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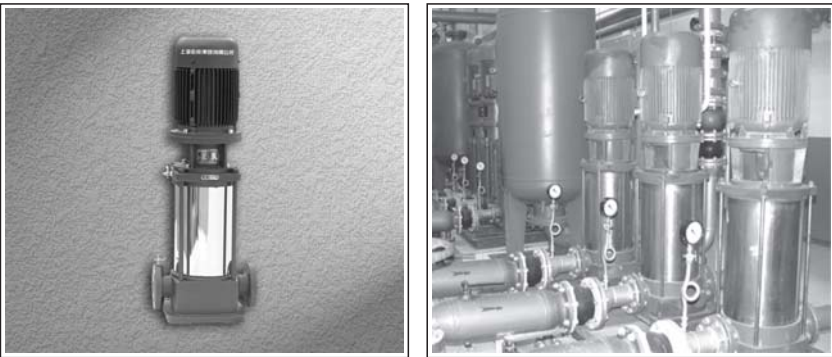


GDL 系列多级管道离心泵

GDL Series Multi-stage Pipeline Centrifugal Pump

使用说明书

Operation installation



安装、使用产品前，请仔细阅读使用说明书

Please carefully read the operation instructions before use of the product.

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2012 年 第一版 第一次印刷

first printing and first edition in 2012

印刷日期：2012.11.10

Date of printing: 2012.11.10

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概 述 OUTLINE

GDL型多级管道离心泵是本单位在国内外优秀泵型之基础上结合用户的使用要求设计制造的新一代产品。

该泵采用立式节段式外加不锈钢壳体结构，使得泵的进出口位于同一水平线上且口径相同，能像阀门一样安装于管路之中，它同时集中了多级泵之高压、立式泵之占地面积小及管道泵之安装方便的优点，同时由于采用了优秀的水力模型，所以还具有高效节能、运行平稳等优点，且轴封采用耐磨机械密封，无泄漏使用寿命长。

为了更好地满足用户的要求，本单位还开发了出水口位于上部的GDLS型，其进出口可以不同的相对位置(0°、90°、180°)安装，使用极为方便。

Model GDL multi-stage pipeline centrifugal pump is a new generation product designed and made by this Co.on the basis of the excellent pump types both domestic and overseas and combining the requirements of use.

This pump uses a vertical,sectional and stainless steel casing structure to have both inlet and outlet on a same level,of a same aperture and capable of being mounted in a pipeline just as a valve and collects the merits of the high pressure of a multi-stage pump,a less land area of a vertical pump and convenient installation of a pipeline pump and, due to the excellent hydraulic model it adopts,also features a high efficiency,energy-saving,stable running ect.,in addition, because of the wearable mechanical seal it uses as the shaft seal, it has no leak and a long duration of use.

To provide a better statisfaction to the requirements of users,this Co.also develops model GDLS the outlet of which is located on the upper part and both inlet and outlet can be mounted in different opposite positions(0°、90°、180°), leaving an extremely convenient use.

应用范围 RANGE OF APPLICATION

该泵主要适用于高压运行系统中冷热清水的循环和增压,高层建筑多台泵并联供水,消防、锅炉给水和冷却水系统及各种冲洗液的输送等。

Mainly used for the circulation and boost of both cold and hot pure waters in a high pressure moving system,water supply with pumps in parallel in a high building,the water supply and cooling water system of fire-fighting and boilers and the transporting of various rinsing liquids.

