” tape to plastic threads, wrap the

entire threaded portion of the male fitting with one to two layers of tape. Wind the tape clockwise as you face the open end of the fitting, beginning at the end of the fitting. The pump suction and outlet ports have molded-in thread stops. **Do NOT attempt to force hose connector fitting past this stop.** It is only necessary to tighten fittings enough to prevent leakage. Tighten fitting by hand and then use a tool to engage fitting an additional 1 ½ turns. Use care when using Teflon tape as friction is reduced considerably; **Do NOT over-tighten fitting or you may cause damage.** If leaks occur, remove fitting, clean off old Teflon tape, re-wrap with one to two additional layers of Teflon tape, and re-install fitting. See Trouble Shooting section for additional solutions.

Fittings

Different pumps come with different type and size hose or plumbing fittings. Review the Technical Sections in this Owners / Installation manual to insure you have the correct fitting before starting installation. If your new pump is replacing an older pump it may be necessary to find specialized plumbing fitting to make the plumbing connections. Check with your local pool professional store or a well-equipped hardware store to find what you need.

Fittings restrict flow. For better efficiency, use the fewest possible fittings (but at least two suction outlets). Avoid fittings that could cause an air trap. Pool and spa fittings **MUST** conform to the International Association of Plumbing and Mechanical Officials (IAPMO) standards. Use a non-entrapping suction fitting in pool (multiple drains) or double suction (skimmer and main drain).

Section #3, Electrical & Wiring

WARNING — Ground and bond motor before connecting to electrical power supply. Failure to ground and bond pump motor can cause serious or fatal electrical shock hazard.

WARNING — Do NOT ground to a gas supply line.

WARNING — To avoid dangerous or fatal electrical shock, turn OFF power to motor before working on electrical connections.

WARNING — Ground Fault Circuit Interrupter (GFCI) tripping indicates electrical problem. If GFCI trips and won't reset, consult electrician to inspect and repair electrical system.

WARNING — **Fire Hazard.**

Match supply voltage to motor nameplate voltage.

Insure that the electrical supply available agrees with the motor's voltage, phase, and cycle, and that the wire size is adequate for the H.P. (KW) rating and distance from the power source. **NOTE - All electrical wiring MUST be performed by a licensed electrician, and MUST conform to local codes and NEC regulations.** Use copper conductors only.

Electrical Pump Details

Full Rated Pumps		60Hz, 1PH		
HP	KW	Voltage	Amps	Wire Size
1/2	0.37	208-230	10A	14AWG
		115	15A	14AWG
3/4	0.55	208-230	10A	14AWG
		115	15A	14AWG
1	0.75	208-230	15A	14AWG
		115	20A	12AWG
1-1/2	1.10	208-230	15A	14AWG
		115	30A	10AWG
2	1.55	208-230	20A	12AWG
2-1/2	1.87	208-230	20A	12AWG

Voltage

Voltage at motor **MUST NOT** be more than 10% above or below motor name plate rated voltage, or motor may overheat, causing overload tripping and reduced component life. If voltage is less than 90% or more than 110% of rated voltage when motor is running at full load, consult Power Company.

Grounding and Bonding

Install, ground, bond, and wire motor in accordance with local or national electrical code requirements.

Permanently ground motor. Use green ground terminal provided under motor canopy or access plate; use size and type wire required by code. Connect motor ground terminal to electrical service ground. Bond motor to pool structure. Bonding will connect all metal parts within and around the pool with a continuous wire.

Bonding reduces the risk of a current passing between bonded metal objects, which could potentially cause electrical shock if grounded or shorted. **Reference NEC codes for all wiring standards including, but not limited to, grounding, bonding and general wiring procedures.**

Use a solid copper conductor, size 8 or larger. Run wire from external bonding lug to reinforcing rod or mesh. Connect a No. 8 AWG (8.4 mm²) solid copper bonding wire to the pressure wire connector provided on the motor housing and to all metal parts of swimming pool, spa, or hot tub, and to all electrical equipment, metal piping (except gas piping), and conduit within 5 ft. (1.5 m) of inside walls of swimming pool, spa, or hot tub.

Different pumps come with different type and size hose or plumbing fittings. Review the Technical Sections in this Owners / Installation manual to insure you have the correct fitting before starting installation. If your new pump is replacing an older pump it may be necessary to find specialized plumbing fitting to make the plumbing connections. Check with your local pool professional store or a well-equipped hardware store to find what you need.

