

主要产品系列

IJ 化工流程泵
AZ 浆泵
HLT 立式化工通道泵
SHJ 低脉冲循环泵
HJD 化工多级泵
HPA/HPB 石油化工流程泵
HZW 轴流泵
IFK 氟塑料泵
HY 化工液下泵
MHT 轻型渣浆泵
HZJ 重型渣浆泵
HGD 高压多级泵
HYM 液下渣浆泵
FGD 石灰石石膏脱硫泵
HSK 液环真空泵和压缩机
HM 计量泵
BBS 双吸单级流程泵
BBD 双吸两级流程泵
HPY 油浆泵
HT 化工通道泵
HZX 化工自吸泵
HW 化工混流泵
HLZ 立式轴流泵
HLW 立式混流泵
IFM 塑料渣浆泵
MWT 耐磨无损通道泵
HMA 煤化工泵
HGS 卧式高速泵
MSD 中开多级泵
HYD 液下多级泵
HRV 高温熔盐泵
HXP 旋转喷射泵
HAY 油泵

MAIN PRODUCT SERIES

IJ Chemical process pump
AZ Pulp pump
HLT Vertical chemical process pump
SHJ Low-pulse circulating pump
HJD Chemical multi-stage pump
HPA/HPB Petrochemical process pump
HZW Axial-flow pump
IFK Plastic pump
HY Chemical submerged pump
MHT Light-duty slurry pump
HZJ Heavy-duty slurry pump
HGD High-pressure multistage pump
HYM Submerged slurry pump
FGD Pump for flue gas desulfurization
HSK Liquid ring vacuum pumps and compressors
HM Metering pump
BBS Double suction, single stage process pump
BBD Double suction, double stage process pump
HPY Oil slurry pump
HT Chemical passage pump
HZX Self-suction chemical centrifugal pump
HW Chemical mixed-flow pump
HLZ Vertical axial-flow pump
HLW Vertical mixed-flow pump
IFM Plastic slurry pump
MWT Wear-resisting passage pump
HMA Coal chemical pump
HGS Horizontal high speed pump
MSD Split multistage pump
HYD Submerged multistage pump
HRV High temperature liquid salts pump
HXP Roto-jet pump
HAY Oil pump

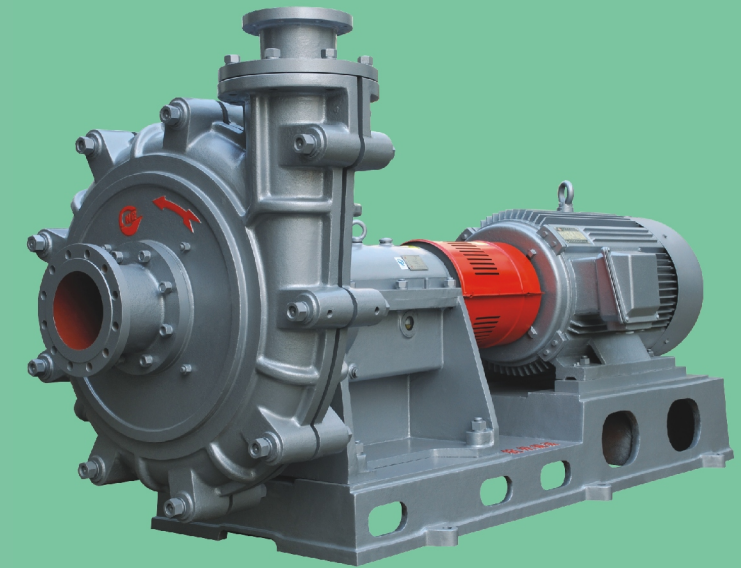
IJ[®] 系列 SERIES



HZJ 重型渣浆泵 HEAVY-DUTY SLURRY PUMP

● 矿浆 Mineral slurry ● 煤渣 Cinders coal ● 盐泥 Salt with crystal ● 石灰乳 Lime starch ● 电石渣 Calcium carbide crumbs

- 参照ISO2858、ISO5199、API682标准
Conform to ISO2858, ISO5199, API682 Standard
- 最大工作压力 2.5MPa
Max operating pressure 2.5MPa
- 流量 (4~3240) 立方米/小时
Range of Capacity (4~3240)m³/h
- 扬程 (7~115) 米
Total head (7~115)m
- 温度 (-20~180)°C
Range of operating Temperature(-20~180)°C
- 最大颗粒直径 (3~115)mm
Max particle diameter(3~115)mm
- 最大固液比 60%
Max solid content 60%
- 1995年通过ISO9001质量管理体系认证
Attained the ISO9001 quality management system authentication in 1995
- 2005年通过ISO10012:2003国际测量管理体系认证
Attained the ISO10012:2003 measurement management system authentication in 2005
- 2006年通过AAA级企业标准体系认证
Attained the AAA standardization system authentication in 2006
- 2011年通过ANSI/API Spec. Q1, ISO/TS29001质量管理体系认证
Attained ANSI/API Spec. Q1, ISO/TS29001 quality management system authentication in 2011



浙江华泵科技有限公司
 浙江安吉孝丰镇产业科技创业中心 邮编Zip: 313301
 Industry Science & Technology Zone, Xiaofeng Town, Anji
杭州碱泵有限公司
 杭州市三墩镇西湖科技园西园五路12号 邮编Zip: 310030
 No.12 Xiyuan 5 Road, Westlake Science & Technology
 Zone, Sandun Town, Hangzhou

销售部电话Tel:+86 571 89905601
 89905603
 +86 571 89900102(For International Clients)
 销售部传真Fax:+86 571 89905602
 Http://www.hbgrouops.com
 E-mail:sales@hbgrouops.com

浙江华泵科技有限公司
HB PUMP CO., LTD.
杭州碱泵有限公司
HANGZHOU ALKALI PUMP CO.,LTD.

目 录

CONTENTS

一、HZJ重型渣浆泵简介	
INTRODUCTION TO HZJ HEAVY-DUTY SLURRY PUMP	(1)
二、泵的结构	
STRUCTURE	(2)
三、泵的密封	
PUMP SEAL	(4)
四、泵的驱动方式与联轴器	
DRIVING AND COUPLING	(5)
五、泵的安装	
INSTALLATION	(6)
六、使用与维护	
OPERATION AND MAINTENANCE	(8)
七、拆卸与装配	
DISASSEMBLY AND ASSEMBLY	(8)
八、订货须知	
NOTICE TO ORDER	(9)
九、渣浆泵清水特性曲线	
CLEAR WATER PERFORMANCE CURVE OF HZJ HEAVY-DUTY SLURRY PUMP	(11)
十、HZJ直联传动清水性能表	
CLEAR WATER PERFORMANCE TABLE OF HZJ HEAVY-DUTY SLURRY PUMP	(15)
十一、常见故障及排除措施	
TROUBLESHOOTING	(20)

使用 前 请 详 细 阅 读
READ CAREFULLY BEFORE USING

2012.09版

一、HZJ重型渣浆泵简介 INTRODUCTION TO HZJ HEAVY-DUTY SLURRY PUMP

(一) 简介

HZJ重型渣浆泵是本公司在吸收国内外同类产品的特点，在广泛采纳顾客需求的基础上，采用先进的两相流水力设计理论和水力模型研制成功的泵种。合理的悬臂比设计，优质的耐磨材料，使泵具有高效节能、使用寿命长、较高的输送浓度、良好的抗汽蚀性能等优点。运行平稳、无泄露、维修方便。

1. Introduction

HZJ heavy-duty slurry pump is a successful pump designed by our company with advanced two-phase flow hydraulic design and hydraulic model, and it also absorbs the characteristics of the same type products at home and abroad, based on the requirements of users. The reasonable cantilever ratio and fine wearing materials make the pump feature high efficiency, energy-saving, long service life, high conveying density, good cavitation, resistance smooth running, leakage-free and easy maintenance,

(二) 用途

用于输送含有大量固体物料的腐蚀性、高浓度的渣浆。如重介选煤流程、发电站水力除渣系统、高炉除渣、矿山、化工、冶金、盐泥等方面。

2. Application

It is used to convey high-concentrated corrosive slurry containing a great deal of solid materials. Such as coal preparation process with dense medium, hydraulic slag removal system in power station, slag removal in blast furnace, mine, chemical, metallurgy, salt slurry, etc.

(三) 参数范围

流量：(4~3240)m³/h
 扬程：(7~115)m
 温度：(-20~180)°C
 最大颗粒直径：(3~115)mm
 最大固液比：60%
 最大工作压力：2.5MPa

3. Range of parameters

Range of capacity (4~3240)m³/h
 Total head (7~115)m
 Range of operating temperature (-20~180)°C
 Max particle diameter (3~115)mm
 Max solid content 60%
 Max operating pressure 2.5MPa

