PUMPMAN

OWNER'S MANUAL
DEEP WELL SUBMERSIBLE PUMPS
Model: 4TMS SERIES

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WARNING

- Please read the product instruction manual carefully before installation and use.
- The motor must be properly grounded before connecting to power. Ensure grounding before use, and ensure that the installation site is well-ventilated without water accumulation.
- Before operating the pump, ensure the power supply is correct. It is strictly prohibited to disassemble the shaft and touch the internal parts of the shaft.
- It is strictly prohibited to use the pump for a long time in dry running and hot water (45℃).

This is a safety warning symbol. In this instruction manual, the safety warning symbol is used to pass important safety information. When you see the symbol, you should be warned of possible injuries, read the information under the symbol carefully, and inform other operators.

WARNING

The factory shall not be responsible or liable for any injury to persons, damage to pumps, or damage to property resulting from failure to comply with the safety warning signs.
1. Please read the Product Instruction Manual carefully before installation and use.
2. The electric pump shall be installed with leakage protection. The installation shall comply with relevant national rules. The installation site is well drained without water accumulation.
3. After the electric pump is connected to the power supply, it is strictly prohibited to disassemble the shaft and touch the internal parts of the shaft.
4. It is strictly prohibited to use the pump for a long time in dry running and hot water over 75℃.
5. If the pump is not used, the power supply shall be disconnected and only professional personnel shall be allowed to service the pump.
6. It is strictly prohibited to wash, swim or graze livestock in the water in the work area while the pump is in operation.

CHILD-RAISING

- It is strictly prohibited for children, persons lacking legal capacity, or persons with limited capacity to use this product without supervision (e.g., who has not been taught the safe use of theproduct and understands the hazards involved).

CHANGE WARNING

- It is strictly prohibited for the user to change the pump without authorization or to operate the pump beyond its operating conditions.

PRESSURE WARNING

- The pressure of the system in which the pump is installed must be greater than the maximum allowable working pressure of the pump.

CAUTION

1. Please read the instruction book before operating the pump.
2. The double color yellow and green wire of cable must be connected to ground.
3. Please install a electrical control unit before application.
4. If the pump requires maintenance should switch-off power supply firstly then take out of plug.
5. Must be not to wash, swim and pasture domestic animals in within the working area water during pump operating.
6. Strictly forbid to use cable as hanging rope.
7. The maximum submerged depth of the pump is 49.21 ft.

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1.Brief introduction of structure

Deep well submersible pump is consisted of multistage deep well pump, three-phaseior single-phase) submersible motor, rigid coupling and shaft and seal. The multistage pump is located on top of motor. Water lubricating guide bearing is adopted by the pump. The water flows into impeller from the bottom of the pump. A non-return valve is fitted in the discharge chamber to prevent sands entering when the pump stops. The motor is equipped with a thermal protector for motor safe operation.

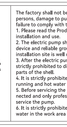
2.Application conditions

2.1 Pumping medium is clean water which temperature is below 40℃ or other liquids with same physical and chemical characters as water and non corrosion, PH value is between 6.8-8.

2.2 Content of solids in water should be below 0.1%(quality proportion) and diameter is smaller than 0.2mm.

2.3 The pump is used for the small diameter well. It is widely used to the area of low water level, high head and far distance to draw water.

3.Model description



4.Product specifications

Model	No/Hz	No/60Hz	Q	0.5M	1m³	1m	1.5m	2m	3m	4m	5m	6m	7m	8m	9m	10m	11m	12m
	gal	2in	Gal/M	1.8	3.2	3.4	5.3	6.3	8.5	10.6	12.7	14.8	16.9	19.0	21.1	23.2	25.3	27.4
4TMS4/1	1.5	1.5		1.65	3.41	3.72	5.45	7.13	9.61	11.4	13.2	15.1	16.9	18.8	20.7	22.5	24.3	26.2
4TMS4/2	2.2	1.5		1.65	3.41	3.72	5.45	7.13	9.61	11.4	13.2	15.1	16.9	18.8	20.7	22.5	24.3	26.2
4TMS4/3	3.3	2.2		2.08	4.27	4.72	6.91	9.04	12.1	14.4	16.8	19.1	21.4	23.8	26.2	28.5	30.8	33.2
4TMS4/4	4.4	3		2.08	4.27	4.72	6.91	9.04	12.1	14.4	16.8	19.1	21.4	23.8	26.2	28.5	30.8	33.2
4TMS4/5	5.5	3.7		2.08	4.27	4.72	6.91	9.04	12.1	14.4	16.8	19.1	21.4	23.8	26.2	28.5	30.8	33.2
4TMS4/6	6.6	4.4		2.08	4.27	4.72	6.91	9.04	12.1	14.4	16.8	19.1	21.4	23.8	26.2	28.5	30.8	33.2
4TMS4/7	7.7	5.1		2.08	4.27	4.72	6.91	9.04	12.1	14.4	16.8	19.1	21.4	23.8	26.2	28.5	30.8	33.2
4TMS4/8	8.8	5.9		2.08	4.27	4.72	6.91	9.04	12.1	14.4	16.8	19.1	21.4	23.8	26.2	28.5	30.8	33.2
4TMS4/9	9.9	6.6		2.08	4.27	4.72	6.91	9.04	12.1	14.4	16.8	19.1	21.4	23.8	26.2	28.5	30.8	33.2
4TMS4/10	11	7.3		2.08	4.27	4.72	6.91	9.04	12.1	14.4	16.8	19.1	21.4	23.8	26.2	28.5	30.8	33.2

