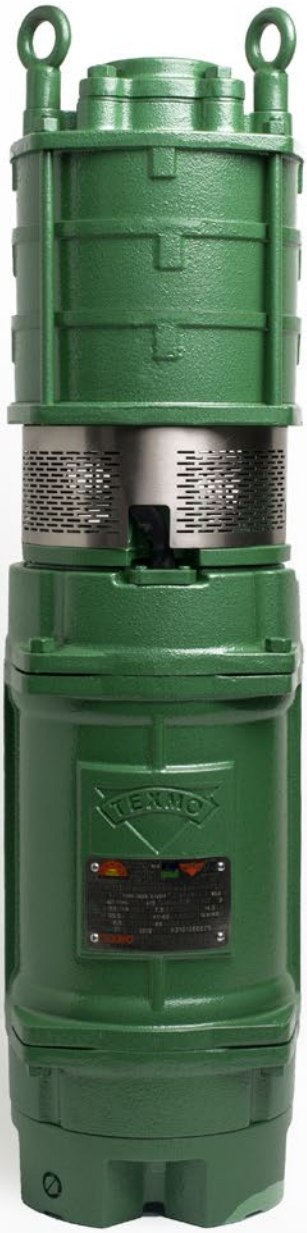
Vertical Openwell Submersible Monoblocks

Troubleshooting Guide



Taro™ Pumps

Texmo Industries
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1. Basic troubleshooting

Please follow the below procedure to install the Vertical Openwell Submersible.

Warning

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

Read this operation manual thoroughly before requesting repair. Contact the dealer from whom the pump was purchased. Servicing and troubleshooting must be handled by qualified persons with proper tools and equipment. Common faults, root causes for these, and suggested actions are provided in TABLE 1 below:

Fault	**Possible causes**	**Suggested actions**
Pump does not run	No power supply to the motor	Check for availability of power
	Motor coil burnt	Rewind the motor
	Low-voltage operation	Operate in the recommended voltage range
	Motor starter overload has tripped	Reset the motor starter overload. If it trips again, check the voltage
	Pump is jammed	Dismantle the pump and clear the jammed parts
	Blown fuse	Replace fuse
	Loose connections	Tighten the electrical connections
	Pump has been kept idle for a long time	Ensure free rotation of shaft by running the pump for a few minutes at least every alternate day
Less discharge from pump	Low-voltage operation	Check the supply voltage, Operate in the recommended voltage range
	Wrong direction of rotation	Interchange the supply connections of any two phases
	Increased delivery head	Ensure delivery head within specified value

Fault	Possible causes	Suggested actions
Less discharge from pump	Smaller pipe size used when compared to nameplate recommendations	Replace with suggested pipe size
	Discharge pipe internally coated with depositions	Clean the pipe
	Foreign bodies lodged in impellers	Check the impellers and remove the foreign bodies
	The valve in the discharge pipe is partly closed / blocked	Check and clean / replace the valves if necessary
	The check valve of the pump is partly blocked	Check and clean check valve. Replace if necessary
	Impeller is worn out	Check and replace
	Leakage in the pipework	Check and repair / replace piping
Total head developed is too low	Abrasive wear of pump hydraulics due to operation in water of higher sand content or corrosiveness	Change the worn-out pump parts
	Running at low-voltage	Wait for voltage to increase or contact local EB representative
Current consumption in excess	Damage of thrust bearing	Replace the worn out bearing
	Voltage too low	Check the voltage
	Defective rotor	Change the rotor
	Excessive wear and tear due to rubbing of parts	Service the pump replacing the worn out parts
	Low system head and therefore higher discharge	Throttle the discharge
	Defective thrust / journal bearings	Replace thrust / journal bearing

Fault	Possible causes	Suggested actions
Pump runs rough and noisy	Dry running of pump	Keep pump idle for sometime/reduce the discharge by throttling
	Excessive wear and tear	Service the pump replacing the worn out parts
	Rotor shaft is bent resulting in rotor rubbing against stator bore	Replace rotor shaft
Pump leaks excessively	Gaskets / O-rings damaged	Check and replace gaskets / O-rings
	Pipeline damaged	Check and replace piping

 Note	Conduct trial operation after maintenance
 Note	Dispose replaced components and oil with appropriate care so as to protect the environment
 Warning	Do not try to solve unspecified troubles of the pumpset as it may lead to severe damage to the pump or injury to personnel. Contact the dealer from whom the pumpset was purchased
 Caution	If the pumpset runs with unusual noise, stop it immediately. Check (a) the journal bearings for wear (b) rotor outer diameter rubbing against stator inner diameter

2. Preventive maintenance checks

Precautions to be taken

 Warning	Disconnect the power supply before starting maintenance or inspection of the pump to avoid electrical shock
 Note	If you find any damages or abnormalities, switch OFF the pump and report the problem to the dealer from whom the set was purchased

NOTE: The manufacturer assumes no responsibility for damage or injury due to disassembly in the field.

