

ISW/ISWR /ISWH/ISWY/ISWHY
ISWD/ISWRD/ISWHD/ISWYD/ISWHYD 型

卧式离心泵

Horizontal Centrifugal Pump

Use Specification] 使用说明书



辰禹(重庆)流体设备有限公司

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Single-stage, single-suction and horizontal centrifugal pump 单级单吸卧式离心泵

<<< 产品概述 Product overview >>>

ISW、ISWR、ISWH、ISWY、ISWHY、ISWD型系列卧式离心泵系根据IS型、IR型离心泵之性能参数，参照ISO2858标准，采用国内优秀水力模型优化设计而成，是理想的新一代高效节能卧式泵产品。

ISW, ISWR, ISWH, ISWY, ISWHY, ISWD series horizontal centrifugal pump system according to the performance parameters of IS, IR centrifugal pump, according to the ISO2858 standard, using the domestic excellent hydraulic model optimization design, is an ideal new generation of high efficiency and energy saving horizontal pump products.

<<< 特点 Characteristic >>>

1. 结构紧凑。该系列泵为卧式结构，机泵一体、外型美观、占地面积少，与普通卧式泵比较，占地面积减少30%。如采用IP54户外电机则无需泵房，可置于户外使用。

2. 运行平稳、噪音低、组件同心度高。电机和泵直联，简化了中间结构，增加了运行的平稳性，叶轮具有极好的动静平衡，运行时无振动、低噪音，延长了轴承的使用寿命，改善了使用环境。

3. 轴封采用优质机械密封，动、静环由硬质合金制成，耐磨损、无泄漏、使用寿命长。

4. 采用先进水力模型，具有效率高，性能好等特点。

5. 结构独特。泵体下侧设有放水孔，进、出口法兰设有取压孔，能确保泵的正常使用和维修。

6. 该系列卧式泵进口为水平方向，出口为垂直向上结构，便于管路布置。

1. Compact structure. This series of pumps is horizontal structure, the pump is integrated, beautiful appearance, the area is less, compared with the ordinary horizontal pump, the area is reduced by 30%. If IP54 outdoor motor is used, there is no pump room and can be placed in outdoor use.

2. Smooth operation, low noise, and high concentricity of components. The direct connection of the motor and the pump simplifies the intermediate structure, increases the stability of the operation, the impeller has excellent dynamic and static balance, no vibration and low noise during the operation, extends the service life of the bearing, and improves the use environment.

3. The shaft seal is made of high quality mechanical seal, dynamic and static rings made of carbide, wear resistance, no leakage and long service life.

4. The advanced hydraulic model is characterized by high efficiency and good performance.

5. Unique in its structure. The lower side of the pump body is equipped with water release holes, and the inlet and outlet flanges are equipped with pressure extraction holes to ensure the normal use and maintenance of the pump.

6. The inlet of this series of horizontal pumps is horizontal, and the outlet is vertical upward structure, which is convenient for pipeline arrangement.

<<< 用途 Application >>>

1.ISW型卧式离心泵，供输送清水及物理化学性质类似清水的其它液体之用。适用于工业和城市给排水、高层建筑增压送水、船用、园林喷灌、消防增压、远距离输送、暖通制冷循环、浴室等冷暖水循环及设备配套。使用介质温度不超过85℃。

2.ISWR型卧式热水循环泵适用于能源、冶金、木材加工、化工、纺织、造纸以及饭店、浴室、宾馆、锅炉热水增压循环和城市住房采暖循环等场合。使用温度不超过120℃。

3.ISWH型卧式化工离心泵适用于石油、化工、冶金、电力、造纸、食品、制药和合成纤维等行业输送有腐蚀性的液体。使用温度-20~105℃。

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4.ISWY型卧式防爆油泵适用于石油、轻纺、化工、机械等行业输送易燃、易爆液体，被输送介质温度不超过120℃。

5.ISWHY型卧式不锈钢防爆型化工离心泵，适用于输送易燃、易爆性化工液体。

1. ISW horizontal centrifugal pump for conveying clean water and other liquids with physical and chemical properties similar to clean water. It is suitable for industrial and urban water supply and drainage, high-rise building pressurized water supply, Marine, garden sprinkler irrigation, fire pressurization, long-distance transmission, HVAC refrigeration circulation, bathroom and other cold and warm water circulation and supporting facilities. Use the medium temperature shall not exceed 85℃.

2. ISWR horizontal hot water circulating pump is suitable for energy, metallurgy, wood processing, chemical industry, textile, paper making, hotel, bathroom, hotel, boiler hot water pressurization circulation and urban housing heating circulation and other occasions. The use temperature shall not exceed 120℃.

