

Operation manual

**Operation and Maintenance
Manual**

DAF UNIT

KHN WATER TREATMENT EQUIPMENT CO.,LTD.

May 2022

1. Preparation and inspection before operation:

1.1 Check whether the inlet water pump, dissolved air pump, and air compressor are normal or not, whether the steering of the motor is consistent, and whether the oil level is normal. At the same time, check the slag scraper, run it empty, check whether its transmission part is normal; add enough oil when the oil level is insufficient; whether the scraper is flexible; whether the driving speed is normal; whether the contact switch is sensitive; whether the wire is installed or not normal;

1.2 Prepare chemical dosing as required, and check whether the front dosing device is normal.

1.3 Check the performance of each valve and whether the pressure gauge is normal.

1.4 Check the releaser to ensure the integrity and smoothness of its performance.

1.5 Fill the DAF container with clean water.

2. Start running:

2.1 Supply gas and water to the dissolved air tank. Control the water level in the tank at $1/3 \sim 1/2$ elevation. Control the pressure in the tank at about 0.4MPa.

2.2 Start the DAF inlet pump, and control the amount of water, coagulant and flocculant added.

2.3 Open the water outlet valve of the dissolved air tank and control the amount of released water.

2.4 Control the water level of the air flotation tank to prevent the scum from overflowing.

2.5 When the scum accumulates to a certain thickness, increase the scum level appropriately, and start the slag scraper when the scum overflows slightly. After scraping away a certain amount of slag, stop the scraper, lower the water level appropriately, and then let the slag accumulate to a certain thickness, and scrape the slag periodically.

3. Management in operation

3.1 Always check the water level and pressure of the dissolved air tank, and

control and adjust it at any time.

3.2 Always observe and analyze the air flotation effect, check and adjust the water intake, coagulant, flocculant and dosage. And prepare the dissolution of the medicine in time, and prepare the medicine.

3.3 Regularly observe the scum, water level and release effect on the surface of the air flotation tank, and make regular scraping of the scum and regular sewage discharge of the sediment at the bottom.

3.4 Always pay attention to the inspection of the water pump, the running sound of the dissolved air pump, the vibration of the body, the sealing of the valve parts, the temperature of the motor, and the level of the lubricating oil. In case of abnormality, it should be disposed of or shut down for maintenance. The air compressor should drain the water in the air drum once every shift.

3.5 Make log records of the operation of the equipment, the amount of incoming and outgoing water, water quality, the dosage of chemicals, the water level of the dissolved air tank, the pressure, and the operation of scraping slag.

4. Shutdown operation:

4.1 Stop the inlet pump of the dissolved air tank and close the outlet valve of the pump.

4.2 Stop the DAF inlet pump, close the outlet valve, and close the dosing valve of coagulant and flocculant.

4.3 Stop the scraper.

4.4 Wait for a period of time to let the dissolved air tank deflate and depressurize to normal pressure (if it is shut down for a short time, it is not necessary to release the pressure by precipitation). Note that when the precipitation is released, the pressure cannot be released through the water outlet valve of the dissolved air tank, so that the air flows directly into the air flotation tank.

4.5 After the air flotation tank is shut down, attention should be paid to maintaining a certain water level and elevation.

5. Electrical control:

5.1 DAF can be run using automatic or manual operation.

5.2 The stirrer for chemical dosing is manually controlled. Each time a chemical is prepared, it needs to be manually stirred for 15 minutes.