(四) 材料

与介质接触的过流部件，常用材料如下：MCU、DTM、M-3、Cr15Mo3

4. Materials

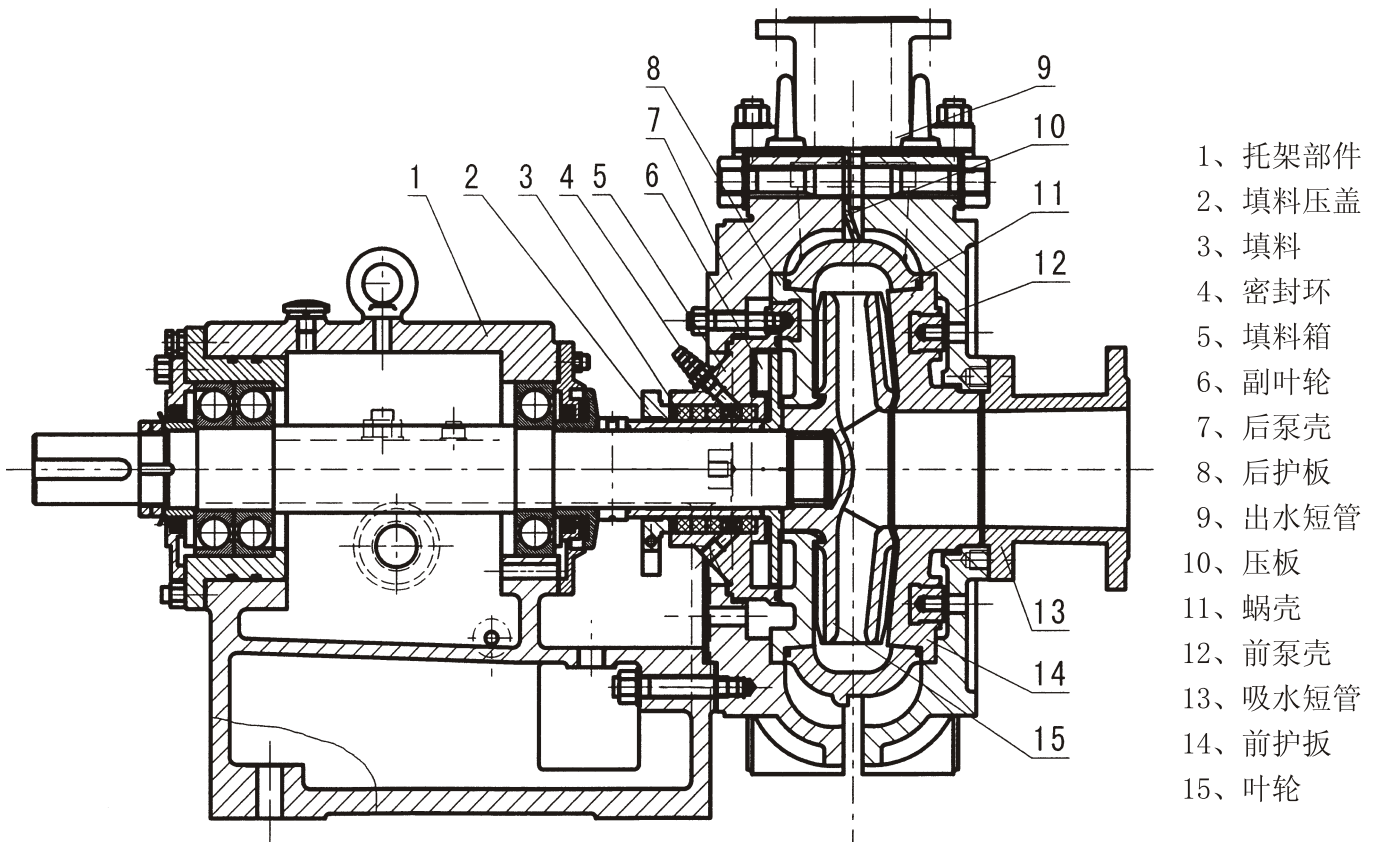
For wetted parts in contact with medium, the common materials are as followings: MCU, DTM, M-3, and Cr15Mo3.

(五) 型号举例说明 Pump model illustration

HZJ 150 - 100 - 360



二、泵的结构 STRUCTURE



- 1、托架部件
2、填料压盖
3、填料
4、密封环
5、填料箱
6、副叶轮
7、后泵壳
8、后护板
9、出水短管
10、压板
11、蜗壳
12、前泵壳
13、吸水短管
14、前护板
15、叶轮

1. Bracket part 2. Packing gland 3. Packing 4. Sealing ring 5. Stuffing box
6. Secondary impeller 7. Back pump shell 8. Back guard board 9. Discharge short pipe 10. Pressure plate
11. Volute 12. Front pump shell 13. Suction short pipe 14. Front guard board 15. Impeller

1、结构特点

● HZJ重型渣浆泵的泵体采用双层泵壳结构。(零件包括前泵壳、后泵壳、前护板、后护板和蜗壳)

● 前、后泵壳垂直中开，用螺栓连接，后泵壳有止口与托架定位并用螺栓连接。

● 泵出口位置可按45°间隔八个角度旋转安装。

● 叶轮前后盖板带有背叶片，以减少泄漏、提高效率和使用寿命及平衡轴向力。

● 后轴承采用二只角接触推力球轴承背靠背安装，以有效消除泵的轴向窜动。

● 叶轮用螺纹连接在轴上，改善了泵的进口水力，提高了泵的效率。但禁止反转。

● 轴向剖分式托架检修时不必移动电机，维修方便。

1. Structural features

● The pump casing of HZJ series heavy-duty slurry pump adopts dual-layer pump shell structure (its parts include front shell, back pump shell, front guard board, back guard plate and volute).

● The front and back pump shells are separated vertically in the middle of both and connected with bolts; The back pump shell is located with slop-cut and bracket and connected with bolts.

● The pump's outlet position can be installed by rotation in eight angles with 45° interval.

● The covers of impeller's front and back pump are equipped with back blades to decrease leakage and heighten efficiency, service life and balancing radial force.

● The back bearing adopts the back to back installation with two thrust ball bearings with angle contact to effectively prevent pump's axial vibration.

2、轴承的润滑：采用46#润滑油，油位控制在油窗两油位线之间。

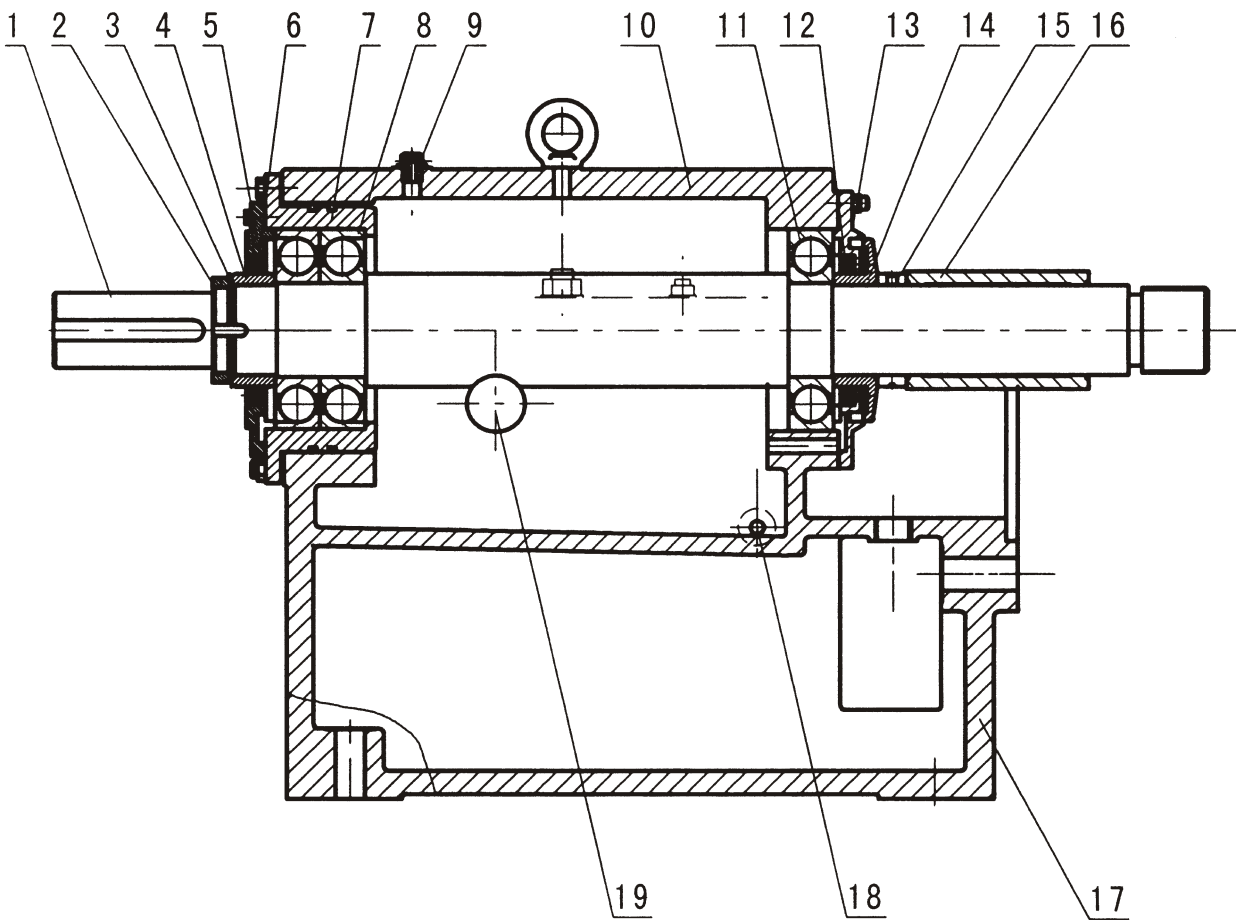
3、泵的旋转方向：从驱动机端看按顺时针方向旋转。

● Impeller is connected to shaft with thread, improving the hydrodynamic condition of pump's inlet and heightening pump efficiency, but forbidding counter revolution.

● When carrying out overhaul for the axial two-piece bracket, moving motor is not necessary, being convenient in maintenance. Pump's shaft seals include both of dynamic seal and mechanical seal of sub-vane.