Wiring

WARNING – All wiring must be done by a licensed electrician.

See specific wiring instructions in the Technical Data sections for each pump covered by this manual.

If local electrical codes call for power cords with twist lock plugs, please check with your local professional pool store or on line for availability.

WARNING – Never use an extension cord to connect a pump with a pre-wired cord to the

circuit.

FlowXtreme 48SM-I & 48SM-II are In Ground Pumps and MUST be permanently connected to an appropriate electrical circuit. If other lights or appliances are also on the same circuit, be sure to add their amp loads before calculating wire and circuit breaker sizes. Use the load circuit breaker as the Master On-Off switch.

Always Install a Ground Fault Circuit Interrupter (GFCI) in circuit; it will sense a short circuit to ground and disconnect power before it becomes dangerous to pool users. For size of GFCI required and test procedures for GFCI, see manufacturer's instructions. In case of a power outage, check GFCI for tripping, which will prevent normal pump operation. Reset if necessary.

NOTE - If you do not use conduit when wiring motor, be sure to seal wire opening on the back end of the motor to prevent dirt, bugs, etc., from entering.

NOTE – See additional wiring information and wiring diagrams in the Section #7, Technical Data for 48SM-I & 48SM-II Pumps

Section #4, Start-Up & Operation

Prior to Start-Up

Notice: If it is necessary to perform a pressure test, prior to initial use to ensure pump is functioning properly, then the following criteria should be maintained for this test:

1. Have a professional perform this test.
2. Ensure all pump and system components are sealed properly to prevent leaks.
3. Remove any trapped air in the system by fully opening filter manual air relief valve until a steady stream of water is discharged.
4. Allow no more than 40 psi (276 kPa) at a water temperature no higher than 100° F (38° C).
5. Run pressure test for no longer than 24 hours. Immediately inspect all parts to verify they are intact and functioning properly.

Fill strainer housing with water to suction pipe level.

NEVER OPERATE THE PUMP WITHOUT WATER. Water acts as a coolant and lubricant for the mechanical shaft seal.

WARNING — If pump is being pressure tested (40 PSI MAXIMUM), be sure pressure has been released, using the filter manual air relief valve, before removing strainer cover.

CAUTION — NEVER run pump dry. Running pump dry may damage seals, causing leakage, flooding, and voids warranty. Fill strainer housing with water before starting motor.

ATTENTION — Do NOT add chemicals to pool/spa system through the skimmer (if pool is so equipped) or directly in front of pump suction. Adding undiluted chemicals may damage pump and voids warranty.

ATTENTION — Before removing strainer cover:

1. **STOP PUMP** before proceeding.
2. **CLOSE VALVES** in suction and outlet pipes.
3. **RELEASE ALL PRESSURE** from pump and piping system using filter manual air relief valve. **See filter owner's manual for more detail.**

Priming Pump

CAUTION — All suction and discharge valves **MUST** be **OPEN**, as well as filter air relief valve (if available) on filter, when starting the circulating pump system. Failure to do so could result in severe personal injury.

- Release all pressure from filter, pump, and piping system. **See filter owner's manual.**
- If water source is higher than the pump, pump will prime itself when suction and outlet valves are opened. If water source is lower than the pump, unscrew and remove strainer cover; fill strainer housing with water.
- Clean and lubricate strainer cover O-ring with high quality O-ring lubricant each time it is removed. Inspect O-ring and re-install on strainer cover.
- Replace strainer cover on strainer housing; turn clockwise to tighten cover.

NOTE – Tighten strainer cover by hand only (no wrenches).

Turn on power and wait for pump to prime, which may take up to five (5) minutes. Priming time will depend on vertical length of suction lift and horizontal length of suction pipe. If pump does NOT prime within five minutes, stop motor and determine cause. Be sure all suction and discharge valves are open when pump is running. See Troubleshooting Guide.

ATTENTION — Wait five (5) seconds before re-starting pump.

Failure to do so may cause reverse rotation of motor and consequent serious pump damage.
Close filter manual air relief valve after pump is primed.