工作条件 WORKING CONDITIONS

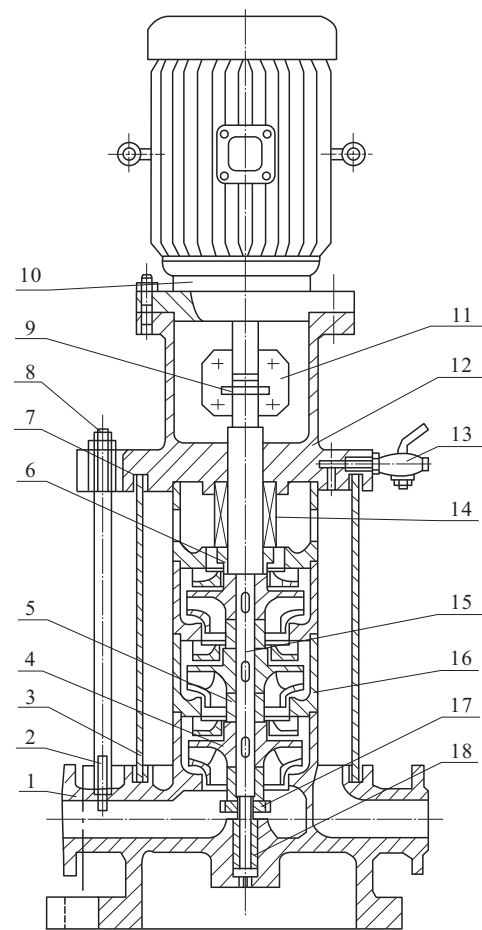
- 1、该泵可输送清水或物理化学性质类似于清水的液体；
- 2、液体温度：-15℃～+104℃；
- 3、工作压力：最大工作压力<2.5MPa，即系统压力＝入口压力＋闭阀工作时的压力<2.5MPa；
- 4、周围环境的温度应低于40℃，相对湿度不超过95%；
- 5、输送含腐蚀性介质及热液体时，请于订货时提出，以便采用特殊材质满足使用要求。

- 1.This pump can transport pure water and the liquid the natures of both physics and chemistry of which are similar to those of pure water.
- 2.Liquid temperature:-15℃～+104℃.
- 3.Working pressure:maximum one <2.5MPa,i.e.the system pressure+the pressure at work with valve closed<2.5MPa.
- 4.The ambient temperature should be below 40℃,RH no more than 95%.
- 5.Please make a note at order if the pump is used to Transport corrosive media and hot liquid so as for us special materials to meet with the demand.

型号意义 MODEL MEANING

50	GDL	(S)	12	-	15	×	5	
								级数为5级
								5 stages
								额定扬程为15m
								Rated head 15m
								额定流量为12m ³ /h
								Rated flow 12m ³ /h
								下吸上吐式
								Lower-suction upper-out type
								立式多级管道离心泵
								Vertical multi-stage pipeline centrifugal pump
								进出口公称直径为50mm
								DN of both inlet and outlet 50mm

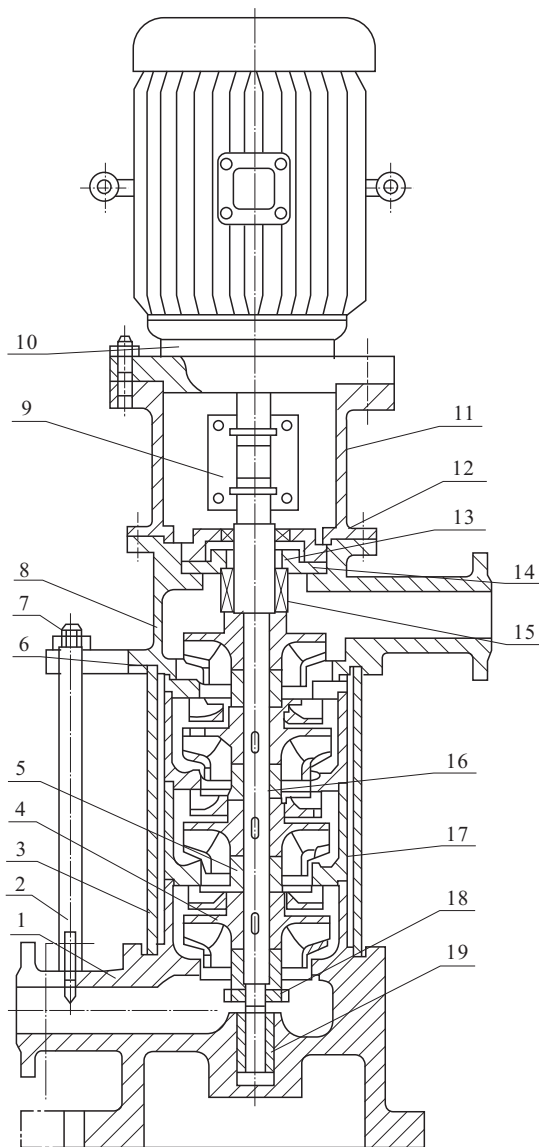
GDL型泵结构简图 GDL TYPE PUMP SKETCH DRAWING OF STRUCTURE



