

ZJQ 型潜水渣浆泵
ZJQ Submersible Slurry Pump

使用说明书
Instructions for Use

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石家庄耐普泵业有限公司

安全警告

Safety warning



使用前请仔细阅读警告

Please carefully read the warning before use

1. 泵组必须良好接地。
The pump unit must be well grounded.
2. 开机前油室中必须注入适量汽轮机油。
The appropriate amount of steam turbine oil must be injected in the oil chamber before startup.
3. 开机前必须确保电机冷态绝缘电阻不低于 $50M\Omega$ 。
One must guarantee that the cold insulation resistance of the motor is not less than $50M\Omega$ before startup.
4. 电缆应该保持适当的松紧，避免电缆受力而造成损坏。
Appropriate tightness of the cable shall be kept, so as to avoid damages due to cable stress.
5. 泵组安装前必须确定水泵转向正确（该系列水泵从电机方向往下看顺时针旋转）。
Before installation of the pump unit, one must confirm that the water pump rotating direction is correct (the series of water pump rotate clockwise judging from the motor to below)

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一、概述

I. Overview

ZJQ 型潜水渣浆泵是电机与水泵同轴一体潜入介质中工作的水力机械，该产品选材精良、结构先进、过流通道宽阔、排污能力强。适合于输送含有沙石、煤渣、尾矿等固体颗粒的液体，主要用于冶金、矿山、火力发电厂等企业渣浆类液体的清除及输送，是传统渣浆泵的理想替代产品。

ZJQ submersible slurry pump is the hydraulic machinery with coaxial motor and water pump and submerged in the medium for work. The product has excellent material selection, advanced structure, wide flow channel and strong corrosion resistance. It is suitable for conveying the liquid with sandstone, coal cinder, tailings and other solid particles. It is mainly used for cleaning and conveying of the slurry liquid of metallurgy, mine, thermal power plant and other enterprises, and is the ideal substitute product of the traditional slurry pump.

该系列产品是吸收国外先进技术设计制造。水泵除主叶轮外在底部增加一套搅拌叶轮，能将沉积的淤渣喷击成湍流，使水泵在没有辅助装置的情况下能够实现高浓度输送。独特的密封装置能够有效平衡油室内外的压力，使得机械密封两端压力保持平衡，最大限度的保证了机械密封的运行可靠性，大大延长了其使用寿命。

The series products are designed and manufactured by absorbing the foreign advanced technology. A set of mixing impeller is added at the bottom at the water pump except for the primary impeller, which can spray the sedimented sludge to eddy flow, so that high concentration convey can be realized when the water pump has no auxiliary device. The unique sealing device can effectively balance the pressure inside and outside the oil chamber, so that pressure at both ends of mechanical seal is maintained balanced. It guarantees operation reliability of mechanical seal to the maximum limit, and greatly extends the service life.

二、使用条件

II. Use conditions

1、电源为 50Hz、380V 三相交流电源。

1. The power supply is 50Hz, 380V three-phase AC power supply.

2、介质的最高温度不得高于 60℃，介质中不含易燃易爆性气体。

2. The maximum temperature of the medium shall not be higher than 60℃, and the medium shall not include the combustible and explosive gas.

3、介质中固体颗粒的最大体积浓度为 30%，最大介质密度为 1.2g/L。

3. The maximum volume concentration of solid particle in the medium is 30%, and the maximum medium density is 1.2g/L.

4、机组最大潜水深度一般不大于 20 米，最小潜水深度以淹没电机为准。

4. The maximum submersible depth of the unit shall not be more than 20m generally, and the minimum submersible depth shall flood the motor.

5、机组在介质中以立式工作为好，运行方式为连续运转。

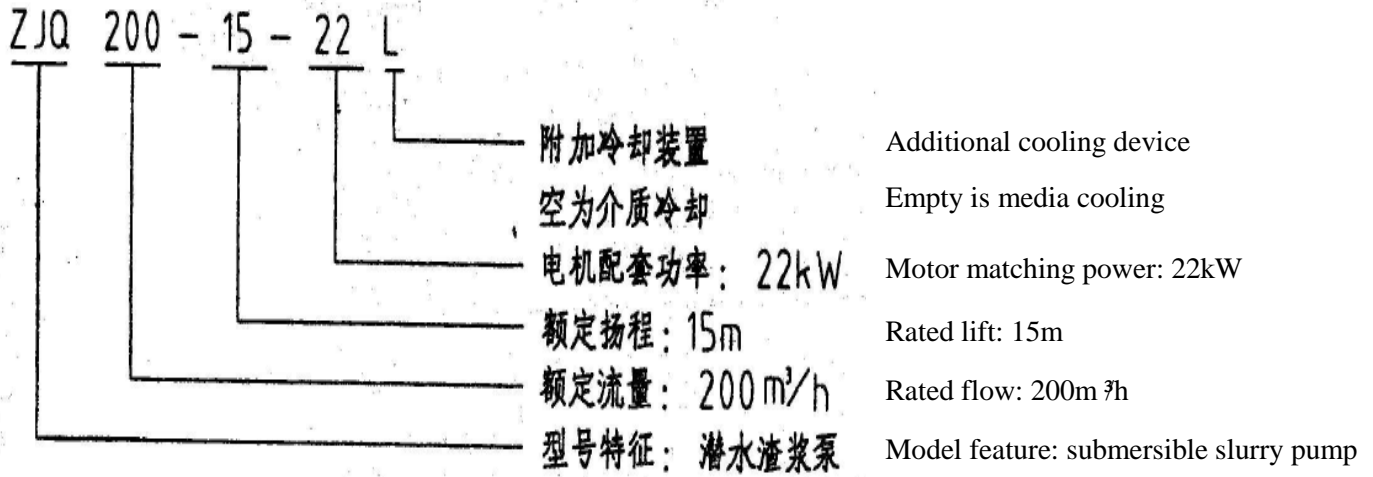
5. The unit shall operate in a vertical way in the medium at best, and the operation mode is continuous operation.

注：当现场条件不符合上述规定时，请在定货时说明，可根据要求定制。

Note: when the site conditions do not conform to the above provisions, please indicate it during order. It can be customized according to requirements.

三、型号意义：

III. Model meaning:



四、结构特征与工作原理

IV. Structural features and working principle

ZJQ 型潜水渣浆泵为水泵与电机同轴一体，工作时通过电机轴带动水泵叶轮旋转，将能量传递给浆体介质，使之产生一定的流速，带动固体物流动，实现浆体的输送。

The water pump and motor of ZJQ submersible slurry pump are integrated on the same axle. The motor shaft drives rotation of the water pump impeller during operation, and the energy is transferred to the slurry medium, so as to generate a certain flow rate. It drives solid flowing, realizing slurry conveying.

其主要特点如下：

The main features are as follows:

1、电机采用机械密封保护，能有效地防止高压水和杂质进入电机内腔。

1. Mechanical seal protection is adopted for the motor, which can effectively prevent the high pressure water and impurities from entering the motor.

2、除主叶轮外，还设有搅拌叶轮，能将沉淀于水底的淤渣搅拌成湍流后抽取出来。

2. In addition to the primary impeller, the mixing impeller is also arranged, which can mix the sludge residue settled at the water bottom to turbulent flow for extraction.