Section #5, Maintenance

- Clean strainer basket regularly. Do NOT strike basket to clean. Inspect strainer cover gasket regularly and replace as necessary. Damage caused by abuse of the strainer basket is NOT covered by your warranty.
- Pumps have self-lubricating motor bearings and shaft seals. No lubrication is necessary.
- Keep motor clean. Insure air vents are free from obstruction to avoid damage. Do NOT use water to hose off motor.
- Occasionally, shaft seals must be replaced, due to wear or damage. Replace with genuine seal assembly kit. See “Shaft Seal Change Instructions” in this manual.

Storage/Winterization

WARNING — **Separation Hazard.**

Do not purge the system with compressed air. Purging the system with compressed air can cause components to explode, with risk of severe injury or death to anyone nearby. Use only a low pressure (below 5 PSI), high volume blower when air purging the pump, filter, or piping.

ATTENTION — Allowing the pump to freeze will void the warranty.

ATTENTION — Use ONLY propylene glycol as antifreeze in your pool/spa system. Propylene glycol is nontoxic and will not damage plastic system components; other anti-freezes are highly toxic and may damage plastic components in the system.

- Drain all water from pump and piping when expecting freezing temperatures or when storing pump for a long time (see instructions below).
- Keep motor dry and covered during storage. To avoid condensation/corrosion problems, do NOT cover or wrap pump with plastic film or bags.

Storing Pump for Winterization

WARNING — To avoid dangerous or fatal electrical shock hazard, turn OFF power to motor before draining pump.

Failure to disconnect power may result in serious personal injury or death.

- Drain water level below all inlets to the pool.
- Remove drain plugs from bottom of strainer body, and remove strainer cover from strainer housing.
- Disconnect pump from mounting pad, wiring system (after power has been turned OFF), and plumbing system.
- Once the pump is empty of water, re-install the strainer cover and drain plugs. Store pump in a dry area.

Section #6, Shaft Seal Change Instructions

IMPORTANT SAFETY INSTRUCTIONS

WARNING — When servicing electrical equipment, basic safety precautions should always be observed including the following. Failure to follow instructions may result in injury.

- To reduce risk of injury, do not permit children to use or service this product.
- Disconnect all electrical power service to pump before beginning shaft seal replacement.
- Only qualified personnel should attempt rotary seal replacement. Contact your local authorized Dealer or service center if you have any questions.
- Follow the instructions that come with the replacement mechanical seal kit.
- Exercise extreme care in handling both the rotating and the stationary sections of the two-part replacement seal. Foreign matter or improper handling will easily scratch the graphite and ceramic sealing surfaces. If that happens your seal will leak and allow water into the dry motor shaft area causing damage to the motor shaft. See Section #10, Trouble Shooting Guide.

Section #7, TECHNICAL DATA FOR FlowXtreme 48SM-I & 48SM-II

MODEL #s; NE4491, NE4492, NE4493, NE4494, NE4495, NE4496, NE4497, NE4498

Technical Data

Model		V/Hz	Amps	Power				L	Qmax (l/mir)	Hmax (m)	Curves
BW Model	Factory Model			P ₂		P ₁					
				kW	HP	kW	HP				
	48SM0753C-I	115/230-60	10/5	0.55	0.75	1.1	1.5	581	380	19	1
NE4493	48SM1003C-I		12/6	0.8	1.0	1.5	2.0	610	400	22	2
NE4496	48SM1653C-I		17/8.5	1.25	1.65	1.85	2.5	633	480	25	3
NE4497	48SM2002C-I	230/60	10	1.5	2.0	2.2	3.0		500	28	4
NE4491	48SM1001C-II	115/60	(Low speed) 3.8	0.08	0.12	0.18	0.35	610	380	19	5
			(High speed) 10.3	0.75	1.0	1.1	1.5				1
NE4494	48SM1501C-II		(Low speed) 3.8	0.15	0.18	0.25	0.45				633
		(High speed) 13.8	1.1	1.5	1.5	2.0	2				
	48SM1002R-II	(Low speed) 2.0	0.08	0.12	0.18	0.35	610	380	21	5	
NE4492	48SM1002C-II	(High speed) 5.2	0.8	1.0	1.1	1.5				1	
	48SM1502R-II	(Low speed) 2.6	0.15	0.18	0.25	0.45				671	480
NE4495	48SM1502C-II	(High speed) 8.0	1.1	1.5	1.85	2.5	3				
	48SM2002R-II	(Low speed) 3.0	0.2	0.25	0.35	0.65	500	28	8		
NE4498	48SM2002C-II	(High speed) 10	1.5	2.0	2.2	3.0			4		

FlowXtreme 48SM-I & 48SM-II Installation Wiring Circuit Diagrams

WARNING — Pumps come pre-wired with a 3 prong grounded plug on a 5' cord. This cord will be used for some installations, but must be removed for other installations.