3. ISWH horizontal chemical centrifugal pump is suitable for ntal stainless steel explosion-ppetroleum, chemical, metallurgy, power, paper, food, pharmaceutical and synthetic fiber industries to transport corrosive liquids. Use the temperature ranging from-20 to 105℃.

4. ISWY horizontal explosion-proof oil pump is suitable for petroleum, light textile, chemical industry, machinery and other industries to transport flammable and explosive liquids, and the temperature of the conveying medium does not exceed 120℃.

5. ISWHY horizoroof chemical centrifugal pump, suitable for conveying flammable and explosive chemical liquid.

<<< 工作条件 Going >>>

1. 泵系统最高工作压力为1.6MPa,即泵吸入口压力+泵扬程 \leq 1.6MPa(泵系统工作压力高于1.6MPa时,应在订货时另行提出,以便在制造时泵的过流部件和联接部件采用铸钢)。

2. 辅送介质为清水或物理化学性质类似清水的其它液体(输送介质带有细小颗粒时,应在订货时另行提出,以便装配耐磨式机械密封)。

3. 周围环境温度不超过40℃,海拔高度不超过1000m,相对湿度不超过95%。

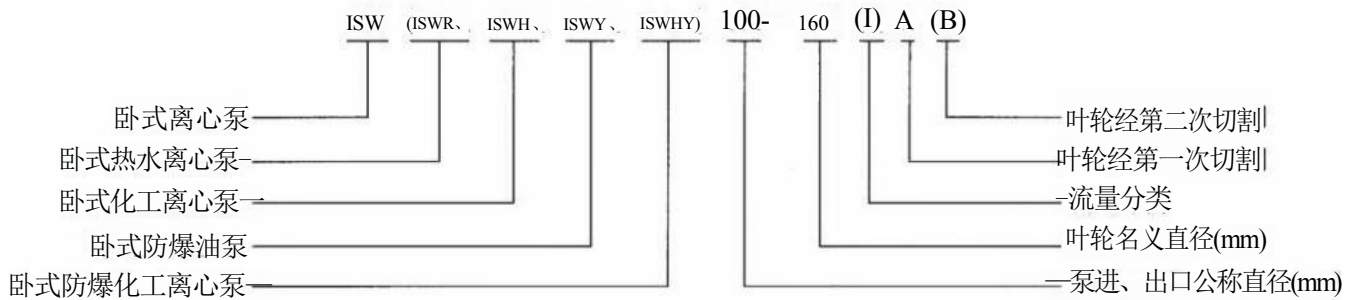
1. The maximum working pressure of the pump system is 1.6MPa, that is, the pump suction port pressure + pump head 1.6MPa (if the working pressure of the pump system is higher than 1.6MPa, it should be proposed separately when ordering, so that the overflow parts and connecting parts of the pump shall be cast steel during manufacturing).

2. The auxiliary delivery medium is clear water or other liquids with similar physical and chemical water (when the conveying medium has small particles, it should be proposed separately in order to assemble the wear-resistant mechanical seal).

3. The ambient temperature shall not exceed 40℃, the altitude shall not exceed 1000m, and the relative humidity shall not exceed 95%.