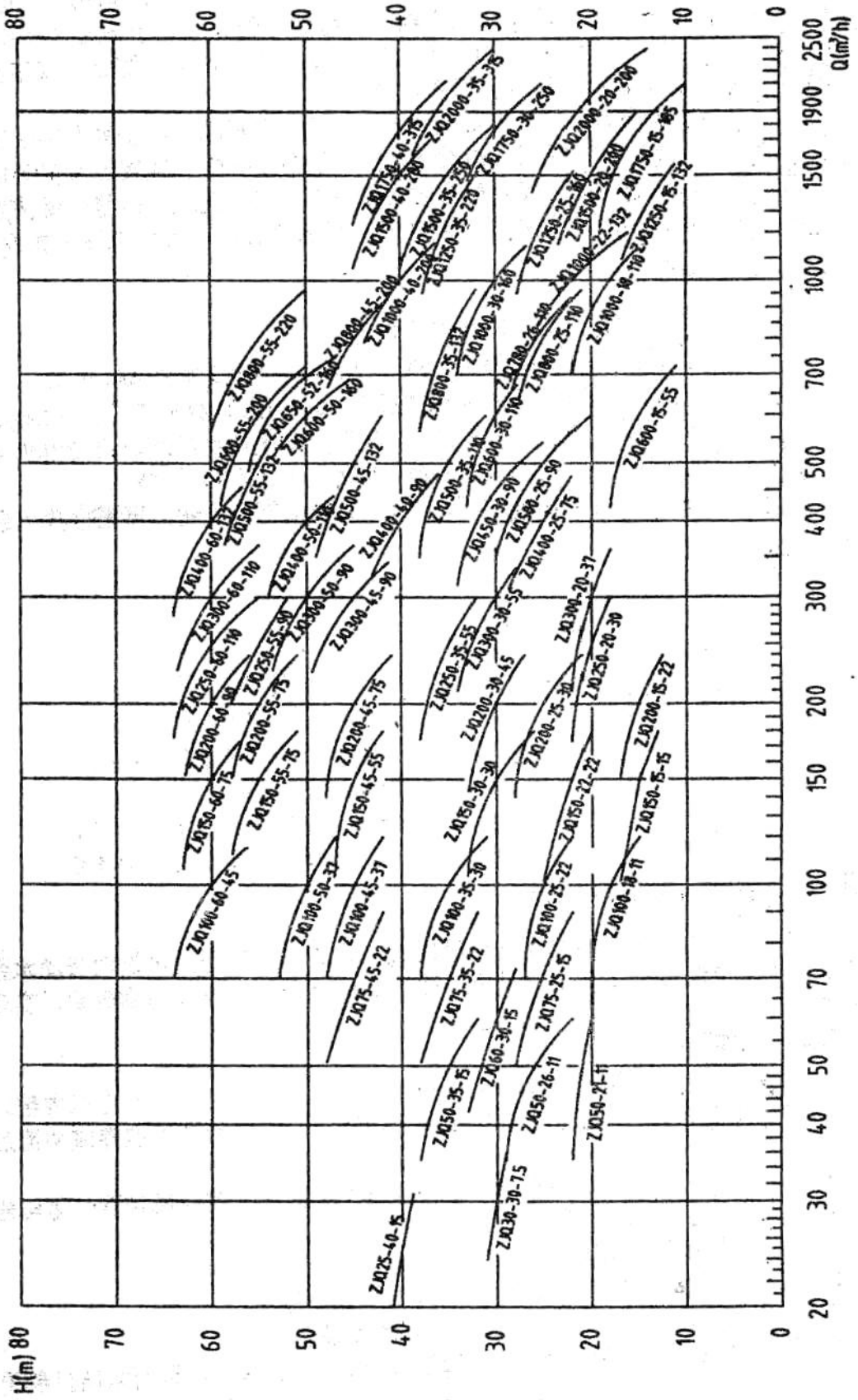
- 3、泵体、叶轮、搅拌叶轮等主要过流部件采用高耐磨材质制造，运转寿命长。
3. The pump body, impeller, mixing impeller and other main flow passage components are mainly manufactured with the high wear-resistant material with long service life.
- 4、不受吸程限制，吸渣效率高，清淤更彻底。
4. It's not restricted by suction lift, the slag suction efficiency is high, and dredging is more thorough.
- 5、无需配备辅助真空泵，投资更低廉。
5. It is not required to equip the auxiliary vacuum pump, and the investment is more inexpensive.
- 6、无需配备辅助搅拌或喷击装置，操作更简便。
6. It is not required to equip the auxiliary mixing or injecting device and operation is simpler.
- 7、电机潜入水下，无需建设泵房，管理更便易。
7. The motor is submerged under water, it is not required to build the pump house, and management is easier.
- 8、搅拌叶轮直接接触沉积面，通过下潜深度控制浓度，因而浓度控制更自如。
8. The mixing impeller directly contacts the deposition surface, and the depth is controlled through the submerged depth. Therefore, concentration control is more free.
- 9、设备直接潜入水下工作，无噪音及震动，现场更整洁。
9. The equipment is directly submerged into water for work, there is no noise or vibration, and the site is more tidy.

五、主要技术特性

V. Main technical characteristics

1、系列型谱见图二：

1. For series spectrum, see Figure II:



2、主要性能参数表

2. Table of main performance parameters

序号 Serial No.	水泵型号 Water pump model	出水口径 mm Outlet diameter (mm)	流量 m ³ /h Flow m ³ /h	扬程 m Lift m	电机 功率 kW Motor power kW	转速 r/min Rotating speed r/min	效率 % Efficiency %	间断通过最大粒度 Mm Maximum granularity of interrupted passing mm
1	ZJQ30-30-7.5	80	24	31	7.5	1460	43	13
			30	30				
			36	29				
2	ZJQ50-21-11	100	35	22	11	1460	48	21
			50	21				
			60	20				
3	ZJQ50-26-11	80	35	29	11	1460	48	13
			50	26				
			60	24				
4	ZJQ100-18-11	100	70	20	11	1460	55	21
			100	18				
			120	15				
5	ZJQ25-40-15	80	18	41	15	1460	35	13
			25	40				
			30	39				
6	ZJQ50-35-15	100	35	38	15	1460	47	13
			50	35				
			60	32				
7	ZJQ60-30-15	100	42	33	15	1460	50	13
			60	30				
			72	27				
8	ZJQ75-25-15	100	52	28	15	1460	51	13
			75	25				
			90	22				
9	ZJQ150-15-15	150	105	17	15	1460	56	21
			150	15				
			180	13				
10	ZJQ75-35-22	100	52	38	22	980	48	13
			75	35				
			90	32				
11	ZJQ75-45-22	100	52	48	22	980	48	13
			75	45				
			90	42				
12	ZJQ100-25-22	100	70	27	22	980	55	14
			100	25				
			120	22				
13	ZJQ150-22-22	150	105	25	22	980	60	32

			150	22				
			180	20				
14	ZJQ200-15-22	150	140	17	22	980	60	45
			200	15				
			240	13.5				
15	ZJQ100-35-30	100	70	38	30	980	50	21
			100	35				
			120	31				
16	ZJQ150-30-30	150	105	33	30	980	50	21
			150	30				
			180	26				

序号 Serial No.	水泵型号 Water pump model	出水口径 mm Outlet diameter (mm)	流量 m ³ /h Flow m ³ /h	扬程 m Lift m	电机功 率 kW Motor power kW	转速 r/min Rotating speed r/min	效 率 %Efficiency %	间断通过最大粒度 mm Maximum granularity of interrupted passing mm
17	ZJQ200-25-30	150	140	28	30	980	51	25
			200	25				
			240	21				
18	ZJQ250-20-30	150	175	23	30	980	60	25
			250	20				
			300	18				
19	ZJQ100-45-37	100	70	48	37	980	43	21
			100	45				
			120	42				
20	ZJQ100-50-37	100	70	53	37	980	43	13
			100	50				
			120	47				
21	ZJQ300-20-37	150	240	22	37	980	58	28
			300	20				
			360	17				
22	ZJQ100-60-45	100	70	64	45	980	43	13
			100	60				
			120	55				
23	ZJQ200-30-45	150	140	33	45	980	53	25
			200	30				
			240	27				
24	ZJQ150-45-55	150	105	47	55	980	50	21
			150	45				
			180	42				
25	ZJQ250-35-55	150	175	38	55	980	53	36
			250	35				

			300	33				
26	ZJQ300-30-55	150	210	34	55	980	55	36
			300	30				
			360	26				
27	ZJQ600-15-55	250	420	18	55	980	55	32
			600	15				
			720	11				
28	ZJQ150-55-75	150	105	58	75	980	75	15
			150	55				
			180	51				
29	ZJQ150-60-75	150	105	63	75	980	75	15
			150	60				
			180	56				
30	ZJQ200-45-75	150	140	48	75	980	75	18
			200	45				
			240	41				
31	ZJQ200-55-75	150	140	58	75	980	75	18
			200	55				
			240	51				
32	ZJQ350-35-75	200	245	78	75	980	75	29
			350	75				
			420	71				

