LSB series vertical centrifugal pump

Operation Manual

XI’AN HL Petroleum Equipment Co.,Ltd

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1. Summary

1.1 Application

LSB series vertical centrifugal pump is specially designed for pumping drilling fluid or industrial slurry. In comparison, it has the characteristics of excellent performance, large flow, easy maintenance, high reliability and remarkable energy saving effect. At the same time, this vertical pump can transport the medium temperature up to 500 ℃, and the overflow part is made of more wear-resistant high-alloy material, which greatly increases the service life.

Vertical slurry pumps are widely used, LSB50 series are mainly used for liquid supply of centrifuges, LSB100 and LSB150 series are mainly used for mud transportation between tanks, slurry supply for desander, desilter, and power for mixing pumps. The length of the submerged section can be customized according to the customer's request so as to meet the needs of different working conditions.

1.2 Features

The appearance of LSB series vertical sand pump for vertical structure, its characteristic is to work under the fuselage into tank, motor parts in the tank surface, occupies space is only the position of the motor. Therefore, the pump has the characteristics of compact structure and easy installation.

2. Technical Parameter

Feeding pump model: LSB50-5.5

Capacity: 40m3/h

Head: 12m

Length: 1400mm

Outlet diameter: 50mm

Motor power: 5.5kw Voltage/Frequency: 380V, 50Hz

Weight: 227KG Dimension: 2030x550x650mm

3. Structure Specification

LSB vertical sand pump is mainly composed of boom pump body, pump cover, impeller, vice impeller, cover plate, pump shaft, bearing oil seal and suspension parts.

Pump impeller pump body and pump cover from the back part openings (commonly referred to as the door after). Its advantage is simple maintenance, when the repair not dismantle the pump body and suction pipe, the discharge line maintenance.

Pump shell (i.e., pump body and pump cover pump studio and seal chamber; Vice impeller impeller, and rolling bearing for the pump rotor suspension bearing parts such as supporting the pump rotor parts, rolling bearing by the radial force and axial force of pump.

The axial force of the pump by the deputy vice impeller blades and balanced. Its advantage is hardly carry axial force.

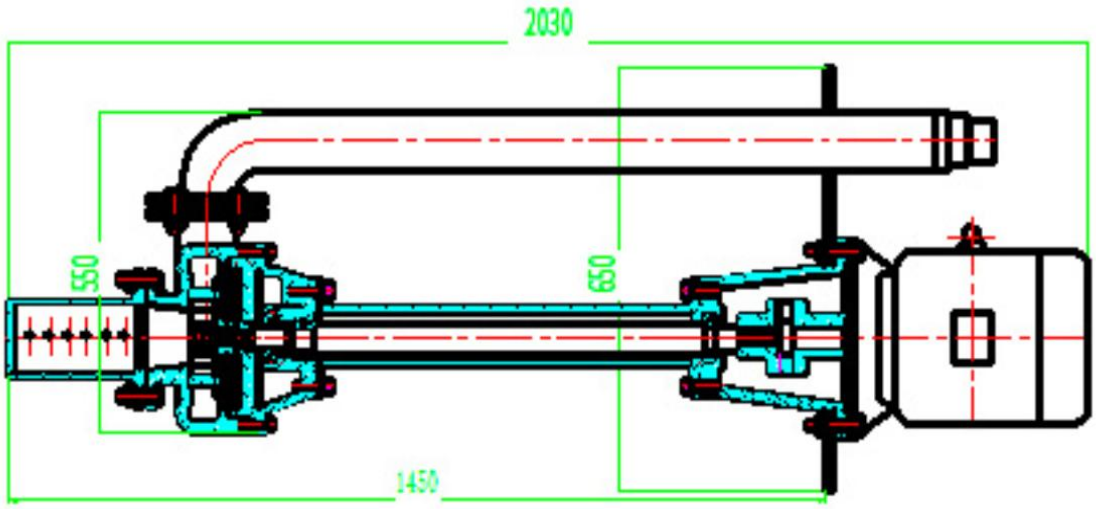
Axial seal of pump is composed of vice impeller and seal chamber dynamic seals and static pressure cushion seal. Its advantages has two aspects: one is the pump stops, atmospheric pressure and fluid column pressure compression seal gas in the chamber, forming cushions, to ensure the bearing inner water; Second, when the pump is running, vice impeller the relative pressure against the pressure generated by the impeller, ensure studio impeller seal. Pump bearing, therefore, adopt thin oil lubrication, pump shaft from the lubricating oil, there is no stirring oil overheating. The oil cavity end with oil seal.

