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QBY-K气动隔膜泵

QBY-K Pneumatic Diaphragm Pump

YANGTZE RIVER PUMP

浙江扬子江泵业有限公司

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■ 概述

QBY-K型气动隔膜泵是利用两个隔膜在两个壳体内的往复运动来输送介质。 它不仅可以排出流动液体，还可以输送一些不易流动的介质，在许多领域得到了广泛的应用。

■ 应用范围

1、泵吸花生酱、泡菜、土豆泥、小红肠、果浆苹果浆、巧克力等。

2、泵吸油漆、树胶、颜料。

3、粘合剂和胶水、全部种类可用泵吸取。

4、各种瓦、瓷、砖器及陶器釉浆。

5、油井钻好后，用泵吸沉积物及灌浆。

6、泵吸各种乳剂和填料。

7、泵吸各种水。

8、用泵为油轮，驳船清仓吸取舱内污水。

9、啤酒花及发酵粉稀浆、糖浆、糖蜜。

10、泵吸矿井、坑道、隧道、选矿、矿渣中的积水。泵吸水泥灌浆及灰浆。

11、各种橡胶浆。

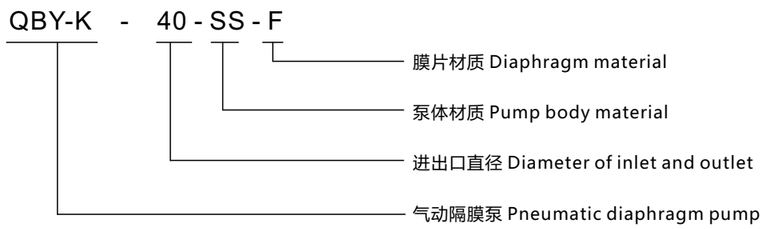
■ Summary

QBY-K pneumatic double diaphragm pump is transfer medium by the strokes of two diaphragms inside both casing. It is not only can exhaust the flow liquid,but also can convey some uneasy flowed medium, which is popular in many different fields.

■ Application

1.Pump suction peanut butte｢, kimchi, mashed potatoes,small sausages, apple jam, chocolate, etc.
2.Pump suction Paints, gums, pigments.
3.All types of adhesives and glues can be pumped
4.A variety of tile, porcelain, brick and ceramic glaze.
5.After the oil well is drilled, the sediment is pumped and grouted.
6.Pump suction emulsions and fillers.
7.Pump all kinds of water.
8.Pumps are used for oil tankers. The barge clears the cabin to drain the sewage.
9.Hops and baking powder, syrup, molasses.
10.Pump water in mines, tunnels, beneficiation and slag.Pump cement grouting and mortar.
11.Various rubber pulps.
12.Various abrasives, corrosives, oils and slurries,grease cleaning and general containers.
13.All kinds of highly toxic, flammable, easy to play liquid.
14.All kinds of strong acid, strong alkali, strong corrosive liquid.
15. Various high-temperature liquids can withstand up to 150 °C.
16.As a variety of solid-liquid separation equipment before the pressure device.

■ 型号意义 Model Meaning



■ 泵体材料代号 Code of materials for pump body

代号Code	泵体材料 Material of pump body	代号Code	泵体材料 Material of pump body	代号Code	泵体材料 Material of pump body
AL	铝合金 Aluminum	SS	不锈钢 Stainless Steel	VT	PVDF氟塑料 Viton
CI	铸铁 Cast Irom	PP	聚丙烯 Polypropylene	PL	内衬四氟 PTFE lining

■ 隔膜材料代号 Code of materials for pump body

代号Code	隔膜材料 Material of Diaphragm	代号Code	隔膜材料 Material of Diaphragm	代号Code	隔膜材料 Material of Diaphragm
NBR	丁腈橡胶 Buna-N	VT	氟橡胶 Viton	F46	四氟橡胶 Teflon
ST	山道橡胶Santoprene	EPDM	三元乙丙橡胶Ethylene-Propylene-Diene Monomer		