序号 Serial No.	水泵型号 Water pump model	出水口径 mm Outlet diameter (mm)	流量 m ³ /h Flow m ³ /h	扬程 m Lift m	电机功 率 kW Motor power kW	转速 r/min Rotating speed r/min	效 率 %Efficiency %	间断通过最大粒度 mm Maximum granularity of interrupted passing mm
33	ZJQ400-25-75	200	280	29	75	980	62	29
			400	25				
			480	23				
34	ZJQ200-60-90	150	140	63	90	980	50	14
			200	60				
			240	57				
35	ZJQ250-55-90	150	170	58	90	980	50	14
			250	55				
			300	52				
36	ZJQ300-45-90	150	210	50	90	980	52	25
			300	45				
			360	39				
37	ZJQ300-50-90	150	210	54	90	980	52	25
			300	50				
			360	45				
38	ZJQ400-40-90	200	280	44	90	980	53	25
			400	40				

			480	36				
39	ZJQ500-25-90	200	350	30	90	980	65	25
			500	25				
			600	20				
40	ZJQ450-30-90	200	315	34	90	980	64	25
			450	30				
			540	25				
41	ZJQ250-60-110	150	175	64	110	980	54	18
			250	60				
			300	55				
42	ZJQ300-60-110	150	210	64	110	980	55	18
			300	60				
			360	56				
43	ZJQ400-50-110	200	280	54	110	980	56	28
			400	50				
			480	45				
44	ZJQ500-35-110	200	350	38	110	980	61	32
			500	35				
			600	31				
45	ZJQ600-30-110	250	420	33	110	980	64	35
			600	30				
			720	26				
46	ZJQ800-25-110	300	560	28	110	980	66	50
			800	25				
			960	21				
47	ZJQ1000-18-110	300	700	22	110	980	68	50
			1000	18				
			1200	13				
48	ZJQ780-26-110	300	545	29	110	980	68	50
			780	26				
			935	22				

序号 Serial No.	水泵型号 Water pump model	出水口径 mm Outlet diameter (mm)	流量 m ³ /h Flow m ³ /h	扬程 m Lift m	电机功率 kW Motor power kW	转速 r/min Rotating speed r/min	效率 %Efficiency %	间断通过最大粒度 mm Maximum granularity of interrupted passing mm
49	ZJQ400-60-132	200	280	64	132	980	68	28
			400	60				
			480	55				
50	ZJQ500-45-132	200	350	49	132	980	67	28
			500	45				
			600	42				
51	ZJQ500-55-132	200	350	59	132	980	70	28
			500	55				

			600	52				
52	ZJQ800-35-132	300	560	38	132	980	70	42
			800	35				
			960	32				
53	ZJQ1000-22-132	300	700	27	132	980	71	50
			1000	22				
			1200	17				
54	ZJQ1250-15-132	300	875	18	132	980	70	56
			1250	15				
			1500	12				
55	ZJQ600-50-160	200	420	56	160	980	65	28
			600	50				
			720	43				
56	ZJQ650-52-160	200	455	56	160	980	65	28
			650	52				
			780	44				
57	ZJQ1250-25-160	350	875	28	160	980	70	56
			1250	25				
			1500	22				
58	ZJQ1000-30-160	300	700	34	160	980	70	53
			1000	30				
			1200	25				
59	ZJQ1750-15-185	350	1225	19	185	980	70	56
			1750	15				
			2100	10				
60	ZJQ600-55-200	250	420	59	200	980	62	28
			600	55				
			720	50				
61	ZJQ800-45-200	300	560	49	200	980	66	42
			800	45				
			960	40				
62	ZJQ1000-40-200	300	700	45	200	980	70	42
			1000	40				
			1200	35				
63	ZJQ1500-20-200	350	1050	24	200	980	71	56
			1500	20				
			1800	15				
64	ZJQ2000-20-200	400	1400	25	200	980	72	56
			2000	20				
			2400	14				

序号 Serial No.	水泵型号 Water pump model	出水口径 mm Outlet diameter (mm)	流量 m ³ /h Flow m ³ /h	扬程 m Lift m	电机功 率 kW Motor power kW	转速 r/min Rotating speed r/min	效 率 %Efficiency %	间断通过最大粒度 mm Maximum granularity of interrupted passing mm
65	ZJQ800-55-220	300	560	60	220	980	66	38
			800	55				
			960	50				
66	ZJQ1250-35-220	350	875	39	220	980	70	45
			1250	35				
			1500	30				
67	ZJQ1000-50-250	300	700	55	250	980	68	45
			1000	50				
			1200	45				
68	ZJQ1500-35-250	350	1050	40	250	980	72	50
			1500	35				
			1800	30				
69	ZJQ1750-30-250	350	1225	34	250	980	70	55
			1750	30				
			2100	25				
70	ZJQ1500-40-280	350	1050	45	280	980	70	50
			1500	40				
			1800	35				
71	ZJQ1750-40-315	350	1225	45	315	980	70	55
			1750	40				
			2100	35				
72	ZJQ2000-35-315	400	1400	40	315	980	72	60
			2000	35				
			2400	30				

六、产品选型

VI. Product selection

ZJQ 型潜水渣浆泵规格比较多，能适用于不同用户的不同工况，只有正确合理的选用符合工况的规格，才能以最少的投入发挥最佳的效益，同时，合理的工况能有效的延长水泵的使用寿命，所以一定要正确的选用水泵，遵循科学的选泵程序，方法如下：

There are more specifications of ZJQ submersible slurry pump, which can be applicable for different conditions of different users. Only through correct and reasonable selection of specifications conforming to the conditions, the optimum benefits can be exerted with the minimum input. Meanwhile, the reasonable conditions can effectively extend the water pump life. Therefore, one must correctly select the water pump, and observe the scientific pump selecting program. The method is as follows:

1、掌握现场情况

1. Master the field situation

1) 是否与使用条件符合。如果不符合如电压、频率不符或水质不符等情况，用户均可提出要求进行特殊定货。

1) Whether it conforms to the use conditions. In case of inconsistency in voltage, frequency or water quality, the user can propose requirements for special order.

2) 电源容量：配电变压器的容量为 1.5~2 倍电机额定容量。

2) Power capacity: the capacity of the distribution transformer is 1.5 to 2 times of the rated capacity of the motor.

2、合理选择水泵规格

2. Reasonable selection of the water pump specifications

1) 流量的初步选择。

1) Preliminary selection of the flow.

根据系统要求确定水泵流量。

Determine the water pump flow according to system requirements.

2) 管路的确定。

2) Determination of the pipeline.

根据输送介质计算临界沉降流速，合理选择管路直径。

Calculate the critical sedimentation flow rate according to the conveying medium, and reasonably select the pipeline diameter.

3) 管路损失的计算

3) Pipeline loss calculation

根据管路长度及弯管、阀门数量计算管路损失。

Calculate pipeline loss according to the pipeline length, bend pipe and valve quantity.

4) 水泵扬程的计算

4) Calculation of the water pump lift

水泵扬程=水面至出水口垂直高差+管路损失+出口压力+安全裕量

Water pump lift = vertical height difference from the water surface to the water outlet + pipeline loss + outlet pressure + safety allowance

安全裕量一般取 10%。

The safety allowance is generally taken as 10%.

5) 根据流量扬程确定水泵型号。

5) Determine the water pump model according to the flow and lift.

6) 确定安装方式。

6) Determine the installation mode.

永久装置推荐采用自动耦合安装，临时装置采用移动式安装。

It is recommended to adopt automatic coupling installation for the permanent device and mobile installation for the temporary device.