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5.Exploded view

NO.	Parts	Materials
1	Water outlet	Polyphenylene oxide (PPO)
2	Capacitance	Metal-film electrolytic capacitor
3	Capacitor box	Polyphenylene oxide (PPO)
4	Upper bearing housing	Grey cast iron HT200
5	Rotor assembly	304 stainless steel shaft + silicon-steel sheet 1300
6	Winding coil	CU enamded wire + silicon-steel sheet 1300
7	Lower bearing housing	Aluminum ADC12
8	Oil cylinder cover plate	Polyphenylene oxide (PPO)
9	Guide vane	Polycarbonate (PC)
10	Impeller	Polyoxymethylene (POM)
11	Cover plate	Polycarbonate (PC)
12	Inlet section	Polyphenylene oxide (PPO)
13	Pump barrel	201 stainless steel
14	Motor housing	201 stainless steel
15	Float ball	Polypropylene (PP)

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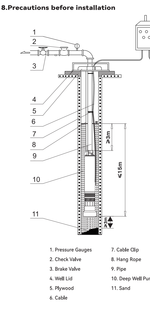
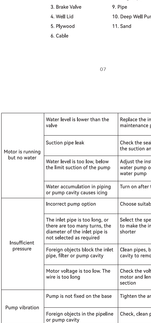


ONLY SINGLE PHASE PUMPS ARE WITH CONTROLLER



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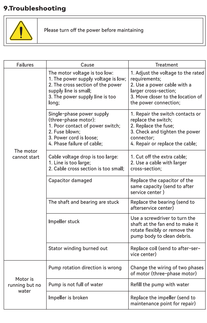

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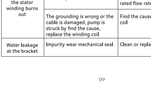
6.Installation diagrams



1. First, fasten the prepared rope to the lifting ring on the pump. Recommended length is 30meters. 30meters, high-strength rope such as nylon is recommended. Ensure the rope-to-pump joint is wear-resistant to prevent rope breakage caused by pump vibration. For depths over 30meters, steel wire rope is advised for securing the pump.

2. Connect the water pipe to the water pump using accessories such as tube adapters. Ensure a firm connection with tools like a spanner or pipe wrench.

3. Lower the pump vertically into the well. Do not lower it too fast. Secure the power cable to the outlet pipe with cable ties every 2 meters. When lifting or lowering the pump, make sure the cable is not squeezed against the well wall to avoid cable damage.

4. Connect to power supply after finishing installation.

5. Start the power supply, and the pump will discharge water.

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7.Installation instruction

* Firstly check the nameplate of pump accord with the demands of application conditions before installation.

* Check whether the pump, motor, cable, and the socket connect is in good condition. All the screws connected should be tighten.

* If it is far distance to power supply should use a larger size cable. The insulation resistance of motor stator winding should be over 5meg. Ohm.

* The pit shaft where installed the multistage deep well submersible pump should be a straight well, should keep a certain gap between the biggest out-diameter of the pump and inside wall of the well. Make sure when the pump operating in the stipulated depth can not touch the wall of well.

* First should hang the pump and fixed firmly then install a leakage protector at the end of power cable and make ground connection by the ground wire that with double color yellow and green or black to prevent electric shock(plug marked grounding).