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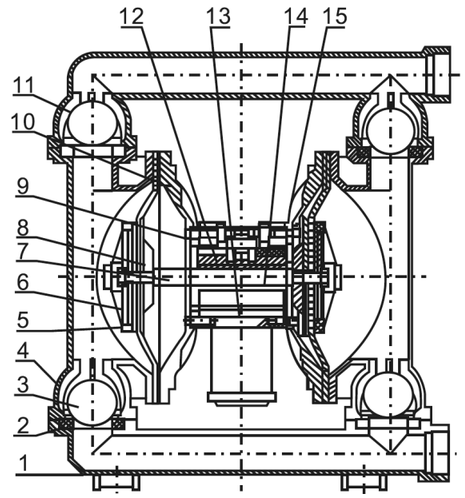
■ 结构 Structure



序号 NO.	部件名称 Part Name	数量 QTY	材料 Material					
1	进料管 Inlet Manifold	1	不锈钢 Stainless Steel	铝合金 Aluminum	铸铁 Cast Iron	塑料 PP	氟塑料 PVDF	内衬四氟 PTFE lined
2	球座 Ball Seat	4	丁腈 NBR	氯丁橡胶 Neoprene	四氟 Teflon	氟橡胶 Viton	氟橡胶 Viton	四氟 Teflon
3	球 Ball	4	丁腈 NBR	氯丁橡胶 Neoprene	四氟 Teflon	四氟 Teflon	氟橡胶 Viton	四氟 Teflon
4	立柱 Stand Column	2	不锈钢 Stainless Steel	铝合金 Aluminum	铸铁 Cast Iron	塑料 PP	氟塑料 PVDF	内衬四氟 PTFE lined
5	隔膜片 Diaphragm	2/4	丁腈 NBR	氯丁橡胶 Neoprene	四氟 Teflon	氟橡胶 Viton	氟橡胶 Viton	四氟 Teflon
6	外压板 Outter Platen	2	组件 Subassembly					
7	中间轴 Shaft	1	不锈钢Stainless Steel					
8	内压板 Inner Platen	2	Q235-A					
9	中间体垫片 Block Gasket	2	NBR					
10	隔板 Clapboard	2	铝合金 Aluminum Alloy ZI104					
11	出料管 Outlet Manifold	1	不锈钢 Stainless Steel	铝合金 Aluminum	铸铁 Cast Iron	塑料 PP	氟塑料 PVDF	内衬四氟 PTFE lined
12	中间体 Center Pump Body	1	铝合金 Assembly Group					
13	消声器 Muffler	1	ABS					
14	U型密封圈 U type Ring	4	NBR					
15	中间轴导向套 Guide Sleeve	1	组件 Subassembly					