Wiring Instructions

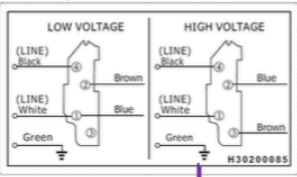
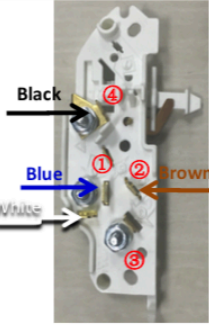
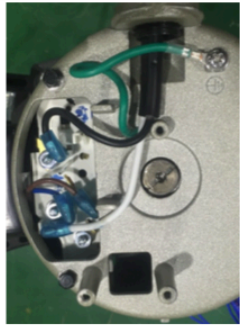
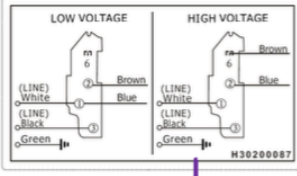
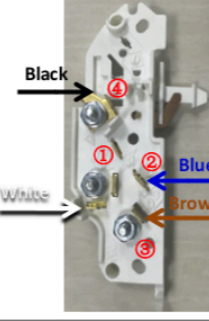
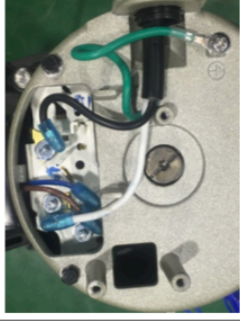






Review the wiring diagrams and Technical Data chart carefully. Connect to your power source as indicated below:

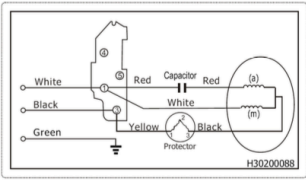
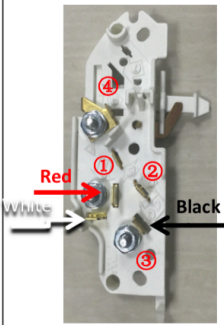
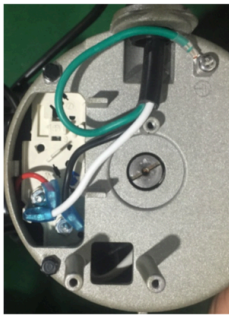
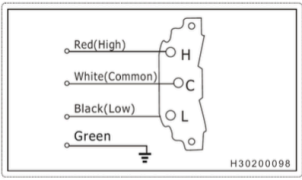
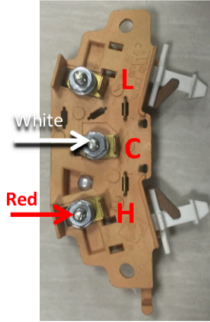
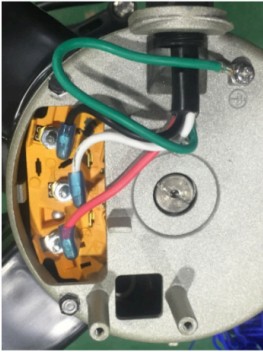
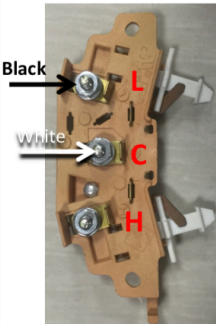
- For dual voltage pumps that will be connected to a 115V circuit, use the cord attached and plug into a GFCI protected outlet.
- For dual voltage pump that will be connected to a 230V circuit, remove the 5' cord and connect your incoming wires to the appropriate posts as indicated in the wiring diagrams.

Caution – 2 Speed pumps must be wired to run at either High or Low speed. If you wish to make the speeds switchable these pumps must be connected to an external switch. Use a licensed electrician to connect the pump to an external switch.

- For single voltage, 2 speed pumps to run on high speed and connected to either a 115V or 230V circuit, remove the 5' cord. Connect your incoming wires using white to center post and red (115V) or black (230V) to lower post.
- For single voltage, 2 speed pumps to run on low speed and connected to either a 115V or 230V circuit, remove the 5' cord. Connect your incoming wires using white to center post and red (115V) or black (230V) to the upper post.