3、友情提示

3. Friendly reminder

1) 只有闭式系统存在系统出口压力，开式系统出口压力为 0

1) Only the closed system has the system outlet pressure, and the outlet pressure of the open system is 0

2) 水泵配套电机功率是按照中等浓度（介质密度 ≈ 1.1 ）计算。当用于较高浓度输送时应重新复核。方法如下：

2) The supporting motor power of the water pump is calculated according to the medium concentration (medium density ≈ 1.1). It shall be re-reviewed when used for high concentration conveying. The method is as follows:

配套电机功率 $\geq 1.2 \times$ 清水轴功率 \times 介质密度

Supporting motor power $\geq 1.2 \times$ clear water axle power \times medium density

3) 当介质不能够淹没电机或介质温度大于 60°C 时，应选用冷却罩强制冷却，冷却水压力 2-3Kg, 冷却水流量 5-8M³/H，根据功率，小功率取小值，大功率取大值。

3) When the medium cannot flood the motor or the medium temperature is higher than 60°C , the cooling cover shall be selected for forced cooling. The cooling water pressure is 2-3Kg, and the cooling water flow is 5-8M³/H. According to the power, take small value for low power and large value for high power.

4) 水泵出口应设置阀门，水泵开机时应关闭阀门后启动电机，待正常运转后逐渐打开阀门。

4) The water pump outlet shall be arranged with the valve. Close the valve and start the motor at water startup. Gradually open the valve after normal operation.

5) 停机时必须先关闭出口阀门再切断电源，以防止管路水锤造成水泵严重损坏。

5) Close the outlet valve and cut off power supply at shutdown, so as to prevent serious damages to the water pump caused due to pipeline water hammer.

6) 为防止管路堵塞，停机前应输送一段时间的清水冲洗管路，直至出水口流出清水为止。

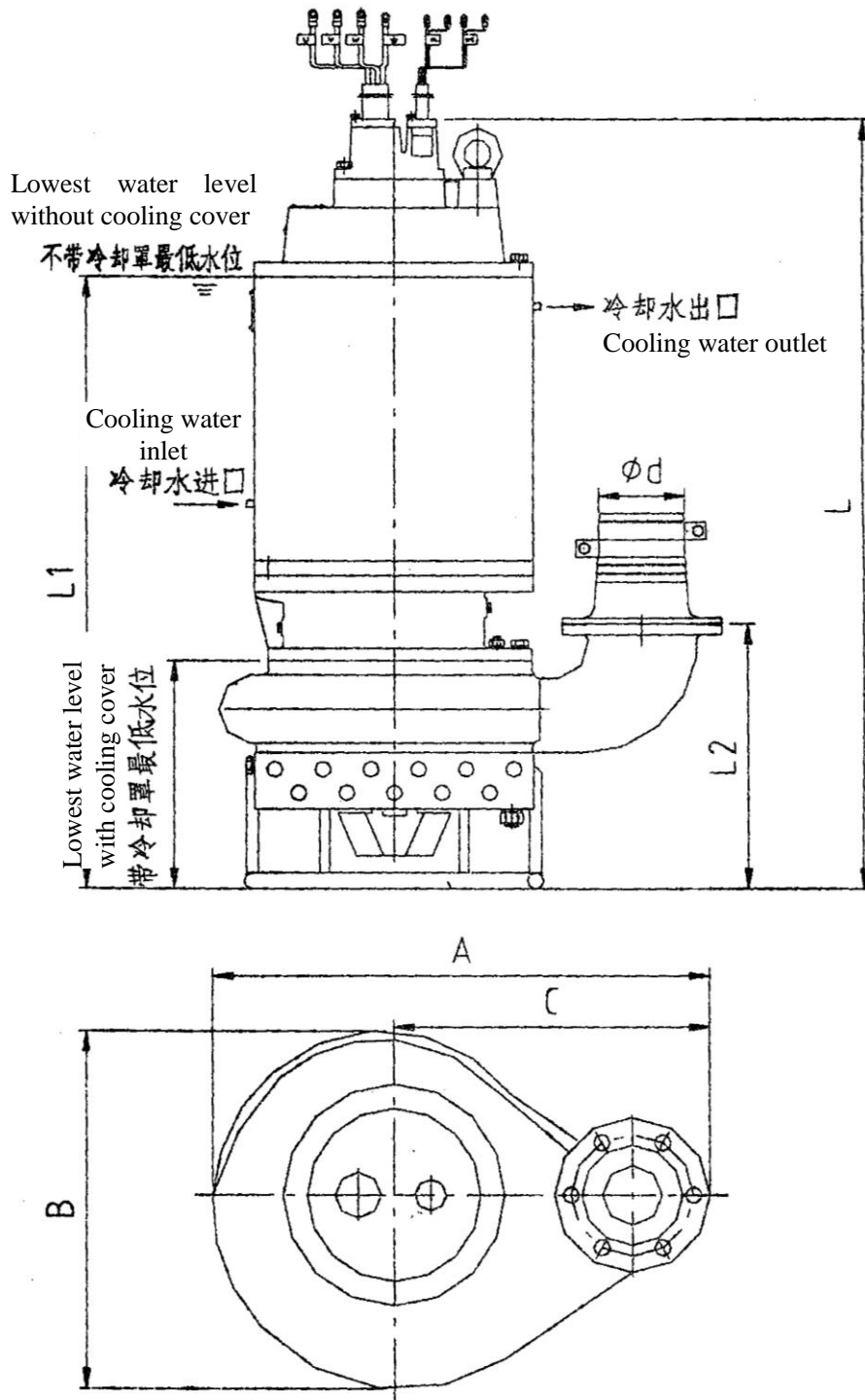
6) In order to prevent pipeline blockage, convey the clean water to wash the pipeline for a period before shutdown until clean water flows out of the water outlet.

七、外形及安装尺寸

VII. Outline and installation dimensions

1、泵的外形见图三

1. For pump outline, see Figure III



图一 潜水渣浆泵外形图

Figure I Outline drawing of the submersible slurry pump

2、潜水渣浆泵外形尺寸

2. External dimensions of the submersible slurry pump

序号 Serial No.	型号 Model	L (mm)	L1 (mm)	L2 (mm)	A (mm)	B (mm)	C (mm)	d (mm)
1	ZJQ30-30-7.5	842	700	296	605	390	396	80
2	ZJQ50-21-11	913	738	300	606	406	405	100
3	ZJQ50-26-11	889	720	296	605	390	396	80
4	ZJQ100-18-11	913	738	300	606	406	405	100
5	ZJQ25-40-15	950	774	290	673	440	435	80
6	ZJQ50-35-15	950	774	290	632	385	422	100
7	ZJQ60-30-15	950	774	290	632	385	422	100
8	ZJQ75-25-15	950	774	300	606	406	405	100
9	ZJQ150-15-15	990	814	340	620	410	455	150
10	ZJQ75-35-22	1370	1105	502	925	650	505	100
11	ZJQ75-45-22	1370	1105	502	925	650	505	100
12	ZJQ100-25-22	1401	1135	535	883	630	545	100
13	ZJQ150-22-22	1401	1135	535	883	630	568	150
14	ZJQ200-15-22	1375	1110	507	870	630	551	150
15	ZJQ100-35-30	1452	1144	425	832	630	605	100
16	ZJQ150-30-30	1452	1144	425	832	630	605	150
17	ZJQ200-25-30	1460	1148	469	835	630	605	150
18	ZJQ250-20-30	1460	1148	469	835	630	605	150
19	ZJQ100-45-37	1560	1170	485	950	650	640	100
20	ZJQ100-50-37	1560	1170	485	950	650	640	100
21	ZJQ300-20-37	1567	1170	510	1070	595	775	150
22	ZJQ100-60-45	1670	1230	495	1050	680	665	100
23	ZJQ200-30-45	1699	1255	495	1006	665	650	150
24	ZJQ150-45-55	1692	1248	488	1011	678	640	150
25	ZJQ250-35-55	1699	1255	495	1006	665	650	150
26	ZJQ300-30-55	1699	1255	495	1006	665	650	150
27	ZJQ600-15-55	1720	1275	515	1052	711	675	250
28	ZJQ150-55-75	1835	1380	482	1115	800	715	150
29	ZJQ150-60-75	1835	1380	482	1115	800	715	150
30	ZJQ200-45-75	1904	1425	488	1011	678	640	150
31	ZJQ200-55-75	1835	1380	482	1115	800	715	150
32	ZJQ350-35-75	1883	1404	485	1332	690	947	200
33	ZJQ400-25-75	1888	1410	485	1422	665	1047	200
34	ZJQ200-60-90	1835	1380	482	1115	800	715	150
35	ZJQ200-55-90	1835	1380	482	1115	800	715	150
36	ZJQ300-45-90	1883	1380	482	1115	800	715	150
37	ZJQ300-50-90	1922	1420	490	1540	849	1110	150
38	ZJQ400-40-90	1940	1430	500	1580	850	1150	200
39	ZJQ500-25-90	1888	1410	485	1422	665	1047	200
40	ZJQ450-30-90	1888	1410	485	1422	665	1047	200