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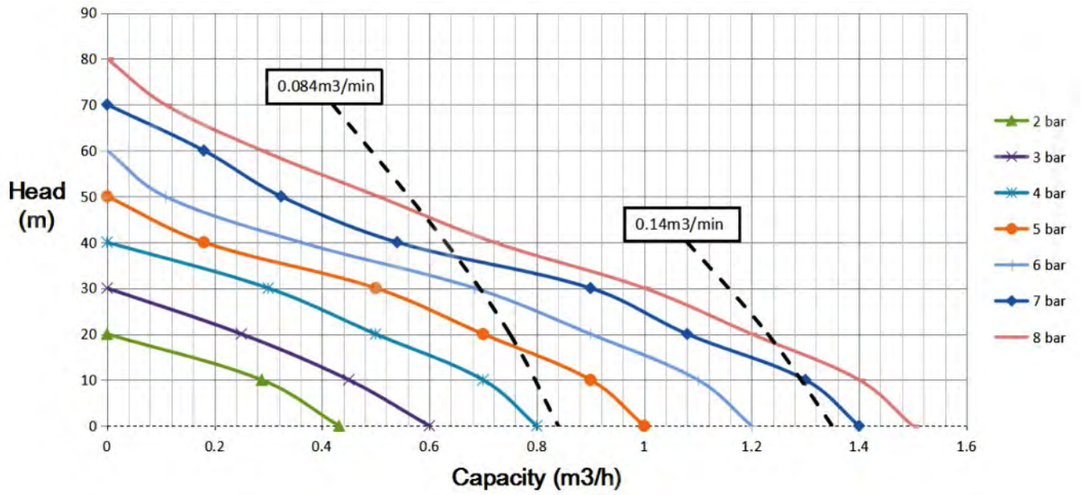
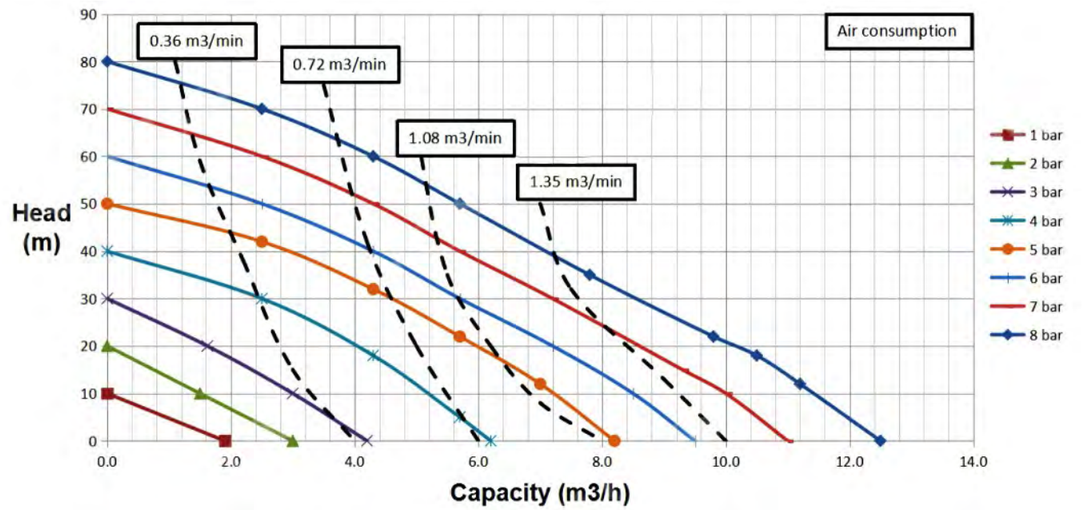
■ 性能曲线图 Performance graph

