

Ion Technologies EF40

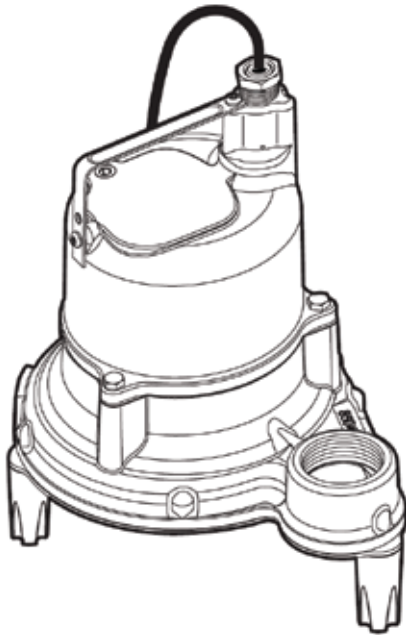
Submersible Effluent Pump

OPERATION MANUAL

Dated: 11/22/2017

Document Name: EF40_OM.indd

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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.

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 electrocution. 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.

Do not modify 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.

Do not run the pump dry. Dry running can overheat the pump (causing burns to anyone handling it) and will void the warranty. The pump normally runs hot. To avoid burns, allow it to cool for 30 minutes after shutdown before handling it.

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. This pump is 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.

DESCRIPTION

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.

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SPECIFICATIONS

Power supply required115V single phase

Motor duty.....Intermittent

Motor HP4/10

Maximum liquid temperature120°F (49°C)

Discharge adapter1 ½"

NPT Motor Full Load Amps.....12.0

INSTALLATION



WARNING: Hazardous voltage. Can shock, burn, or kill. Do not lift pump by the power cord. See "Cord Lift Warning" on page 3.

Note: Install the pump on a hard, level surface (cement, asphalt, etc.). Never place the pump directly on earth, clay or gravel surfaces. Install the pump in a sump basin with a minimum diameter of 18" (46 cm).

Piping

Piping must not be smaller than pump discharge. The pump is designed to operate partially or completely submerged in effluent liquids and pump semi-solid fluids up to ¾" (51 mm) in diameter.

When installed in an effluent system, the pipe must be capable of handling semi-solids of at least ¾" (19 mm) in diameter.

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:

Pipe Size	Flow Rate
1 ½" (38mm)	12 GPM
2" (51mm)	21 GPM

In an effluent system use a ½" (38 mm) check valve in pump discharge to prevent back flow of liquid into sump basin. The check valve should be a free flow valve that will easily pass solids. Be sure check valve installation complies with local codes.

Make sure the sump pit is free of any debris that could obstruct the intake volute or switch. Use plumbing

materials that are approved by local building codes when connecting pipes between pump and sewer outlet.

Note: For indoor installations where additional high water protection is desired, install an audible alarm system in the sump pit. For installations, confer with your Ion Technologies distributor. 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.

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 ⅛" (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.

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.

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 ⅛" (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.

Electrical



WARNING: Hazardous voltage. Can shock, burn, or kill. When installing, operating, or servicing this pump, follow the safety instructions listed below.

1. Do not splice the electrical power cord.
2. Do not allow the plug on the end of the electrical cord to be submerged.

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OPERATION

3. Do not use extension cords. They are a fire hazard and can reduce voltage sufficiently to prevent pumping and/or damage motor.
4. Do not handle or service the pump while it is connected to the power supply.

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.



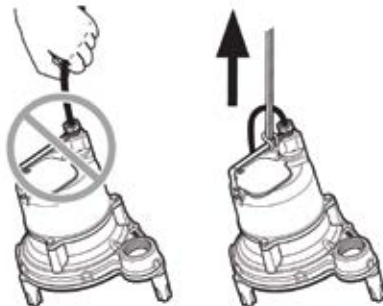
WARNING: Risk of electrical shock and fire. Can burn, kill or cause property damage. Be sure that power supply information (voltage/hertz/phase) on pump motor name plate matches incoming power supply exactly. Install pump according to all electrical codes that apply.

Cord Lift Warning.



WARNING: Risk of electrical shock. Can burn or kill. Do not lift pump by cord!

1. Attempting to lift or support pump by power cord can damage cord and cord connections.
2. Cord may pull apart, exposing bare wires with possibility of fire or electrical shock
3. Lifting or supporting pump by power cord will void warranty.
4. Use lifting ring or handle on top of pump for all lifting/lowering of pump. Disconnect power to pump before doing any work on pump or attempting to remove pump from sump.



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 competent repairman.

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

Cycle the pump at least once every month to be sure that the system is working satisfactorily.

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.

SERVICE



WARNING: Hazardous voltage and risk of cord damage. Can shock, burn, or kill. Before removing the pump from the basin for service, always disconnect electrical power to the pump and the control switch. Do not lift the pump by the power cord.



CAUTION: 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.

Disinfect the Pump.

Place the pump in an area where it can be cleaned thoroughly. Remove all scale and deposits on the pump. Submerge the complete pump in a disinfectant solution (chlorine bleach) for at least one hour before servicing the pump. The pump motor housing contains a special lubricating oil which should be kept clean and free of water at all times.

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.
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. 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.

3 Year Residential Warranty

1. Coverage and Term. Metropolitan Industries, Inc. (“**Metropolitan**”) warrants to the original purchaser (the “Buyer”) of each Ion® product (the “product”), that any part thereof which proves to be defective in material or workmanship within three (3) years 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.