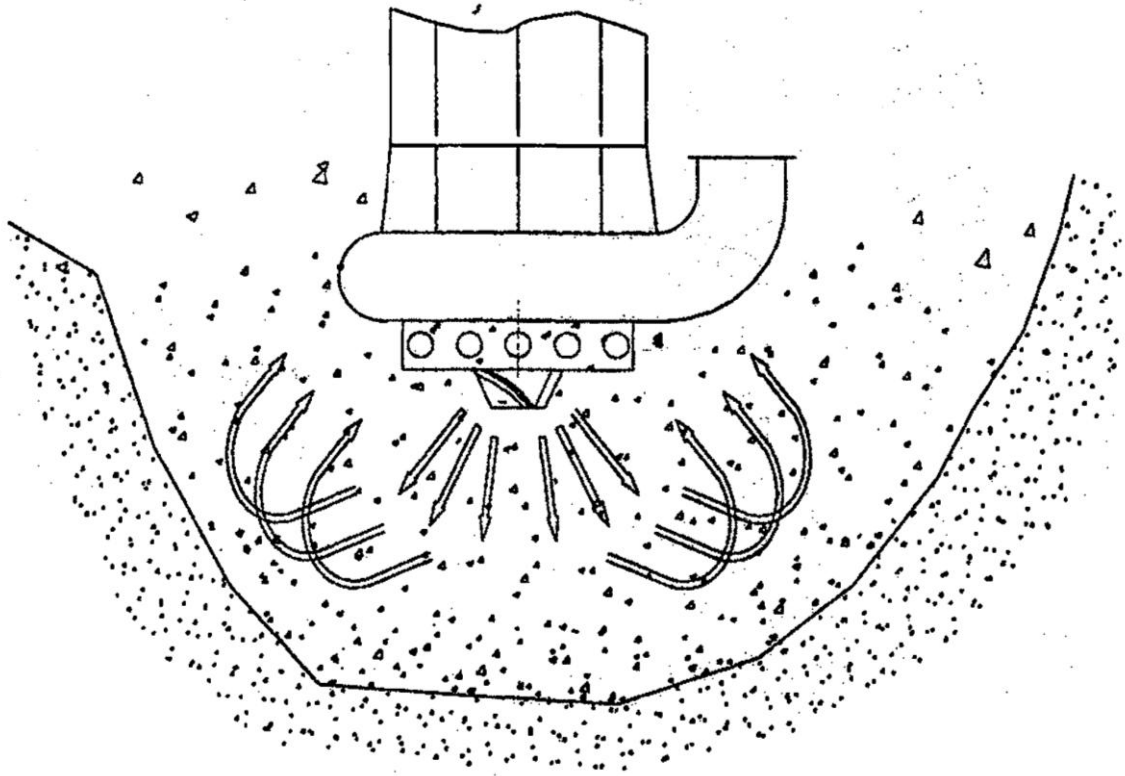
41	ZJQ250-60-110	2203	1527	485	1115	800	715	150
42	ZJQ300-60-110	2203	1527	485	1115	800	715	150
43	ZJQ400-50-110	2225	1550	500	1190	760	790	200
44	ZJQ500-35-110	2245	1570	520	1180	750	1020	200
45	ZJQ600-30-110	2245	1570	520	1180	750	1020	250
46	ZJQ800-25-110	2407	1725	626	1640	854	1207	300
47	ZJQ1000-18-110	2407	1725	626	1640	854	1207	300
48	ZJQ780-26-110	2407	1725	626	1640	854	1207	300
49	ZJQ400-60-132	2328	1665	520	1540	849	1117	200
50	ZJQ500-45-132	2320	1656	472	1124	823	739	200
51	ZJQ500-50-132	2320	1656	472	1124	823	739	200
52	ZJQ800-35-132	2538	1784	601	1581	802	1177	300
53	ZJQ1000-22-132	2465	1801	626	1640	854	1207	300
54	ZJQ1250-15-132	2538	1784	601	1581	802	1177	300
55	ZJQ600-50-160	2673	1772	472	1124	823	739	200
56	ZJQ650-52-160	2673	1772	472	1124	823	739	200
57	ZJQ1250-25-160	2890	1990	672	1600	820	1180	350
58	ZJQ1000-30-160	2891	2137	601	1581	802	1177	300
59	ZJQ1750-15-185	2900	2140	652	1660	820	1260	350
60	ZJQ600-55-200	2673	1772	472	1140	823	739	250
61	ZJQ800-45-200	2934	1993	710	1686	900	1229	300
62	ZJQ1000-40-200	2934	1993	710	1686	900	1229	300
63	ZJQ1500-20-200	3060	2049	672	1770	870	1850	350
64	ZJQ2000-20-200	3060	2049	672	1880	870	1896	400
65	ZJQ800-55-220	2934	1993	710	1686	900	1229	300
66	ZJQ1250-35-220	2922	2021	730	2150	977	1630	350
67	ZJQ1000-50-250	2980	2081	710	2250	9987	1730	300
68	ZJQ1500-35-250	3012	2111	730	2150	977	1630	350
69	ZJQ1750-30-250	3012	2111	730	2150	977	1630	350
70	ZJQ1500-40-280	3058	2159	710	2250	9987	1730	350
71	ZJQ1750-40-315	3235	2261	804	2180	1026	1650	350
72	ZJQ2000-35-315	3235	2261	804	2260	1026	1730	400

八、现场安装使用示例

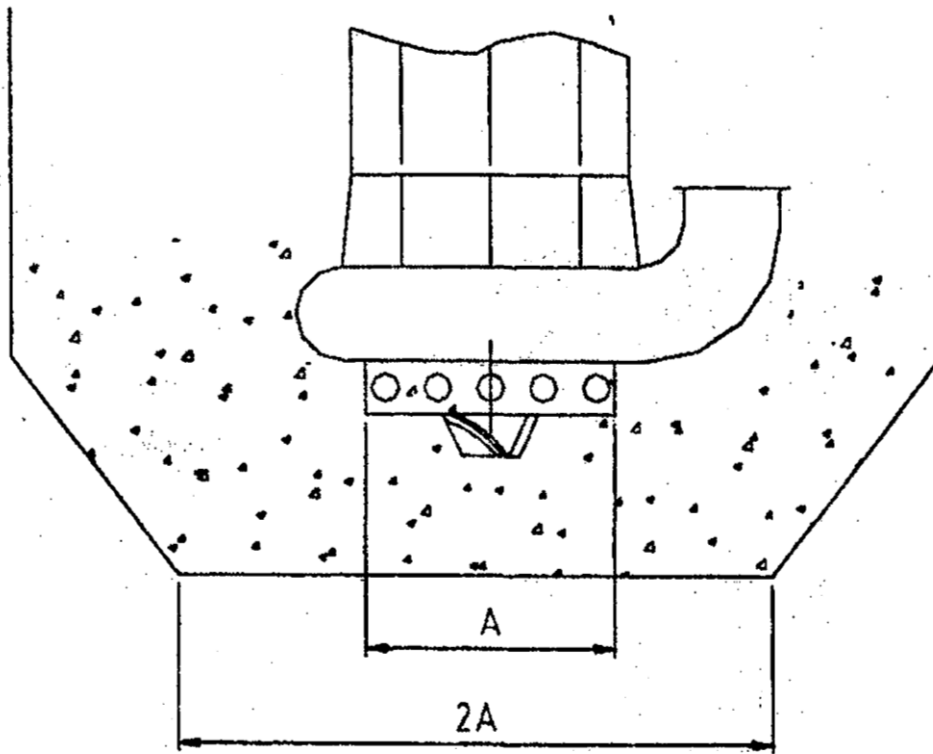
VIII. Example of field installation and use

