



SAFETY WARNINGS


Thank you for purchasing your Ion Technologies Pump. To help ensure years of trouble-free operation, please read the following manual carefully.


 **CAUTION:** Read these safety warnings first before installing, servicing, or operating any pump.


Before Installation


This manual contains important information for the safe use of this product. Read this manual completely and follow the instructions carefully. Reasonable care and safe methods relating to the installation and operation of this product should be practiced. Check local codes and requirements before installation.


 **WARNING:** Risk of Electrical Shock or Electrocutation. May result in serious injury or death or fire hazard. Installer must disconnect all electrical sources prior to installation, handling or servicing. Only qualified personnel may install this system. NFPA 70/National Electric Code (NEC) or local codes must be followed. System must be properly grounded according to NEC. Do not lift pump by power cord.


 **WARNING:** Biohazard Risk. Once wastewater source has been connected to system, biohazard risk exists. Installer(s) and/or service personnel must use proper Personal Protective Equipment and follow handling procedures per OSHA 29 CFR 1910.1030 when handling equipment after wastewater source has been connected to system.


 **WARNING:** Risk of Asphyxiation. Installer(s) and/or service personnel must use proper Personal Protective Equipment and follow OSHA 29 CFR 1910.146 or OSHA 29 CFR 1926. Pump may be installed in a location classified by as a confined space.


 **WARNING:** Risk of Fire or Explosion. Do not smoke or use open flames in or around this system. This system is not intended for use in hazardous locations per NFPA 70 National Electric Code. Do not pump flammable liquids. Consult factory for optional equipment rated for hazardous location use.

 **WARNING:** Cutting Risk. Risk of serious cutting or amputation exists. Disconnect all power sources prior to servicing pump. Pump may start without warning.

 **CAUTION:** Do not modify the cord and plug. When using the cord and plug, plug into a grounded outlet only. When wiring to a system control, connect the pump ground lead to the system ground.

 **CAUTION:** Do not run the pump dry. Dry running can overheat the pump (causing burns to anyone handling it) and will void the warranty.

 **CAUTION:** The pump normally runs hot. To avoid burns, allow it to cool for 30 minutes after shutdown before handling it.

 **CAUTION:** Submersible sump pumps are not approved for use in swimming pools, recreational water installations, decorative fountains or any installation where human contact with the pumped fluid is common. Pump designed to pump liquid forms of waste mixed with water.

Do not throw away or lose this manual. Keep it in a safe place so that you may refer to it often for the continued safe operation of the product.

Ion Technologies SHS50

Submersible High Head Sewage Ejector Pump

OPERATION MANUAL

Dated: 02/03/2025

Document Name: SHS50_OM

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OVERVIEW

These important instructions must be followed for satisfactory performance of your pump. Before installation, check your local electrical and plumbing codes.

Power supply required.....115V single phase/20 amps
Motor duty.....Intermittent
Motor HP.....1/2
Maximum liquid temperature.....120°F (49°C)
Discharge adapter.....2" NPT
Motor full load amps.....14.2
Power cord length.....20 ft.

Units have built-in thermal overload protection with automatic reset. The mechanical seal and ball bearings on the motor shaft are permanently lubricated. Stainless steel hardware and a heavy duty lift-out handle for extended use.

INSTALLATION

Provide proper pit on sewage tank. Run time minimum is two minutes. For maximum pump life three minutes is recommended.

Make sure sump is free of string, cloth, nails, gravel, etc. before installing pump.



CAUTION: Do not set pump directly on the bottom of sump if it is not solid. Raise the pump by placing bricks or concrete blocks underneath it.

Use steel or plastic pipe for all connecting lines between pump and sewer outlet.

Note: Some city regulations do not allow installing a pump with plastic pipe. Check local regulations.

Connect the power cord to a 3-prong grounded AC receptacle.



WARNING: Hazardous voltage. Can shock, burn, or kill. Do not remove the grounding pin from the power cord. Avoid using extension cords or 2-prong adapter plugs. Test the pump installation by filling the sump basin with enough water to activate the pump and repeat this cycle until satisfied with pump operation.

