

Submersible Pump Instructions



Before operating of this pump, read this manual and follow all safety rules and operating instructions.

This pump is suitable for pumping of water or liquid. For safety reasons it is forbidden to pump flammable, toxic, corrosive, abrasive, crystallizing, polymerizing, and high-viscosity liquid.

Generally, this pump will be installed on the following conditions.

- 1) *Supply voltage: 0.9-1.1 nominal supply voltage*
- 2) *Source frequency: 0.99-1.01 nominal frequency*
- 3) *Ambient temperature 5°C-40°C*
- 4) *Altitude: shall be at altitudes up to 1000m above mean sea level*
- 5) *Relative humidity: not exceed 50% at 40°C*
- 6) *Atmosphere: Free from excessive dust, acid fume, corrosive gases and salt*
- 7) *Avoid exposing to abnormal vibration*
- 8) *Electrical equipment shall withstand the effects of transportation and storage temperature within a range of 25°C to 55°C*

If you have any further questions please contact your nearest Airdraulic Birco Group Office.

Safety Instructions



Before operating of this pump, read this manual and follow all safety rules and operating instructions.

- 1) *Do not operate the equipment near potentially explosive environment. Do not use equipment in the presence of flammable liquids or gases*
- 2) *Make sure the equipment grounding is properly connected before starting the equipment.*
- 3) *SHUT OFF the power, before inspection, maintenance, adjustment*
- 4) *Disposing wasted material and wasted lubricating oil shall obey local regulation and be deeply careful.*
- 5) *Do not keep the pump inoperative for long periods of time,*
- 6) *The motor should be under the water surface to advance cooling of motor. Keep the water temperature under 45°C*
- 7) *Never attempt to change the settings of all protective devices without consulting ABG prior.*
- 8) *These types of pumps are designed for liquid & small mixture pumping. The following shall not be used for pump life & safety.*
 - A) *Flammable, Toxic, Abrasive, Crystallizing & Polymerizing Liquid.*
 - B) *Liquid chemicals & food, alkaline & acidic corrosive liquid*
 - C) *High temperature, High viscosity & high solid matter content liquid*

If you have any questions, please do not hesitate to contact your nearest Airdraulic Birco Group office.

Installation



Before installation, check your local electrical & plumbing codes. These regulations are for your safety.

- 1) *In order to reduce the risk of accidents during service and installation work, take extreme care & bear in mind the risk of electrical accidents.*
- 2) *Arrange the cable run so that the cable will not be kinked or nipped*
- 3) *Connect the delivery piping, ensure the discharge hole size, suitable pipe size & pumping direction.*
- 4) *Place the pump on a firm surface which will prevent the pump from overturning or burrowing down.*

Electrical Connections



Warning – Electrical precautions

All wiring, electrical connections & system grounding must comply with any local codes. Employ a licensed Electrician.

- 1) *It is important that the pump should be properly grounded & provided with earth leakage device to prevent the users from serious electric shock injury*
- 2) *Make sure the voltage of power is identical to the one indicated on the pump.*
- 3) *Be careful of the direction of rotation (for 3 phase motor)*

Operation



If the thermal overload has tripped, the pump will stop & restart automatically when it has cooled down.

THE PUMP SHALL NOT BE USED WHEN PEOPLE ARE IN THE WATER

- 1) *Do not allow pump to run dry. This will damage the pump*
- 2) *Do not use the electrical cable to carry the pump. Do not lift or lower the pump by the cable, please carry with pump handle.*
- 3) *Extension of power cable – If the power cable has to be extended, select the proper cable size within the allowable extension. If cable is extended too far, a drop in voltage may occur, which will stop the running of the motor and damage the pump. To prevent any possible accident, do not use the pump in the pond, swimming pool or bath tub if there are people present.*
- 4) *When the pump stops suddenly (by the motor thermal shut off protection device) The motor protection device is built in to shut off the circuit automatically & to prevent the motor from burning out when the motor is overloaded due to clogging by foreign particles or plug-in to wrong power source(Voltage, Frequency etc). Should the pump stop suddenly, please check piping, pumps itself, connection of electrical cable to power source etc, the motor protector always automatically trips off in a few seconds if there is any abnormality it get response. Please resume the operation after clearing the trouble & leave pump as it is.*
- 5) *Please consult with your local Airdraulic Birco Group office for any further information. Unauthorised people are prohibited to disassemble or assemble these pumps as it could result in inferiority in performance or damage in motor.*