ZJQ 型潜水渣浆泵适用于清淤排污的所有场合，在此只将部分安装使用示例介绍如下（图二——九）：

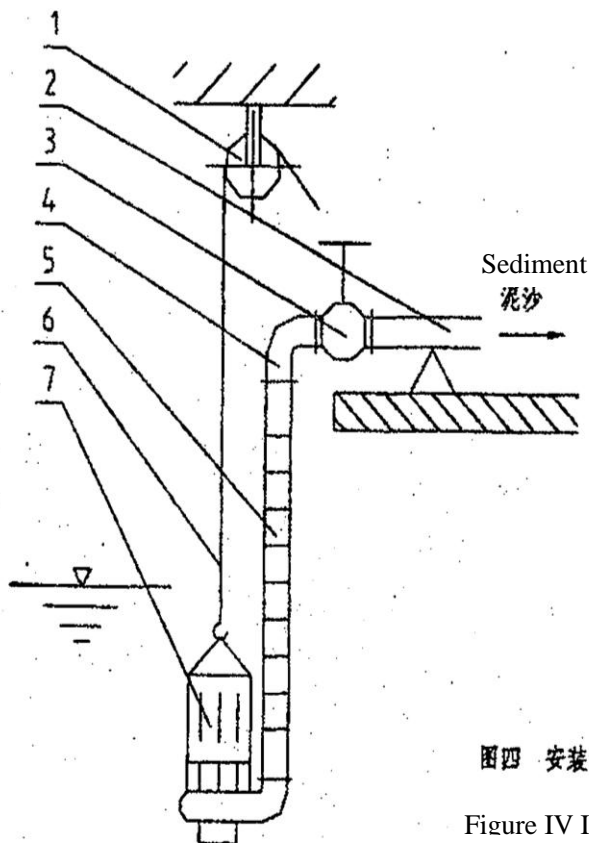
ZJQ submersible slurry pump is applicable for all occasions of dredging and blowdown. The occasion for installation and use is introduced as follows (Figure 2 to 9):



图二 水中搅拌效果示例
 Figure 2 Example of mixing effects in water



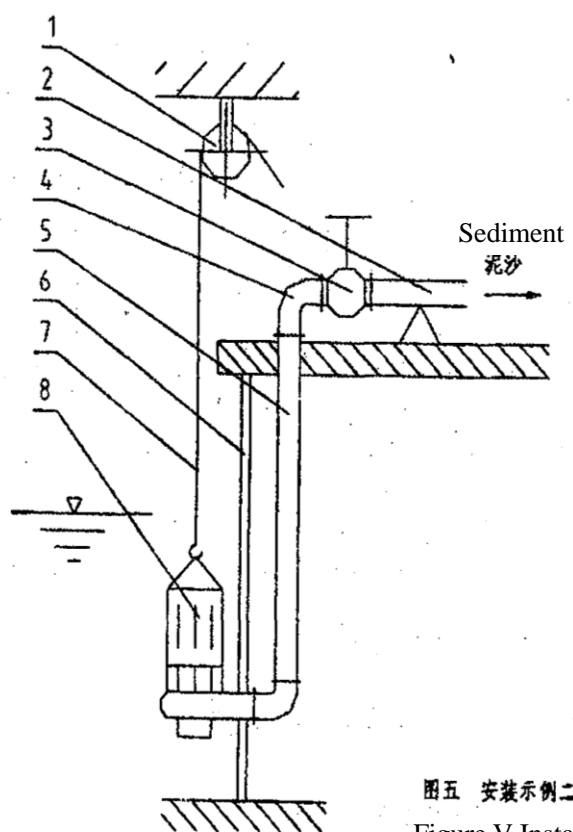
图三 带搅拌叶轮电泵安全搅乱范围
 Figure 3 Scope of safe mixing of the electric pump with mixing impeller



- | | |
|----------|----------------------------|
| 1. 吊泵滑轮 | 1. Hanging pump pulley |
| 2. 输送管道 | 2. Transmission pipeline |
| 3. 闸阀 | 3. Gate valve |
| 4. 弯管 | 4. Bend pipe |
| 5. 软管 | 5. Hose |
| 6. 钢丝绳 | 6. Steel wire rope |
| 7. 潜水渣浆泵 | 7. Submersible slurry pump |

图四 安装示例一

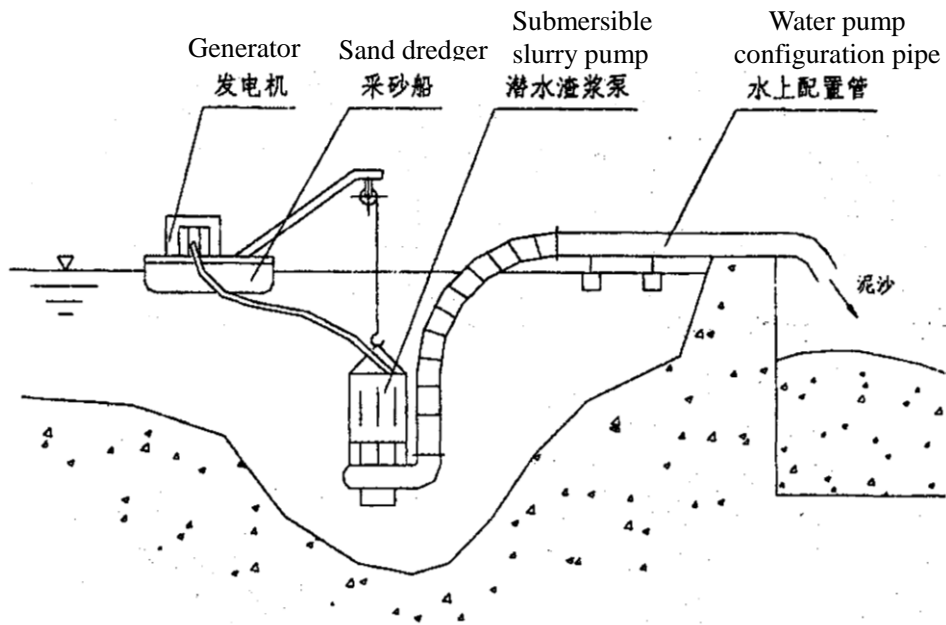
Figure IV Installation example I



- | | |
|----------|--|
| 1. 吊泵滑轮 | 1. Hanging pump pulley |
| 2. 输送管道 | 2. Transmission pipeline |
| 3. 闸阀 | 3. Gate valve |
| 4. 弯管 | 4. Bend pipe |
| 5. 联接钢管 | 5. Coupling steel tube |
| 6. 导轨 | 6. Guide rail |
| 7. 吊泵钢丝绳 | 7. Steel wire rope of the hanging pump |
| 8. 潜水渣浆泵 | 8. Submersible slurry pump |