In applications where the pump may sit idle for months at a time, it is recommended that the pump(s)

be cycled every month to ensure the pumping system is working properly when needed.

A check valve should be installed in the discharge pipe.

Note: For best performance of check valve when handling solids, do not install it with the discharge more than 45° above the horizontal. Do not install the check valve in a vertical position as solids may settle in the valve and prevent it from opening on start-up.

Drill a 1/8" (3 mm) hole in the discharge pipe about 1–2" (25–51 mm) above the pump discharge connection (but below check valve) to prevent air locking the pump.

An audible alarm system for high water conditions should be installed in every pump for maximum protection. Contact your Ion Technologies distributor for proper control panel.

Note: Wire pump(s) and panel to comply with local and national codes.

Use pump partially or completely submerged for pumping water-like liquids (temperature to 140°F). The MSP-SHS50 will pump solid materials up to 2" (spherical) in diameter.

Piping

The rate of flow in the discharge pipe must keep any solids present in suspension in the fluid.

To meet minimum flow requirements (2 feet per second in the discharge line), size the pipe as follows:

A Pipe Size Of	Will Handle A Flow Rate Of
1.5" (38 mm)	12 GPM
2" (51 mm)	21 GPM

Electrical

The pump will run continuously if plugged directly into an electrical outlet. Connect or wire pump to its own individual branch circuit with no other outlets or equipment in the circuit. Size fuses or circuit breakers accordingly.

For automatic operation, plug or wire the pump into an automatic float switch or duplex controller. The pump will run continuously when plugged directly into an electrical outlet.

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If you use a tethered float switch with this pump, be sure that it hangs freely. It should not be able to come in contact with the sides or bottom of the sump pit.

OPERATION

An automatic overload protector in the motor will protect the motor from burning out due to overheating/overloading. When the motor cools down, the overload protector will automatically reset and start the motor.

If the overload trips frequently, check for the cause. It could be a stuck impeller, wrong/low voltage, or an electrical failure in the motor. If an electrical failure in the motor is suspected, have it serviced by a Ion Technologies authorized service center.

The pump is permanently lubricated. No oiling or greasing is required.

Note: Any of the following will void the pump warranty:

1. Pumping materials other than those the pump was designed to pump or continuously pumping water hotter than 120°F (49°C).
2. Cutting or splicing a power cord.
3. Anyone other than an authorized Ion Technologies® service technician dismantling the pump.

TROUBLESHOOTING



WARNING: Sudden Starts. If the power is on to the pump when thermal overload resets, the pump may start without warning. If you are working on the pump, you may get an electrical shock or the impeller may catch fingers or tools. Disconnect the power before servicing the pump.

Pump fails to operate:

1. Check to be sure that power cord is securely plugged into outlet or securely wired into controller or switch box.
2. Check to be sure you have electrical power. Be sure that the piggyback plugs are tight.
3. Check that liquid fluid level is high enough to activate switch or controller.

4. Check to be sure that 1/8" (3 mm) vent hole in discharge pipe is not plugged.
5. Check for blockage in pump inlet, impeller, check valve or discharge pipe.
6. Disconnect the pump from the power source for a minimum of 30 minutes to allow the motor to cool and to protect yourself from sudden starts. See Warning above. Check for the cause of overheating: pump running dry because the float switch is caught up on something; inlet pipe is plugged; outlet pipe is plugged.
7. Motor windings may be open. Take unit to authorized service center.

Pump fails to empty sump:

1. Be sure all valves in discharge pipe are fully open.
2. Clean out discharge pipe and check valve.
3. Check for blockage in pump inlet or impeller.
4. Pump not sized properly. A higher capacity pump may be required.

Pump will not shut off:

1. Check switch or controller automatic floats for proper operation and location. See installation instructions for switch/controller.
2. If pump is completely inoperative or continues to malfunction, consult your local serviceman.