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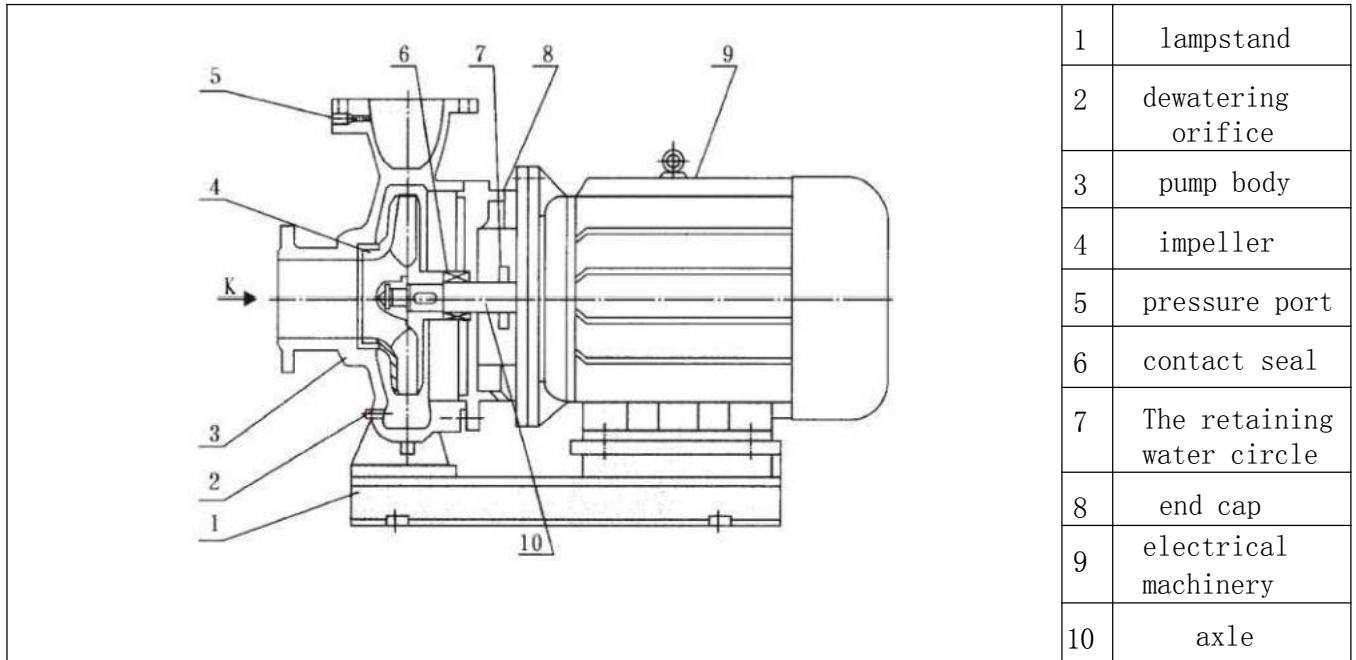
<<< 型号意义 Model significance >>>



Horizontal centrifugal pump
 Horizontal hot water centrifugal pump
 Horizontal chemical centrifugal pump one
 Horizontal explosion-proof oil pump
 Horizontal explosion-proof chemical centrifugal pump

The impeller through the second cut
 The impeller through the first cut
 Flow classification Nominal impeller
 Diameter (mm)
 Pump inlet and outlet nominal diameter (mm)

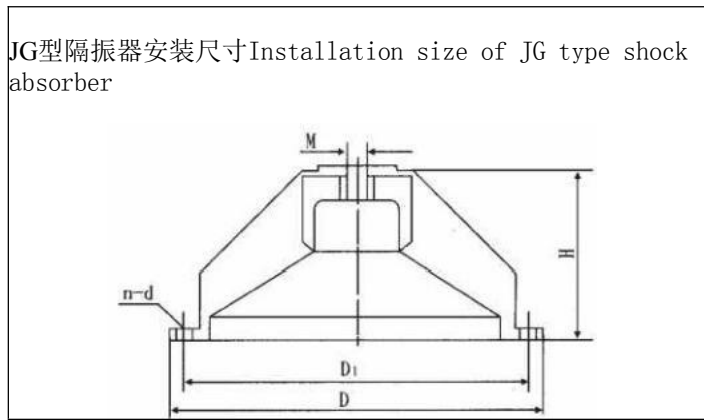
<< 结构说明 structure declaration >>



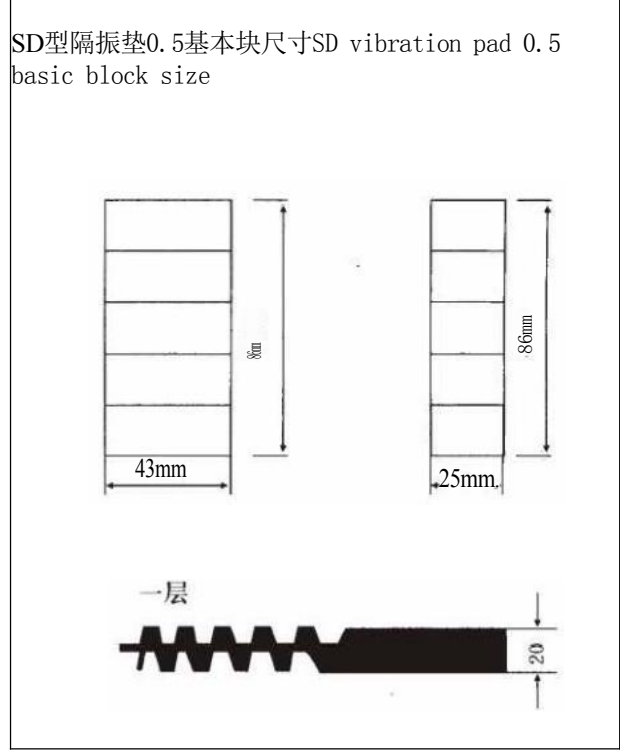
结构见图。该机组由泵、电机和底座三部分组成。泵结构包括泵体、叶轮、泵盖、机械密封等零部件组成。泵为单级单吸卧式离心式，泵体和泵盖两部份是从叶轮背面处剖分的，即为后开门结构形式。大多数泵的叶轮前、后均设有密封环，并在叶轮后盖板上设有平衡孔，以平衡作用在转子上的轴向力。泵进口为轴向水平吸入，出口为垂直向上布置。泵和电机同轴，电机轴伸端采用双角接触球轴承结构可部分平衡泵的残余轴向力。泵与电机直联，安装时无需校正，具有共同底座，并用JG型隔振器进行隔振。