2. Lubrication of bearing: uses 46# lubricant oil, Oil level should be controlled between the two oil levels of the oil sight window,

3. Pump's rotation direction: it is clockwise viewed from the driver end.



(传动部分结构图)
structural diagram of the driving part

- | | | | | |
|---------|----------|--------|-----------------------|-------------------------|
| 1、轴 | 8、后轴承 | 15、拆卸环 | 1. Shaft | 11. Front bearing |
| 2、小圆螺母 | 9、放气堵 | 16、轴套 | 2. Small round nut | 12. Oil seal |
| 3、止动垫圈 | 10、托架盖 | 17、托架 | 3. Lock washer | 13. Front bearing gland |
| 4、挡套 | 11、前轴承 | 18、放油孔 | 4. Spacer sleeve | 14. Reflector |
| 5、后轴承压盖 | 12、油封 | 19、油标 | 5. Back bearing gland | 15. Disassembling ring |
| 6、油封 | 13、前轴承压盖 | | 6. Oil seal | 16. Shaft sleeve |
| 7、轴承套 | 14、挡水盘 | | 7. Bearing sleeve | 17. Bracket |
| | | | 8. Back bearing | 18. Oil release hole |
| | | | 9. Air release plug | 19. Oil standard |
| | | | 10. Bracket cover | |

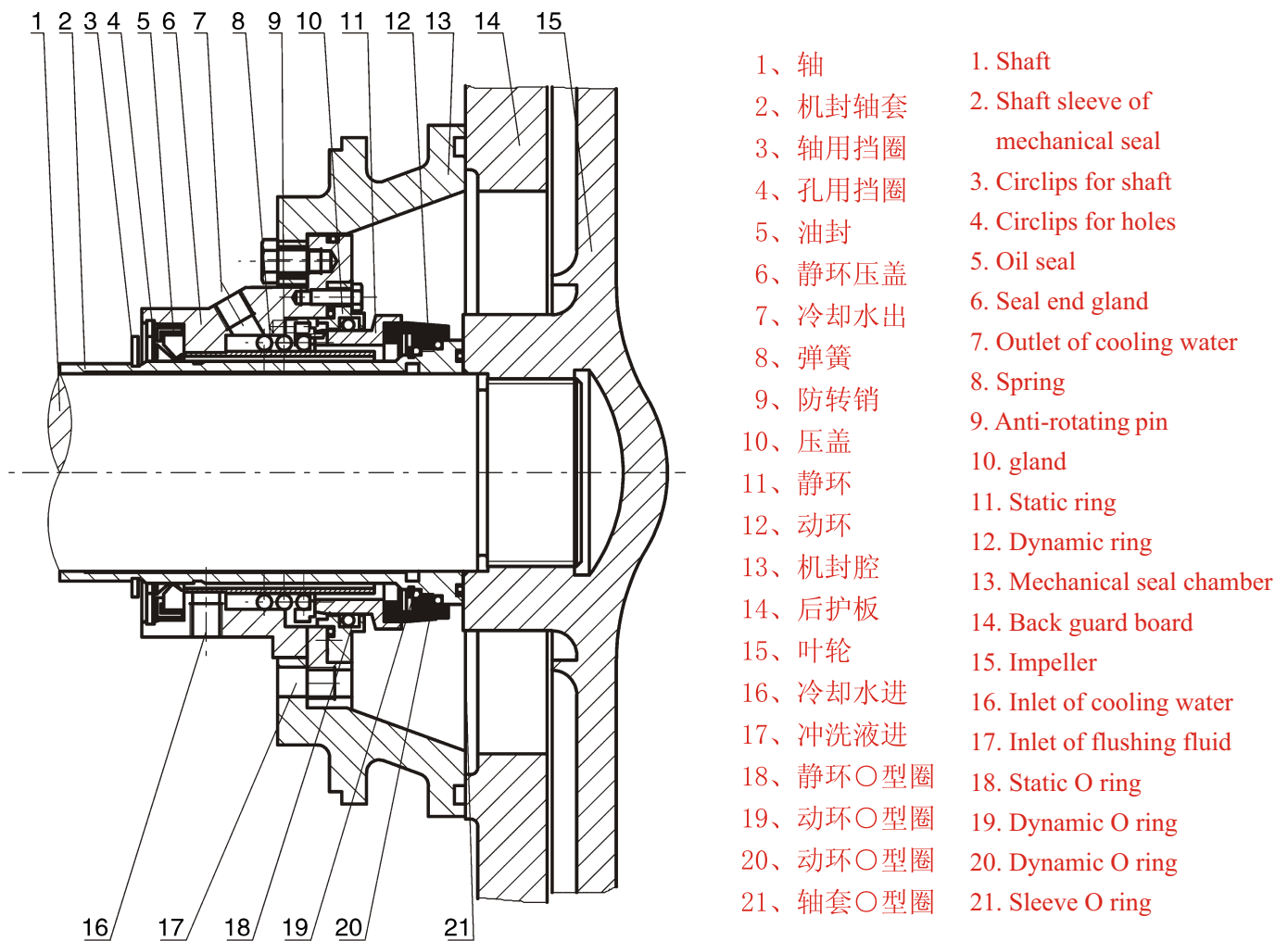
三、泵的密封 PUMP SEAL

(一) 271-D机械密封说明

271-D机械密封是一种先进的轴封结构, 具有泄流量小、功耗低、寿命长等优点。是我公司从制碱制盐工艺介质情况出发, 专门设计的一种单端面、内装式、单弹簧、平衡型机械密封。该机械密封的摩擦副组对优先采用硬质合金, 配合锥形密封腔设计非常适合介质中含颗粒、结晶的情况。该机械密封是本公司的专利产品, 专利号ZL92 2 20977.4。

1. Instructions for 271-D mechanical seal

271-D mechanical seal is an advanced shaft-sealing structure and possesses the advantages of few leakage, low power consumption and long service life. It is of single, internal, **single spring** and balanced seal design according to the medium of soda and salt-making process. With hard alloy **friction** faces, and tapered seal chamber, the mechanical seal is very suitable for **medium with** particles and crystal. The mechanical seal is the patent product of HANGZHOU ALKALI PUMP company, with the patent No.ZL92 2 20977.4.



(271-D型单端面机械密封示意图)

(Figure of 271-D Single mechanical seal)

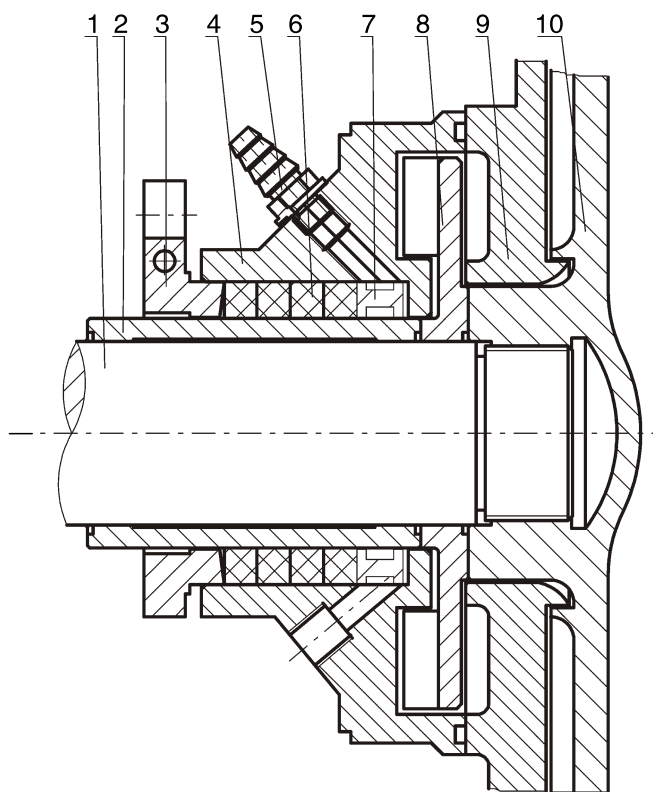
(二)、动力密封说明

动力密封的工作原理

利用背叶片或副叶轮带动密封腔内的流体高速旋转并产生离心力，此力与工作叶轮产生的压力反向相反，以至减小或完全消除导致泄漏的压差。

动力密封使用说明

因为动力密封需靠叶轮背叶片或副叶轮旋转来达到密封，开车时填料不起作用，所以在设备停车时应将填料压盖进行调整，达到无泄漏，开动设备前先将填料压盖放松，后启动设备，以防填料烧损，当进口压力超过 0.15MPa 时此种密封的效果不甚理想，建议采用机械密封。



(动力密封示意图)
Dynamic seal diagram

2. Dynamic seal instruction

Working principle of dynamic seal

The fluid in the sealing chamber is driven by the back paddles and secondary impeller to rotate at a high speed, then generates centrifugal force which is contrary to the pressure generated by the main impeller so that the pressure difference which leads to leakage is decreased or fully eliminated.

Dynamic seal instruction

As dynamic seal acts by rotating of back paddles and secondary impeller, when operating, packing has no action. When pump stops, the packing gland should be adjusted to reach no leakage. Before operation, first loose the packing gland, and then start the pump to protect packing burnout. When suction pressure surpasses 0.15MPa, the effect of dynamic seal is not ideal, it is recommended to adopt mechanical seal.

- | | |
|--------|-----------------------|
| 1、轴 | 1. Shaft |
| 2、填料轴套 | 2. Shsft sleeve |
| 3、填料压盖 | 3. Packing gland |
| 4、填料箱 | 4. Packing box |
| 5、管接头 | 5. Pipe joint |
| 6、填料 | 6. Packing |
| 7、隔圈 | 7. Space ring |
| 8、副叶轮 | 8. Secondary impeller |
| 9、后护板 | 9. Back guard board |
| 10、叶轮 | 10. Impeller |

四、泵的驱动方式与联轴器 DRIVING AND COUPLING

HZJ泵的驱动方式为联轴器直联，或皮带传动，驱动机为电机，可用的联轴器种类见图：

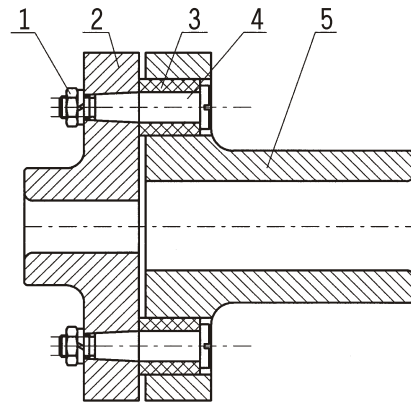
The driving way of the HZJ series pumps is direct connection, and the driver is motor. Our company does not recommend the triangle belt drivers and other transmission ways. For various applications, there are two kinds of couplings for choice.

