

INSTALLATION AND OPERATING INSTRUCTIONS

INSTALLATION RECORD

Date of Installation: _____

Model Number: _____

Serial Number: _____

Tank-Cistern location: Above Ground

Below Ground

Pump Setting: _____

Wire Gauge: _____

Riser Pipe Size: _____



Carefully store this manual. These Instructions must be delivered with the pump to the operator.



WARNING: *Read this manual carefully. Failure to follow these instructions and comply with all applicable codes may cause serious body injury and/or property damage*



I. INSTALLATION & OPERATING INSTRUCTIONS

It is important that all submersible pumps be installed by experienced persons and that all electrical connections comply with the relevant electrical supply authority requirements.



The electrical connections and checks must be made by a qualified electrician and comply with applicable local standards.

These instructions are provided for guidance only, and assume a familiarity with submersible pump installation and commissioning procedures.

II. IMPORTANT!!!

The MINISUB is designed to pump effluent from a cistern. If the fluid from the cistern or any plumbing system freezes, the pump will be severely damaged.

The MINISUB is suitable to pump effluents that don't contain dissolved gases.



The pump cannot be used for inflammable, explosive or dangerous liquids.

III. INSPECT THE EQUIPMENT

Before going on the job, open all packages and check all equipment to be certain everything is included and that no parts have been damaged during shipment. The pump should be checked for visible damage and nameplate inspected to be sure they are the correct voltage and phase.



Ensure the motor voltage and phase matches the supply voltages & phase.

IV. INSTALLATION

NOTE: FOR SEALING OF PIPE THREADS ONTO YOUR MINISUB USE THREAD TAPE ONLY. DO NOT USE PIPE SEALING COMPOUND AT ALL.



All pipe and fittings must be suited to the maximum pressures available from the pump.



DANGER: *Electric Shock Risk - When installing, please ensure electro-pump is disconnected from the electrical supply.*



DANGER: *Electric Shock Risk - MINISUB pumps are not suitable for use in a swimming pool and the relevant cleaning and servicing operation.*

1. Safety Cable

Do not use the electric cable to lower, lift or transport the pump.

As a precautionary measure, a safety line should be connected to all pumps regardless of the type of drop pipe used. This line should be fastened to the pump and at the top of the cistern.

2. Depth of Installation

Install the pump at least 8" from the bottom of the cistern to avoid pumping sand, mud, etc.

Special feature of the MINISUB is that its body height is only 22" and it allows use of these pumps in cisterns with low water depth.

It is advisable to install an automatic level controls to prevent the electric pump from running dry and a pressure gauge to verify its performance during operation.

3. Delivery Pipe

Use a delivery pipe with a diameter of 1 ½".

ATTENTION: Delivery pipes should be connected with the utmost care. Make sure that all the connections fixed by means of threads are sealed. Avoid applying excessive strength to tighten the threads or other components.

Use a Teflon tape to completely seal all threads.



Before lowering the pump unit, smooth out any rough spots or sharp edges on the top of the cistern to prevent damage to the pump or power cables when lowering the unit into the tank.

V. ELECTRICAL CONNECTION

All wiring should conform to the requirements of local and national electrical codes. If in doubt, contact your electricity supply authority. Cables should be insulated and sheath type, rated for continuous immersion in water.



Power connections and wiring must be carried out by an authorized electrician.



Verify that the voltage and frequency of the electric pump shown on the nameplate correspond to those available on the mains.

WARNINGS:

- Before installing or servicing your pump check to ensure that electrical power is turned off and disconnected.
- Single phase motors with in-built thermal overloads may restart automatically and unexpectedly. Ensure that warning A. above is observed at all times.

1. Motor Protection



Make sure that electric system has a fused disconnect switch or a high-sensitivity circuit breaker.

All electrical connections should be checked before the pump is installed in the tank. It is recommended attaching the electric cable to the delivery pipe with plastic straps, at a distance of about 10', when using rigid piping. The MINISUB pumps have a built-in thermal protection. The pump stops if an overload condition occurs and the motor restarts automatically after it has cooled down, therefore pump doesn't require any external protections.

Electrical extension cables must have a minimum section of H07 RN-F. The plug and connections should be protected against water splashes.

2. Grounding pump

WARNING: Failure to ground electrically operated equipment may result in serious electric shock. Refer to local code requirements.



All pumps are equipped with a GROUND lead which must be connected to the GROUND of the incoming power supply.



Do not use metal drop pipe as the GROUND return under any circumstances.

3. Starting the unit

Connect the pipe to the delivery mouth before starting the pump. Connections must be made so as to avoid losses.

Install a valve in the delivery pipe to facilitate the process of priming and start-up.

Before starting the pump, always inspect it visually (especially power cable and plug). Do not run the pump if it is damaged.

If the pump is damaged, have it inspected by a specialized assistance service only.

Do not lift or move the pump by the power cable or use it to remove the plug from the socket. Protect the plug and the power cable from heat, oil and sharp edges.



Use the electro-pump in the performance field listed on the nameplate.



Do not operate the pump without liquid to avoid damaging hydraulics parts and seal.



