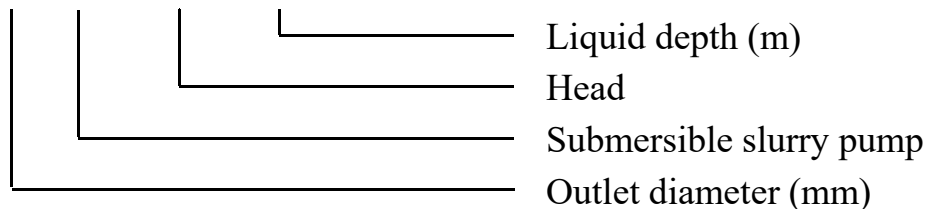


## Overview

**YZB type pump** is a single-stage vertical submersible slurry pump. It is suitable for transporting liquids containing solid particles and is widely used in hydraulic ash removal in thermal power plants, conveying concentrates and tailings in mineral processing plants, and transporting mud at construction sites. The maximum weight concentration conveyed is 50%-60%.

### Model meaning:

25 YZB — 13 × 1.5



## Structure description

The YZB submersible slurry pump mainly has two structural forms. One is the cantilever type, also called the top-mounted type, with the bearing box above the liquid level; the other is the sealed type, also called the immersed type, with parts of bearing seat immersed in liquid.

### Cantilever structure

#### 1. Pump head part

It is mainly composed of suction pipe, pump body, impeller, guard plate, bushing, rubber ring and other parts. Determined by the properties of the medium being transported, there are two types of impellers: open and closed impellers, which are threaded ( right-hand ) to the shaft . The axial position of the impeller in the pump body is adjusted by a round nut. The flow parts ( pump body, impeller, guard plate ) are made of alloy wear-resistant cast iron or alloy wear-resistant cast steel.

## 2. Shaft seal part

This type of pump has no shaft seal, and the entire pump body sinks into the liquid to run, making it easy to start at any time.

## 3. Bearing part

It is mainly composed of bearing boxes, rolling bearings, upper and lower bearing glands, garden nuts, skeleton oil seals and other parts.

## 4. Connecting and fixed parts

The pump head part is connected to the connecting pipe ( bracket ) and the bearing box. The bearing box is seated on the base, and the pump outlet pipe is fixed on the base.

## 5. Pump shaft part

This structure uses a main shaft that directly extends into the pump body through the bearing box to connect with the impeller ( threaded connection ) . This structure is simple and the operation is smooth and reliable, but the maximum depth of the liquid is 1.5 meters.

## 6. Motor and transmission parts

The motor uses a vertical B5 base. The motor shaft and the pump shaft use elastic block couplings to transmit torque. The motor is connected to the bearing box through the motor base.

## 7. Lubrication part

This structure guide bearing has a waterless lubrication system, and the rolling bearings are lubricated with molybdenum disulfide.

### Sealed structure

#### 1. Pump head part

It is mainly composed of pump body, pump cover, sealing ring, impeller nut, impeller, intermediate frame and other parts.

## 2. Shaft seal part

Skeleton oil seal is used, and mechanical seal or secondary impeller seal can also be designed according to the medium conditions.

## 3. Bearing part

It is mainly composed of rolling bearings, bearing seats, bearing glands, hole retaining rings and other parts.

## 4. Connection and fixed parts

The pump head part is connected to the bearing seat, connecting pipe and upper bearing seat (each connection contact surface is sealed with a mat, the thickness of the mat is 1 mm ), and the upper bearing seat is fixed on the base.

## 5. Pump shaft part

The structure adopts segmented shaft soft connection (a coupling is used between the two shafts and a rubber elastic block is connected), and the underwater depth can reach more than 5 meters, but it must be assembled on site.

## 6. Motor and transmission part

The motor uses a vertical B5 base. The motor shaft and the pump shaft use elastic block couplings to transmit torque. The motor is connected to the upper bearing seat through the motor base.

## 7. Lubrication part

This structure has no guide bearing, so there is no water lubrication system, and the rolling bearings are lubricated with molybdenum disulfide.