(一) 弹性套柱销联轴器

弹性套柱销式联轴器的特点是结构简单，更换方便，且具有一定的补偿性能和减震性能。

1. Elastic sleeve pin coupling

The characteristics of elastic sleeve pin coupling are simple structure, convenient replacement and having a certain action of compensation and vibration damping.



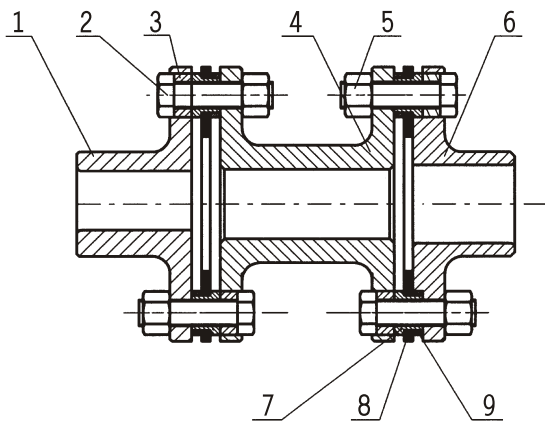
- | | |
|-------|-------------------|
| 1、螺母 | 1. Nut |
| 2、泵联 | 2. Pump coupling |
| 3、弹性套 | 3. Elastic sleeve |
| 4、柱销 | 4. Pin |
| 5、电联 | 5. Motor coupling |

(二) 金属膜片弹性联轴器

膜片式联轴器属金属弹性元件联轴器，属挠叠式联轴器的一种。它依靠金属膜片连接主、从动机传递扭矩，具有传递扭矩大、适用范围较宽、弹性减振、无噪声、不需润滑的优点。但制造成本高，价格较贵，安装较麻烦。非石油化工炼厂工况不推荐采用。

2. Metal slice coupling

Metal slice coupling belongs to the couplings with elastic metal component and is a kind of flexible coupling. It transmits the torque through the connection between the metal slice and the main, subordinate mechanism, and possesses the advantages of large torque transmission, wide applicable scope, vibration damping, no noise and no lubrication, but the disadvantages are of high manufacturing cost, expensive price and inconvenient installation. For other factories than petrochemical refineries, it will not be recommended.



- | | |
|-----------|--------------------------------|
| 1、泵联 | 1. Pump coupling |
| 2、螺栓 | 2. Bolt |
| 3、压套 | 3. Press sleeve |
| 4、中间加长节 | 4. Intermediate connector |
| 5、螺母 | 5. Nut |
| 6、电联 | 6. Motor coupling |
| 7、电联膜片压紧套 | 7. Press sleeve for slice |
| 8、膜片 | 8. Metal slice |
| 9、膜片压紧块 | 9. Press block for metal slice |

五、泵的安装 INSTALLATION

1、开箱后检查泵和电机，如果证实没有任何因装卸和运输过程中造成损坏及紧固件松动，泵的进出口封盖完好的，泵的里面没有杂物，可直接送到现场去安装。泵的底座上设计有长方型孔，便于在起吊安装时叉车的双叉插入。

1. Check the pump and the motor after the box is opened, if it is proved that there is no damage due to misleading, leakage or transportation, loading and unloading, and that the covers of the import and export are intact, as well as sure that there is no other thing entering into the pump, well then, it needn't be taken down and reinstalled, and can be installed directly. There is a rectangle hole on the baseplate of the pump to facilitate the insertion of the forklift truck.

2、安装泵的基础平面应用水平仪找平，在基础水泥凝固后，将整机安放在基础上，并用水平仪检查水平情况，应加垫铁调整，垫铁组的布置原则为：在地脚螺栓两侧各放置一组，应尽量使垫铁靠近地脚螺栓。调整垫铁直到水平为止，然后通过灌浆孔用混凝土浇灌底座和地脚螺栓孔眼。

3、水泥干固后，检查底座和地脚螺栓孔眼是否松动，合适后拧紧地脚螺栓。

4、在安装泵和电机时必须**校准**：

● 直联式挠性联轴器泵，泵轴和电机轴的同心度，径向位移偏差不超过0.1mm，两盘端面平行间隙允许偏差不超过0.2mm，若超过上述数据，可以在电机或泵的下边用垫片调整，在同一位置上垫片的数量不能超过3片。两个联轴器之间保留2mm~4mm间隙。

（小泵取小值）

● 如用弹性套柱销联轴器时，其径向位移偏差不超过0.05mm~0.08mm，两个联轴器之间保留3mm~5mm间隙。中心线校准后，再拧紧泵和电机地脚螺栓。

5、管道与泵的连接应符合下列要求：

● 泵的吸入和吐出管路应有各自的支架，不允许管路的重量直接由泵来承受。

● 配对法兰在自由状态下的距离以能顺利放入垫片的最小距离为宜。

● 管道与泵最终连接后，**必要时应对联轴器两轴的对中偏差进行复测或调整。**

6、泵吸入口应该装有过滤网，过滤网的有效面积应不小于泵吸入口面积的两倍。

7、泵的进口管道和阀门应与泵的进口直径相等或大于泵的进口直径一个规格，不能太大，以免因流速过慢而使固体颗粒沉淀，影响泵的正常工。出口管道可根据需要配置，但在泵的出口处，应有一段不小于泵出口直径4倍的直管，出口阀门应与泵出口直径相等。

8、其它按（GB50275-2010）《风机、压缩机、泵安装工程施工及验收规范》。

2. The foundation plane on which the pump will be installed should be horizontal by the level instrument, then put the pump on the foundation, check the level degree by the level instrument, if it isn't horizontal, adjust it with ironshim till it is horizontal. The arrangement principle of the iron shim group is: place a group on both sides of the foot bolt, make the iron shims near the bolts possibly, but don't touch them. Then, pour the concrete on the foundation and the foot bolt hole through the grouting hole.

3. After the concrete is dry, check the foundation and the foot bolt hole, and then screw up the foot bolt.

4. The pump and the motor must be installed correctly:

● For pump with direct flexible coupling, check the concentric degree of the pump shaft and the motor shaft, the deviation of displacement d should not exceed 0.1mm, the parallel degree s should not exceed 0.2mm, if not, adjust it with spacer under the motor or the pump, the amount of the spacer should not exceed 3. The clearance between two couplings should be 2mm-4mm. (the value should be the minimum one for small pumps) Fig 1-5

● When elastic sleeve pin coupling and metal slice coupling are used, the deviation of the radial displacement should not exceed 0.05-0.08mm, the clearance between two couplings is 3-5mm. Screw up the foot bolts after the center line is adjusted.

5. The connection of the pipeline and the pump should conform to the following requirements:

● The suction and discharge pipeline should have their respective support, it is not permitted that the pump directly bears the weight of pipeline.

● In a free state, the distance between two matched flanges is the minimum distance in which the gasket can be put into smoothly.

● **The alignment of the couplings should be rechecked and adjusted regularly.**

6. The filter net should be installed in the pump suction inlet, the effective area of the filter net should not be smaller than 2 times of the suction inlet area.

7. The diameter of inlet pipeline and valve of pump should be larger than that of the pump inlet, but shouldn't be too large, to avoid precipitation of the solid particles. The outlet pipeline can be deployed according to the allowable speed of media, near the pump outlet, there should be a straight pipe whose diameter is at least 4 times of that of pump outlet, and the diameter of outlet valve is equal to that of pump outlet.

8. Others can be implemented as per GB50275-2010 blower, compressor, pump installation and acceptance specification.

六、使用与维护 OPERATION AND MAINTENANCE

1、应经常检查泵和电机的温升情况，泵轴承的温升不大于35℃，极限温度不大于75℃。当箱内油温到80℃时应停机检修。当电机的绝缘等级为F级时，其允许工作温度为155℃，环境温度为40℃时，其允许温升为100℃。

2、注意托架内储油室油位的变化，为保持油的清洁和良好的润滑，应根据现场使用情况，定期更换新油，一般情况，每运转4000小时后，应全部更换新油一次。

3、在运转过程中，发现有不正常的声音或其他故障，应立即停车检查，待排除故障后才能继续运转。

4、机械密封和副叶轮动力密封可根据输送介质黏度不同，机械密封在轴径大于Φ50mm时其允许有≤5mL/h的泄漏，轴径小于Φ50mm时其允许有≤3mL/h的泄漏。填料密封允许有(5~20)滴/分的均匀成滴泄漏。

5、定期对泵的主要易损零件如叶轮、机械密封、轴承及油封等进行预检修，如磨损腐蚀情况严重，应及时更换。

6、泵不应当在小于泵设计流量1/3时长期运转。如果必须在该条件下连续运转，则应在泵的出口安装旁通管，使泵的流量达到规定的使用范围。

7、在出口管阀门关闭的情况下，泵连续工作时间不得超过3分钟。

8、不允许用吸入管路的阀门来调节流量，以免发生汽蚀。

1. Often check the temperature rise of pump and motor, pump's temperature rise should not be higher than 35℃, and the limited temperature should not be higher than 75℃. Stop and check the pump when the oil temperature is 80℃. When the motor's insulating grade is F, its allowable operating temperature is 155℃, and the environmental temperature is 40℃, the allowable temperature rise is 100℃.

2. Notice the change of oil level in storage room, to keep oil's good performance, it should be changed termly according to spot condition. Generally, oil should be wholly changed once every 4000hours.

3. In the operating process, if there is any deviant sound or other error, stop the pump at once, and continue to operate it after the clearing of errors.