▪ QBY-K-10/15



▪ QBY-K-25/40



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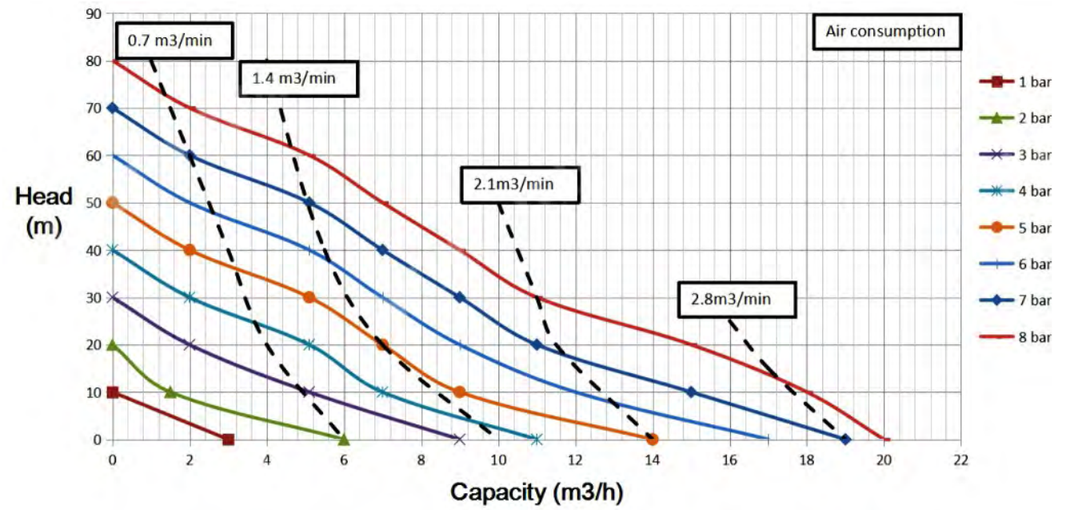
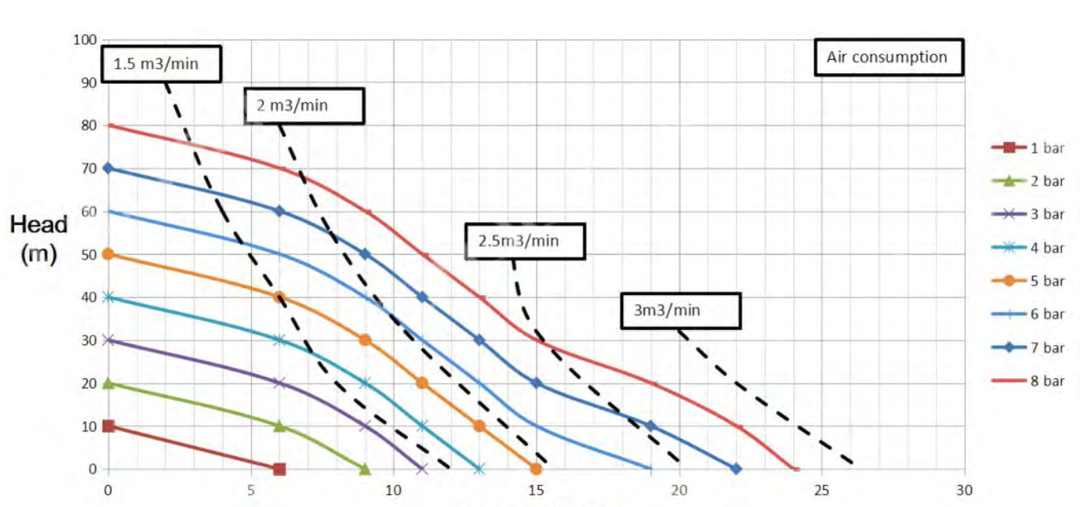
▪ QBY-K-50/65



▪ QBY-K-80/100



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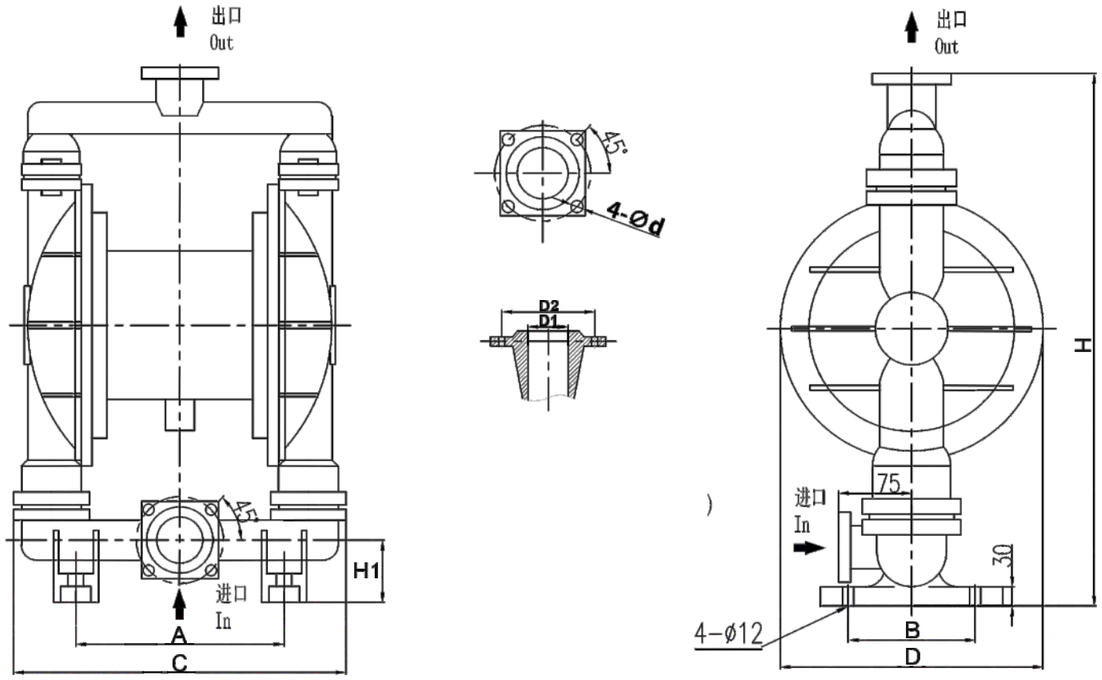
■ 主要外形尺寸表 Tables of setting data