The structure is shown in Fig. The unit consists of three parts: pump, motor and base. The pump structure includes the pump body, impeller, pump cover, mechanical seal and other components. The pump is a single stage single suction horizontal centrifugal type, the pump body and the pump cover are cut from the back of the impeller, that is, the rear door structure form. Most pumps have sealing rings in the front and back of the impeller, and balance holes on the impeller rear cover plate to balance the axial force acting on the rotor. The pump inlet is axial horizontal inhalation, and the outlet is vertical upward arrangement. Pump and motor are coaxial, and the motor shaft extension end adopts the double-angle contact ball bearing structure to partially balance the residual axial force of the pump. The pump is directly connected to the motor, without correction during installation, has a common base, and is isolated with a JG shock absorber.

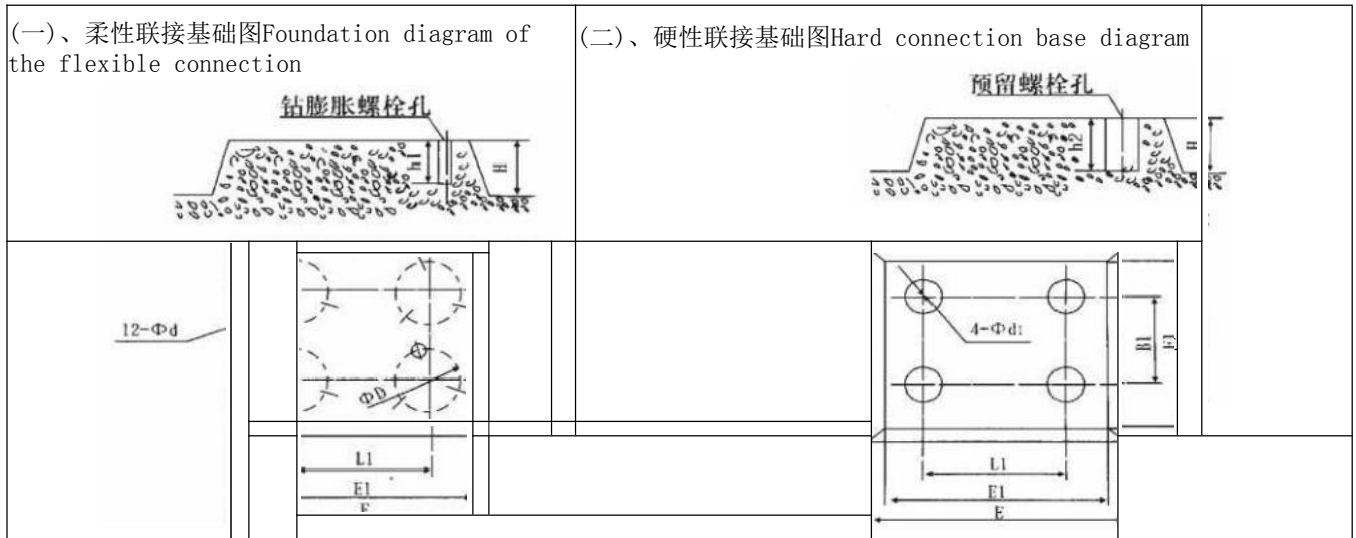
<<< 附件及安装尺寸 Accessories and installation dimensions >>>



型号	M	D	D1	H	D	n
JG2-1	M12	150	130	65	8.5	3
JG2-2	M12	150	130	65	8.5	3
JG3-1	M16	200	170	87	12.5	3
JG3-2	M16	200	170	87	12.5	3
JG4-1	M20	290	260	133	12.5	3



<<< ISW、ISWR、ISWH、ISWY、ISWHY型泵基础图 Basic diagram of ISW, ISWR, ISWH, ISWY and ISWHY pump >>>