GDL型多级管道离心泵
Model GDL multi-stage pipeline centrifugal pump

1	泵体 Pump casing
2	拉紧螺栓 Tensile bolt
3	外筒 Outer cylinder
4	叶轮 Impeller
5	叶轮挡套 Impeller baffle
6	轴套 Muff
7	密封垫 Seal-washer
8	螺母 Nut
9	销 Wedge
10	电机 Motor
11	联轴器 Clutch
12	联接座 Linking seat
13	气嘴 Air nozzle
14	机械密封 Mechanical seal
15	轴 Shaft
16	中段 Middle section
17	轴套螺母 Muff nut
18	轴瓦 Miner

GDLS型泵结构简图 GDLS TYPE PUMP SKETCH DRAWING OF STRUCTURE



GDLS型多级下吸上吐式管道离心泵
Model GDLS multi-stage lower-suction upper-out pipeline centrifugal pump

1	吸入段 Suck-in section
2	拉紧螺栓 Tensile bolt
3	外筒 Outer cylinder
4	叶轮 Impeller
5	叶轮挡套 Impeller baffle
6	密封垫 Seal-washer
7	螺母 Nut
8	出水段 Outlet section
9	联轴器 Clutch
10	电机 Motor
11	联接座 Linking seat
12	密封座 Sealing seat
13	复合轴承 Compound bearing
14	轴承座 Bearing seat
15	机械密封 Mechanical seal
16	轴 Shaft
17	中段 Middle section
18	轴套螺母 Muff nut
19	水润滑轴承 Bearing of water lubricate

安装说明 INSTALLATION INSTRUCTIONS

- 1、安装时管路重量不应承受在泵上，否则易损坏水泵；
- 2、泵与电机是整体结构，出厂时已由厂家校正，所以安装时无需调整，因此安装时十分方便；
- 3、安装时必须拧紧地脚螺栓，且每间隔一定时段应对泵进行检查防止其松动，以免水泵启动时发生剧烈振动而影响泵的性能；
- 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、铁砂等)，以免水泵运行损坏过流部件；
- 5、为了维修方便和使用安全，在泵的进、出口管路上分别安装一只调节阀及在泵进出口附近安装一只压力表，对于高扬程泵，为防止水锤，还应在出口闸阀前安装一只止回阀，以应付突然断电等失去动力事故，从而确保水泵在最佳工况下运行，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，以免影响水泵的吸入性能；
- 7、为不使杂质进入泵内而堵塞流道影响性能，应在泵进口前面安装过滤器；
- 8、安装管路前转动水泵的转子部件，应无磨擦声或卡死现象，否则应将泵拆开检查原因。



- 1.The pipeline weight should not be supported by the Pump in installation,or it would be easily made damaged;
- 2.Both pump and motor are integrally structured and calibrated by the manufacturer at ex-works, so no need to do any adjustment in installation and leaving a very convenient work;
- 3.Tighten the foot bolts and check them every a certain period of time to prevent them from being loose,thus preventing the pump performance from being affected due to a severe vibration of it at starting;
- 4.Check of there is any hard objects (such as stones,iron-sand etc.)inside of the flow path of the pump before installation so as to prevent the flow-passing parts from being made damaged during its running of the pump;
- 5.For a convenient service and operation safety, mount an adjusting valve on both inlet and outlet pipelines and a piezometer near both inlet and outlet,and for the pump of a high head, a check vavle before the gate vavle,so as to meet With the accident of power loss such as an abrupt cut-off,thus making sure the pump runs under the best working conditions and extending its duration of use;
- 6.In case of a suction stroke for the pump to be used with, a foot vavle has to be mounted and both inlet and out let pipelines should not have too many bends and water or air leak so as to avoid affecting its suction performance;
- 7.Mount a filter before the inlet to have any foreign matters stopped there to prevent the flow path against being blocked up and thus keeping the pump's performance well;
- 8.Move the rotor part before mounting pipelines to see if there is any frictional sound or jamming and disassemble the pump and check the causes if any;