4. Mechanical seal and secondary impeller dynamic seal allow certain leakage based on different density of the medium. The standard is: for mechanical seal, when the shaft diameter is > Φ50mm, the allowable leakage is ≤ 5mL/h, and when it is < Φ50mm, the allowable leakage is ≤ 3 mL/h. For secondary impeller dynamic seal, 5-20 drops/min even leakage is allowable.

5. Termly check the corrosive and worn condition of easily damaged parts. Replace them in time if they are seriously damaged.

6. Pump shouldn't operate for a long time when the capacity is 1/3 of the designed capacity. If it must go on continuous operation, a by-pass should be installed near the outlet of the pump, to make the capacity of pump reach the specified using range.

7. When the outlet valve closed, the work time of the pump should not exceed 3 minutes.

8. Don't adjust the valve of the suction pipe for fear that the cavitation happens.

七、拆卸与装配 DISASSEMBLY AND ASSEMBLY

1、泵的拆卸

- 停机后，关闭进出口阀门，切断电源；
- 卸下吸水短管和排出口短管，不必动电机和管道；
- 松开前后泵壳的连接螺栓，卸下前泵壳和前护板；

1. Disassembly

- After stop, close the outlet and inlet valves, cut off the power supply.
- Remove the suction and discharge nozzle stubs, needn't move the motor and the pipeline.
- Loosen the connecting bolt of front and back pump casing, remove the front casing and front guard board.

- 松开蜗壳固定螺母，取下蜗壳；
 - 卸下叶轮（叶轮的螺纹为顺时针，拆卸时往逆时针方向）：
 - 松开后泵壳与托架的连接螺栓，取下后泵壳和密封部分，解体密封部分；
 - 托架部分的拆卸
 - 取下轴套、拆卸环和挡水盘；
 - 松开前后轴承压盖、轴承套、托架盖的连接螺栓，取下托架盖；
 - 取出主轴（柱销式联轴器应先卸下柱销）；
 - 旋下小圆螺母（螺纹为反螺纹），卸下轴承。
- 2、泵的装配**
- 泵的装配顺序基本上可以按照拆卸顺序的逆向进行。

- Loosen the fixed nut of volute, take down the volute.
 - Remove the impeller (the thread of the impeller is clockwise direction, revolve anti-clockwise when disassembling).
 - Loosen the connecting bolt of backing casing and bracket, take down the back casing and sealing part, disassemble the sealing part.
 - The disassembly of bracket seen in the structural diagram.
 - Take down the shaft sleeve, the disassembly ring and the water retaining plate.
 - Loosen the connecting bolts of front、back bearing glands, bearing sleeve, bracket cover. Take down the bracket cover.
 - Take out the main shaft (disassemble the pin if there is pin-type coupling).
 - Rotate the round nut out, and remove the bearing.
- 2. Assembly**
- Basically, the assembly order of the pump is opposite to the disassembly order.

八、订货须知 NOTICE TO ORDER

（一）配用电机的额定输出功率与泵的额定轴功率之比应按照下列的百分数：

泵的轴功率	百分比%
22kW以下	125%
(22~75)kW	115%
75kW以上	115%

1. The ratio of the motor's rated power to the pump's shaft power should be the following:

The shaft power of the pump	the ratio (%)
Below 22kW	125%
(22-75)kW	115%
Above 75kW	115%

（二）订货时按《泵工作条件》详细填写。

2. When ordering, please fill in the table "Working conditions of the pump".

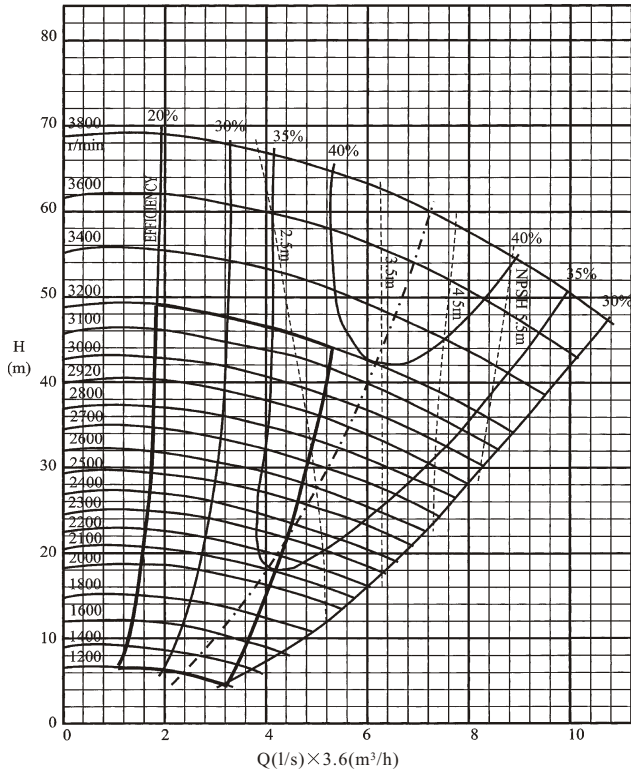
（三）保修条款只有在使用本公司原厂备件时才有法律效力。

3. Warranty is valid only when genuine spare parts of our company are used.

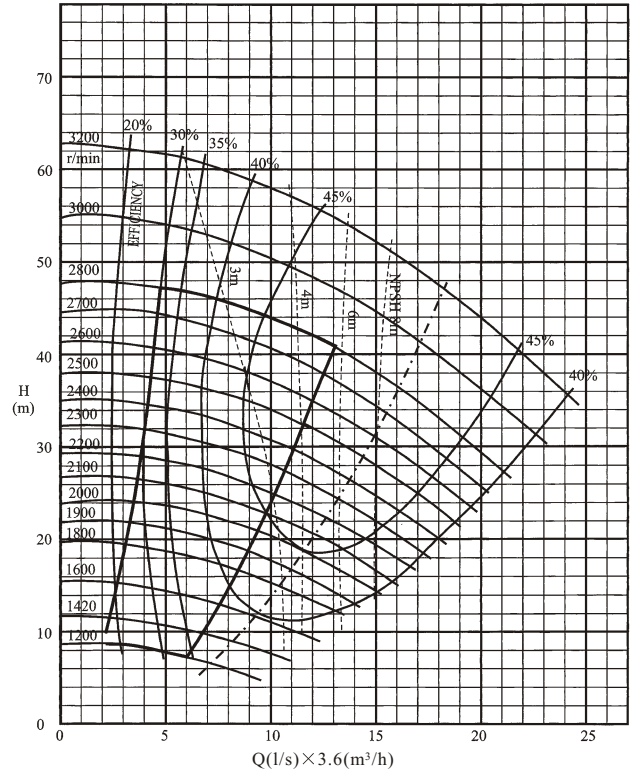
泵工作条件 Working Conditions of the Pump								
工作条件 Operating conditions				输送介质 Pumped fluid				
流量 Capacity	m ³ /h	最大 Max	额定 Rated	最小 Min	1介质 1Media	最大比例 % Max ratio %	最小比例 % Min ratio %	
扬程 Total head	m	最大 Max	额定 Rated	最小 Min	2介质 2Media	最大比例 % Max ratio %	最小比例 % Min ratio %	
进口压力 Suction pressure	MPa	最大 Max	额定 Rated	最小 Min	3介质 3Media	最大比例 % Max ratio %	最小比例 % Min ratio %	
出口压力 discharge pressure	MPa	最大 Max	额定 Rated	最小 Min	固 体 Solid	含量 (湿基) Content (humidity) Wt %		
必需汽蚀含量 NPSH required	m			粒度直径 Particle diameter mm				
操作条件 Operating conditions	连续 Continuous		间断 Intermittent		介质特性 Medium characteristics	腐蚀 Corrosion	磨(冲)蚀 Abrasion	
现场资料和公用事业条件 Spot conditions				泵送温度 Operation temp	℃	最大 Max	正常 Normal	最小 Min
位置 Position				密度 Density	在操作温度下 Under operating temp kg/m ³			
室内 Indoor	有采暖 With heating		有遮棚 With shield		粘 度 Viscosity	在操作温度下 Under operating temp mPa.s		
室外 Outdoor	无采暖 Without heating		无遮棚 Without shield		汽化压力 Vapor pressure	在操作温度下 Under operating temp MPa(A)		
必须的防寒气候条件 Requirement of Cold-proof				比 热 Specific heat		kcal/kg℃		
必须的耐湿热气候条件 Requirement of Damp-heat-proof				氯化物浓度 Concentration of chloride		PPM		
现场资料 Site condition				H2S(硫化氢)浓度 Concentration of H2S		PPM		
海拔高度 Altitude	m			危险程度 Hazardous liquid	易燃 Flammable	易爆 Explosive	有毒 Toxic	
大气压力 Atmosphere pressure	kPa			挥发特性 Volatile characteristics	易 Easy	不易 Not easy		
相对湿度 Relative humidity	最大 Max	最小 Min	%		沸 点 Boiling point	℃		
环境温度范围 Ambient temp. Range	℃			结晶温度 Crystallization temp	℃			
异常条件 Abnormal conditions	粉尘 Dust	烟雾 Smoking		熔 点 Smelting point	℃			
危险区域 Electrical classification	类 Class	级 Division	组 Group	闪 点 Point of flammability	℃			
电源 Power source	伏特 Volt	赫兹 Hz	相 Phase	相容的液体 Compatible liquid				
冷却水 Cooling water	温度 Temp	℃	压力 Pressure	MPa	相容的橡胶 Compatible rubber			
	氯化物浓度 Chloride concentration			PPM	临界温度 Critical temp	℃		
仪表压缩空气 Compressed air of instrument	最大/最小压力 Max / Min. Pressure			/MPa	临界压力 Critical pressure	MPa		
传动方式 Driving way				其 它 Other				
联轴器 Coupling type								