<<< 安装说明 installation instructions >>>

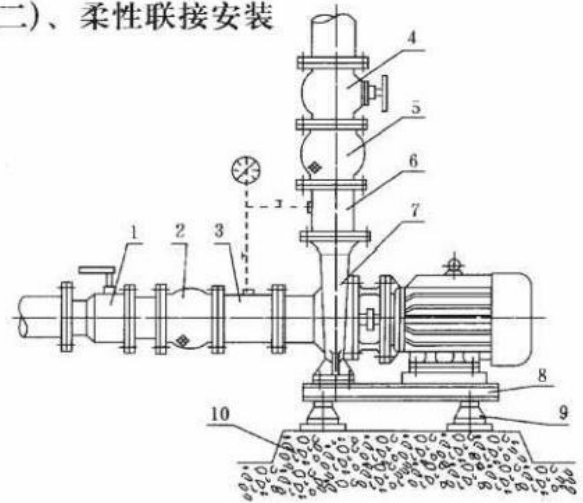
- 1、安装时管路重量不应加在水泵上，应有各自的支承体，以免使泵变形影响运行性能和寿命。
 - 2、泵与电机是整体结构，安装时无需找正，十分方便。
 - 3、安装时必须拧紧地脚螺栓，以免起动时振动对泵性能的影响。
 - 4、安装水泵前应仔细检查泵流道内有无影响水泵运行的硬质物(如石块、铁粒等),以免水泵运行时损坏叶轮和泵体。
 - 5、为了维修方便和使用安全，在泵的进出口管路上各安装一只调节阀及在泵出口附近安装一只压力表，以保证在 额定扬程和流量范围内运行，确保泵正常运行，增长水泵的使用寿命。
 - 6、泵用于有吸程场合，应装有底阀，并且进口管路不应有过多弯道，同时不得有漏水、漏气现象。
 - 7、排出管路如逆止阀应装在闸阀的外面。
 - 8、安装后拨动泵轴，叶轮应无磨擦声或卡死现象，否则应将泵拆开检查原因。
 - 9、泵的安装方式分为硬性联接和柔性联接安装。
1. the weight of the pipe should not be added to the pump, and there should be white supports, so as not to make the pump deformation affect the operation performance and life.
 - 2.the pump and the motor is the overall structure, the installation does not need to correct, very convenient.
 3. The anchor bolt must be tightened during installation to avoid the impact of vibration on the pump performance.
 - 4.before the installation of the pump should carefully check in the pump channel there is no hard impact affecting the operation of the pump (such as stones, iron particles, etc.) in the pump, so as not to damage the impeller and pump body when the pump operation.
 5. For convenient maintenance and safe use, a regulating valve is installed on the inlet and outlet pipeline of the pump and a pressure gauge is installed near the pump outlet to ensure the operation within the rated head and flow range, ensure the normal operation of the pump and increase the service life of the pump.
 - 6.the pump is used for suction occasions, should be equipped with a bottom valve, and the inlet pipeline should not have too many curves, and no water leakage, leakage phenomenon.
 - 7.discharge pipe such as check valve should be installed outside the gate valve.
 8. After moving the pump shaft after installation, the impeller should be no grinding sound or stuck, otherwise the pump should be disassembled to check the reason.
 9. The installation mode of the pump is divided into rigid connection and flexible connection installation.

<<< 安装方式 way to install>>>

Flexible connection installation

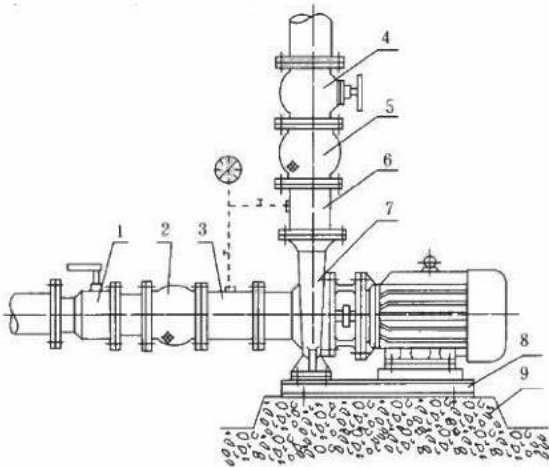
- 1 Imported ball valve
- 2 Inlet flexible joint
- 3 Pressure extraction section of the inlet straight pipe
- 4 Outlet smell valve
- 5 Outlet scratch joints
- 6 Pressure extraction section of the outlet straight pipe
- 7 pump
- 8 Pump base
- 9 The talker
- 10 Base platform