型号 Model	A	B	C	D	H	H1	4-d	螺纹式 Screw NPT	法兰式 Flange		
									D1	D2	shape
QBY-K-10	15	15	15	15	15	15	/	1/2	-	-	-
QBY-K-15								1/2	-	-	-
QBY-K-25	236	150	378	240	500	50	/	1	-	-	-
QBY-K-40								1 1/2	-	-	-
QBY-K-50	346	190	510	350	700	75	14	-	90	110	方 130×130
QBY-K-65								-	110	130	方 130×130
QBY-K-80	360	205	580	470	880	110	18	-	125	150	方 160×160
QBY-K-100								-	145	170	方 160×160

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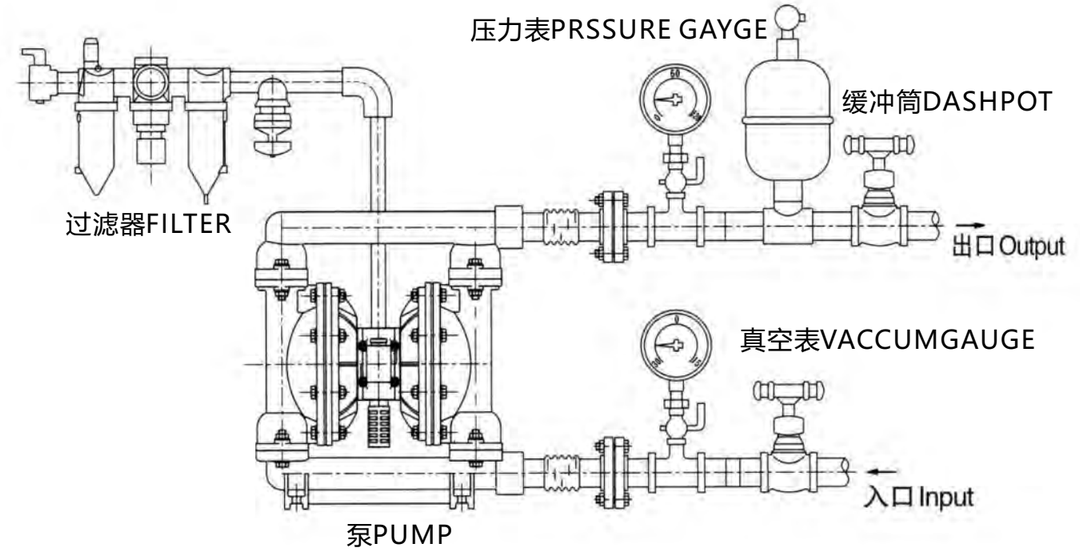
■ 主要技术参数 Main Specifications