九、渣浆泵清水特性曲线 CLEAR WATER PERFORMANCE CURVE OF HZJ HEAVY-DUTY SLURRY PUMP

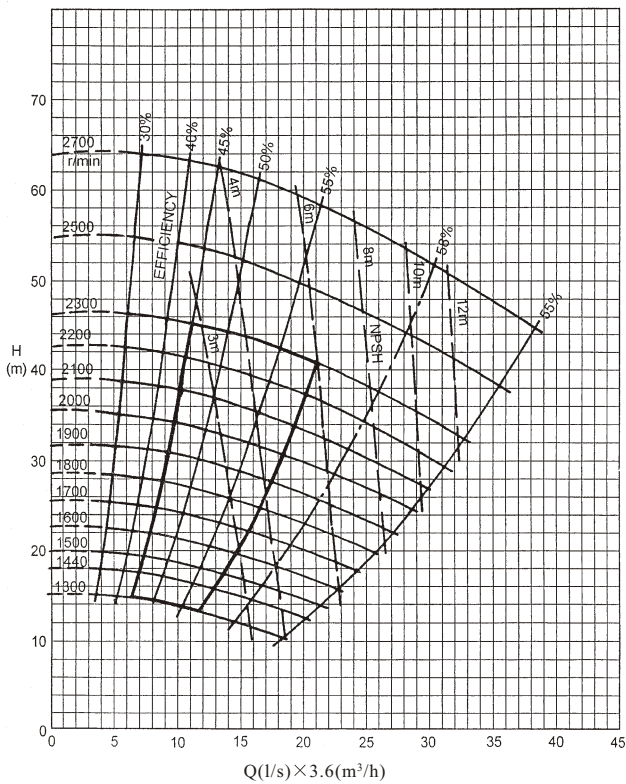
型号: HZJ40-25-160; 允许最大功率15kW; 允许最大粒径14mm;
Model: HZJ40-25-160, the max allowable power 15KW, the max allowable particle diameter: 14mm



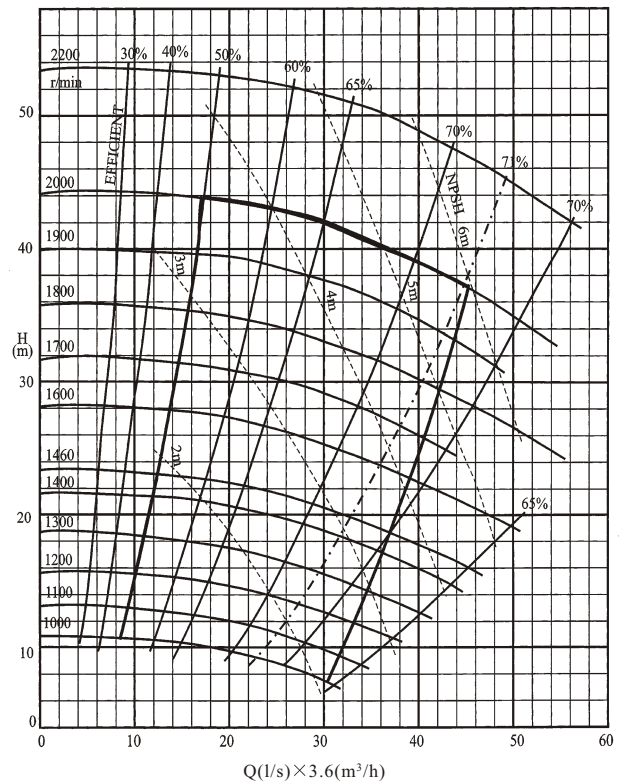
型号: HZJ60-40-200; 允许最大功率15kW; 允许最大粒径19mm;
Model: HZJ60-40-200, the max allowable power 15KW, the max allowable particle diameter: 19mm



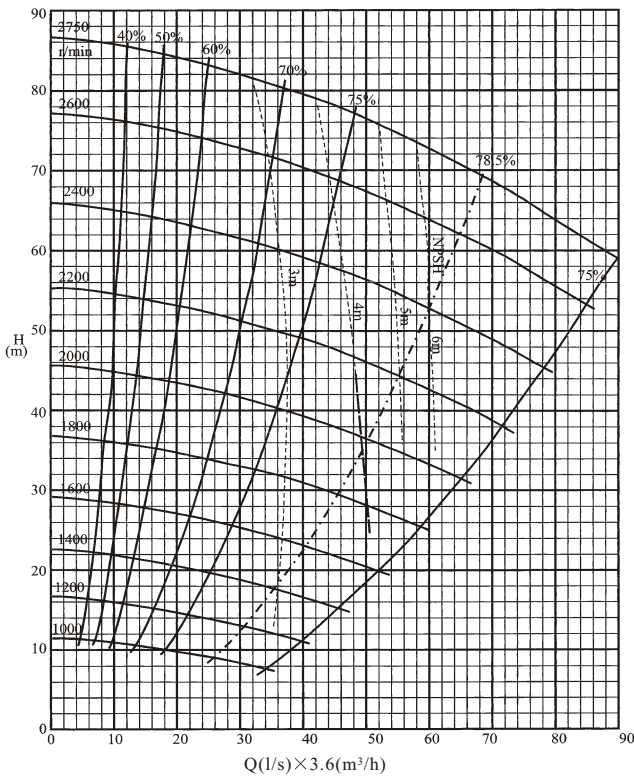
型号: HZJ80-50-215; 允许最大功率30/55kW; 允许最大粒径25mm;
Model: HZJ80-50-215, the max allowable power 30/55KW, the max allowable particle diameter: 25mm



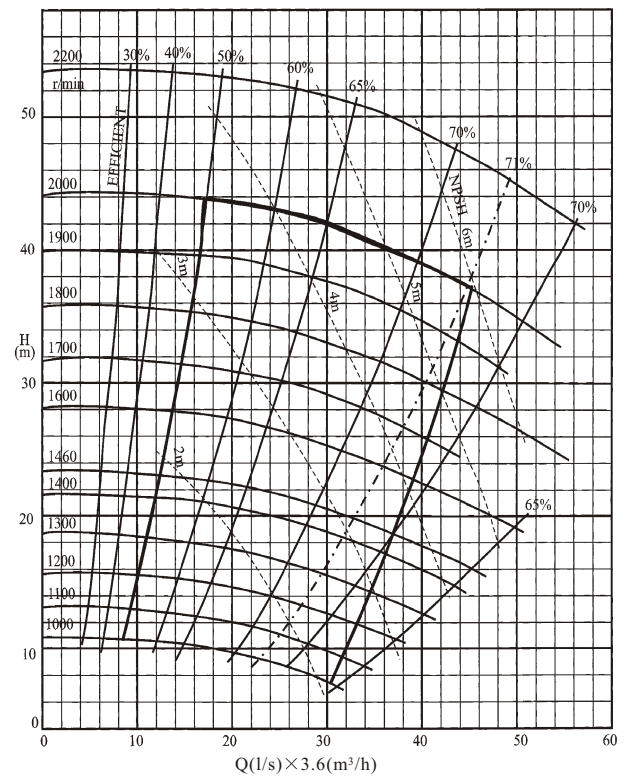
型号: HZJ100-65-260; 允许最大功率30/60kW; 允许最大粒径28mm;
Model: HZJ100-65-260, the max allowable power 30/60KW, the max allowable particle diameter: 28mm



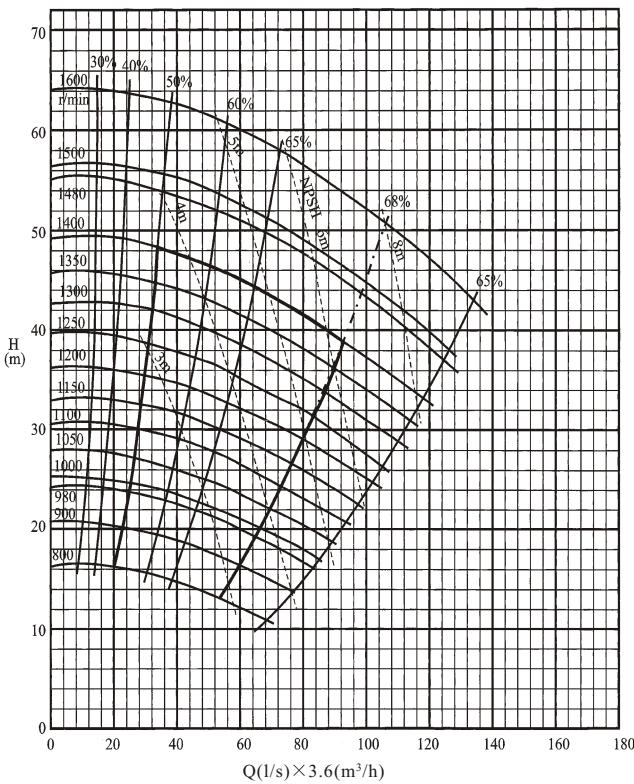
型号: HZJ100-65-260HE; 允许最大功率60kW; 允许最大粒径35mm;
Model: HZJ100-65-260HE, the max allowable power 60KW, the max allowable particle diameter: 35mm