(二)、柔性联接安装



1	进口球阀	2	进口挠性接头	3	进口直管取压段
4	出口闸阀	5	出口挠性接头	6	出口直管取压段
7	泵	8	泵底座	9	隔报器
				10	基础台

(一)、硬性联接安装



	进口球能	2	进口挠性接头	3	进口直管取压段
4	出口闸阀	5	出口挠性接头	6	出口直管取压段
7	泵	8	泵底座	9	基础台

The hard connection installation

- 1 Imported ball valve
- 2 Inlet flexible joint
- 3 Pressure extraction section of the inlet straight pipe
- 4 Exit gate valve
- 5 Outlet scratch joints
- 6 Pressure extraction section of the outlet straight pipe
- 7 pump
- 8 Pump base
- 9 Base platform

<<< 启动与停止 Start and stop>>>

(一) 启动前准备

- 1、用手拨转电机风叶，叶轮应无卡磨现象，转动灵活。
- 2、打开进口阀门，打开排气阀使液体充满整个泵腔，然后关闭排气阀。
- 3、用手盘动泵以使润滑油进入机械密封端面。
- 4、点动电机，确定转向是否正确。

(1) Preparation before startup

1. Turn the motor blade, impeller should be no card grinding phenomenon, flexible rotation.
2. Open the inlet valve, open the exhaust valve to fill the liquid throughout the pump chamber, and then close the exhaust valve.
3. Use the hand plate to move the pump to make the lubrication fluid into the human mechanical sealing end face.
4. Click on the motor to determine whether the steering is correct.

(二) 启动与运行

- 1、全开进口阀门，关闭吐出管路阀门。
- 2、接通电源，当泵达到正常转速后，再逐渐打开吐出管路上阀门，并调节到所需工况。
- 3、注意观察仪表读数，检查轴封泄漏情况，正常时机械密封泄漏<3滴/分，检查电机、轴承处温升<70℃，如果发现异常情况，应及时处理。

(2) Start-up and operation

1. Open the inlet valve completely and close the outlet pipeline valve.
2. Turn on the power supply, when the pump reaches the normal speed, and then gradually open the valve on the pipeline, and adjust to the required working conditions.
3. Pay attention to the instrument reading, check the shaft seal leakage, normal mechanical seal leakage <3 drops / minute, check the temperature rise of the motor and bearing <70℃, if the abnormal situation is found, should be dealt with in time.

(三) 停止

- 1、逐渐关闭吐出管路阀门，切断电源。
- 2、关闭进口阀门。
- 3、如环境温度低于0℃，应将泵内液体放尽，以免冻裂。
- 4、如长期停用，应将泵拆卸清洗，包装保管。

(3) Stop

1. Gradually close the discharge pipe valve and cut off the power supply.
2. Close the inlet valve.
3. If the ambient temperature is lower than 0℃, the liquid in the pump should be put out to avoid freezing and cracking.
4. If the pump is stopped for a long time, the pump should be removed, cleaned, packaged and kept.

<<< 泵的维护与保养Maintenance and maintenance of the pumps>>>

(一) 运行中的维护和保养

- 1、进水管路必须高度密封。
- 2、禁止泵在汽蚀状态下长期运行。
- 3、禁止泵在大流量运行时，电机超电流长期运行。
- 4、定时检查泵运行中电机电流值，不得超过电机额定电流。
- 5、泵在运行过程中应有专人看管，以免发生意外。

6、泵每运行500小时应对轴承进行加油。电机功率大于11KW配有加油装置，可用高压油枪直接注入，以保证轴承润滑优良。

7、泵进行长期运行后，由于机械磨损，使机组噪声及振动增大时，应停车检查，必要时可更换易损零件及轴承，机组大修期一般为一年。

(I) Maintenance and maintenance in operation

1. The inlet water inlet pipe must be highly sealed.
2. It is forbidden to operate for a long time.
3. It is forbidden to operate the motor overcurrent for a long time when the pump is running in a large flow rate.
4. Regularly check the motor current value during the pump operation, and shall not exceed the rated current of the motor.
5. The pump should be in the operation process of special care, in order to avoid accidents.
6. The bearing shall be refueled for every 500 hours of pump operation. The motor power is greater than 11KW and equipped with refueling device, which can be directly injected with high pressure oil gun to ensure excellent bearing lubrication.
7. After long-term operation of the pump, when the noise and vibration of the unit increase, stop for inspection. If necessary, vulnerable parts and bearings can be replaced. The overhaul period of the unit is generally one year.