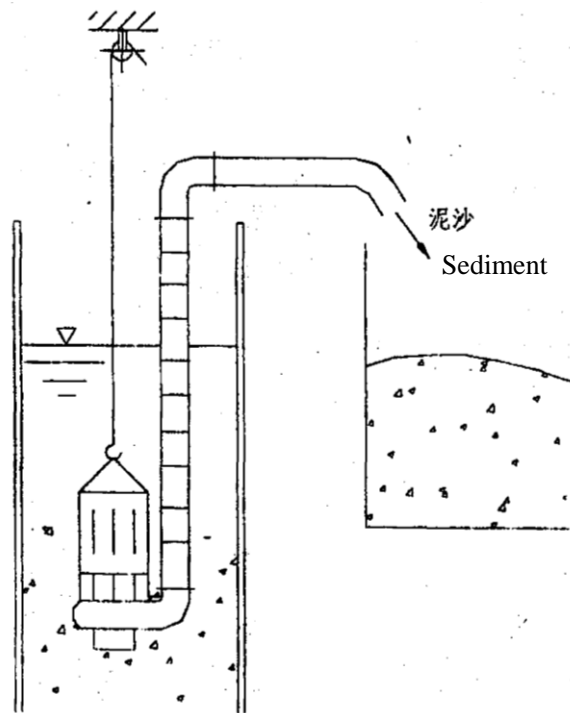
图五 安装示例二

Figure V Installation example II



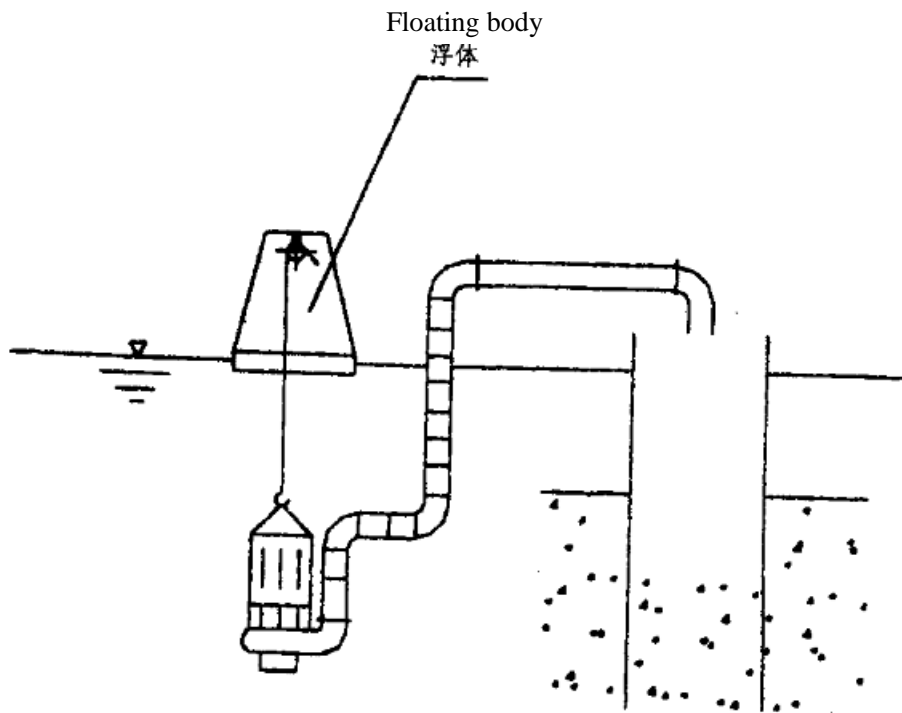
图六 江河湖海、池塘、引水工程中泥沙的清除或航道清淤

Figure 6 Cleaning of sediment in rivers, lakes and sea, pond and water diversion project or waterway dredging



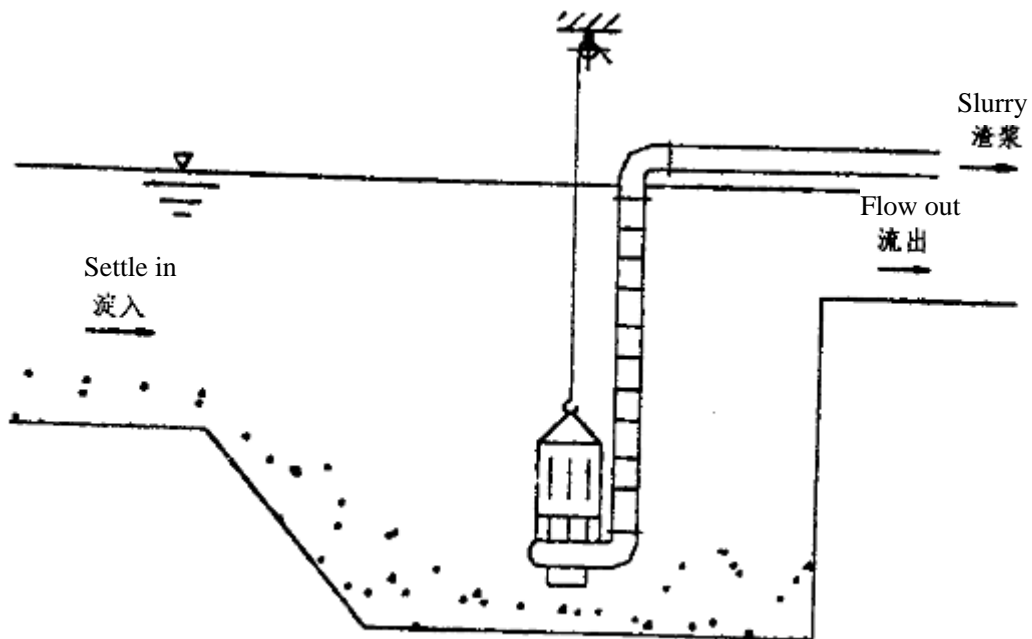
图七 大口径深井的排污清淤

Figure 7 Blowdown and dredging of the deep well with large caliber



图八 江河沙桩工程

Figure 8 River sand pile engineering



图九 钢厂、电厂、矿山等沉淀池渣浆及各种挖掘工程及水中泥浆、沙石的排除

Figure 9 Elimination of slurry in the sedimentation tank of the steel plant, power plant and main as well as slurry, sand and stone in various excavation engineering and in water.

九、安装与使用

IX. Installation and use

1、安装前的检查

1. Inspection before installation

1) 运行环境是否符合使用条件的规定。

1) Whether the operation environment conforms to provisions for use conditions.

2) 实际流量、扬程是否与性能曲线相吻合，最佳流量范围为额定流量的 80%~120%之间；流量超过额定流量的 120%有可能导致机组严重损坏。

2) Whether actual flow and lift match the performance curve, and the optimum flow range is 80% to 120% of the rated flow; if the flow exceeds 120% of the rated flow, it may cause serious damages to the unit.

3) 检查水泵的装配质量是否良好，紧固件有无松动现象，电缆有无破损，电源及电器设备是否可靠。

3) Check whether the water pump assembly quality is good, whether the fastener is loose, whether the cable is damaged, and whether the power supply and electrical equipment are reliable.

4) 检查电源电压、频率是否和铭牌要求相符。

4) Check whether the supply voltage and frequency are consistent with requirements of the nameplate.

5) 检查油室中的油量是否合适，机组在立式位置时油位应与注油口平齐。

5) Check whether the oil quantity in the oil chamber is suitable. The oil level shall be flush with the oil filling port at the vertical position.

6) 带冷却罩的潜水渣浆泵开机时必须确保持续注入清洁冷水，并确保排水口畅通，冷却水从冷却装置一侧流入，从另一侧上端流出。

6) The clean cold water must be continuously injected when the submersible slurry pump with cooling cover is started up, and the discharge port shall be guarantee unblocked. The cooling cover flows in from a side of the cooling device, and flows out from the upper end of the other side.

7) 用 500V 兆欧表测量电机冷态绝缘电阻应不低于 50MΩ

7) Measure the cold insulation resistance of the motor with 500V megohm meter, which shall not be less than 50MΩ.

2、注意事项：

2. Precautions

水泵正常运转后，应随时观察电源电压、工作电流、水泵流量及水泵振动是否正常。如发生下列情况之一应立即停机检查；

After normal operation of the water pump, one shall observe whether supply voltage, working current, water pump flow and water pump vibration are normal at any time. In case of any following circumstances, shutdown for inspection immediately;

1) 工作电流超过额定电流

1) The working current exceeds the rated electricity

2) 额定扬程下，流量降低 20% 以上或泵间断出水时

2) At the rated lift, when the flow is reduced by over 20%, or the pump outputs water intermittently

3) 水泵工作时，不带冷却装置水泵的电机部分露出水面，或带冷却装置水泵的蜗壳部分露出水面时。

3) When the water pump works, the motor of the water pump without the cooling device is exposed from the water surface, or the volute of the water pump with the cooling device is exposed from the water surface.

4) 电源电压过高或过低时（高于 400V 或低于 340V）。

4) When the power voltage is too high or too low (higher than 400V or lower 340V)

5) 水泵有明显的振动和噪音时。

5) The water pump has obvious vibration and noise

3、安装

3. Installation

1) 电气接线：

1) Electrical wiring:

电气线路连接应由正式电工按照电器线路图施工。

The electrical circuit shall be connected by the formal electrician according to the electrical circuit diagram.

a) 安装过程中应随时检测绝缘电阻，安装完成后检测电机绝缘电阻不得小于 $5M\Omega$ ；接好电器设备方可启动。

a) The insulation resistance shall be detected at any time during the installation process. The motor insulation resistance shall not be less than $5M\Omega$ after installation; it can be started after the electrical equipment is connected.

b) 吊起水泵，点动观察转向，从电机方向往下看水泵顺时针旋转，如转向不对，调换三相电源线任意两根接头。

b) Lift the water pump, jog to observe rotating direction, and the water pump rotates clockwise judging from the motor to the bottom. If rotating direction is wrong, exchange any two joints of three-phase power cord.