Do not run the electro-pump with a completely closed delivery.



Never run this pump without discharge flow for more than a few seconds, as water will heat and cause damage to the pump or pipe lines not covered by warranty.



To prevent possible injuries to people, avoid inserting hands into the mouth of the pump if it is connected to the mains.

VI. DELIVERY AND STORAGE

1. Delivery

Every electro-pump is carefully tested and packed during its manufacturing process. MINISUB pumps are supplied from the factory in proper packing in which they should remain until they are to be installed.

After purchasing the pump, check that it has not been damaged during transportation. If the pump is damaged, immediately inform the dealer within 8 days from the date of purchase.

The pump should not be exposed to unnecessary impact and shocks.


2. Storage and handling


The pump should not be exposed to direct sunlight. If the pump has been unpacked, it can be stored horizontally or vertically, adequately supported. Make sure that the pump cannot roll or fall over.


2.1 Frost protection

If the pump has to be stored after use, it must be stored in a frost-free location.

VII. OPERATION AND MAINTENANCE

 **Make sure the pump is disconnected from electric power supply before performing maintenance operation.**

 **The power cable must be replaced by qualified personnel only.**

 **The pump must not be operated with the delivery valve shut off (closed head) for more than a few seconds otherwise the motor will overheat, possibly causing permanent damage, not covered by warranty.**

While MINISUB pumps do not require regular maintenance, it is a good practice to monitor the conditions and performance of the pump. This diagnosis may be carried out by checking the maximum pressure (shut valve for a very short period) generated by the pump, and by checking the amperage draw of the motor at standard duty flow rate.

Both these figures should be compared to pressures and current draws recorded when the unit was initially installed.

If pumped water is not perfectly clean, it may be occasionally necessary to clean the filter with a steel brush to scrape the dirt accumulated on the external surface

It is also possible to clean the internal section of the filter: Loosen the screw that fixes the filter to the body of the electric pump and remove it, scrap the dirt with a steel brush and rinse it with clean water. If it is not sufficient, have the hydraulic parts cleaned by an authorized centre.

If you are planning not to use the pump for a long time, it is advisable to empty it completely, rinse with clean water and store it in a dry location, where it can be protected from frost.

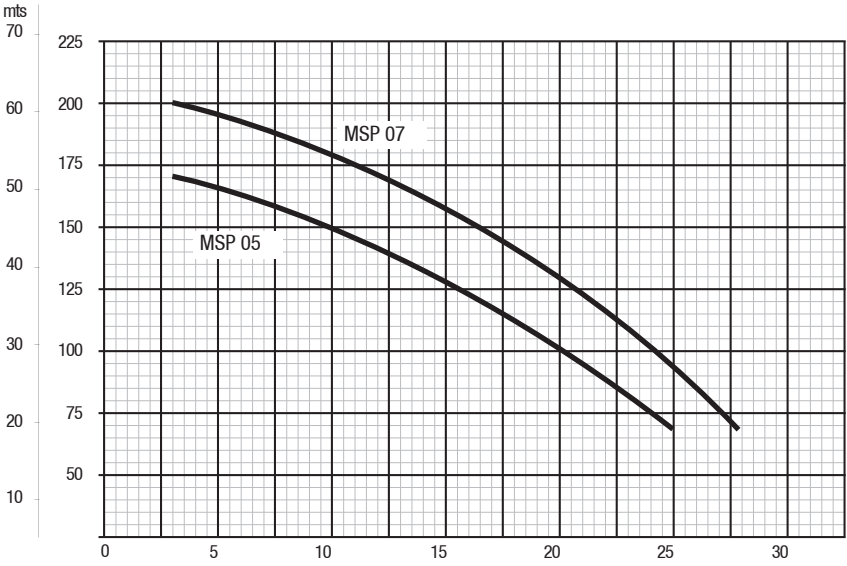
VIII. PUMP SERVICE CHART

The following chart offers a means of diagnosing general pump problems.

If the problem persists despite the recommended corrective actions, contact the Customer Service Department.

PROBLEM	POSSIBLE CAUSE	REMEDY
The electro-pump does not pump water, the motor does not run.	No power. Motor protection tripped. Defective capacitor.	Verify that voltage is present and that the plug has been correctly inserted. Determine the cause of the problem and restart the switch. If the thermal switch has been enabled, wait for the system to cool down. Contact the Customer Assistance Service.
The motor runs but the electro-pump does not pump liquid.	Pump rotates in a wrong direction. Air inlet from the suction. Suction grid blocked	Reset the direction of rotation. Verify that the fluid level has not lowered below the suction grid. Clean the filter
The electro-pump stops after running for a short period of time because one of the thermal motor circuit breaker trips.	The power supply does not conform to the data on the name plate. A solid object is blocking the impellers. The liquid is too thick. The liquid or environment is too hot.	Check the voltage on the power supply cable leads. Disassemble and clean the electro pump. Dilute the pumped fluid. Remove the cause of the problem, wait for the pump to cool down and restart it.

IX. PERFORMANCE CHART



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