**YZB slurry pump performance table**

Model	Flow m <sup>3</sup> /h	Head m	Speed r/min	Motor Power KW	Efficiency %
50YZB-13	7.2	14	1450	3	twenty one
	12	13			30
	16	12			35
50YZB-15	20	20	1450	5.5	28
	28	15			35
	32	13			38
50YZB-20	30	twenty two	1450	11	33
	47	20			41
	58	19			42
50YZB-22	twenty four	twenty four	1450	7.5	30
	40	twenty two			46
	60	19			50
50YZB-26	45	30	1450	18.5	38
	51	26			45
	60	twenty two			49
65YZB-30	45	32	1450	18.5	38
	58	30			47
	62	25			52
65YZB-50	30	54	2950	twenty two	51
	55	50			60
	70	45			62
80YZB-21	54	25	1450	twenty two	37
	108	twenty one			42
	151	16.5			41
80YZB-27	40	30	1450	15	38
	80	27			45
	100	20			50
80YZB-40	55	44	1450	30	45
	110	40			60
	140	37			62
80YZB-54	50	60	1450	30	42
	80	54			49

Model	Flow m <sup>3</sup> /h	Head m	Speed r/min	Motor Power KW	Efficiency %
	110	50			56
100YZB-27I	130	32	1450	30	57
	165	27			65
	200	twenty three			71
100YZB-36	125	39	1470	45	51
	170	36			60
	225	34			62
100YZB-34	180	36	1450	45	54
	214	34			63
	230	32			68
100YZB-40	100	45	1470	37	58
	150	40			64
	200	35			70
100YZB-54	130	57	1470	55	50
	180	54			60
	230	50			62
150YZB-18	130	20	1470	twenty two	51
	160	18			57
	190	16			62
150YZB-27	180	28	1470	45	65
	280	27			70
	400	twenty one			68
150YZB-39	240	41	1470	75	62
	320	39			70
	380	37			70
200YZB-20	280	twenty four	1470	55 , 75	64
	400	20			70
	480	16.5			65
200YZB-37	450	39	1470	90, 110	65
	620	37			75
	800	35			78
250YZB-20	500	twenty four	980	75, 90	65
	750	twenty two			75

Model	Flow m <sup>3</sup> /h	Head m	Speed r/min	Motor Power KW	Efficiency %
	900	19			78
250YZB-39	700	40	1470	200, 220	65
	1000	39			75
	1200	35			78
300YZB-39	1100	43	1470	280, 315	67
	1600	39			78
	1800	35			80

## Assembly, disassembly, installation, starting and operation

### 1. Pump disassembly sequence

(1) Close the gate valve in the discharge pipe, remove the flange of the outlet pipe and the bolts connecting the base and the container, remove the motor base and motor, lift the overall pump out of the pit and lay it flat on the ground.

(2) Loosen the bolts connecting the pump body outlet flange and the outlet pipe, and remove the outlet pipe.

(3) Loosen the three connecting bolts between the pump body and the connecting pipe ( bracket ) , and remove the pump body.

(4) Fix the pump coupling and rotate the impeller counterclockwise to remove the impeller and guard plate.

(5) Remove the lower sleeve, upper sleeve and garden nut downwards, loosen the connecting bolts between the connecting pipe ( bracket ) and the bearing box, and remove the connecting pipe ( bracket ) .

(6) Pull out the pump coupling and loosen the upper and lower bearing covers and round nuts.

(7) Pull out the main shaft and remove the bearing.

2. The assembly sequence of the pump is opposite to the disassembly sequence. When assembling, pay special attention to the clearance between the impeller and the pump body. Use the round nut to adjust the axial position of the sleeve and impeller to minimize the clearance ( but no friction ) .

### 3. Install

(1) After the pump is assembled, turn the coupling to see if it rotates flexibly, check for metal friction sound, and prepare tools and lifting machinery. The 25YZB-0.6 slurry pump can be directly placed flat in the pool for use, but the liquid level must not be higher than the lower bearing cover.

(2) Connect the motor to the motor base only after confirming that the steering direction of the motor wiring is consistent with the pump steering sign. Check the concentricity of the pump shaft and the motor shaft. The difference between the outer circles of the two couplings shall not exceed 0.3 mm.

(3) The distance from the suction inlet of the pump to the bottom of the container is 1.5-2 times the suction inlet diameter, and the surrounding area should not be less than 2.5 times. The larger value is used for small diameters, and the smaller value is used for large diameters.

(4) After the installation is completed, check whether the nuts of each component are tightened and rotate the coupling to see if it rotates flexibly before assembling the pump motor on the container. After installation, check again.

(5) The water outlet pipe of the pump should be supported by a separate bracket, and its weight is not allowed to be added to the pump body.

