SUBMERSIBLE PUMPS

INSTRUCTION MANUAL

CE ISO9001

The Deep Well Submersible Pump Operation & Installation Manual

Our stainless steel deep well submersible pump is a superior product, which is made with the latest technology and materials in 21st century. The main part of the deep well submersible pump is made of stainless steel and copper alloy. The impeller is especially designed and restructured, the inducer casing is also modified by polycarbonate to strengthen its wear resistance.

The inducer in each level require an independent silicone rubber shaft bearing and the motor consists of the liquid-immersed structured, which inquire a radial thrust bearing with a strong support force and super mechanical leak proof.

The advantages are: wear resistance, long operation life, high efficiency with large water flow capacity, electricity saving and easy maintenance.

Important Notice

1. Do not start the motor without water.
2. Do not use the cable to lift the motor from the deep well to the floor.
3. The pump should be installed at least 5 meters deep from the bottom and at least 1 meter water to cover the pump.
4. Wrong electric network connected to the pump should not more than 1 minute.
5. If the pump is used for either new or old well, which shutdown for a long time, it is necessary to remove the sand or mud water.
6. The automatic control box is required.

Preparing for installation

1. Electric supply:
   - Three phase electric motor: 380V electric supply, 50Hz, voltage pulsation rang 360-400V.
   - Single phase electric motor: 230V electric supply, 50Hz,
2. The content of the solid materials should not be over 0.010% by weight,

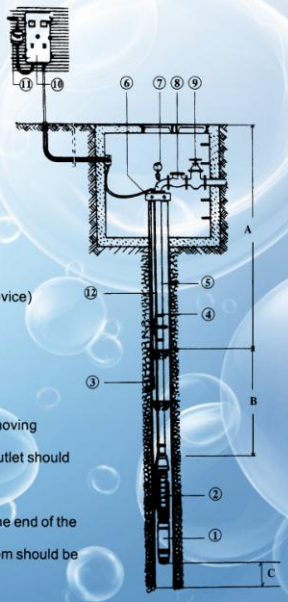
Installation Diagram

1. Submersible motor
2. Submersible pump body
3. Controlling electric pole
4. Cable clamping plate
5. Water pipe
6. Pipe clamping plate
7. Pressure meter
8. Check valve
9. Gate valve
10. Automatic control box(device)
11. Main supply switch
12. Cable inside the well

A. Moving water level

B. The distance between moving water level and pump outlet should be at least one meter

C. The distance between the end of the motor and the well bottom should be at least five meters.



Manual operation is OK; but automatic operation is out of control.	1. Automatic water level controlling poles contact badly or are breakage; the earth wire is wrong connected or contacted badly. 2. The automatic controlling poles are damaged.	1. Check electric poles and earth wire. 2. Repair or replace the automatic control box.
Pump can start but starts frequently.	1. The distance between the electric poles to control the upper & lower water level is too close. 2. The upper & lower water level controlling poles are dislocated.	1. Increase the distance between the upper and lower poles. 2. Change the upper and lower poles to a correct connecting position.
The thermorstat operates normally but contactor is trips off.	1. The electricity supply before coming into the control box is lack of phase. 2. The leading lines of the motor or cable is a poor contact or a breakage.	1. Check if it is lack of phase and correct it. 2. Check the leading lines and cable and correct the faults.
The pump operation is OK but no voltage shows and pilot lamp is off.	1. The voltage meter is poor connected or is damaged. 2. The pilot lamp has a poor contact or is damaged.	1. Check the connection and correct errors or replace the meter. 2. Check the lamp or replace it.

3. The acid-balance of the water should be between 6.5 and 8.5 PH.
4. The deep well should be cleaned before installing the pump.