启动与停车 START AND STOP

启动前准备

- 1、用手拨转联轴器，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，然后关闭排气嘴；
- 3、如输送热液体时，启动前应预热，升温速度为50℃/h，泵的预热是用所输送液体不断循环来达到，以使各部位受热均匀；
- 4、应先用手盘动泵几圈以使润滑水进入机械密封端面；
- 5、点动电机，确定转向是否正确。

启动与运行

 电机和控制设备的电源连接只能由专业技术人员来完成。
 认真阅读电气设备制造商的使用说明书、电气装置的国家规范和有关当地供电商的法律法规。
泵和相关设备必须严格接地。

- 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的阀门，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为3滴/分，检查电机、轴承处温度≤75℃，如果发现异常情况，应及时处理。



停车

- 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，以免冻裂水泵；
- 4、如长期停用，应将泵拆卸清洗，包装保管。

Preparations before starting:

- 1.Turn the clutch with hand,the impeller should not be jammed and moves flexibly;
- 2.Open the inlet valve and the exhaust valve to let the liquid full of the pump cavity, then close the exhaust vavle;
- 3.Preheat the pump with a temperature rise rate 50℃/h if used to transport hot liquid, the preheat is made by the continuous circulation of the liquid being transported and, in this way,every part of it is evenly heated;
- 4.First move the pump by several turns to have the lubricating water into the end-face of the mechanical seal;
- 5.Apply a spot-moving on the motor to see if it moves in the correct direction;

Start and run


 **The connection of the power supply to both motor and control equipment can be implemented by the special technicians.**
 **Carefully read the manual of the electric equipment manufacturer, the national standard of the electric device and the related norms of law of the local power supplier.**
Both pump and related equipments shall be grounded strictly.


- 1.Fully open the inlet valve and close the valve on the outlet pipeline;
- 2.Turn on the power and ,when the pump reaches the normal Rotating speed,gradually open the valve on the outlet Pipeline and adjust it to the desired working conditions;
- 3.Take care of viewing the readings on the meter and check the leakage from the shaft seal, which,as a mechanical seal under the normal state,is 3 drops/min,and the temperature on both motor and bearing,which should be ≤ 75℃.Settle it at once in case of an abnormal condition;


Stop


- 1.Gradually close the valve on the outlet pipeline and cut off the power;
- 2.Close the inlet valve;
- 3.Drain the liquid inside of the pump out completely in case of an ambient temperature below zero to prevent the Pump against being frozen;
- 4.Disassemble the pump and clean it,then pack and store it in case of a long time stop of use.

泵的维护与保养 MAINTENANCE

 给泵维修前，请务必切断电源！并在主电源开关处挂有“设备维修中”字样！

 Prior to stopping the pump for repair, please do cut off the power! And present "This equipment is in repair" on the switch of the main power!

-  1、安全起见，应在工作区域四周设置适当的障碍，确保非工作人员不得进入，尤其在移除泵装置的地方。
- 2、在安装或维护完成后，检查所有紧固螺栓和连接螺栓的安全。

-  1. For the sake of safety, set a proper obstruction around the working area and never let any persons irrelevant to the work in, especially in the place where the pump apparatus are moved away.
2. After installation or maintenance, check all the fixing and connecting bolts for safety.

运行中的维护与保养

- 1、进水管路必须高度密封，不能漏水、漏气；
- 2、禁止泵在汽蚀状态下长期运行；
- 3、禁止泵在大流量工况运行、电机超电流长期运行；
- 4、定时检查泵运行中的电机电流值，尽量使泵在设计工况范围内运行；
- 5、泵在运行中应有专人看管，以免发生意外；
- 6、泵每运行500小时应对轴承进行加油；
- 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。

机械密封的维护与保养

- 1、机械密封润滑液应清洁无固体颗粒；
- 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，以免突然起动造成机械密封断裂损坏。

Maintenance in running

- 1.The inlet pipeline must be highly sealed without water, air leak;
- 2.Prohibit the pump from running for a long time under the vapour corroded status;
- 3.Prohibit the pump from running under the working condition with a heavy flow and the motor from moving for a long time under and over-current;
- 4.Periodically check the current value of the motor during pump's running and have the pump run within the designed working conditions as can as possible;
- 5.Have a special person look after the pump when it runs to avoid any accidents;
- 6.Lubricate the bearings every 500h of the pump's running;
- 7.After a long time running,stop the pump and take a check when the noise and vibration of the unit is found increased and, if necessary,replace the easily worn out parts and the bearing.the limited period for the unit to be exhausted is one year in general.