NOTE – The diagrams below show the entire wiring connections for each model pump. You will only connect the incoming wires as indicated above. **DO NOT DISCONNECT ANY FACTORY CONNECTED WIRES. YOUR WARRANTY WILL BE VOIDED IF YOU DO!**

NE4493	48SUP1003C-I	115/230	Single Speed		<p>LOW VOLTAGE (115V)</p>		
					<p>HIGH VOLTAGE (230V)</p>		
NE4496	48SUP1653C-I	115/230	Single Speed		<p>LOW VOLTAGE (115V)</p>		
					<p>HIGH VOLTAGE (230V)</p>		

NE4497	48SUP2002C-I	230	Single Speed		230V		
NE4491 NE4494	48SUP1001C-II 48SUP1501C-II	115	2 SPEED		HIGH SPEED		
NE4492 NE4495 NE4498	48SUP1002C-II 48SUP1502C-II 48SUP2002C-II	230			LOW SPEED		

Section #8, Parts List & Diagram for FlowXtreme 48SM-I & 48SM-II Pumps

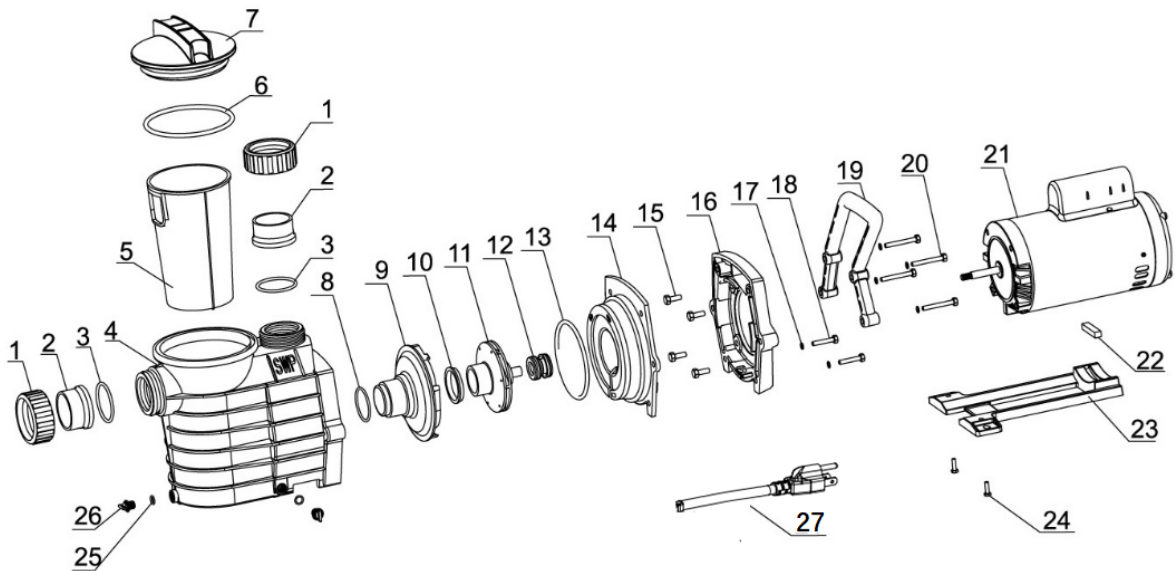
MODEL #s; NE4491, NE4492, NE4493, NE4494, NE4495, NE4496, NE4497, NE4498

Parts List

Key	Part Name	Mfg. No.	B.N. No.
1	TIE-IN NUT	48SM001	NEP4138
2	TIE	48SM002	NEP4139
3	O-RING	48SM003	NEP4140
4	PUMP CASING	48SM004	NEP4141
5	FILTER	48SM005	NEP4142
6	O-RING	48SM006	NEP4143
7	TRANSPARENT COVER	48SM007	NEP4144
8	O-RING	48SM008	NEP4145