Pump body, impeller, vice impeller, casing, deputy cover plate are MII manganese in ductile iron casting, good abrasion resistance and corrosion resistance; Pump body structure with annular pressure water chamber volute pressure water chamber, the advantages of reducing the radial force on the impeller, reduced the water the song of pump shaft deformation; It is these characteristics, just have the vertical sand pump with high efficiency, reliability and long service life of the shaft sealing system.

Pump transmission way is through the elastic coupling and motor shaft connection.

The direction of rotation of the pump, from the drive end see, for clockwise rotation.

4.Pump dimensional drawing



5. Assembly and Disassembly

Pump should firstly check whether there is any impact on the parts before assembly assembly defects, in scrub clean rear assembly can be performed.

1). Place the connecting bolts on the corresponding parts in advance;

2). O-rings, asbestos pads, oil seals, etc. can be placed on the corresponding parts in advance;

3). Install the rolling bearing on the shaft, then install it into the suspension, close the gland, and compress the rolling bearing;

4). Install the shaft sleeve on the shaft, install the pump cover on the frame, then tighten the impeller, auxiliary housing, and auxiliary impeller to the shaft; finally install the above components into the pump body, and tighten the pump body and pump cover. connecting bolts;

5). During the above assembly process, special attention should be paid to some small parts such as retaining rings, bushing O-rings, etc. that are easy to be missed or installed in the wrong order;

6. The disassembly sequence of the pump body can basically be carried out in the reverse direction of the assembly sequence.

5. Install

Pump installation quality has direct influence to the operation and life of the pump, so the installation and calibration must be done carefully.

5.1 Installation and debugging

1) clear the oil and dirt, on the base of the pump on the tank;

2) check the motor with the verticality of tank;

3) should stay soft pipeline allowance, in case of oblique pump body;

5.2 Installation Instructions

1) The installation height of the pump, the length, diameter, and flow rate of the pipeline should comply with the actual conditions and strive to reduce unnecessary losses;

2) When transporting over long distances, a larger pipe diameter should be used. The pump pipeline should have its own bracket. Do not allow the important parts of the pipeline to press on the pump to avoid crushing the pump;

6. Start,Stop,and Transportation

6.1 Start

1) should be in front of the pump connection to determine the direction of rotation of the motor is correct, the rotation of the pump is flexible;

2) closed out the gate on the road;

3) turning on the power supply when the speed of the pump to normal speed, then gradually open the gate on the road in the discharge pipe, and adjust to the required conditions. On the discharge pipe of the gate is closed, under the condition of the pump continuous working hours must not exceed 3 minutes;

6.2 Stop

1) gradually close the gate on the road in the discharge pipe, cut off power supply.

2) if the environment temperature is lower than 0 ℃, should will pump the liquid out, lest pump frost crack.

3) if use for a long time, the pump should be disassembled, cleaning and oiling wound;

6.3 Transportation

1) in the process of startup and running, must pay attention to observe the meter reading, check whether the bearing is fever, vibration and noise of pump is normal; If found abnormal situation, should be timely stop processing;

2) the bearing temperature is highest is not greater than 80 ℃, the bearing temperature rise is not more than 40 ℃;

3) bearing should be full of lubricating oil in the oven, regularly check oil cup, and cheer in a timely manner.

7. The cause of the problem and solution

Problem	Cause	Solution
Pump don’ t suction, pressure gauge pointer violent vibration.	Liquid level is too low, conduit or instrument air leakage.	Raise the level, tight gas leakage.
Observe the pressure gauge, water pressure, but still can't water pipes	1. The outlet pipe resistance is too large; 2. The impeller rotation direction is wrong; 3. The impeller silt	1. Check or shorten the pipe; 2. Check the motor 3. Remove the impeller joint, wash the impeller.
Pump don’ t suction,	Filter, silting up badly worn.	Clean water pump and tube, and to start the blender.
Excess flow	Pump silting up, serious wear and tear	Clean water pump and tube, and replace the impeller.

Abnormal sound	1. The impeller is loose; 2. Bearing lubricating oil is insufficient.	1. Check the impeller, good pressure plate and screw down; 2. Add the lubricating oil
Bearing heating	1. Lack of lubricating oil; 2. Of the pump body and the motor.	1. Add or replace lubricating oil; 2. Adjust the coupling.

Address: Room 804, Building 1, Western Cloud Valley Phase II,

Fengxi New Town, Xixian New District, Shaanxi Province, China

Phone: 029-88680837 +86-17392256505

Fax: 029-88680975

E-mail: sales@hlsolidscontrol.com

Web:www.hlsolidscontrol.com