* Fit a steel pipe or a hard rubber pipe to the outlet and fixed by a hoop tightly. Fix the hanging rope with hanging-ring of motor and prepare to hang up the pump,but strictly forbid to use cable as hanging rope. The submerged depth of the pump can not exceed than 30meters and the distance from bottom should over 5m, should install the dirt-stopping grid around the pump to prevent such as water weeds blocked the filter net influence the pump normal operating.

* The motor should be idle for a few seconds after connected with power to check the pump whether is correct for starting, operating, and running direction.

* Check the pump performance whether operating in normal range, otherwise the pump operating is in abnormal condition, so the motor will be heated, even burned the motor.

* If discover some irregular phenomena such as abnormal sound, lack of water or intermittent flow, should stop the motor immediately and find out the reasons, should take care of lower water level during pump operating, should make good job for frost and prevent frost-broken the pump body when air temperature is below 4℃.

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8.Precautions before installation

1. Pressure Gauges
2. Check Valve
3. Brake Valve
4. Well Lid
5. Plywood
6. Cable
7. Cable Clip
8. Hang Rope
9. Pipe
10. Deep Well Pump
11. Sand

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9.Troubleshooting

Please turn off the power before maintaining

Failures	Cause	Treatment
The motor cannot start	The motor voltage is too low;	1. Adjust the voltage to the rated requirements;
	1. The power supply voltage is low;	2. Use a power cable with a larger cross-section;
	2. The cross section of the power supply line is small;	3. Move closer to the location of the power connection;
	3. The power supply line is too long;	
	Single-phase power supply (three-phase motor):	1. Repair the switch contacts or replace the switch;
	1. Poor contact of power switch;	2. Replace the fuse;
	2. Fuse blown;	3. Check and tighten the power connector;
	3. Power cord is loose;	4. Repair or replace the cable;
	4. Phase failure of cable;	
	Cable voltage drop is too large:	1. Cut off the extra cable;
	1. Line is too large;	2. Use a cable with larger cross-section;
	2. Cable cross section is too small.	
	Capacitor damaged	Replace the capacitor of the same capacity (send to after service center)
	The shaft and bearing are stuck	Replace the bearing (send to afterservice center)
	Impeller stuck	Use a screwdriver to turn the shaft at the fan end to make it rotate flexibly or remove the pump body to clean debris.
	Stator winding burned out	Replace coil (send to after-service center)
Motor is running but no water	Pump rotation direction is wrong	Change the wiring of two phases of motor (three-phase motor)
	Pump is not full of water	Refill the pump with water
	Impeller is broken	Replace the impeller (send to maintenance point for repair)

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Motor is running but no water	Water level is lower than the valve	Replace the impeller (send to maintenance point for repair)
	Suction pipe leak	Check the sealing of each joint of the suction and inlet pipes
	Water level is too low, below the limit suction of the pump	Adjust the installation height of the pump, or choose a suitable water pump
	Water accumulation in piping or pump cavity causes icing	Turn on after the ice has melted
Insufficient pressure	Incorrect pump option	Choose suitable water pump
	The inlet pipe is too long, or there are too many turns, the diameter of the inlet pipe is not selected as required	Select the specified pipe diameter to make the inlet pipe design shorter
	Foreign objects block the inlet pipe, filter or pump cavity	Clean pipes, bottom valves or pump cavity to remove debris
	Motor voltage is too low. The wire is too long	Check the voltage at the end of the motor and lengthen the wire cross section
Pump vibration	Pump is not fixed on the base	Tighten the anchor bolt
	Foreign objects in the pipeline or pump cavity	Check, clean pipeline and pump
Motor works intermittently or the stator winding burns out	Motor is overload for a long time	Install a valve at the water outlet to reduce the amount of water
	Impeller stuck or overloaded for a long time	Clear the debris in the pump cavity and make the pump work at the rated flow rate as much as possible
	The grounding is wrong or the cable is damaged, pump is struck by find the cause, replace the winding coil	Find the cause, replace the winding coil
Water leakage at the bracket	Impurity wear mechanical seal	Clean or replace the mechanical seal

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10.Maintenance

* Don't submerge the pump in water for a long time when unused, should be running in clean water for a few minutes to both inside and outside of the pump, then put it in a room with good ventilation.

* Be sure not to wash, swim and pasture domestic animals in water within the working area for two square meter. Strictly forbid to touch the pump by hand under the power on condition to avoid accident.

* When the pump stops operation because of some trouble, should cut off the power and find out the reasons. After the trouble removed, the pump can run again.

* If some problems appeared both of pump and motor, would be repaired by the experienced technicians or send the pump to the maintenance department of our company. Otherwise, we are not responsible.

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