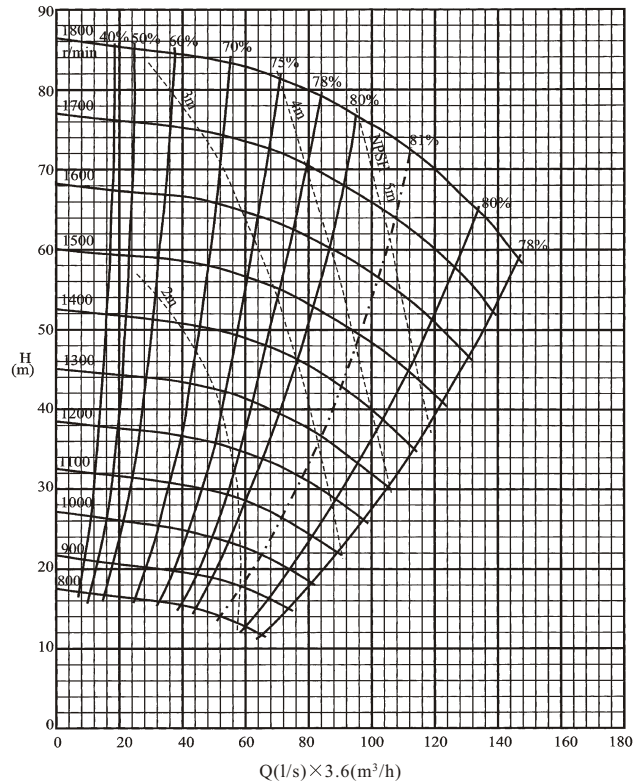
型号: HZJ100-65-260G; 允许最大功率30/60kW; 允许最大粒径28mm;
Model: HZJ100-65-260G, the max allowable power 30/60KW, the max allowable particle diameter: 28mm



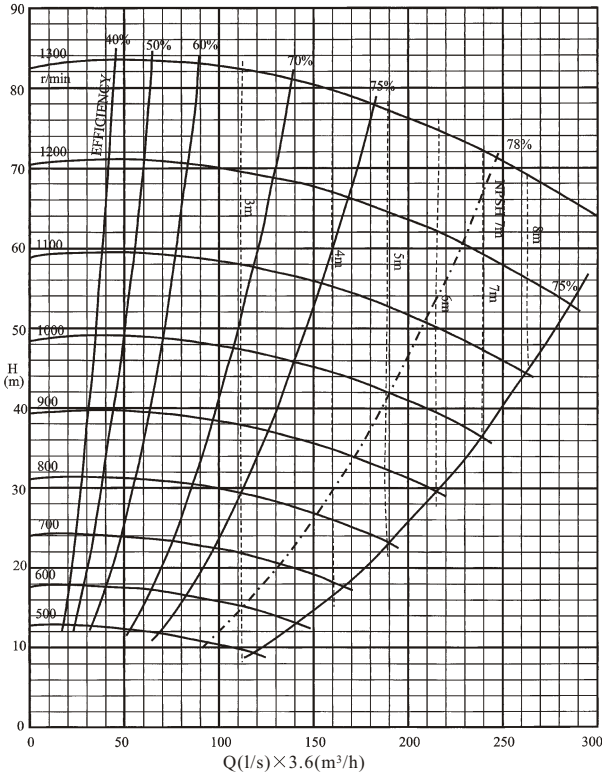
型号: HZJ150-100-360; 允许最大功率60/120/300kW; 允许最大粒径44mm;
Model: HZJ150-100-360, the max allowable power 60/120/300KW, the max allowable particle diameter: 44mm



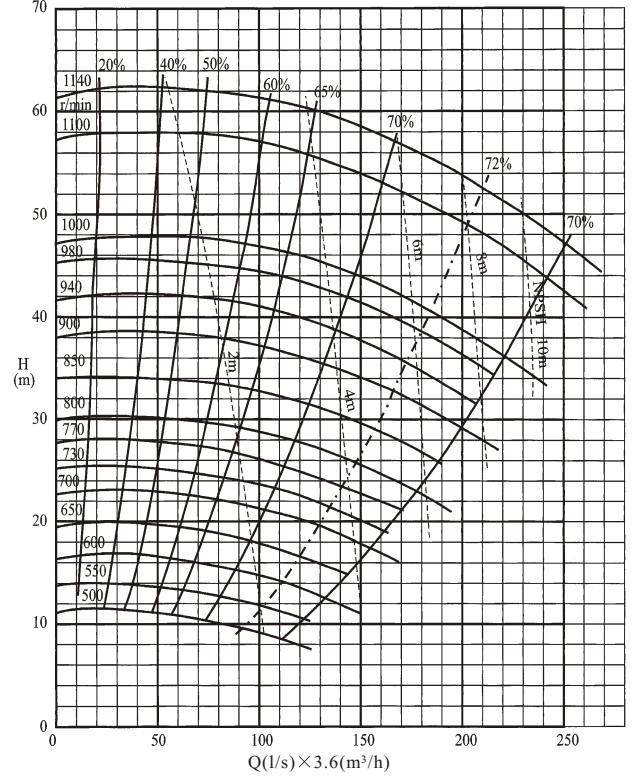
型号: HZJ150-100-390; 允许最大功率300kW; 允许最大粒径32mm;
Model: HZJ150-100-390, the max allowable power 300KW, the max allowable particle diameter: 32mm



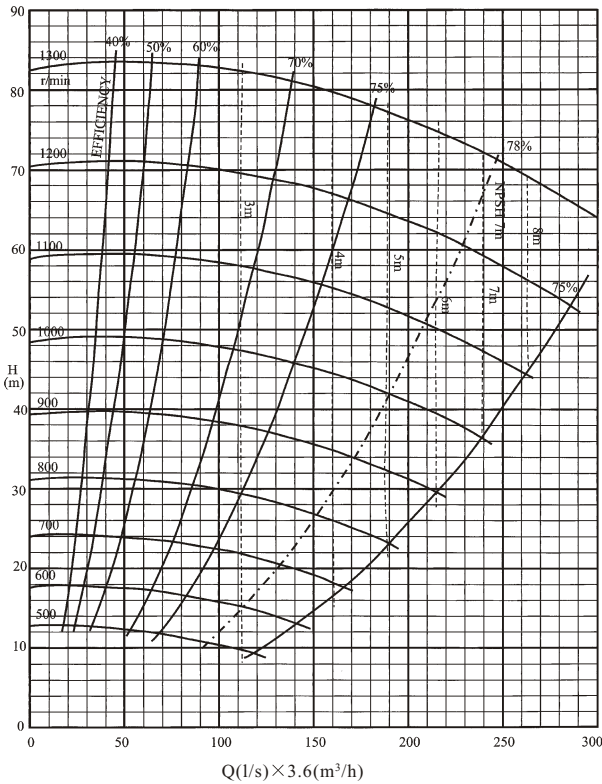
型号: HZJ200-150-520; 允许最大功率120kW; 允许最大粒径65mm;
Model: HZJ200-150-520, the max allowable power 120KW, the max allowable particle diameter 65mm



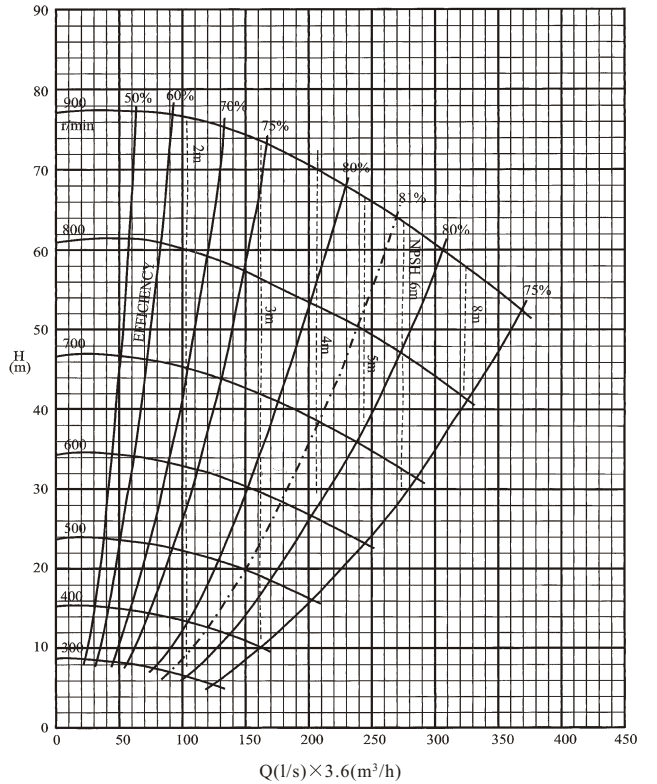
型号: HZJ200-150-550G; 允许最大功率120/300/600kW; 允许最大粒径63mm;
Model: HZJ200-150-550G, the max allowable power 120/300/600KW, the max allowable particle diameter 63mm



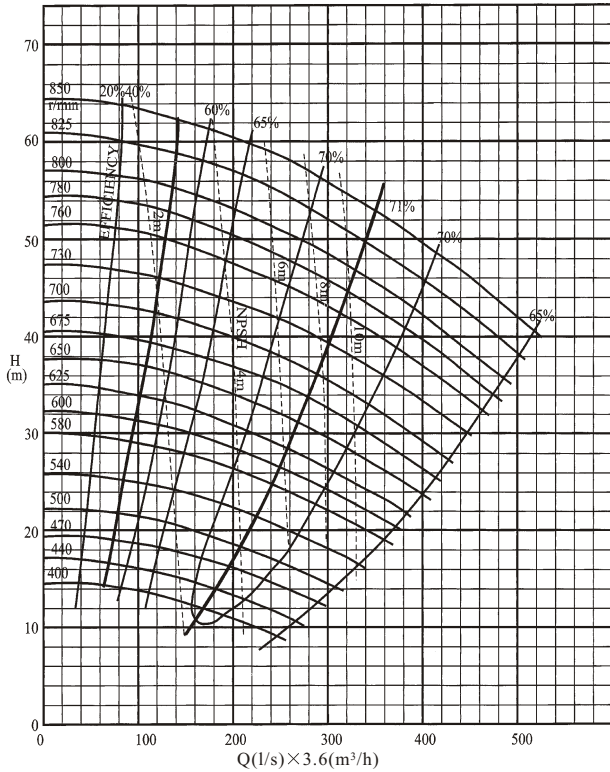
型号: HZJ200-150-520G; 允许最大功率120kW; 允许最大粒径65mm;
Model: HZJ200-150-520G, the max allowable power 120KW, the max allowable particle diameter 65mm