型号 Model	尺寸 Size		最大流量 Max Capacity		扬程压力 Discharge Pressure		最大空气消耗量 Max Air Consumption	最大供气压力 Max air supply pressure	最大允许颗粒直径 Max particle diameter
	mm	Inch	m^3/h	L/min	m	PSI	m^3/min	BAR	mm
QBY-K8	8	1/4	0-0.8	13	70	101	0.6	7	1
QBY-K10/15	10/15	1\2	0-1	16					
QBY-K25	25	1	0-2.4	40			1.7		4.5
QBY-K40	40	1-1\2	0-8	133					
QBY-K50	50	2	0-12	200			4.9		8
QBY-K65	65	2-1\2	0-16	267					
QBY-K80	80	3	0-24	400			9.1		10
QBY-K100	100	4	0-30	500					

■ 系统连接示意图 System connection schematic diagram



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■ 泵的安装 Pump installation

1、在泵与电动机联轴传动时， 应注意泵轴与电动机输出的同轴度；泵安装的准确与否对泵的运行平稳性和使用寿命有较大的影响， 因此必须仔细认真地安装和校正。

2、泵联轴器必须用螺母紧固好， 并锁紧螺母， 谨防螺母松动， 否则易引起叶轮窑动， 造成机城故障。

3、为使泵体内能够保持一定的储存液， 以达到较好的自吸能力和防止机械密封的干磨擦， 必须使泵的进口高于泵轴中心线。

4、吸入管路的安装应注意：

A、 吸入口的安装高度不能超过泵自吸性能高度， 在条件许可时， 吸入口的安装高度应尽可能地低于水池录低储水面，并尽虽缩短吸入管的长度， 少装弯头， 这样有利于缩短自吸时间， 提高自吸功能。

B、 吸入管路中的阀门、 法兰等应严防漏气或渗漏液体，即吸入管路不允许有漏气现象存在。

C、 吸入管路和吐出管路应有自己的支架， 泵体本身不允许承受管路的负荷。

5、水泵在安装时， 应使泵及管路的静电接地电阻达到其规定要求。

6、校正泵联轴器及电动机联轴器的安装间隙及同轴度， 其不同轴度允许偏差为0. 1毫米。 泵轴和电动机轴的高度差可在底脚上垫铜皮或铁皮调整。

7、在机组实际运转3-4小时后， 作晟后检查， 如无不良现象， 则认为安装已妥， 在试运转中应检查轴承的温度， 轴承体的温度不宜超过70℃。

8、在泵的出口管路上如装有单向阀而在自吸过程中不能使泵顺利地排出气体时， 应在泵的出口处加接排气小管及阀。

■ Pump installation

1. With the shafts of both pump and motor linked in actuation, pay attention to the concentricity between the pump shaft and the motor's output; and carefully mount and calibrate the pump as which will leave a bigger affection to the running stability and duration of it .

2. Fasten the nut on the pump's clutch, or the impeller may be made easily movable to cause a mechanical failure.

3. Have the pump inlet higher than the central line of the pump shaft so as to have a certain volume of liquid kept inside of the pump to get a better self-suction capacity and prevent the mechanical seal from drying friction.

4. Cautions for the installation of the suck-in pipelineA. The installation height of the suck-in port shall not be higher than the self-suction height and shall be lower than the lowest stored water level 1n the water pool as can as possible, the suck-in pipe shall be as short as possible and mount less elbows so as to shorten the self-suction time and raise the selfsuction function.

B. The valve, flange etc. inside of the suck-in pipeline shall be prevented from air or liquid leaking, that means no air-leaking is allowed inside of it.

C. Get both suck-in and vomiting pipelines a stand of theirown and do not let the pump bearing any pipeline.

5. During installation of the pump, make the static grounding es1stance of it and the pipeline up to the set requirement.

6. Calibrate the installation space and the concentricity between the clutches of both pump and motor, with the allowed deviation of the concentricity at 0.1 mm, and put a copper or iron sheet under the foot to adjust the height difference between the shafts of both pump and motor.

7. Take a final check after the unit actually runs for 3-4h and it is deemed for the installation to have been well done if nonbad condition. Check the bearing temperature during trial, which shall not be over 70°C.