9	GUIDE PLATE	48SM009	NEP4146
10	IMPELLER ACTIVITY RING	48SM010	NEP4147
11	IMPELLER OF ITEM#48SM0753C-I	48SM011	NEP4148
11	IMPELLER OF ITEM#48SM1003C-I	48SM012	NEP4149
11	IMPELLER OF ITEM#48SM1653C-I	48SM013	NEP4150
11	IMPELLER OF ITEM#48SM2002C-I	48SM014	NEP4151
11	IMPELLER OF ITEM#48SM1001C-II	48SM015	NEP4152
11	IMPELLER OF ITEM#48SM1501C-II	48SM016	NEP4153
11	IMPELLER OF ITEM#48SM1002C-II	48SM017	NEP4154
11	IMPELLER OF ITEM#48SM1502C-II	48SM018	NEP4155
11	IMPELLER OF ITEM#48SM2002C-II	48SM019	NEP4156
12	MECHANICAL SEAL	48SM020	NEP4157
13	O-RING	48SM021	NEP4158
14	PUMP COVER	48SM022	NEP4159
15	HEXAGON NUT	48SM023	NEP4160
16	TRANSITION FLANGE	48SM024	NEP4161
17	WASHER	48SM025	NEP4162
18	HEXAGON NUT	48SM026	NEP4163
19	HANDLE	48SM027	NEP4164
20	HEXAGON NUT	48SM028	NEP4165
21	MOTOR OF ITEM#48SM0753C-I	48SM029	NEP4300
21	MOTOR OF ITEM#48SM1003C-I	48SM030	NEP4301
21	MOTOR OF ITEM#48SM1653C-I	48SM031	NEP4302
21	MOTOR OF ITEM#48SM2002C-I	48SM032	NEP4303
21	MOTOR OF ITEM#48SM1001C-II	48SM033	NEP4304
21	MOTOR OF ITEM#48SM1501C-II	48SM034	NEP4305
21	MOTOR OF ITEM#48SM1002C-II	48SM035	NEP4306
21	MOTOR OF ITEM#48SM1502C-II	48SM036	NEP4307
21	MOTOR OF ITEM#48SM2002C-II	48SM037	NEP4308
22	BLOCK GINE	48SM038	NEP4309
23	BASE	48SM039	NEP4310
24	HEXAGON SCREW	48SM040	NEP4311
25	O-RING	48SM041	NEP4312
26	DRAINGE PLUG	48SM042	NEP4313
27	POWER CORD	48SM043	NEP4314

FlowXtreme 48SM-I & 48SM-II PUMP PARTS DIAGRAM



Section #9 Trouble Shooting guide for 48SM-I & 48SM-II, In Ground Pumps

Motor Will NOT Start – Check For:

Make sure the terminal board connections agree with the wiring diagram on motor data plate label. Be sure motor is wired for available field supply voltage (see pump operating label).

1. Improper or loose wiring connections; open switches or relays; tripped circuit breakers, GFCI's, or blown fuses.

Solution: Check all connections, circuit breakers, and fuses. Reset tripped breakers or replace blown fuses.

2. Manually check rotation of motor shaft for free movement and lack of obstruction.

3. If you have a timer, be certain it is working properly. Bypass it if necessary.

Motor Shuts OFF – Check For:

1. Low voltage at motor or power drop (frequently caused by undersized wiring or extension cord use).

Solution: Contact qualified professional to check that the wiring gauge is heavy enough.

2. Motor may be overheating due to direct sunlight or low water level in the pump basket.

Solution: Check water flow to insure uniform amount of water coming to the pump.

NOTE - Your pump motor is equipped with an “automatic thermal overload protector.” The motor will automatically shut off if power supply drops before heat damage can build up causing windings to burn out. The “thermal overload protector” will allow the motor to automatically restart once the motor has cooled. It will continue to shut off until the problem is corrected. **Be sure to correct cause of overheating.**

Motor Hums, But Does NOT Start – Check For:

1. Impeller jammed with debris.

Solution: Have a qualified repair professional open the pump and remove the debris.

2. Motor is frozen either from months in the carton after manufacturing or from over winter storage.

Solution: Insert a flat bladed screw driver into the slot at the back end of the motor shaft and turn motor shaft until it

moves freely. You may have to remove the protective metal cap from some models to access the motor shaft.

NOTE – All FlowXtreme 48SM-I & 48SM-II pumps are run tested with water before leaving the factory.

Pump Won't Prime - Check For:

1. Empty pump/strainer housing

Solution: Make sure pump/strainer housing is filled with water and cover o-ring is clean. Ensure o-ring is properly seated in the cover o-ring groove. Ensure o-ring is lubricated and that strainer cover is locked firmly in position. Lubricant will help to create a tighter seal.