(二) 机械密封维护与保养

- 1、机械密封润滑应清洁无固体颗粒。
- 2、严禁机械密封在干磨情况下工作。
- 3、起动前应盘动泵(电机)几圈，以免突然起动造成密封环断裂损坏。

(2) Mechanical seal maintenance and maintenance

1. Mechanical seal lubrication should be clean without solid particles.
2. It is strictly prohibited to work under dry grinding seal.
3. the coil pump (motor) several laps before starting, so as to avoid the sealing ring fracture damage caused by the sudden start.

电机功率	机械密封规格	轴承规格
0.18kW、0.12kW	WM104-12	201
0.25kW、0.37kW	WM104-14	202
0.55kW、0.75kW 1.1kW(2极)	WM148-18	46204、180204Z1
1.1kW(4极)、1.5kW	WM148-20	46205、180205Zi
2.2kW(2极)	KM148-20	46205、180205Z ₁
202kW(4极)、3kW	KM109-25	46206、180206Z1
4kW	KM109-25	46306、180306Z1
5.5kW、7.5kW	KM109-25	46308、180308Zi
11kW、15kW、18.5kW(2极) 11kW、15kW(4极)	KM109-35 KM109-40	46309、309Zi
22kW(2极)	KM109-35	46311、311Zi
18.5kW(4极) 22kW(4极)	KM109-45	46311、311Zi

电机功率	机械密封规格	轴承规格
30kW(2极)、37kW(2极)	KM109-45	46312、312Zi
30kW(4极)	KM109-45	46312、312Z ₁
37kW(4极)、45kW	KM109-45	46313、313Zi
55kW、75kW(2极) 90kW(2极) 37kW(6极)	KM109-55	46314、314Z1
75kW(4极)	KM109-55	46317、317Zi
45kW(6极)、55kW(6极)	KM109-55	46317、317Z1
110kW(2极)	KM109-55	46316、316Z1
75kW(6极)、90kW(4极) 110kW(4极)	KM109-60	46319、46319Zi
90kW(6极)、110kW(6极) 132kW(6极)、160kW(4极) 132kW(4极)	KM109-65	
注：电机功率后未注极数为2、4极		

<<< 易损件(机械密封和轴承) Damaged parts (mechanical seal and bearings) >>>

<<< 故障原因及排除方法 Failure cause and troubleshooting method >>>

故障现象 Fault phenomenon	可能产生的原因 The possible causes	排除方法 Exclusion method
1、水泵不出水 1. The pump does not give water	a, 进出口阀门未打开, 进出管路阻塞, 流道叶轮堵塞。 b. 电机运行方向不对, 电机缺相转速很慢。 C、吸入管漏气。 d、泵没灌满液体, 泵腔内有空气。 e、进口供水不足, 吸程过高, 底阀漏水。 f、管路阻力过大, 系选型不当 A. The inlet and outlet valve is not opened, the inlet and outlet pipeline is blocked, and the flow channel impeller is blocked. B. The motor runs in the wrong direction, and the phase loss speed of the motor is very slow. C. Inhaled pipe leakage. D. The pump is not filled with liquid, and there is air in the pump chamber. E, the import water supply is insufficient, the suction range is too high, and the bottom valve is leaking. F, pipeline resistance is too large, improper system selection	a、检查, 去除阻塞物 b、调整电机方向, 紧固电机接线。 c、拧紧各出封面, 排除空气。 d、打开泵上盖或打开排气阀, 排尽空气。 e、停机检查, 调整(并网自来水管或带吸程使用易出现此现象)。 f、减少管路弯道, 重新选泵。 A, Check and remove the obstruction B. Adjust the motor direction and tighten the motor wiring. C. tighten the cover to remove the air. D. Open the top cover of the pump or open the exhaust valve to exhaust the air. E. Stop inspection and adjustment (this phenomenon is easy for grid-connected water pipes or suction procedures). F. Reduce the pipeline curve and re-select the pump.
2、水泵流量不足 2. Insufficient pump flow	a、先按1.原因检查 b、管道、泵叶轮流道部分堵塞, 水垢沉积, 阀门开度不足。 c、电压偏低 d、叶轮磨损 A. Check the reason of 1 B. The pipe and pump leaves are partially blocked, scale deposits, and the valve opening is insufficient. c. Low voltage d, impeller wear	a、先按1.排除。 B、去除阻塞物, 重新调整阀门开度。 c、稳压。 d、更换叶轮。 A, press 1. exclude first. B. Remove the obstruction and adjust the valve opening. C. stabilivolt. D. replace the impeller.
3、功率过大 3. Too much power	a, 超过额定流量使用 b、吸程过高 c、泵轴承磨损 A, Use over the rated flow rate B. Too high suction range C. Wear of the pump bearing	a、调节流量, 关小出口阀门。 b、降低吸程 c、更换轴承 A. Adjust the flow rate and turn off the outlet valve small. B. Reduce suction range C. Replace bearings
4、杂音振动 4. Miscellaneous vibration	a、管路支撑不稳 b、液体混有气体 c、产生汽蚀 d、轴承损坏 e、电机超载发热运行 A. Instable pipeline support B. The liquid is mixed with a gas C. Generate vaporization D, bearing failure E. Motor overload and heating operation	a、稳固管路 b、提高吸入压力、排气 c、降低真空度 d、更换轴承 e、调整按5。 A. Stabilize the pipeline B. Raise the suction pressure and exhaust the gas C., reduce the vacuum degree D. Replace bearings E. Adjust to press 5.