8. If the pump can not be made to successfully exhaust during the self-suction process with a single-way valve mounted on the pump's outlet pipeline, connect a small exhausting pipe and valve at the pump outlet.

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■ 泵的安装

（一）起动前的准备及检查工作

1、本系列自吸泵，根据泵的工作运转状况，分别采用优质钙基黄油和10号机油进行润滑，如果采用黄油润滑的泵应定期向轴承箱内加注黄油，采用机油润滑的泵，如果油位不足，则加足之。

2、检查泵壳内的储液是否高于叶轮的上边缘，如若不足，可以从泵壳上的加液口处直接向泵体内注入储液，不应在储液不足的情况下启动运转，否则泵不能正常工作，且易损坏机械密封。

3、检查泵的转动部件是否有卡住磕碰现象；检查泵体底脚及各联结处螺母有无松动现象；检查泵轴与电动机主轴的同轴度或平行度；检查进口管路是否漏气，如有漏气，必须设法排除；打开吸入管路的阀门，稍开（不要全开）出口控制阀。

（二）起动及操作

1、起动自吸泵，注意泵轴的转向是否正确；注意转动时有无不正常的声响和振动。

2、注意压力表及真空表读数，起动后当压力表及真空表的读数经过一段时间的波动而指定稳定后，说明泵内已经上液，泵进入正常输液作业。在泵进入正常输液作业前即自吸过程中，应特别注意泵内水温升高情况，如果这个过程过长，泵内水温过高，则停泵检查其原因。

3、如果泵内液体温度过高而引起自引困难，那行可以暂时停机，利用吐出管路中的液体倒流回泵内或向泵体上的加储液口处直接下来向泵内补充液体，使泵内液体降温，然后起动即可。

4、泵在工作过程中如发生强烈振动和噪声，有可能是泵发生汽蚀所致，汽蚀产生的原因有两种：一是进口管流速过大，二是吸程过高。流速过大时可调节出口控制阀，升高压力表读数，在进口管路有堵塞时则应及时排除；吸程太高时可适当降低泵的安装高度。

5、泵在工作过程中因故停泵，需再起动时，出口控制阀应稍开（不要全开），这样既有利于自吸过程中气体从吐出口排出，又能保证泵在较轻的负荷下启动，同时，注意检查管路系统有无渗漏现象。

（三）停泵

1、首先必须关闭吐出管路上的阀门。

2、使泵停止转动。

3、在寒冷季节，应将泵体内的储液和轴承体冷却室内的水放空，以防冻裂机件。

■ Pump installation

Preparations And Checks Prior To Starting

1. According to the running states, this series self-suction pumps are lubricated with quality calcium-based grease and 10# engine oil separately. For those lubricated with grease, fill grease into the bearing box in a periodic time and, for those with engine oil, fill it fully when the oil level is insufficient.

2. Check if the stored liquid inside of the pump casing is above the upper edge of the impeller and, if not, prime liquid directly from the filling port on the casing. Do not start the pump in case of an insufficient stored liquid, or the pump would not work normally and the mechanical seal would be easily damaged.

3. Check if the moving parts of the pump are jammed or collided; if the foot on the pump bottom and the nuts on the joints are loose; check the concentricity or the parallelism between the shafts of both pump and motor; check if there is air-leaking with the inlet pipeline and settle it if any; open the valve on the suck-in pipeline and slightly open (not fully) the outlet control valve.

Start and operation

1. Pay attention to the pump shaft to see if it moves in the correct direction when to start the self-suction pump; and if there is abnormal sounds and vibration when it moves.

2. Pay attention to the readings on both pressure gauge and vacuum meter, when the indications of which get stable after a periodic time fluctuation after the pump is started, that means liquid has been primed into the pump and the pump gets into the normal liquid transportation. Before the pump gets into the normal liquid transportation, e.g. during the self-suction process, pay special attention to the temperature rise of the liquid and stop the pump to check the cause if this process is too long and the temperature is so caused too high.