Service & Maintenance



Check the power cords, sealing medium & electrical outlets for damage or corrosion. Repairs or re-assemblies should only be carried out by qualified persons using original spare parts.

You do not need to take any special care of the pumps after operation, however note the following points.

- 1) If pump is left in the water for a long period of time without running, pump may show signs of rusting & possibly accumulate floating matter which will shorten the life of your pump. In this case, let the pump run in clean water & remove floating matter from the pump inside. Restore it after being dried.*
- 2) When not in use, pump should be cleaned/lubricated and stored in a dry, high or locked up place out of reach of children & wet.*
- 3) Please change the bearing every 5 years. Please ensure that a qualified electrician undertakes this task due to IP protection of pump.*

Applications



The pump cannot be used in an explosive or flammable environment or for pumping flammable liquid.

Should a person come in contact with either the pump or the pumped medium, an earth leakage device must be used.

- 1) Newly designed double casing with circumferential flow system assures superior cooling effect. Excellent durability for long continuous running.*
- 2) Waste water discharge for households, industries etc*
- 3) Construction sites & civil engineering projects*
- 4) Utilities: Telecommunications, power generation plants*

Handling



Always lift the pump by the lifting handle, NEVER by the motor cable or hose.

- 1) Always protect the cable end so that no moisture will penetrate into the cable*
- 2) If the pump is stored for a long period of time, protect it against dirt & heat.*
- 3) The handling & transportation shall be carried out by qualified persons. To install the pump use a rope or chain to drop it to the water bottom. Place it on the base (there is no need to use fixing bolts)*
- 4) While transporting, keep attention to the balance of machine.*
- 5) Do not lay the unit down on its side. Pump must remain upright at all times.*

Trouble Shooting

To prevent serious accidents, disconnect the power supply before inspecting the pump.

<i>Pump Fails to start</i>	<i>No power is supplied (power outage)</i>	<i>Contact the electric power company or your electrician</i>
	<i>Open circuit or poor connection of the power cable</i>	<i>Check if there is an open circuit in the power cable or wiring</i>
	<i>Impeller is obstructed</i>	<i>Inspect the pump and remove the obstruction</i>
<i>Pump starts but stops immediately, causing the motor protector to actuate</i>	<i>Impeller is obstructed</i>	<i>Inspect the pump and remove the obstruction</i>
	<i>Voltage drop</i>	<i>Correct the voltage to the rated voltage or use an extension cable that meets the standard</i>
	<i>A 50Hz model is operated on 60Hz</i>	<i>Check the nameplate & replace the pump or impeller</i>
	<i>The strainer is obstructed & the pump was operated dry for long hours</i>	<i>Remove the obstruction</i>
	<i>Motor abnormal</i>	<i>Repair the motor or replace with a new motor</i>
	<i>The pump is picking up too much sediment</i>	<i>Place a concrete block under the pump to prevent pump from picking up sediment</i>
<i>The pumps head & pumping volume is lower</i>	<i>The impeller is worn</i>	<i>Replace</i>
	<i>The hose may be clogged</i>	<i>Minimise the number of bends in the hose</i>
	<i>The strainer may be obstructed or buried</i>	<i>Remove the obstruction. Place a concrete block under the pump to prevent the pump from picking up sediment</i>
	<i>The motor rotate in reverse</i>	<i>Interchange the power supply terminal connection</i>
<i>The pump generates noise or vibration</i>	<i>The bearing of the motor may be damaged</i>	<i>Replace the bearing.</i>