5、电机发热 5. Fever of the motor	a、流量过大, 超载运行 b、碰擦 c、电机轴承损坏 d、电压不足 A, the flow rate is too large, and the overload operation B, friction C. Motor bearing is damaged D. d, under voltage	a、关小出口阀 b、检查排除 c、更换轴承 d、稳压 A. Close the outlet valve b. Check and exclude c. Replace bearings d, stabilivolt
6、水泵漏水 6. Water pump leaks	a、机械密封磨损 b、泵体有砂孔或破裂 c、密封面不平整 d、安装螺栓松懈 A. Mechanical seal wear B, The pump body has a sand hole or a burst E. The sealing surface is uneven D. Lalax installation bolts	a、更换 b、焊补或更换 c、修整 d、紧固 A, renewal B. Welding, repair, or replacement C, repair and maintain D, fastening

<<< 管道损耗参考表 Reference table for pipeline loss >>>

管径 (mm)	流 量(L/S)																								
	1	2	4	6	8	10	15	20	25	30	40	50	60	70	80	90	100	110	120	130	140	160	180	200	
25	3.27	13.0																							
38	3.5	14	15																						
50	0.8	3.1	13	29																					
65		0.8	3.2	7.1	13	20																			
75		0.4	1.6	3.3	5.9	9.6	21.6																		
100			0.4	0.8	1.3	2.1	6.8	8.6	13	19.4															
125				0.23	0.4	0.63	1.3	2.7	4.1	5.9	10.7														
150					0.16	0.26	0.58	1.1	1.6	2.3	4.2	6.4	9.4												
175						0.11	0.27	0.5	0.74	1.05	1.9	2.9	4.3	5.8	7.7	9.6									
200							0.13	0.26	0.37	0.53	0.93	1.5	2.1	2.9	3.7	4.7	6.1	7.2	8.5						
250								0.07	0.12	0.18	0.30	0.48	0.68	0.93	1.2	1.5	1.9	2.3	2.8	3.3	3.7	4.9	5.2		
300									0.07	0.12	0.19	0.27	0.37	0.49	0.6	0.76	0.9	1.1	1.3	1.5	2.0	2.4	3.0		

阀及弯管折合直管长度(每个)

种 类	折合直管直径倍数	备 注
全开闸阀	12	未畅开加倍
标准弯管	25	
逆 止 阀	100	
底 阀	100	部分堵塞加倍

注: 例如100mm直径管, 底阀折合100倍直径等于100×100=10000mm=10m直径长度, 假定流量为8L/S查上表, 直管每100m损失1.3m, 则10m损失0.13m, 即一个100mm底阀, 流量为8L/S时, 则损失扬程0.13m。

Note: For example, 100mm diameter pipe, the bottom valve is 100 times the diameter is equal to 100100=10000mm=10m diameter length, assuming the flow rate is 8L / S, check the upper table, the straight pipe loss is 1.3m per 100m, the 10m loss is 0.13m, that is, a 100mm bottom valve, the flow rate is 8L / S, then Loss head of 0.13m.

定管路直径之最大流量限制

管路直径 (mm)	最大流量 (L/S)	最大流速 (m/s)	管路直径 (mm)	最大流量 (L/S)	最大流速 (m/s)
25	1	2.04	125	30.0	2.44
38	2.5	1.69	150	43.0	2.45
50	4.17	2.12	175	60.0	2.49
65	6.67	2.01	200	83.3	2.69
75	10.0	2.26	250	133.3	2.72
100	18.4	2.33	300	192.0	2.71

超过此限使管路损失显著增加。

Beyond this limit, the pipeline loss increases significantly.



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