2. Loose connections on suction side.

Solution: Tighten pipe/union connections or hose clamps on flexible hose.

NOTE - Any self-priming pump will not prime if there are suction air leaks. Leaks will result in bubbles emanating from return fittings on In Ground pool wall.

3. Leaking O-ring on valves.

Solution: Tighten, repair, or replace valves.

4. Strainer basket or skimmer basket loaded with debris.

Solution: Remove strainer housing cover or skimmer cover, clean basket, and refill strainer housing with water. Tighten cover.

5. Suction side In Ground pool intake plumbing clogged.

Solution: Contact a qualified repair professional to do a vacuum test.

Block off to determine if pump will develop a vacuum. You should have 5”-6” of vacuum at the strainer cover (**Only your pool dealer can confirm this with a vacuum gauge**). You may be able to check by removing the skimmer basket and holding your hand over the bottom port with skimmer full and pump running. If no suction is felt, check for line blockage.

- a. If pump develops a vacuum, check for blocked suction line or dirty strainer basket. An air leak in the intake plumbing may be the cause.
- b. If pump does not develop a vacuum and pump has sufficient “priming water”:
 - i. Re-check strainer housing cover and all threaded connections for suction leaks. Check and tighten all system hose clamps on Above Ground pools.
 - ii. Check voltage to ensure that the motor is ~~rotating~~ running at full RPM's.
 - iii. Open housing cover and check for clogging or obstruction in suction. Check impeller for debris.
 - iv. Remove and replace shaft seal only if it is leaking.

Low Flow – Generally, Check For:

1. Clogged or restricted strainer or suction line.

Solution: Check for visible debris and remove if observed. If the problem continues contact a qualified repair professional.

2. Undersized pool plumbing.

Solution: Correct plumbing size.

3. Plugged or restricted discharge line of filter, valve partially closed (high gauge reading).

Solution: Sand filters – backwash as per manufacturer's instructions; D.E. filters – backwash as per manufacturer's instructions; Cartridge filters – clean or replace cartridge.

4. Air leak in suction (bubbles issuing from return fittings).

Solution: Re-tighten suction and discharge connections using Teflon tape. Inspect other plumbing connections and tighten as required.

5. Plugged, restricted, or damaged impeller.

Solution: Contact a qualified repair professional to install a new impeller & seal assembly.

Noisy Pump – Check For:

1. Air leak in suction piping, cavitation caused by restricted or undersized suction line or leak at any joint, low water level in pool, and unrestricted discharge return lines.

Solution: Correct suction condition or tighten fittings, if practical. Holding hand over return fitting will sometimes prove this point or putting in a smaller return eyeball fitting.

2. Vibration due to improper mounting, etc.

Solution: Mount the pump on a level surface and secure the pump to the equipment pad.

3. Foreign matter in pump housing. Loose stones/debris hitting impeller will cause noise.

Solution: With the pump turned off or disconnected from the power source clean the pump housing and inspect to remove any debris visible in the inner portion of the pump by the impeller.

4. Motor bearings noisy from normal wear, rust, overheating, or concentration of chemicals causing seal damage.

This will allow chlorinated water to seep into bearings wiping out the grease resulting in rusting of the motor shaft and causing the bearing to whine.

Solution: All seal leaks must be replaced at once. Have a qualified pump repair specialist replace the motor shaft seals and inspect the motor shaft for possible damage. If the motor shaft is damaged replace the motor.

Water Leaks Around Intake and Discharge fittings – Check For

1. Lose union fittings or hose fittings.

Solution: Tighten fittings or remove, apply Teflon tape and reinstall.

2. Lose hose clamps on flexible hose.

Solution: Tighten hose clamps using a nut driver or wrench instead of a screwdriver

3. Leaks that continue after trying the above solutions.

Solution: Inspect union fittings and hose fittings for excess plastic mold flashing that can cause hoses and plumbing not to seal. If plastic mold flashing is found remove it with a fine tooth file or knife blade and re-assemble. If the fitting still will not seal replace them and reassemble plumbing with the new fittings.

ATTENTION

**DO NOT RETURN THIS PRODUCT TO YOUR RETAILER. IF
YOU ENCOUNTER ANY DIFFICULTIES WITH YOUR NEW
SWIMMING POOL PUMP CONTACT BLUE WAVE CUSTOMER
SERVICE FOR ASSISTANCE.**

1-800-759-0977

Section #10 Warranty Information

English

This product is warranted to the original purchaser to be free from defects in material or workmanship for a period of one (1) year from the date of the original retail purchase.

