

Описание на насосные станции повышения давления. Серия DQ

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DQ

Pneumatic Water Supply System

Operation Manual



Hangzhou Nanfang Special Pump Industry Co., Ltd.

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Read this manual carefully before install, start the pump.

I. General

DQ series full-automatic water supply system is a kind of local pressurizing equipment for water supply distribution system. With the same functions as the water tower and high-level water tank, it has been widely used for all civil and industrial buildings, small building groups, residential quarters, industry of agriculture, forestry and animal husbandry, traffic and defense construction as the water supply system for life and production.

II. Product features

• The equipment is supplied in a package, easy to make quick installation and debuging, management and maintenance;

• The new water supply concept shows the sense of energy conservation and environmental protection;

• The equipment is of compact structure, occupying less land than other traditional water supply facility, and thence saves the land resource;

• The whole facility is designed reasonably as per the actual demand of users, with the optimal operation effect and low energy consumption effect;

• The plan is designed and fabricated simply and reliably, ensuring to make reliable and durable operation;

• The facility is designed multiple control modes, such as the one to control by fluid level, pressure, temperature, time, pressure difference and so on, to meet various demands of users;

• The facility may work automatically and reliably without labor work.

III. Working conditions

• Transfer medium: cold or hot, clean, nonflammable and non-explosive liquid without containing solid particles or fibers.

- Temperature of liquid: normal temperature type -15 $^\circ\!C{\sim}\!+70\,^\circ\!C$

Hot water type: $+70^{\circ}$ C ~ $+120^{\circ}$ C

• Surrounding environment: The place where is free of water, steam, suspending dust or metal particle, and the place must be away from sunlight, high temperature or dense dust, corrosive or flammable or explosive gas or liquid.

• The place where is required to be free of shock and easy to access for maintenance and inspection.

 \bullet Environmental temperature: +45 $^\circ \! \mathbb{C}$ at most (with sound ventilation condition)

IV. Meaning of model number



V. Structure instruction

DQ series Pneumatic Water Supply System is a kind of pressurizing equipment for the vertical (horizontal) pump, consisting of the following parts, i.e.: control cabinet, pump, pressure gauge with electric contact, foundation, low water level sensor, pressure tank and pumps. See the following diagram, i.e.:



VI. System installation

1. Precautions for installation:

1) Install the system in the ventilated and non-frozen place;

2) Keep the diameter of inlet/outlet pipe bigger than the diameter of water pipe provided with the system;

3) Suggest connecting the water inlet/outlet of system with the flexible joints;

4) Fix the system foundation with the ground screws; if the control cabinet is a separation type, the control cabinet must also be fixed;

5) Confirm if the local power source complies with the nominal working power of equipment before switching the main power on;

6) Connect the main power well and connect the wiring of motor correctly; if necessary, connect all cables based on the data and methods provided by manufacturer. The specification of cables is required to be same as the stipulations of Electrician Manual. Please add a breaker before connecting the power source with the control cabinet so as to keep the system safe. Ensure all pumps and control cabinets to be of effective grounding.

7) Add the filter or similar device on the water inlet pipe.

8) Install the system on a horizontal surface.

9) Keep less sharp turn and turning point for water inlet pipe to prevent the pipe away from producing plenty of air inside and cause influence on system operation.

10) Never make foreign matters go into water pump or pipe (i.e.: PVC glue, Thread Seal Tape and so on) when installing; otherwise it may make the check valve and other components block.

11) Seal the high pressure hose that is used to connect the pressure tank and water outlet pipe.

12) Inject the water after the facility is installed well; please be noted to discharge air from the water pump and pipes.

2. Installation steps

1) Prepare the foundation as per the installation size provided by manufacturer, and then install the pipes accordingly;

2) After the facility arrives, move the facility to the appropriate position, and then connect the water inlet and outlet pipes (please pay attention to sealing all pipes accordingly);

3) Connect the high pressure hose of the pressure tank;

4) Connect the power cable of motor to the corresponding position of the control cabinet as per the circuit diagram (Note: this work can only be done by the persons who have the electrician certificate or the technician of the

manufacturer);

5) Connect the main external power source to the wire holder of the main power of the control cabinet (Notes: this work can only be done by the persons who have the electrician certificate or the technician of the manufacturer);

6) Open the water inlet and outlet valve and the inlet and outlet valve of water pump; open all discharge plugs of pipes and water pumps to empty all internal air;

7) Check if any joints leak water; if yes, please take measures to prevent. Keep all switches on the panel of control cabinet at the "OFF" position;

8) Open all breakers inside the control cabinet, and then put the POWER switch on the panel of control cabinet at the "ON" position; afterwards, open the switch of control pump (for instance: PUMP#1) to "MANU" position; check if the motor turns with a direction the same as the given mark on the pump (if not, please change the connections of any two phase cables of the main power);

9) Take the valve on the water outlet pipe off slowly, checking if there is leakage on the pipe; when the valve is closed off completely and no leakage is found, it can open the valve of the water outlet pipe;

10) Adjust the upper or lower limit of the pressure gauge with electric contact as per the demand of user.