#### 4. Starting and stopping

(1) Check the bearing cavity to ensure that it maintains a certain amount of clean grease. It is usually appropriate to fill 1/2-1/3 of the oil cavity to avoid excessive temperature rise of the bearing during operation.

(2) Turn the coupling to check whether there is uneven weight. If not, find out the cause and wait until it is eliminated before running again.

(3) Close the gate valve and pressure gauge on the outlet pipeline.

(4) Start the motor, open the pressure gauge, slowly start the outlet pipeline gate valve to its appropriate position, and put it into normal operation.

(5) For normal parking, you should first slowly close the outlet gate valve, then stop the motor and close the pressure gauge.

(6) If it is parked or not used for a long time, the pump should be taken out of the container, cleaned and reinstalled, refueled and stored.

#### 5. Run

(1) The bearing temperature should not be higher than 75 °C, and the grease in the bearing

cavity should be replaced every three months.

(2) The overall pump should be inspected once every six months of operation, and wearing parts should be replaced in time. It should be reassembled and debugged before being put into operation.

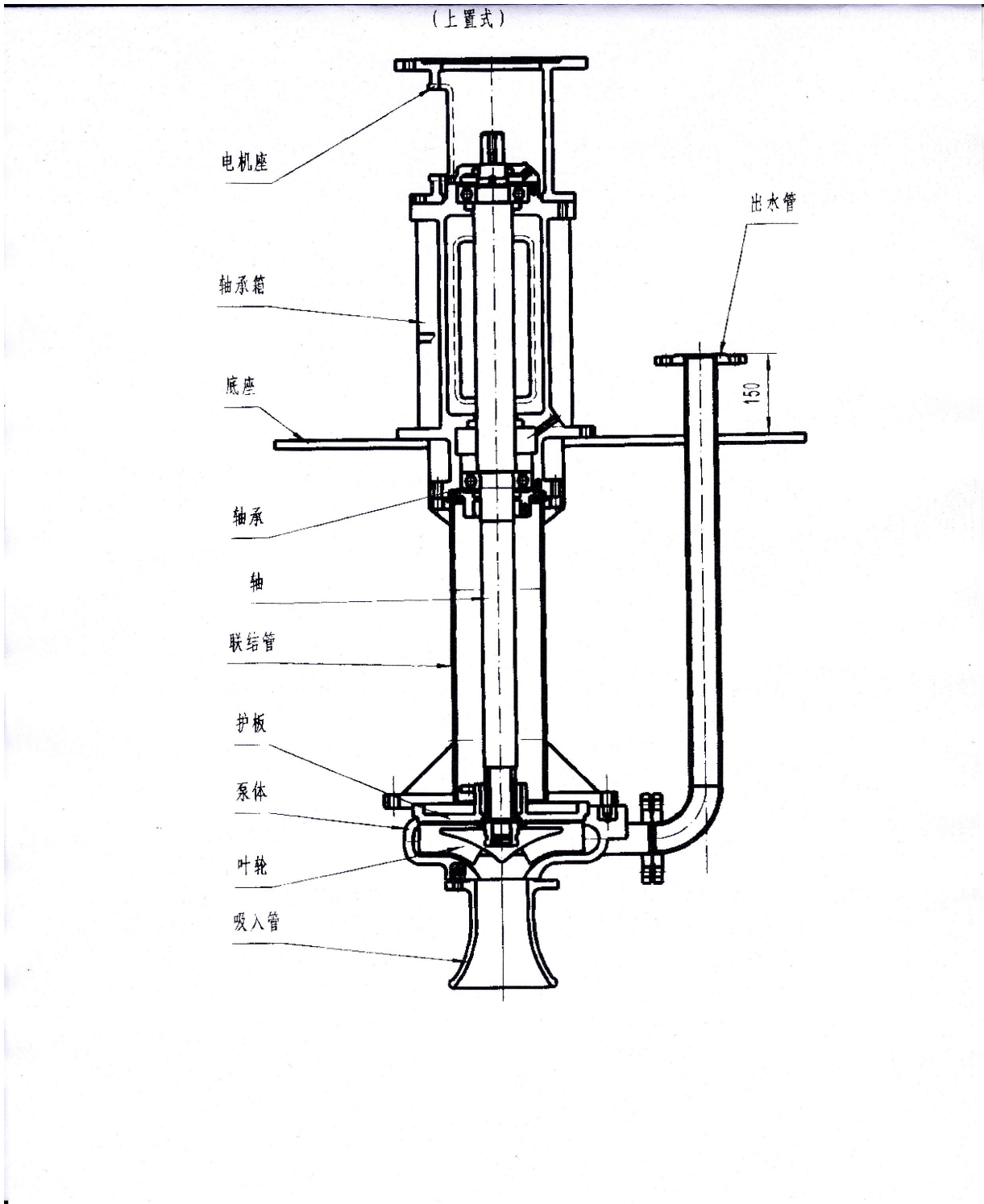
(3) If the following malfunction occurs during the operation of the pump, it should be stopped immediately and inspected.

