Compliance with ISO9001 &ISO14001

# USER'S MANUAL

## CLEAN WATER PUMP

*Models: QB, AWZB, AWZB-S, WZB, CPM, NGAM, GHFM, GNFM, GFM, 2CPM, 3-5CPM, JSWM, JSLM, GJSM, GDPM, GDWM, ZGD, PW.*

**Thank you for choosing our company's products, please read this manual carefully and keep it properly before use.**

## ⚠WARNINGS

- **Before operation, make sure that the electric pump is properly grounded.**
- **Don't touch the electric pump while it is running.**
- **Don't make the electric pump run dry.**

## 1. PROOUCTS OVERVIEW

Clean Water Pumps (hereafter referred to as simply "electric pump") include peripheral pumps of models QB, AWZB, AWZB-S, WZB and centrifugal pumps of models CPM, NGAM, GHFM, GFM,GNFM, 2CPM, 3-5CPM and jet pumps of models JSWM, JSLM,GDPM, GDWM. The electric pump is made up of the motor, water pump and seal. Motor adopts asynchronous one. Incorporating vortex impeller, the peripheral pumps enjoy high head, among which, models WZB,AWZB,AWZB-S are capable of self-priming, but models QB cannot. Model AWZB is equipped with automatic control system which mean the electric pump can pump water when the outlet valve opened whereas it will stop working when it is closed. Thus, this model can work automatically without switching power off by manual operation. Adopting centrifugal impeller and volute-casing, the models CPM, NGAM, GHFM, GNFM, GFM, 2CPM, 3-5CPM, are characterized by large outflow, stable operation and low noise. Jet pumps of models JSWM, JSLM,GJSM,GDPM,GDWM adopt unique structure and have function of self-priming. Compared with model JET pump, the model JSWM, JSLM,GJSM pump is equipped with pressure tank, pressure control and pressure meter, thus it is convenient to control its operation automatically. Between the water pump and the motor， single-end mechanical seal is applied, whereas O- rings are used for static seal at all fixed spigot joints.

## 2. CONDITIONS FOR USE

The electric pumps shall keep normal and continuous working under the following conditions:

1). Maximum ambient temperature: +40°C;

2). Maximum medium temperature: +40°C;

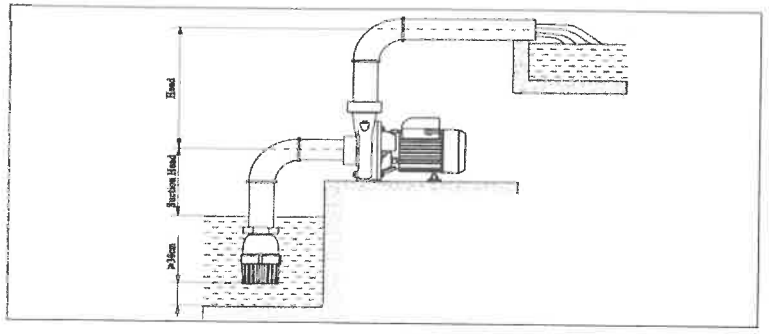
3). Medium pH value: 6.5-8.5;

4). Maximum volumetric ratio of solid impurities content in the medium: 0.1%. Maximum size of solid particle: 0.2mm;



5). Power voltage and power frequency must be in accordance with the nominal values indicated on the name plate.

## 3. NOTICES ON INSTALLATION AND APPLICATION




Drawing of Installation

1). Check if the electric pump includes the cable, terminal, or plug (if equipped) before the installation to see whether there is any damage in transit or storage. Check whether the cold insulation resistance exceeds 50MΩ.

2). Fix the electric pump properly when installation. Use steel or hose to connect the foot valve (if equipped) and electric pump inlet. Do not allow to use soft hose to avoid being flat. For self-priming pump, it only needs fill up with water in the housing of pump instead of full of water in the intake pipe. In order to keep pump reliable operation , the strainer shall be installed availably and make sure the foot valve and strainer to be installed at least 30cm above the water bottom to avoid foreign matters （i.e.sand & mud) being sucked into electric pump chamber resulting in operation failure(See Drawing of Installation). Make sure that foot valve at intake pipe and the one end of strainer are submerged in water after completing connection between the upper end of intake pipe and the inlet end of electric pump. The pipeline shall be shortened as much as possible and avoid too many joints. Besides, the suction height shall not exceed value of requirement.

3). Move the fan blade by screw driver, check whether electric pump rotates freely and whether three-phase electric pump rotational direction is correct. As viewed from the side of fan, clockwise rotation indicates electric pump rotational direction is correct. If its rotational direction is wrong, firstly cut off the power immediately, then swap over any two of the three-phases of the electric pump.