2) 水泵机组安装：

2) Installation of the water pump unit:

a) 移动式安装，将水泵立式直立悬吊放入水中，放置应平稳；然后系好电缆，泵出口连接好管路。

a) Mobile installation. Suspend the water pump vertical and place it in water in a stable way; then tie the cable, and connect the pipeline at the pump outlet.

b) 自动耦合式安装，在池底安装耦合装置，水泵沿导轨缓慢下滑，通过耦合法兰与出水管座相连。

b) Automatic coupling installation. Install the coupling device at the tank bottom. The water pump slowly declines along the guide rail, and is connected with the outlet pipe seat through the coupling flange.

十、故障分析与排除

X. Failure analysis and troubleshooting

故障现象 Failure phenomenon	故障可能的原因 Possible reason for failure	排除方法 Troubleshooting
流量小或不出水 Small flow or no outlet water	1、电机反转 1. Reverse rotation of the motor	1、调整电机转向 1. Adjusted the motor rotation direction
	2、管道或叶轮堵塞 2. Blockage of the pipeline or impeller	2、清理管道或叶轮 2. Clear the pipeline or impeller
	3、叶轮脱落或损坏 3. Impeller shedding or damages	3、紧固或更换叶轮 3. Fasten or replace the impeller
	4、耦合装置未到位 4. The coupling device is not available	4、调整到位 4. Adjust in place
泵运行不平稳 Unstable operation of the pump	1、装置扬程低，水泵气蚀 1. Low lift of the device, cavitation erosion of the water pump	1、更换合适扬程水泵或关小出口阀门 1. Replace the suitable lift or turn down the outlet valve
	2、叶轮损坏 2. Impeller damages	2、更换叶轮 2. Replace the impeller
	3、轴承损坏 3. Bearing damages.	3、更换轴承 3. Replace the bearing
	4、叶轮擦抗 4. Impeller friction	4、调整间隙 4. Adjust the gap
电机绝缘电阻偏低	1、电缆破损 1. Cable damages	1、更换电缆，烘干电机 1. Replace the cable, and dry the motor

Low motor insulation resistance	2、机械密封失效 2. Mechanical seal failure	2、更换机械密封，烘干电机 2. Replace the mechanical seal, and dry the motor
	3、O形密封圈失效 3. O sealing ring failure	3、更换O形密封圈，烘干电机 3. Replace O sealing ring, and dry the motor
	4、电缆端部进入水中 4. The cable end enters the water	4、更换电缆，烘干电机 4. Replace the cable, and dry the motor
电流过大且工作温度高 Too high current or high operating temperature	1、水泵堵转 1. Locked rotor of the water pump	1、清理异物 1. Clear the foreign matter
	2、输送介质密度或粘度过高 2. The conveying medium density or viscosity is too high	2、适当调整输送介质密度或粘度 2. Appropriately adjust the conveying medium density or viscosity
	3、轴承损坏 3. Bearing damages.	3、更换轴承 3. Replace the bearing
	4、工作电压过低 4. The operating voltage is too low	4、调整电源电压 4. Adjust the supply voltage
	5、装置扬程低，水泵偏大流量运行 5. The device lift is low, and the water pump flow is large	5、更换合适扬程水泵或关小出口阀门 5. Replace the suitable lift or turn down the outlet valve
	6、冷却系统故障 6. Cooling system failure	6、检查清理冷却系统 6. Check and clean the cooling system
电流突然降低 Sudden decrease of current	1、管路或水泵流道堵塞 1. Blockage of the pipeline or water pump flow channel	1、清理水泵或管路 1. Clear the water pump or pipeline
	2、液面过低，水泵抽空 2. The liquid level is too low, and the water pump is emptied	2、补充介质 2. Supplement the medium

	3、叶轮损坏 3. Impeller damages	3、更换叶轮 3. Replace the impeller
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十一、保养、维修

XI. Maintenance and repair

1、水泵长期不用时，应及时提出，表面擦拭干净，清除滤网处杂物，涂上防锈油，放在干燥通风处。

1. When the water pump is not used for a long term, timely lift it out, wipe the surface, clean sundries at the strainer mesh, apply the anti-rust oil, and place it at the dry and ventilated place.

2、水泵在连续或累计运行满 2500 小时后，应检查紧固件，密封情况，更换油室中的汽轮机油或机械密封。

2. After continuous or accumulative operation of the water pump for 2,500 hours, check the fastener and sealing status, and replace the steam turbine oil or mechanical seal in the oil chamber.

3、水泵使用满一年后，建议提出检修；及时更换机械密封、油封、叶轮、搅拌叶轮、内泵盖、吸水板等易损件。

3. After the water pump is used for a year, it is suggested to propose overhaul; timely replace mechanical seal, oil seal, impeller, mixing impeller, inner pump cover, water absorption plate and other wearing parts.

4、水泵重新拆装后，电机内腔及油室内必须打 0.2MPa 的气压试验，5 分钟不得有泄漏现象。

4. After assembly and disassembly of water pump again, 0.2MPa air pressure test must be conducted in the inner chamber and oil chamber of the motor, and there shall be no leakage within 5 minutes.

十二、订购成套产品、配套供应范围

XII. Order complete product and supporting supply scope

用户可以根据需要，订购下列成套范围的全部或一部分，请在订货合同中注明：

The user can order the following complete scope in whole or in part as required, and shall indicate the following in the order contract:

供货范围 Supply scope		安装方式 Installation mode			数量 Quantity	备注 Remarks
		硬管连接 Hard pipe connection	胶管连接 Rubber tube connection	耦合连接 Coupling connection	1	含 10 米电机引线 Including 10m motor leading wire
必供件 Necessary part	潜水渣浆泵 Submersible slurry pump	√	√	√	1	
	PMCC 控制柜 PMCC control cabinet	√	√	√	1	含地脚螺栓 Including the foundation bolt
	自动耦合装置 Automatic coupling device			√	1	含胶垫及连接螺栓 Including the rubber mat and connecting bolt
	胶管接头 Rubber hose fittings		√			
选供件 Optional part	中间端子箱 Intermediate terminal box					
	闸阀 Gate valve					
	蝶阀 Butterfly valve					

	止回阀 Check valve					
易损件 Wearing part	胶管接头 Rubber hose fittings		√			用户可根据需要单独采购 The user can purchase it separately as required
	蜗壳 Volute		√			
	叶轮 Impeller		√			
	搅拌叶轮 Mixing impeller		√			
	内泵盖 Inner pump cover		√			
	吸水板 Water absorption plate		√			
	机械密封 Mechanical seal		√			
	油封 Oil seal		√			
随机文件 With-machine files	1、《ZJQ 型潜水渣浆泵使用说明书》一份 1. A copy of <i>Operation Instructions for ZJQ submersible slurry pump</i>					
	2、《PMCC 启动控制柜使用说明书》					

	2. <i>Operation Instructions for PMCC Start Control Cabinet</i>
	3、《合格证》一份 3. A copy of <i>Conformity Certificate</i>
	4、《装箱清单》一份 4. A copy of <i>Packing List</i>

十三、质量保证

XIII. Quality assurance

在输送介质符合泵的过流部件材质要求，用户恰当的遵守本使用说明书的条件下。从本厂发货之日起 18 个月，连续运转不超过 12 个月，产品因制造不良而发生损坏或不能正常工作时，本厂免费为用户更换或修理产品，易损件的正常磨损不在此限。

At the condition that the conveying medium conforms to requirements for material of the pump flow passage components, and the user appropriately complies with the operation instructions, if the product is damaged or cannot work normally due to poor manufacturing within 18 months since the delivery day of the plant and after continuous operation for less than 12 months, the plant shall replace or repair the product for the user for free, and normal wear of the wearing part is not included.

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