

What is the screw loader?

Screw loader is a device for conveying materials by rotating screw shaft. The structure of the screw loader is simple and easy to operate and maintain. The external dimensions of the cross-section are not large; materials can be in and out at any position in the length direction. And screw loader has a good sealing effect so that it is widely used in all industries. Screw conveyor is suitable for conveying powder, granular and small block materials in a horizontal or inclined way, such as coal powder, soda ash, reclaimed rubber powder, zinc oxide, calcium carbonate, and small coal, and so on. The screw loader is not suitable for conveying the material which is easy to deteriorate, viscous, and lumpy.

1. Working principle

The screw loader is similar to the movement of the screw pair. When the nut does not rotate but when the screw shaft rotates, the material can only move forward along the bottom of the conveyor under the push of the blade due to the gravity of the material and the friction between the material and the tank wall, as if the nut that cannot be rotated moves in translation along the rotating screw. The movement of the material in the intermediate bearing depends on the thrust of the material moving behind. Therefore, the transport of materials in the conveyor is a complete slippage movement. To make the screw shaft in a more favorable state of tension, the driving device and the unloading port are generally placed on the same end of the conveyor, and the feeding port is placed near the tail of the other end. The rotating spiral blade pushes the material forward for conveying. The force that prevents the material from rotating with the screw conveyor blade is the material's weight and the friction resistance of the screw conveyor housing to the material.

2. Installation instructions

- (1) After installation, there should be no less than 6mm clearance between the helical blade and the shell so that the material can be transported smoothly.
- (2) After installation, the screw machine is kept in line with the feeder to avoid material deviation to one side when feeding.
- (3) Before starting the machine, check whether there is any foreign body in the shell of the screw loader; check whether the fasteners are firmly fastened; check whether the electrical wiring and insulation are in good condition.
- (4) Try to start, observe whether the rotation direction of the main axle is correct, if the direction is wrong, then replace the wiring of the motor.
- (5) Starting to observe whether the screw is stable and whether the current is within the rated value; Whether the sound is normal, whether the feeding quantity meets the requirements.

3. Operating instructions

- (1) After each startup, the machine should run without load for a certain time and the machine can be fed after the normal operation of the street equipment. The feeding should be maintained evenly and a large number of sudden increases or overload operations should not be allowed.
- (2) No load parking is allowed without special conditions. Generally, after the stop of feeding the machine should be stopped when the material in the shell is unloaded. In case of an emergency shutdown, the starting point must be moved several times or an appropriate amount to remove the materials in the housing.
- (3) The operator should always check the parts of the machine, especially the screw blades and drive devices, to ensure that they are in good condition. Once the machine parts with residual damage (such as severe deformation or loss of the blade, severe wear and tear of the joint pin shaft) are found, they should be repaired or replaced in time.
- (4) During operation, iron parts, large hard objects, and other sundry objects should be strictly prevented from being mixed into the screw loader to avoid damage or other accidents.
- (5) Take care to keep all bearings and drive parts well lubricated.

4. Common fault and treating method

Fault
Reason
Solutions

The motor does not start or stops slowly after starting.

- (1) Low supply voltage.
 - (2) The load is too heavy.
 - (3) Contact fault.
- (1) Enhance Supply Voltage.
 - (2) Reduce the load and part of the material in the equipment should be removed.
 - (3) Check relay.

Motor heating.

- (1) Startup too often.
- (2) Overload for too long.

- (3) The motor is in a poor heat dissipation condition.
- (4) The bearing is short of oil or damaged

- (1) Reduce startup times, and start again after the faults of each part are eliminated.
- (2) Reduce the load, shorten the overload operation time.
- (3) Check the motor for normal cooling to remove sundries on the motor.
- (4) Oil or replace bearings

Motor acoustic anomaly.

- (1) Single-phase operation.
- (2) The terminal is not strong.
- (1) Investigation of single-phase cause.
- (2) Check terminal.

The sound of the reducer is abnormal.

- (1) Bad gear engagement.
- (2) Excessive wear of bearings or gears.
- (3) There are metal and other sundries in the reducer.
- (4) Excessive bearing clearance.
- (5) Damage to the parts.
- (1) Adjust gear engagement.
- (2) Replace worn or damaged gears and bearings.
- (3) Clear the metal and other sundries in the reducer.
- (4) Adjust the axial clearance of the bearing.
- (5) Repair or replace parts.

The shaft is too hot.

- (1) Insufficient lubricating oil
- (2) Bearing failure.
- (1) Lubricate as required.
- (2) Replace the bearing.

5. Maintaining

To ensure the normal operation and daily normal use of the screw loader, careful maintenance plays a great role in the service life of the equipment and it is necessary to develop safe operating procedures and maintenance system to have regular repair and replacement of parts to prevent improper operation caused by equipment and personal accidents. The safety operation rules and reasonable maintenance system should be carefully formulated by the user according to the actual situation. The following considerations should be taken into account when formulating the maintaining system.

- (1) Under the normal use of the equipment conveyor shall not be used to complete additional tasks other than the required and is not allowed to overload anything else.
- (2) The passage to the emergency switch should be free of obstacles and check whether the switch is in good condition regularly.
- (3) Observe the reducer constantly and add lubricating oil in time. Replace the roller with rigid rotation or large axial momentum in time and continue to use after maintenance.
- (4) Clean the materials bonded to the surface of the supporting roller and the main roller: observe the peeling condition of the conveyor belt surface and repair in time.
- (5) The conveyor should be repaired regularly. The equipment should be checked and repaired quarterly, semi-annually, and biennially. During the overhaul, all parts of the belt conveyor should be removed, cleaned, and worn parts replaced.

6. Notes

- (1) No one shall traverse or be on the conveyor while it is in operation. Conveyors are not allowed to take people.
- (2) Make sure there are no sundries and other coverings on conveyor reducer, motor, and other devices.
- (3) Under normal operating conditions, and personnel shall not directly contact the moving parts and keep a distance. Please do not wear loose clothing during the operation, especially collar, cuffs, and trousers.
- (4) The outlet must be unobstructed and not blocked. Otherwise, it will be seriously overloaded to result in a motor burn or damage to other parts.
- (5) Screw rotation direction must ensure the correct direction before feeding.
- (6) If the machine is shut down for a long time, the remaining materials in the discharge tank and the materials bonded to the screw shaft should be cleaned thoroughly to prevent long-term bonding and extend the service life of the equipment.
- (7) Each bearing should be refueled regularly.

If this page still not solve your questions, we can talk about your questions and discuss it, just tell me!

Just call me if you want: 008617691068515, my name is Lexi.