



P U M P

OPERATION, PERFORMANCE,
AND SPECIFICATIONS

4" Submersible High Head Filtered Effluent Pump



- Thank you for purchasing this pump. Take the time to read the instructions carefully before using this product. We strongly recommend that you keep this instruction manual in a safe place for future reference.
- Please refer to our website and the Products Center for additional installation and operation instructions.

MARKS AND MEANING:

⚠ DANGER "Danger" indicates an imminent hazardous situation which, if not avoided, **WILL** result in death or serious injury.

⚠ WARNING "Warning" indicates an imminent hazardous situation which, if not avoided, **MAY** result in death or serious injury.

⚠ CAUTION "Caution" indicates a potentially hazardous situation which, if not avoided, **MAY** result in minor or moderate injury.

PERFORMANCE

Model	HP	GPM at Total Feet of Head						Max. Head (Feet)
		40'	60'	80'	120'	140'	160'	
EPMS5-20-10	1/2	30	27	25	20	15	10	180'



4" Submersible High-Head Filtered Effluent Pump


General Safety Information

Before installation, read the following instructions carefully. Failure to follow instruction and safety information could cause serious bodily injury, death and/or property damage. Each Ashland Pump is individually factory tested to ensure proper performance. Closely following these instructions will eliminate potential operating problems assuring years of trouble-free service.

Most accidents can be avoided by using common sense.

IMPORTANT - Ashland Pump is not responsible for losses, injury or death resulting from failure to observe these safety precautions, misuse, abuse or misapplication of pumps or equipment.


⚠ DANGER All returned products must be cleaned, sanitized, or decontaminated prior to shipment, to ensure employees will not be exposed to health hazards in handling said materials. All applicable laws and regulations shall apply.



⚠ WARNING Installation, wiring, and junction connections must be in accordance with the National Electric Code and all applicable state and local codes. Requirements may vary depending on usage and location.

⚠ WARNING Installation and servicing is to be conducted by qualified personnel only.


⚠ DANGER Rotating machinery. Amputation or severe lacerations can result. Keep clear of suction and discharge openings. **DO NOT insert fingers into pump with power connected.**




⚠ WARNING Always wear eye protection when working on pumps. Do not wear loose clothing that may become entangled in moving parts.

⚠ DANGER Pumps build up heat and pressure during operation. Allow time for pumps to cool before handling or servicing.

⚠ DANGER Hazardous Voltage can shock, burn or cause death. This pump is not intended for use in swimming pools or water installations where human contact with pumped fluid is possible.




⚠ DANGER Risk of electrical shock. To reduce risk of electrical shock, always disconnect pump from power source before handling. **Lock out power & tag.**




⚠ WARNING Do Not use these pumps in water over 145°F. Do not exceed manufactures recommended maximum performance, as this could cause the motor to overheat.

⚠ DANGER Do not lift, carry or hang pump by the electrical cables. Damage to the electrical cables can cause shock, burns or death. Never handle connected power cords with wet hands. Use appropriate lifting device.




⚠ WARNING Utility pumps often handle materials which could cause illness or disease. Wear adequate protective clothing when working on a used pump or piping. Never enter a basin after it has been used.

⚠ DANGER Failure to permanently ground the pump, motor and controls before connecting to power can cause shock, burns or death.



⚠ DANGER These pumps are NOT to be installed in locations classified as hazardous in accordance with the National Electric Code, ANSI/NFPA 70.



⚠ WARNING Do not introduce into any sewer, either directly, or through a kitchen waste disposal unit or toilet: Seafood Shells, Aquarium Gravel, Cat Litter, Plastic Objects, Sanitary Napkins or Tampons, Diapers, Rags, Disposable Wipes or Cloth, Medications, Flammable Material, Oil or Grease, Strong Chemicals, Gasoline.

- Operation against a closed discharge valve will cause premature bearing and seal failure on any pump.
- Any wiring of pumps should be performed by a qualified electrician.
- Cable should be protected at all times to avoid punctures, cuts, bruises, and abrasions-inspect frequently.
- Never handle connected power cords with wet hands.
- Never let cords or plugs lie in water outside the sump pit.
- Under certain conditions, submersible pumps can develop extremely high pressure. Install a pressure relief valve capable of passing entire pump flow at 75 PSI
- Motors are equipped with automatic thermal overload protection which will open the circuit and stop the motor when a thermal overload (excessive heating) exists. When motor cools, overload will reset and motor will restart automatically. This can cause the motor to start unexpectedly and without warning.