4). Make sure the intake pipe and its joint are sealed completely to avoid air leakage.

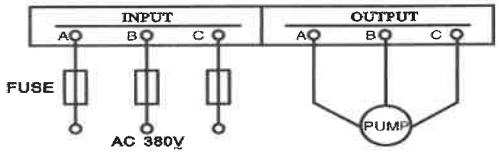
5). Fix the outlet pipe securely in order to prevent water from splashing the motor that may lead to electric leakage.

6). Set brackets to support the intake pipe and outlet pipe and these pipes shall not depend solely on the pump body for support.

7). If user wants to change the electric pump into automatic control mode, the proper pressure control device shall be fitted on the outlet pipe.

**8). On use of electric pump, neither place it horizontally in water nor put it submerged in water in order to prevent the motor from rain or spraying, nor shall it be sprayed by a powerful jet of water in order to avoid destroying the winding insulation due to moisture ingression to motor.**

**9). Creepage protection device shall be installed correctly and ensure it is reliably grounded at the position of grounding mark of the electric pump or of the cable (except for electric pump equipped with three-pin plug ). Meanwhile, the power socket should also be reliably grounded. If the three-phase electric pump needs equip with overload protection device, it is necessary to choose the matched one according to the current or power.**




Wiring Diagram of Protection Device

10). For peripheral pumps, they should not reach the maximum head when in use to avoid overload.

11). For centrifugal impeller pumps, they should be used in range of the prescribed head (except for electric pump with full head coverage) to prevent them from damage due to overload.

12). Check the water level to see whether it is lowering and do not allow to let the foot valve or the lower end of intake pipe out of water.

**13). During the operation, if user wants to adjust the electric pump position or touch it, firstly turn switch off the power supply to avoid accidents electrocution**

**14). In order to avoid accidents, swimming, washing, herding near the working space of electric pump are forbidden.**

## 4. MAINTENANCE

1). Regulary check the insulation resistance between the electric pump winding and motor casing. The cold insulation resistance shall not be lower than 50MΩ. Otherwise, corresponding measures shall be taken. The electric pump could not be reused until it meets the operation requirement.

2). The maintenance job should be taken according to the next steps:

Dismantlement: Check various vulnerable components including roller bearings, mechanical seal, impeller, foot valve, etc. Replace them timely if damage is found.

Air tightness test: Conduct hydraulic (or pneumatic) pressure test for components used to pass flow through their passages according to maximum hydraulic (or pneumatic) actuating pressure after disassembling pump for repair or replacing various airtight packing. The test should last for 5 minutes. If no leakage or sweat occur during the time, the test is passed successful.

3). Drain off residual water inside pump when ambient temperature is lower than 4℃ to avoid crack occurrence for pump body due to frost.

4). If the electric pump is to remain unused for a long period of time, firstly disassemble the pipeline and drain off the residual water, then rinse the main components for rust-proof treatment, finally, keep it in the dry and well-ventilated place and store it properly.

## 5. ILLUSTRATIONS ON INSTALLATION AND MAINTENANCE

1).Figure. A: The electric pumps must be installed in a dry well-ventilated place with an ambient temperature of no more than 40℃. Fix the pump in place on a solid flat surface using suitable bolts to avoid vibration.

2).Figure. B: The intake pipe must be slightly angled up towards the intake mouth to avoid the formation of air locks.

3).Figure. C: The pipes must always be fitted using the related brackets to avoid transmitting stress to the pump body.

4).Figure. D: The specifications on the electric pump name plate and rated line values are the same.

5).Figure. E: Check that three-phase electric pumps rotate clockwise when looking at the pump from motor fan side, swapping over two of the phase connections if they do not.

6).Figure. F: Fill the electric pump completely with clean water before switching it on. The water should be poured in through the priming plug.

7).Figure. G: When there is risk of freezing, empty the electric pump through the drain plug on the bottom of pump body, making sure you prime it when subsequently starting it again; check that the foot valve is clean at regular intervals; if the electric pump is to remain unused for a long period of time(e.g. in the winter), it is advisable to empty it completely, rinse it with clean water and store it in a dry place.

8).Figure. H: If the shaft does not turn freely, release it using a screwdriver inserting in the special slot. If this is not sufficient to solve the problem, remove the pump body, undoing the relevant mounting bolts, and clean it thoroughly to remove any encrustation.