VII. Precautions for safety

1. Never open the door of the control cabinet when the facility works; otherwise it may get electric shock;

2. Remove all air from the water pump and combined pipe before using the facility so as to prevent the water pump away from idling without water; otherwise it may cause damage to the facility and influence the application life;

3. When using the facility for a long time, please drain the water inside the water pump, water inlet and outlet pipe, and the pressure hose that is used to connect with the pressure gauge and pressure tank off; otherwise it may damage the facility when it freezes in winter;

4. If checking or maintaining the electrical appliances inside the control cabinet, please shut the main power off; afterwards, the operation can only be allowed to make;

5. Keep the control cabinet internal clean and dry; keep it away from dust, oil and humidity; otherwise it may cause electricity leakage;

6. When connecting the input power, it can only be done by the person who has the electrician certificate or the appointed technician by using the method indicated by the diagram;

7. User is not allowed to alter the wirings or remove the electrical appliances inside the control cabinet without authorization; otherwise the facility may not work properly and cause damage to the electrical appliances inside;

8. The facility must be stopped immediately when it goes wrong whilst working; it can only be re-started after the fault reason is found and solved;

9. After injecting water to the facility, it must check if any connections leak water;

10. It must be checked that if the pressure tank leaks air; if the air pressure inside the tank reaches to the desirous pressure; if it is too high or too low, air pressure must be adjusted accordingly before using;

11. Check if the high pressure hose of the pressure tank is connected well, if the hose is damaged or corroded; if yes, please change immediately;

12. Never remove the guard plate from the water pump when the facility works; otherwise the facility will go wrong;

13. When inspecting or repairing the frequency transformer, the main power must be shut off firstly. After 10 seconds when the digit on the display screen disappears, it can then conduct the said operation;

14. When inspecting, it should focus on if the internal power, cable, wiring is connected or installed wrongly; otherwise it will damage the system or cause the system to fail to work;

15. When repairing or inspecting, never leave the screws, components and other tools inside of the control cabinet; otherwise it will cause accidents.

VIII. Maintenance and upkeep

A. Maintenance & upkeep of control cabinet

1. User is required to inspect if the cable ends of electric appliances of the facility are contacted well; check if the screws on the end become loose after working for a long time;

2. Check if the electric appliance works normally and stably;

3. Check if the exhaust fan turns flexibly and if there is available the sound ventilation condition;

4. Check if the ON/OFF alarm indicator lamp and buzzer on the panel of the control cabinet goes wrong or not; if yes, please repair or change immediately;

5. Check if any buttons go wrong; if yes, please contact the manufacturer immediately;

6. Keep the internal of the control cabinet dry, and maintain it away from dust, scrap iron and corrosive fluid;

7. Check periodically if the facility sends out abnormal sound or shocks when working.

B. Maintenance and upkeep of water pump set

1. Check if the welded part of the combined pipe leaks water;

2. Check if the water pump, joint of combined pipe, joint of water input/ output pipe, foundation of water pump, bolt of bottom plate becomes loose;

3. Check if all joints are sealed well;

4. Check if all valves can be opened or closed flexibly;

5. Check if the pressure gauge with electric contact works normally;

6. Check if all water pumps go wrong whilst working.

C. Maintenance and upkeep of pressure tank

1. Check periodically if the air pressure of pressure tank is enough; when air pressure is insufficient, it must be replenished immediately (it must be checked every 3 months);

2. Check if the high pressure hose used to connect the pressure tank and water outlet is broken or corroded.

IX. Trouble and trouble shooting

Possible troubles	Troubleshooting
1. The water pump is operated frequently.	It may be caused by the valve under the electro connecting pressure gauge; i.e.: the valve is opened too much; please lessen the opening accordingly.
2. The main power fails to work when the switch is operated.	 Check if the power supply of 380V works normally; Check if the breaker and all contact points work normally.
3. The system has no response for work when the switch of the control cabinet (Start/stop) is operated.	 If the loop of the control cabinet is in a normal condition; If the pressure inside the water outlet pipe net exceeds the start pressure of water pump.
4. Troubleshooting for alarm	 Open the air-exhaust screw plug to exhaust; Check the thermal overload relay; Check if the power lacks of a phase.
5. The system works normally, but the pressure is out of the wanted standard.	 The valve of the water outlet pipe is opened too much; If the air inside the water pump is emptied; If the pump selected meets the requirements of water supply.

X. Important notice

1.Customers will not be advised if this manual is updated.

2.Pump will be guaranteed for one year under normal operation with the correct model. Wearing parts are not included.

3.Users shall be responsible for the damage if they disassemble the pumps by themselves in guaranteed period.



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