4" Submersible High-Head Filtered Effluent Pump Installation

WARNING

Risk of electrical shock. Do not remove or alter cord. Do not connect conduit to pump.

INSTALLATION

1. Only qualified personnel should install the pump and associated control equipment.
2. Vent sewage tank according to local code.
3. Do not install pump in location classified as hazardous by National Electrical Code, ANSI/NFA 70-1984

4. These pumps are intended for permanent connection only. Provide strain relief at control panel for power supply cord connection to box. All control components must be UL listed and suitable for end use application.
5. Do not pump flammable liquids, strong caustics or strong acids with this pump.
6. To prevent dropping pump, lower it by the drop pipe, not by the cables. The electrical cables will not hold the pump weight.
7. Discharge outlet is 1-1/4" NPT threaded.
NOTICE: If installing external check valve, hold discharge with pipe wrench to prevent loosening discharge in shell.
8. If pump is to be operated with an open discharge, a discharge valve **must be installed**. Before startup, open this valve about 1/3 open. Start pump. **Slowly** open valve until the desired flow rate is reached. Final setting must be within pump's recommended operating range.

OPERATION

1. The pump must be submerged at all times during normal operation. **Do not run pump dry.**
2. Make sure that the float switches are set so that the pump stops before the pump runs dry or breaks suction. If necessary, adjust float switches to achieve this.
3. The motor bearings are lubricated internally. No maintenance is required or possible on the pump.



4" Submersible High-Head Filtered Effluent Pump Troubleshooting

Table 1: Recommended Fusing Data
60 Hz/1 Phase 2-Wire Cable

Model Part Number	HP	Volts/HZ/Phase	Motor Winding Resistance Ohms	Max Load Amps	Locked Rotor Amps	Fuse Size Standard/Dual Element
EPMS5-20-10	1/2	115/60/1	2.0 - 2.5	12	25.0	30/15

Table 2: Power Supply Wire (Cable) Length in Feet
1 Phase, 2 Wire Cable, 60 Hz (Copper Wire Size - Service to motor)

Model Part Number	Volts	HP	14AWG	12AWG	10AWG	8AWG	6AWG	4AWG	3AWG	2AWG	1AWG
EPMS5-20-10	115	1/2	99	158	247	387	603	921	1138	1403	1677

*NOTE: Sizes given are for copper wire. For aluminum wire go two sizes larger (i.e., if table lists #12 copper wire, use #10 aluminum wire.)

Motor Insulation Resistance Readings

Normal Ohm/Megohm readings for all motors, between all leads and ground. Set ohmmeter to 100K scale.)

Condition of Motor and Leads	Ohm Value	Megohm Value
New motor, without power cable	20,000,000 (or more)	20.0
Used motor, which can be reinstalled in tank	10,000,000 (or more)	10.0
Motor in Tank - Readings are Power Cable Plus Motor		
Do not pull pump for these reasons:		
New Motor	2,000,000 (or more)	2.0
Motor in reasonably good condition	500,000 to 2,000,000	0.5 - 2.0
Motor which may be damaged or have damaged power cable	20,000 to 500,000	0.02- 0.5
Pull pump; replace pump or cable:		
Motor definitely damaged or with damaged power cable	10,000 to 20,000	0.01 - 0.02
Failed motor or power cable	Less than 10,000	0 - 0.01



4" Submersible High-Head Filtered Effluent Pump Troubleshooting

Important Electrical Grounding Information

⚠️ WARNING Hazardous voltage. Can shock, burn, or kill. To reduce the risk of electrical shock during pump operation, ground and bond the pump and motor as follows:

- A. To reduce risk of electrical shock from metal parts of the assembly other than the pump, bond together all metal parts accessible at the tank top (including metal discharge pipe, metal tank top, and the like). Use a metal bonding conductor at least as large as the power cable conductors running down the well to the pump's motor.
- B. Clamp or weld (or both if necessary) this bonding conductor to the grounding means provided with the pump, which will be the equipment-grounding terminal, the grounding conductor on the

pump housing, or an equipment-grounding lead. The equipment-grounding lead, when provided, will be the conductor having green insulation; it may also have one or more yellow stripes.