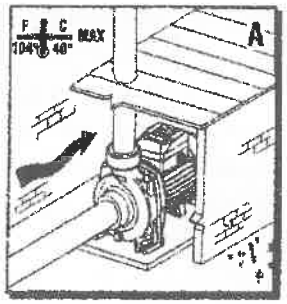



Figure. A

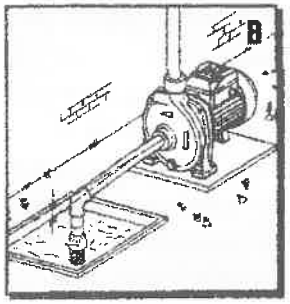



Figure. B

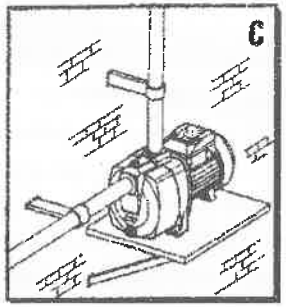



Figure. C

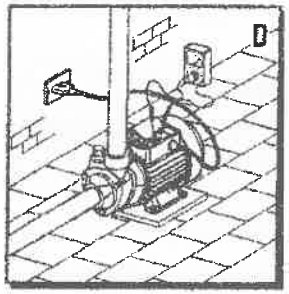



Figure. D

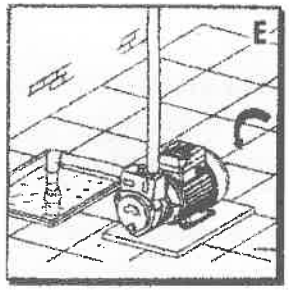



Figure. E

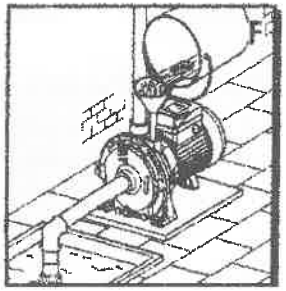



Figure. F

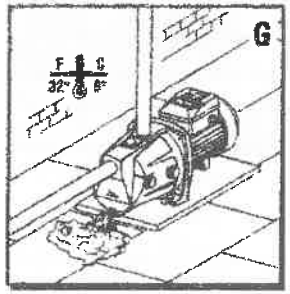



Figure. G

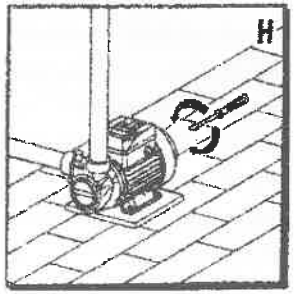



Figure. H



## 6. TROUBLESHOOTING

| MALFUNCTION | MAIN REASONS | SOLUTIONS |
|---|---|---|
| Electric pump start difficultly | 1.Low power voltage.<br>2.Lost phase or cable broken.<br>3.Impeller clogged.<br>4.Excessive cable voltage-drop.<br>5.Capacitor damaged.<br>6.Stator winding burnt. | 1.Adjus voltage into 0.9-1.1 times of the rated value.<br>2.Check switch terminal and cable.<br>3.Correct clogged position or clean off the foreign matters.<br>4.Thicken cable properly.<br>5.Replace capacitor.<br>6.Rewind and overhaul. |
| Water priming failure | 1.Air reside in pump chamber.<br>2.Air leakage occur inside intake pipe.<br>3.Foot valve not opened or clogged severely, large resistance occur inside pipe, high suction height.<br>4.Air leakage for airtight packing occur inside pump | 1.Prime enough water into pump chamber to exhaust air.<br>2.Check joints, pipes, etc to ensure seal properly.<br>3.Check foot valve, remove obstruction, shorten intake pipe, reduce the suction height.<br>4.Adjust or replace airtight packing. |
| Insufficient flow | 1.Excessive long pipe or excessive high head or pipe bent severely.<br>2.Foot valve, strainer or impeller partially clogged.<br>3.Impeller worn out severely. | 1.Cut pipe down, or adjust head in the range of rated value or make pipeline bending to be flat.<br>2. Clean off obstruction<br>3. Replace impeller. |
| Electric pump stops operation suddenly | 1.Switch broken off or fuse burnt .<br>2.Impeller clogged.<br>3.Stator winding burnt out | 1.Check whether head or power voltage conform to requirements, if not, adjust accordingly.<br>2.Remove foreign matters.<br>3. Rewinding and overhaul. |

| MALFUNCTION | MAIN REASONS | SOLUTIONS |
| --- | --- | --- |
| Stator winding burnt | 1.Excessive low power voltage<br>2 Winding short-circuit due to water left in motor.<br>3.Impeller clogged.<br>4.Electric pump starts frequently.<br>5.Electric pump overload.<br>6.Phase lost for three-phase electric pump. | Rewinding according to original technical requirement after dismantlement, then, soak and dry the electric pump in the insulating lacquer, or send it to the service agency for repair. |