### **Possible faults and their elimination methods**

Possible faults	Causes	Solutions
Can't pump liquid	<ol style="list-style-type: none"> <li>1. The flow channel and suction are blocked</li> <li>2. The liquid is not immersed in the center line of the impeller.</li> </ol>	<ol style="list-style-type: none"> <li>1. Clear blockage</li> <li>2. Adjust the immersion height</li> </ol>
Insufficient flow	<ol style="list-style-type: none"> <li>1. The impeller is seriously worn</li> <li>2. The gap between the impeller and the pump body is too large</li> <li>3. Insufficient speed</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace the impeller</li> <li>2. Readjust the gap</li> <li>3. Increase to rated speed</li> </ol>
Insufficient head	Same as above	Same as above
Too much power	<ol style="list-style-type: none"> <li>1. The flow rate exceeds the usage range</li> <li>2. The specific gravity of the medium is too large</li> <li>3. Produce mechanical friction</li> </ol>	<ol style="list-style-type: none"> <li>1. Operate the pump according to its usage range</li> <li>2. Replace with a larger power motor</li> <li>3. Identify the cause and eliminate mechanical friction</li> </ol>
Bearing heat	<ol style="list-style-type: none"> <li>1. The pump shaft and motor shaft are not concentric</li> <li>2. The inner cavity of the bearing box is short of oil or the oil has deteriorated.</li> <li>3. Bearing wear</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust concentricity</li> <li>2. Refuel or change grease</li> <li>3. Replace bearings</li> </ol>
Noise and	<ol style="list-style-type: none"> <li>1. The pump shaft and the motor shaft are not concentric</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust concentricity</li> <li>2. Identify the cause and</li> </ol>



vibration	2. Produce mechanical friction	eliminate mechanical friction
	3. Shaft bending	3. Replace the shaft



## YZB type pump appearance dimension table

Pump model	A	A1	B	B1	E	F	nd	D	D1	Dg	n2-d2
50YZB -13	660	600	520	450	80	115	4-19	165	125	50	4-19
50YZB-15	700	650	630	580	80	142.5	6-19	165	125	50	4-19
50YZB-20	700	650	630	580	80	142.5	6-19	165	125	50	4-19
50YZB-22	700	650	630	580	80	142.5	6-19	165	125	50	4-19
50YZB-26	780	700	720	650	100	162.5	6-19	165	125	50	4-19
65YZB-30	880	800	780	700	100	170	6-19	185	145	65	4-19
65YZB-50	980	900	780	700			6-19	200	160	80	8-19
80YZB-21	970	900	790	720	150	202	6-19	200	180	100	8-19
80YZB-27	970	900	790	720			6-19	200	180	100	8-19
80YZB-40	970	900	790	720	130	195	6-19	200	180	100	8-19
80YZB-54	1020	950	820	750			6-19	200	160	80	8-19
100YZB-20	880	800	780	700	100	170	6-19	220	180	100	8-19
100YZB-27I	880	800	780	700	100	180	6-19	220	180	100	8-19
100YZB-34	980	900	820	750	120	220	6-19	220	180	100	8-19
100YZB-36	1020	950	820	750			6-19	220	180	100	8-19
100YZB-54	1020	950	820	750	120	240	6-19	220	180	100	8-19
150YZB-18	980	900	780	700	120	200	6-19	285	240	150	8-23
150YZB-27	1020	950	820	750	120	210	6-19	285	240	150	8-23
150YZB-39	1020	950	820	750	140	240	6-24	285	240	150	8-23
150YZB-54	1080	1000	820	750	140	250	6-24	285	240	150	8-23
200YZB -20	1080	1000	900	800	200	220	6-24	340	295	200	8-23
200YZB-37							6-24	340	295	200	8-23
250YZB-20							6-24	445	400	300	12-23
250YZB-39							6-24	395	350	250	12-23
300YZB-39							6-24	445	400	300	12-23