3. Temporarily stop the pump in case of a difficult selfsuction caused due to too high liquid temperature and make it lower by means of the back flow into the pump of the liquid in the vomiting pipeline or supplementing liquid directly from the filling port on the pump casing, then start the pump again.

4. It is possible for an air erosion to occur with the pump that causes a severe vibration and noise during the work of the pump and the air erosion occurs with two causes: one is too quick flow rate in the inlet pipe and the other is too high suction travel. For the former, adjust the outlet control valve, raise the reading on the pressure gauge and remove it in case of block- up in the inlet pipeline; for the latter, properly lower the pump's installation height.

5. When the pump is stopped because of something during work and started again, slightly (not fully) open the outlet control valve. This is benefit for the air to be exhausted on-time from the vomiting port during the self-suction process and also ensures the pump is started with a lighter load. Meanwhile, pay attention to checking if there is a leak from the pipeline system.

Stop

1. First close the valve on the vomiting pipeline.

2. Have the pump stopped running.

3. In cold seasons, drain out the liquid stored inside of the pump casing and the water inside of the bearing's cooling chamber completely to prevent any parts from being frozen to crack.

■ 故障原因及排除方法

故障现象	可能产生的原因	排除方法
1、水泵不出水	a、泵壳内未加储液或储液不足 b、吸入管路漏气 c、转速太低 d、吸程太高或吸入管路过长 e、机械密封泄漏量过大 f、吸入管路气体不能从出口排出	a、加足储液 b、检查并排除漏气现象 c、调整转速 d、降低吸程或缩短吸入管路 e、修复或更换 f、打开出口阀门，使气体排出
2、杂音和振动较大	a、底脚不稳 b、泵轴弯曲 c、汽蚀现象 d、轴承磨损严重 e、进口看路内有杂物 f、泵与电动机两者主轴不同心	a、加固 b、更换或校正 c、调整工况 d、更换轴承 e、清除杂物 f、调整同轴度
3、出水量不足	a、杂物进入吸入管或叶轮流道堵塞 b、转速太低 c、叶轮或叶轮密封磨损严重	a、排除堵塞物 b、调至额定转速 c、更换口环
4、轴功率消耗过大	a、流量过大 b、转速太高 c、泵轴弯曲或叶轮卡碰 d、泵内流道堵塞或被卡住	a、升高出口压力 b、适当降低 c、更换或校正 d、排除堵塞物

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■ Failures causes and troubleshooting

Failure	Possible Causes	Troubleshooting
1、No water out of pump	a、No or insufficient liquid stored inside of pump casing b、Air leaks from suck-in pipeline c、Too slow speed d、Too high suction travel or too long suck-in pipeline e、Too severe leakage from mechanical seal f、Air inside of suck-in pipeline unable to be exhausted from the outlet	a、Fill sufficient liquid b、Check and settle the air leak c、Adjust the speed d、Lower suction travel or shorten suck-in pipeline e、Repair or replace it f、Open the outlet valve to let air out
2、Bigger noise and vibration	a、Foot unstable b、Pump shaft bent c、Steam erosion d、Bearing seriously worn out e、Impurities exist inside of inlet pipeline f、Shafts of both pump and motor is not concentric	a、Solidify it b、Replace or correct it c、Adjust working conditions d、Replace it e、Get rid of impurities f、Adjust them to be concentric
3、Insufficient water-out quantity	a、Impurities get into suck-in pipe or impeller geat blocked up b、Too slow speed c、Impeller or impeller seal seriously worn out	a、Get rid of impurities b、Adjust the speed to the rated one c、Replace oral ring
4、Too big consumption of shaft power	a、Too heavy flow b、Too quick speed c、Pump shaft bent or impeller jammed or collided d、The geat inside of the pump blocked-up or jammed	a、Raise the outlet pressure b、Properly lower it c、Replace or correct d、Get rid of blocking matters

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