A definite schedule of preventive maintenance inspections should be established to avoid breakdown, serious damage, and / or extensive downtime. The schedule will depend on operating conditions and experience with similar equipment. The below checklist does not represent an exhaustive survey of maintenance steps necessary to ensure safe operation of the pumpset.

 Warning	The pump must not be operated with the delivery valve shut-off for more than a few seconds; otherwise the motor will overheat, possibly causing permanent damage
 Warning	Utilise the services of an electrician to carry out electrical measurements / checking the functioning of the starter

It is good practice to monitor the conditions and performance of the pumpset. Diagnosis may be carried out by checking the following:

- Close the delivery valve for a few seconds and check the shut-off head generated by the pump. Do not run at shut-off conditions for a prolonged period of time as the water in the pump will get hot.
- Check the current drawn by the pump at the duty flow rate.
- Both these data should be compared to corresponding data recorded when the unit was initially installed.
- Any reduction in shut-off head may indicate wear of the pump hydraulics.
- Any increase in motor current at duty flow rate indicates a possible overload condition.
- Measure the insulation resistance of the winding to check the condition of the motor.
- Open the filling plugs and check the level of water inside the motor. Top up, if required, with pure drinking water.
- Check the level of silt at the bottom of the well and de-silt if necessary.
- Check the direction of rotation of the pumpset.
- Check all electrical connections are proper.

3. Do’s and don’ts

Do’s	Don’ts
Before installation, rotate the shaft to ensure that pump is not jammed	Do not use piping smaller than what is mentioned on the nameplate
Ensure proper earthing is provided	Do not place the pump at the bottom of the well as it can sink in the mud at the well bottom. Ensure the pump rests on a firm surface
Mount the pumpset with its axis vertical on a level surface	Do not have multiple joints on the cable. More the cable joints, more will be the voltage drop
Ensure the pump runs in the right direction	Do not operate the pumpset without strainer as debris can get sucked into the pump and jam it
Rubber gasket assembled on the pumpset does not have a central hole. Cut out the central hole and re-install	Do not use to pump corrosive and flammable liquids
Check all fasteners are tight	Do not earth to a water line or gas line
Use a starter with inbuilt Single-phase preventer, Overload protection and High-voltage and Low-voltage protection	Do not use undersized electric cables between Pump and Starter Panel. Factor in low-voltage usage
In case of high delivery head, use a check valve in the discharge line	Do not place the pump on the bottom of the well if it is not flat
Water levels rise significantly during monsoons. Under such conditions, pumps will operate with higher discharges and therefore higher current. tIt is advisable to install a flow control valve in the delivery pipeline and throttle the discharge until the current is less than that specified on the product nameplate	Do not use the power cable for lifting / lowering the pump. Use the eye bolts provided on the delivery chamber
In case of current exceeding the nameplate value, provide a throttling valve in the delivery line. Throttle the discharge to bring down the current	Do not keep the pump idle for a long time to prevent jamming of the rotating components. Run the pump for a few minutes every week
Check the drain and filling plugs for tightness before erection	Do not switch off pump while pumping sandy water. Continue to run until clear water flows
Use the two eye bolts provided on the delivery chamber for lifting / lowering the pumpset using appropriate equipment	Do not operate the pump at shut-off conditions to prevent the pumpset from getting overheated

4. Important safety instructions

Only qualified personnel should be involved for inspection, maintenance, and repairs. The successful and safe operation of such a product depends on proper handling, installation, and maintenance. It is suggested that in case of non-functioning of the product, the customer contact the dealer through whom the purchase was made.

Danger

Hazardous voltage will cause death, serious injury, electrocution.
Disconnect all power before working on this equipment.
Maintenance should be performed by only qualified personnel.

5. Storage & handling

- The products are supplied from the factory in proper packing in which they should remain until they are to be installed
- The product should be stored in a closed, dry, and well-ventilated room
- Do not store the products under direct sunlight
- Handle the pumps with care and do not expose the product to unnecessary impact and shocks
- During unpacking and prior to installation, care must be taken while handling the pump to ensure that the product is not subjected to shock loads
- If the product has been stored for a very long period, check the condition of the rubber gaskets, free rotation of the shaft, and level of water inside the motor

 Caution	If the pumpset is stored, the shaft must be turned by hand at least once a month
 Caution	If the pumpset has been stored for more than one year before installation, dismantle the pumpset and check the rotating parts before use. After re-assembly, ensure the impeller can rotate freely when turned by hand
 Caution	Oilseals, in back to back configuration, are provided to prevent water from inside the motor from escaping. Do not attempt to run the pump dry. If used to lift water from bore wells, ensure the pump is primed and only then run it

6. Company contact information

For most up to date information on Texmo Industries, please visit www.taropumps.com

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