

⚠ Read this manual before operation



**CHANNEL SHREDDER  
INSTRUCTION MANUAL**



**YIXING TEIO INTERNATIONAL TRADE CO.,LTD.**

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**SPECIALIZED IN WATER TREATMENT SOLUTIONS**

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## **1. Overview**

Channel shredder is installed in the pipeline through flange connection, crushing the solid matters, suspended matters and slender fibers in the sewage into small particles.

It is specially designed for treating sewage and sludge. It can treat all kinds of waste in communities, industrial wastewater collection stations and sewage treatment systems. It has the advantages of strong cutting force and energy saving.

In the sewage treatment process, it is mainly used in sludge digestion tanks. It can reduce the amount of sludge in the digestion cycle, accelerate the digestion speed and reduce the cycle time.

## **2. Application Areas**

- (1) It can be used in parks, playgrounds, urban sewage treatment plants, airports, docks and other places.
- (2) It can be used in pump room sewage pretreatment: It changes the traditional method of pump station slag treatment, saves labor costs, saves civil construction costs, protects water pumps, and minimizes downtime.
- (3) It can be used in sedimentation tank sludge discharge: The sludge particles are uniform, which is conducive to subsequent nitrification.
- (4) It can be installed in front of belt filter press and dewatering machine: It prevents the filter belt of the belt filter press from tearing and puncturing, and prevents the roller and coating from being easily worn. It breaks the sludge into uniform particles, provides a stable and economical operating environment, and improves the dewatering efficiency.
- (5) It can be used in conjunction with other equipment. For example, it can be used with grid and sludge treatment equipment to realize a complete set of treatment processes including crushing, solid-liquid separation, and sludge concentration and dewatering.

## **3. Working Principle**

- (1) Unique dual-shaft design. Independent cutting blades and gaskets are installed on two parallel rotating shafts, overlapping alternately to achieve spiral cutting and obtain good cutting effect. The cutting blades and gaskets are made of special alloy steel with uniform surface and high strength, so as to ensure that the particles of different materials will be completely crushed.
- (2) Unique blade design. Driven by the motor reducer, the blades rotate in a coupled manner and generate a strong extrusion force, which can completely crush hard solids and soft impurities in the pipeline. It has the advantages of low speed rotation, large torque and good effect.

- (3) Compared with other equipment, the channel shredder has smaller head loss, increases flow efficiency, and makes water flow smoother.
- (4) Unique sealing structure. The sealing device is composed of a mechanical seal and a skeleton oil seal. There is no need to flush the seal or adjust the seal packing. It is very convenient during use and maintenance.
- (5) When there is solid blockage or jam in the channel shredder, the control cabinet will send a signal and automatically reverse the blades, remove the obstacle and crush it again, realizing intelligent control of the entire process and meeting the requirements of unattended operation.

## **4. Equipment Installation**

### *4.1 Precautions*

- (1) Read the instruction manual carefully to avoid damage to the machine due to improper use. Check carefully whether the machine is correctly selected and whether the actual usage conditions are consistent with the regulation.
- (2) A qualified electrician should use a 0~500V megohmmeter to check the cold insulation resistance of the three core wires of the motor cable to ground. The resistance should not be less than 5 megohms.
- (3) Check that the actual voltage should be within the range of the rated voltage  $\pm 5\%$ . If the power supply is far away, considering the line loss, the cross-sectional area of the cable should be increased, and the number of joints should be as small as possible.
- (4) The machine is equipped with a special power control cabinet. Please read its manual carefully before use, and check whether the equipment wiring is correct, whether the starting device is flexible, whether the joints are in good contact, whether the metal casing of the starting device is reliably grounded, whether wiring connections are loose. If there is any looseness, tighten them.
- (5) Check the rotation direction of the machine. Before the machine is installed and started for the first time or after each reinstallation, the rotation direction should be checked. Start the machine instantly and observe whether the rotation direction of the motor is consistent with the direction marked on the machine. If the rotation direction is incorrect, just swap the motor wire connections.

### *4.2 Installation Method*

- (1) Installation by lifting method. The power supply must be turned off before lifting. It is strictly forbidden to cut or scratch the cables during lifting process. There are four lifting holes on the equipment for lifting. It is strictly forbidden to use the lifting holes on the motor to lift the equipment.

- (2) The casing of the equipment should be reliably grounded to prevent electric shock accidents.
- (3) Rubber joints must be equipped on both sides to prevent the equipment from shaking during operation and causing loosen of the pipeline bolts.

## **5. Equipment Commissioning**

- (1) Before starting, it is necessary to check whether the rotation direction of the blades is correct. If the rotation direction is incorrect, swap the motor wire connections.
- (2) If the equipment cannot be started immediately after turned on the switch, check the power control cabinet. If a fault is founded (alarm sounded), the operator should check and eliminate the fault before starting the machine. If the motor does not rotate, the power supply should be turned off immediately to avoid motor damage.
- (3) After the equipment is started, pay close attention to the reducer, motor, and blades to see if there is any abnormal temperature rise or noise, and whether the voltage meter and current meter of the control cabinet are normal. If there is any abnormal phenomenon, the equipment should be stopped immediately to find out the cause. The equipment can be restarted only after the fault is eliminated.
- (4) When several machines are powered by the same transformer, they cannot be started at the same time. They should be started one by one from large to small, and stopped one by one from small to large.
- (5) During operation, the current of the equipment should not exceed the rated current. The three-phase current imbalance should not exceed 10% when no-load and 5% when rated load.
- (6) During operation, the deviation between the power supply voltage and the rated voltage should not exceed 5%, and the three-phase voltage imbalance should not exceed 1.5%.

## **6. Maintenance**

In order to ensure the normal use and life of the channel shredder, regular inspection and maintenance should be carried out every year.

- (1) If the blades are worn or damaged, the crushing effect will be affected, the blades should be replaced in time.
- (2) Regularly add grease or lubricating oil to the reducer.
- (3) After long-term use, if the crushing performance is reduced due to wear of gears, the gears should be replaced in time.
- (4) Observe whether there is oil leakage, if there is, replace the sealing device in time.

- (5) Check the cable at least once a year. If it is damaged, replace it in time.
- (6) Check the motor insulation and reducer fastening bolts at least once a year. If the motor insulation capacity of the motor decreases, please contact the relevant department. If the fastening bolts are loose, please re-tighten them.
- (7) When the faults happen, if the faults cannot be solved according to the instruction manual. Do not disassemble the equipment without permission, please contact the relevant department immediately.

## **7. Safety Measures**

- (1) When there is solid blockage or jam in the channel shredder, the control cabinet will send a signal and automatically reverse the blades. After the blockage is cleared, the blades will resume normal rotation. If the blockage still exists, the control cabinet will perform reversing the blades for at most three times. If the blockage still exists after three times, the control cabinet will disconnect the power supply of the motor and send out an alarm signal.
- (2) The power supply should be turned off during maintenance. Live working is strictly forbidden.



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