5.3 Automatic operation:



5.4 Manual running:



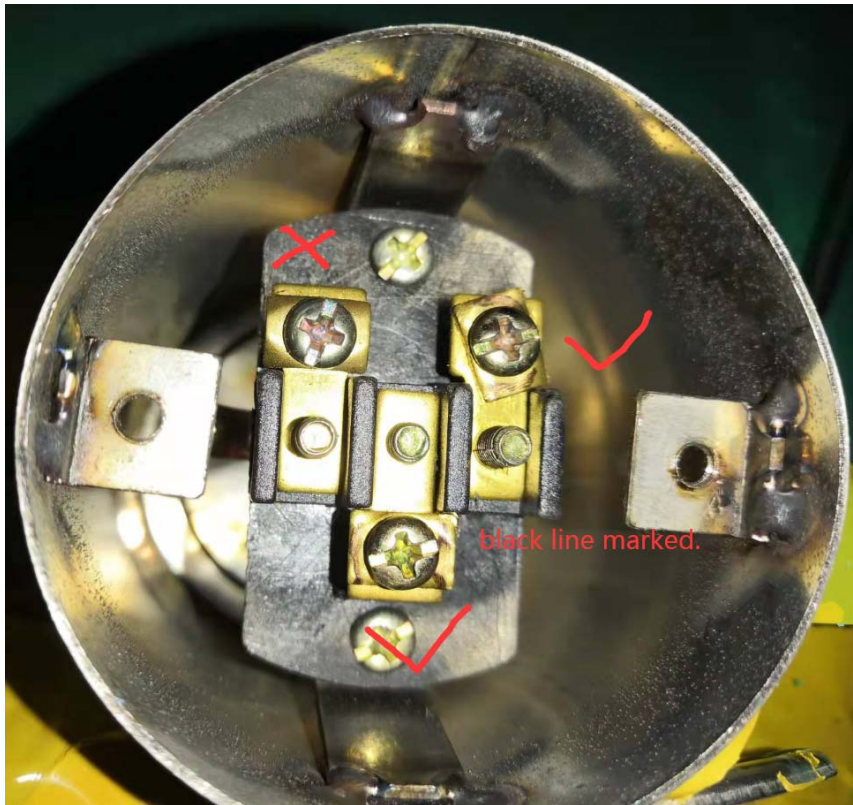
5.5 Stop running



5.6 Slag scraper time adjustment



All automatic operations are based on the liquid level gauge of the dissolved air tank being at a high liquid level. Dissolved air tank level gauge wiring status:



6. Failure analysis of air flotation system:

6.1 The inlet water pump of the air flotation tank, the dissolved air tank inlet water pump cannot pump water.

The reason is that (1) the pipeline valve in front of the pump is leaking; (2) the

dirt plugs the suction port or the dirt accumulates on the pump blade of the pump;
(3) the water inlet and outlet valves are damaged and the valve plate cannot be moved.

6.2 Chemical dosing cannot be added or the dosage cannot be increased.

The reasons: (1) The debris in the medicine tank blocks the valve, pipeline or rotor flowmeter; (2) The pipeline valve and flowmeter have water leakage and air leakage; (3) The flow velocity in the thick pipe in front of the pump is too slow, that is, the water head loss in the pipe is too small (The vacuum is too small); (4) the water output of the pump is too small, so that the flow rate in the front pipe of the pump is too small, and the head loss is too small.

6.3 The pressure fluctuation of the dissolved air tank is too large:

(1) If the pressure is too low, the input pressure of the air compressor is too low or the safety valve fails; (2) If the pressure is too high, the safety valve fails or the pressure reducing valve on the air compressor pipeline fails.

6.4 The water level of the dissolved air tank is too high or too low

(1) If the water level is too high, the water intake of the dissolved air pump is too large or the water output of the dissolved air water is too small. It may also be that the release valve is malfunctioning and damaged, or the releaser may be blocked. (The blockage of the releaser will cause the release of water to be too small and the air flotation effect will be inaccurate, and sometimes large air bubbles will appear intermittently). (2) The water level of the dissolved air tank is too low, and sometimes it is necessary to reduce the amount of released water and the amount of influent water, but if the pressure is stable, the filler and the orifice in the tank are blocked.

6.5 Poor air flotation effect:

Poor air flotation effect refers to the intuitive effect of water produced after air flotation, such as suspended solids, and the removal of chroma is low. The factors that cause the bad effect are mainly the following four aspects: (1) Insufficient dosage of medicament or excessive water intake; (2) Insufficient air flotation return ratio (air flotation return ratio refers to the ratio of treated water and dissolved air water) ; (3) The releaser is blocked, so that large air bubbles appear in the air

flotation contact area, which are floated by bad sticky air and impact the scum, causing the scum to lose its stability and make the water turbid; (4) The slag scraper moves too fast when scraping the slag. , so that the lower layer of scum is sheared and broken and turbulent flow occurs and comes out with the effluent. Of course, if the slag is not scraped in time and there is too much mud at the bottom, the air flotation effect will be poor.

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