Maintenance of mechanical seal

- 1.The lubricating liquid for the mechanical seal should be clean without any solid grains.
- 2.Prohibit the mechanical seal from working in drywearing;
- 3.Turn the pump(motor)by several turns before starting so as to prevent the mechanical seal from being broken and damaged due to an abrupt starting.

故障原因及排除方法 FAILURES CAUSES AND TROUBLESHOOTING

故障现象 Failure	可能产生的原因 Possible causes	排除方法 Troubleshooting
1、水泵不出水 No water out of pump	a.进出口阀门未打开，进出管路阻塞，叶轮流道阻塞 Inlet and outlet valves not opened and pipelines blocked up impeller's flow path blocked up b.电机运行方向不对，电机缺相转速很慢 Uncorrect motor's moving direction,motor is lack of phase with a very slow moving c.吸入管漏气 Air leaks from suction pipe d.泵没灌满液体，泵腔内有空气 Pump not full of liquid,air exists inside of it e.进口供水不足，吸程过高，底阀漏水 Water-supply to the inlet unsufficient,too high suction stroke, foot valve leaks f.管路阻力过大，泵选型不当 Too big resistance on pipeline,unproper model selection	a.检查，去除阻塞物 Check,remove the blocking matters b.调整电机转向，紧固电机接线 Adjust the direction,fix motor's wiring c.拧紧各密封面，排除空气 Tighten each sealed face,exhaust air d.打开泵上盖或打开排气阀，排尽空气 Open pump cover or exhaust valve to exhaust air completely e.停机检查、调整(并网自来水管和带吸程使用易出现此现象) Stop and check,then adjust(this trouble is easy to occur for the network-parallel water pipe and that with suction stroke) f.减少管路弯道，重新选泵 Reduce bends on pipeline,select model
2、水泵流量不足 Unenough flow with pump	a.先按1.原因检查 First check according to 1. b.管道、泵流道或叶轮部分阻塞，水垢沉积，阀门开度不足 Pipeline,pump's flow path or impeller partially blocked up,water filth precipitates,unenough opening of valves c.电压偏低 Voltage slightly low d.叶轮磨损 Impeller worn out	a.先按1.排除 first troubleshoot per 1. b.去除阻塞物，重新调整阀门开度 get rid of the blocking matters,readjust the opening c.稳压 stabilize voltage d.更换叶轮 replace it
3、功率过大 Too big power	a.超过额定流量使用 Used with rated flow surpassed b.吸程过高 Too high suction stroke c.泵轴承磨损 Bearing of pump worn out	a.调节流量，关小出口阀门 Asjust flow,reduce the opening of outlet valve b.降低 Lower it c.更换轴承 Replace it
4、杂音振动 Noise and vibration	a.管路支撑不稳 Pipeline unstably supported b.液体混有气体 Gas mixed with liquid c.产生汽蚀 Vapour corrosion produced d.轴承损坏 Bearing damaged e.电机超载运行 Motor moves with overload	a.稳固管路 Stabilize it b.提高吸入压力，排气 Raise suction pressure, exhaust gas c.降低真空度 Lower vacuum degree d.更换轴承 Replace it e.调整按5. Adjust it per 5.
5、电机发热 Motor heated	a.流量过大，超载运行 Too big flow,moving with overload b.局部摩擦 Partial friction c.电机轴承损坏 Motor's bearing damaged d.电压不足 Voltage insufficient	a.关小出口阀门 Reduce the opening of outlet valve b.检查排除 Check and get rid of it c.更换轴承 Replace it d.稳压 Stabilize it
6、水泵漏水 Pump leaks	a.机械密封磨损 Mechanical seal worn out b.泵体有砂孔或破裂 Sand-hole or breaking on pump casing c.密封面不平整 Seal-surface no flat d.安装螺栓松懈 Mounting bolts loose	a.更换 Relace it b.焊补或更换 Weld it or replace it c.修整 Trim it d.紧固 Tighten