This warranty does not cover defects or damage due to improper installation, alteration, accident or any other event beyond the control of the manufacturer. Defects or damage resulting from misuse, abuse or negligence will void this warranty. This warranty does not cover scratching or damage that may result from normal usage.

This product is not intended for institutional or commercial use; the manufacturer does not assume any liability for such use. Institutional or commercial use will void this warranty.

This warranty is nontransferable and is expressly limited to the repair or replacement of the defective product. During the warranty period, the manufacturer shall repair or replace defective parts at no cost to the purchaser. Shipping charges and insurance are not covered and are the responsibility of the purchaser. Labor charges and related expenses for removal, installation or replacement of the product or components are not covered under this warranty.

The manufacturer reserves the right to make substitutions to warranty claims if parts are unavailable or obsolete. The manufacturer shall not be liable for loss of use of the product or other consequential or incidental costs, expenses or damages incurred by the consumer of any other use. The user assumes all risk of injury resulting from the use of this product.

This warranty is expressly in lieu of all other warranties, expressed or implied, including warranties of merchantability or fitness for use to the extent permitted by Federal or state law. Neither the manufacturer nor any of its representatives assumes any other liability in connection with this product.

All warranty claims must include the retailer's information where the product was originally purchased. A purchase receipt or other proof of date of purchase will be required to process all warranty claims. The model number and part numbers found within the assembly instructions will be required when submitting any parts requests or warranty claims.

**For further warranty information or inquiries, please call 1 (800) 759-0977 Or email
warranty@splashnetxpress.com**

**Blue Wave Products, Inc.
1745 Wallace Ave, Suite B
Saint Charles, IL 60174**

French

La garantie du produit est valide pour l'acheteur original en ce qui a trait aux pièces défectueuses ou à la main-d'œuvre pour une période de 1 année de la date d'achat.

Cette garantie n'est couverte pas les dommages causés par accident, par modification, par une installation défectueuse ou tout autre événement hors du contrôle du fabricant. Tout défaut ou dommage résultant de la négligence ou d'une mauvaise utilisation annule cette garantie. La présente garantie ne couvre pas les égratignures ou les dommages attribuables à un usage normal.

Ce produit n'est pas destiné à un usage institutionnel ou commercial; le fabricant décline toute responsabilité pour une telle utilisation. Un usage institutionnel ou commercial annule cette garantie.

Cette garantie est non transférable et est expressément limitée à la réparation ou au remplacement du produit défectueux. Au cours de la période de garantie, le fabricant s'engage à remplacer et à réparer les pièces défectueuses sans frais pour l'acheteur. Les frais d'assurance et d'expédition ne sont pas couverts et sont à la charge de l'acheteur. Les frais de main-d'œuvre et les dépenses liées au déplacement, à l'installation ou au remplacement du produit ou de ses composantes ne sont pas couverts par cette garantie.

Le fabricant se réserve le droit de faire des substitutions de recours en garantie si la pièce n'est pas disponible ou obsolète.

Le fabricant décline toute responsabilité liée à la perte d'utilisation ainsi que tous les autres coûts directs ou indirects, frais ou dommages encourus par le consommateur qui aurait été causés par une autre utilisation.

L'utilisateur assume tous les risques de dommage résultant de l'utilisation de ce produit.

Cette garantie tient lieu expressément de toute autre garantie, exprimée ou implicite, y compris les garanties de qualité marchande ou d'adaptation à un emploi particulier dans la mesure permise par les lois fédérales ou provinciales. Ni le fabricant, ni aucun de ses représentants n'assument aucune autre responsabilité en rapport avec ce produit.

Toute réclamation doit être faite par le détaillant où le produit a été acheté. Une facture ou autre preuve d'achat est nécessaire pour traiter toutes les réclamations de garantie. Le numéro de modèle et les numéros de référence figurant dans les instructions d'assemblage seront exigés lors de la soumission de demande de pièces ou de recours en garantie.

Pour plus d'information ou pour toute question, veuillez téléphoner au 1 (800) 759-0977 ou email warranty@splashnetxpress.com

**Blue Wave Products, Inc.
1745 Wallace Ave, Suite B
Saint Charles, IL 60174**