1 Year Warranty

1. Coverage and Term. Metropolitan Industries, Inc. (“**Metropolitan**”) warrants to the original purchaser (the “Buyer”) of each Ion Technologies product (the “product”), that any part thereof which proves to be defective in material or workmanship within one (1) year from date of manufacture, will be replaced at no charge with a new or remanufactured part, F.O.B. factory. Buyer shall be responsible for all freight charges and all costs of field labor or other charges incurred in the removal and/or reinstallation of any product, part or component thereof.
2. Exclusions. **THE WARRANTY IS SUBJECT TO THE FOLLOWING CONDITIONS AND EXCLUSIONS:**
 - (a) The Warranty excludes products or workmanship which becomes defective as a result of: (i) earthquake, fire, storms, the elements or any other acts of God; (ii) normal wear and tear from use; (iii) accident, misuse, abuse or neglect; (iv) modifications made by Buyer or any third party, other than **Metropolitan**; and (v) Buyer’s failure to properly install, maintain, service and/or operate the product under normal conditions and according to manufacturer’s instructions.
 - (b) **Metropolitan** shall not be responsible for, and the Warranty shall not cover, extended damage which occurs because of Buyer’s failure to notify **Metropolitan** promptly in writing of apparent defects.
 - (c) Any part or component designated as manufactured by anyone other than **Metropolitan** shall be covered only by the express warranty of the manufacturer thereof.
 - (d) The Warranty shall lapse upon Buyer’s failure to fully comply with the terms and conditions of its contract with **Metropolitan**, including Buyer’s failure to pay the purchase price for the product or any portion thereof. Buyer’s subsequent compliance with the terms and conditions of any such contract, will not cause the term of the Warranty to extend beyond the time period set forth above.
 - (e) No actions taken by **Metropolitan** to correct a defect in a product shall extend the Warranty beyond the period set forth above. **Metropolitan** shall not be obligated to remedy any defect, where otherwise required pursuant to the Warranty unless and until Buyer notifies **Metropolitan** in writing of the defect and then only if such notification is made prior to the expiration of the period set forth above.
3. Process of Claims and Repairs. **Metropolitan** agrees that if the product or any part or component thereof shall fail to conform to the terms of this Warranty, **Metropolitan** shall replace such nonconforming product, part or component at the original point of delivery and furnish instruction for its disposition. Any transportation charges involved in such disposition and all costs of field labor or other charges incurred in the removal and/or reinstallation of any product, part or component thereof shall be the responsibility of Buyer.
4. Limitation on Liability. Notwithstanding any provision to the contrary, **Metropolitan’s** entire liability under this Warranty shall not in the aggregate exceed, and Buyer’s exclusive and sole remedies are, to the extent permitted by law, shall be to secure replacement of the defective product. **UNDER NO CIRCUMSTANCES SHALL METROPOLITAN BE LIABLE UNDER THE WARRANTY FOR ANY INDIRECT, PUNITIVE, SPECIAL, EXEMPLARY, CONSEQUENTIAL OR INCIDENTAL DAMAGES (INCLUDING LOST PROFITS, REVENUE, USE OR ECONOMIC ADVANTAGE).**
5. Express Waiver of Any Other Warranties. **THE EXPRESS WARRANTY SET FORTH IN THIS WRITTEN WARRANTY IS THE ONLY WARRANTY MADE BY METROPOLITAN, OR ANY OTHER PARTY, IN CONNECTION WITH ANY PRODUCT PURCHASED FROM METROPOLITAN. NEITHER METROPOLITAN, NOR ANY OTHER PARTY, MAKES ANY OTHER EXPRESS OR IMPLIED WARRANTY WHICH IS NOT SET FORTH HEREIN, AND METROPOLITAN HEREBY DISCLAIMS AND BUYER HEREBY WAIVES ALL IMPLIED WARRANTIES, INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY AND THE IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.**
6. Not Transferable. The Warranty may not be transferred and shall be void on the sale or other transfer of the product.
7. Products and Warranty Subject to Change. **Metropolitan** reserves the right to make revisions to its products and their specifications, and to revise this Warranty and related information without notice.