- C. Ground the pump, motor, and any metallic conduit that carries power cable conductors. Ground these back to the service by connecting a copper conductor from the pump, motor, and conduit to the grounding screw provided within the supply-connection box wiring compartment. This conductor must be at least as large as the circuit conductors supplying the pump.

Save these instructions.

PROBLEM	CHECK	CORRECTIVE ACTION
Motor will not start but fuses do not blow		
No Voltage	No voltage at disconnect switch Electrical cable bad	Replace blown fuses or bad cable, reset circuit breakers. Consult licensed electrician or serviceman.
Fuses Blow or overload protector trips when motor starts		
Wrong size fuse time delay fuse, or circuit breaker.	Check fuse or circuit breaker size against chart, page 4	Install correct fuse, time delay fuse, or circuit breaker.
Wire size too small.	Check wire size against chart, page 4	Install correct size wire.
Low or high voltage.	Check that line voltage is within $\pm 10\%$ of nameplate rated voltage while motor is running	If voltage variation is greater than $\pm 10\%$, call power company or local hydro authority to adjust voltage.
Pump or motor stuck or binding	Check for locked shaft in pump	If necessary, pull pump (make all possible above ground binding checks first). If pump is locked, replace it. Clean tank of all sand, lime, and solids before reinstalling pump.
Power supply wires or motor leads grounded, shorted, or open.	Consult licensed electrician or qualified serviceman.	Have a qualified serviceman or electrician make necessary cable repairs.
Fuses blow or overload protector trips when motor is running		
Low or high voltage.	Check that line voltage is within $\pm 10\%$ of rated nameplate voltage while motor is running.	If voltage variation is more than $\pm 10\%$, call power company to adjust voltage.
High ambient (atmospheric) temperature	Check temperature of tank	Protect tank from direct sunlight.
Wire size too small.	Check wire size against chart, Page 4.	Install correct wire size.
Pump starts too frequently		
Leaks in system.	Check plumbing for leaks.	
Level switch.	Check for defective switch or switch out of adjustment.	Re-adjust or replace level switch.
Check valves leaking.	Make sure check valves are not leaking back.	Replace check valves if necessary.



4" Submersible High-Head Filtered Effluent Pump Troubleshooting

PROBLEM	CHECK	CORRECTIVE ACTION
Little or no water delivered Check valve stuck. Low voltage.	Examine valve. Check voltage at circuit breaker with pump running. Check incoming wire size and power supply wire size against chart, page 4.	If stuck, free valve. Install larger wire from meter to circuit breaker. Install larger wire from circuit breaker to pump. If necessary have power company raise supply voltage.
Plugged intake screen Check valve at pump discharge stuck.	Pull pump and check condition of screen. Pull pump and examine check valve.	Clean or replace as necessary. Free check valve.
Worn impellers and diffusers.	Make sure system is clear of obstructions and pump is in solid water and operating normally.	Replace pump.
Pump doesnt develop enough pressure ("head").	Check pump curve against operating conditions.	Replace pump with "higher head" pump.
Plugged impellers.	Pull pump.	Replace pump.



4" Submersible High-Head Filtered Effluent Pump Warranty

This pump is warranted to be free from defects in material and workmanship and to perform within applicable specifications for a period of one year from date of installation or 18 months from date of manufacture, whichever ever comes first. Obligation under this warranty is limited to repairing or replacing any part thereof, which shall within one year be returned to us with transportation charges prepaid, and proved to be defective.

The above limited warranty takes the place of all other warranties, express or implied and correction of such defects by replacement or repair shall constitute a fulfillment of all obligations under the terms of the warranty, which specifically EXCLUDES any incidental damages caused by or associated with this product or its use. The warranty does not cover any unit which has been damaged either in transit or by misuse, accident or negligence. No warranty or representative not contained herein shall be binding.



Honest, Professional, Dependable

1899 Cottage Street, Ashland, Ohio 44805 • Telephone: 855 281-6830 • Fax: 877 326-1994 • ashlandpump.com