Electric Cable Size

Motor Size	Waterproof Cable Size
1.5KW	3×1.5mm²
2.2KW	3×2.0mm²
3.0~4.0KW	3×2.5mm²
5.5~10.0KW	3×4.0mm²
11.0~18.5KW	3×6.0mm²

Electric Cable Connection

1. Should use the thick coating electronic cable, which is especially designed for deep well submersible pump.
2. Peel the coating at the end of the cable and lead line of the motor about 40mm length and let the copper wire be bare.
3. Connect the bare wire about 20mm length in cross and tight, use the wrap to connect part with waterproof adhesive tape for 3-5 layers. Do use the adhesive tape to bundle the connected cable Again for 3-5 layers.

Notice:

- This method is to connect electric cable and leading of the pump should comply with the requirement of the electric wire connection.
- The waterproof adhesive tape should be elongated by pulling in 200% before wrapping it round the wire in spiral advantage method and with a half of the tape in each round being over lapped. The shrinkage of the tape will fasten and waterproof the connected cable end better.
- The bare copper wire and adhesive tape should be keep clean.

Automatic Control Box (Device)

1. Different size of the motor and power is required with different size of the automatic control box in order to protect the motor and guaranty the stable operation,
2. The automatic control box is to control the operation of the pump by

transferring the water levels to the upper reservoir and inside the deep well.
3. The control box consists of the air-control circuit breaker, alternating-current contactor, thermostat, water level controller and etc.
4. The automatic control box is also to protect short circuit, overload, low voltage, no voltage, etc.
5. The control box is built with a pilot lamp and various meters to show the current and voltage parameters for easy operation.

Installation

1. Install the pump body with the motor together, be sure that the motor is rotate freely and out of problems
2. According to the installation diagram to connect the pipe into the deep well.
3. Tight the pump head with the nylon cord or steel wire rope in the fixing hole for lifting up or lowing down the pump into the deep well. The length of the nylon cord or steel wire is determined by the depth of the well.
4. Connect the deliver pipe with a same diameter as the pump hole to the pump and fixed the connection with a set of the clamping plate, then put the pipe down into the well and using the same method mentioned above to install the second pipe and clamping plate until the pipes extend to the deep well is needed.
5. Connect the elbow, valves, valves water pressure and flow meters.

Start the operation

Connect the pump with the control box and electric network, switch on the pump, it should be operati g. If the pressure shows on the meter and the water flow is small, then switch ff the pump and wait for 1 minute then restart the pump again. It should be operating as normal, If the water max with sand and mud, it should be switch off the submersible pump and using a special pump to remove the dirty water again before restarting the deep well submersible pump.

Possible Working Detects
of the submersible pump and automatic control box

Type of detects	Main Causes	Correction
Do not start	1. Power cut-off or lack of phase. 2. Cable too long or too thin; pressure drop sharply or voltage too low. 3. Contactor damaged or thermostat tripped out (pilot lamp showing troubles is on) 4. The line inside controller gets loose; changeover switch damaged or a poor contaction. 5. The impeller is blocked with the pump body by something inside. The motor is burned out	1. Check mains supply and phase. 2. Replace with proper size cable; increase the voltage. 3. Maintain or replace the contactor; reset the contactor manually as it is cooled down. 4. Check the line connectors and changeover switch inside the control box and make sure everything is OK and restart. 5. Remove the foreign materials. 6. Repair the motor or replace it.
Water can not be pumped up or water flow is too small. (Electric current is too strong or too weak)	1. Motor turns reversely 2. The inlet of the pump is blocked and water can not flow in. 3. Inlet pipe has leakage. 4. The shaft coupling between the pump and motor wears badly and gets loose. 5. The impeller of the pump wears badly. 6. The check valve is jamined.	1. Change the two phase cables position or adjust mains supply. 2. Remove the blocking materials. 3. Repair the pipe with leakage. 4. Replace the shaft coupling. 5. Maintain the pump and replace the impeller. 6. Replace the check valve.
Water flow becomes small or large frequently under normal mains supply.	1. The location of pump does not reach proper in the well. 2. The moving water level is lower than the inlet of the pump. 3. The delivery water flow is too large.	1. Adjust the location of pump to a proper depth. 2. Limit delivery water flow or adjust the depth of the pump in the well. 3. Replace it with a proper size pump.