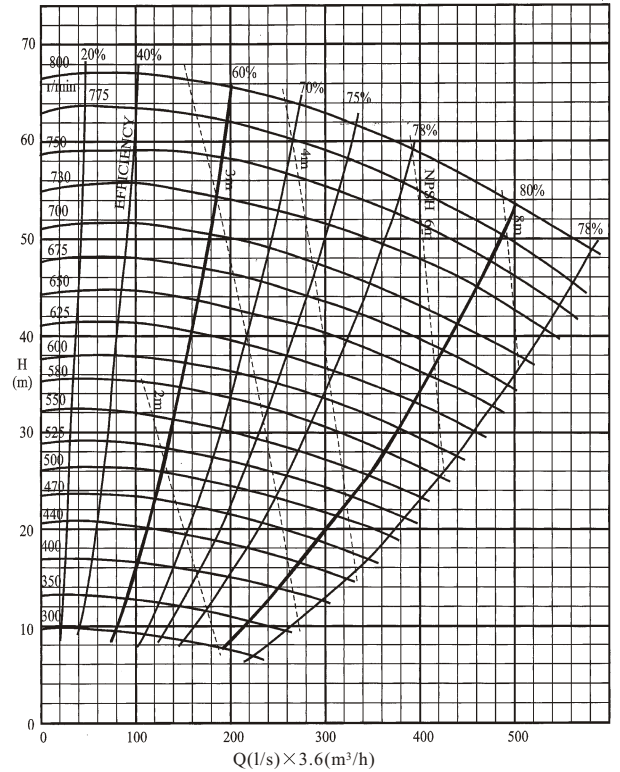
型号: HZJ250-200-750; 允许最大功率710kW; 允许最大粒径55mm;
Model: HZJ250-200-750, the max allowable power 710KW, the max allowable particle diameter 55mm



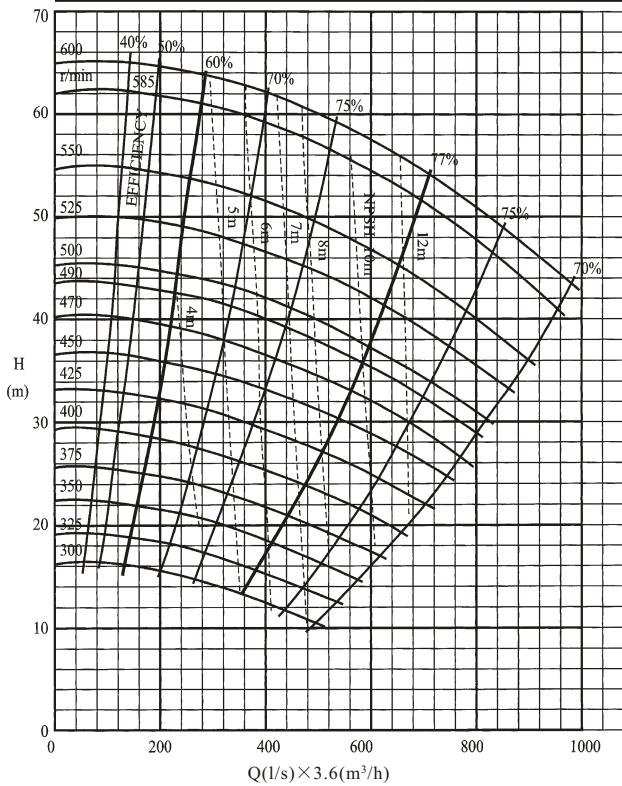
型号: HZJ250-200-700; 允许最大功率260/560/710kW; 允许最大粒径76mm;
Model: HZJ250-200-700, the max allowable power 260/560/710KW, the max allowable particle diameter: 76mm



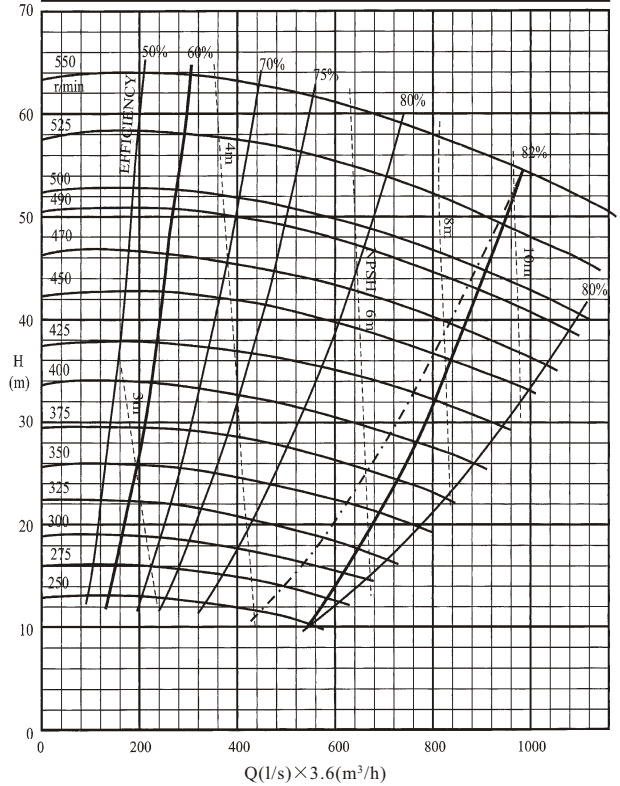
型号: HZJ300-250-813; 允许最大功率560/710kW; 允许最大粒径86mm;
Model: HZJ300-250-813, the max allowable power 560/710KW, the max allowable particle diameter: 86mm



型号: HZJ350-300-1016; 允许最大功率560/710/1200kW; 允许最大粒径90mm;
Model: HZJ350-300-1016, the max allowable power 560/710/1200KW, the max allowable particle diameter: 90mm



型号: HZJ400-350-1118; 允许最大功率1200kW; 允许最大粒径135mm;
Model: HZJ400-350-1118, the max allowable power 1200KW, the max allowable particle diameter: 135mm



十、HZJ直联传动清水性能表 CLEAR WATER PERFORMANCE TABLE OF HZJ HEAVY-DUTY SLURRY PUMP

型 号 Pump model	转速 r/min Speed	流量 m ³ /h Capacity Range	扬程 m Total head	轴功率 kW Shaft power	效率 % Efficiency	配 用 电 机 Matched motor 比重 $\gamma=1.35$	必需汽蚀余量 NPSHr
HZJ40-25-160	2900	18	36	4.64	38	Y132S2-2/7.5	2.8
		15	41	4.78	35	Y132S2-2/7.5	
		10	39	3.54	30	Y132S1-2/5.5	
	1480	11	7	0.63	33	Y90S-4/1.1	2.6
		7	8	0.51	30	Y90S-4/1.1	
		4	9	0.49	20	Y90S-4/1.1	
HZJ65-40-200	2900	16	43	5.9	32	Y132S2-2/7.5	3.0
		20	51	7.3	38	Y160M1-2/11	
		25	50	7.9	43	Y160M1-2/11	
	1480	8	11	0.9	28	Y90S-2/1.5	2.8
		10	12	1.0	33	Y90S-2/1.5	
		12	12.5	1.1	38	Y90L-2/2.2	
HZJ80-50-215	1480	54	16	4.12	57	Y132S-4/5.5	3.2
		45	17	3.78	55	Y132S-4/5.5	
		20	18	1.96	50	Y100L2-4/3.0	
HZJ80-50-340	1480	40	36	8.3	47	Y160M-4/11	3.0
		50	34	8.9	52	Y160M-4/11	
		60	33	9.6	56	Y160M-4/11	
	980	26.4	15.7	2.7	42	Y132M1-6/4	2.8
		33.1	14.8	2.9	46	Y132M1-6/4	
		39.7	14.4	3.1	51	Y132M1-6/4	
HZJ80-50-460	1480	54	82	34.4	35	Y200L-4/30	3.2
		75	80	39.8	41	Y250M-4/55	
		90	78	39.8	48	Y250M-4/55	
	980	35.7	35.9	11.6	30	Y180L-6/15	3.0
		50	35	13.2	36	Y200L1-6/18.5	
		59.5	34	12.8	43	Y200L1-6/18.5	
HZJ80-50-500	1480	55	105	49.1	32	Y280S-4/75	3.8
		90	102	58.1	43	Y280S-4/75	
		110	98	62.4	47	Y280S-4/75	
	980	36.4	46	16.9	27	Y200L2-6/22	3.5
		59.6	45	19.2	38	Y225M-6/30	
		72.8	43	20.3	42	Y225M-6/30	

型号 Pump model	转速 r/min Speed	流量 m ³ /h Capacity Range	扬程 m Total head	轴功率 kW Shaft power	效率 % Efficiency	配用电动机 Matched motor 比重 $\gamma = 1.35$	必需汽蚀余量 NPSHr
HZJ100-65-260	1480	40	26	5.7	50	Y132M-4/7.5	2.8
		55	25	6.5	58	Y160M-4/11	
		70	24	7.3	63	Y160M-4/11	
	980	26.5	11.4	1.8	45	Y112M-6/2.2	2.5
		36.4	11	2.1	53	Y132S-6/3	
		46.3	10.5	2.3	58	Y132S-6/3	
HZJ100-65-300	1480	42	33	7.7	49	Y160M-4/11	3.0
		58	31	8.4	58	Y160M-4/11	
		75	30	10.2	60	Y160L-4/15	
	980	28	14.5	2.5	44	Y132M ₁ -6/4	2.8
		38	13.5	2.6	53	Y132M ₁ -6/4	
		50	13	3.2	55	Y132M ₁ -6/4	
HZJ125-80-300	1480	102	34	18.9	50	Y200L-4/30	3.4
		120	33	19.6	55	Y200L-4/30	
		170	32	23.5	63	Y200L-4/30	
	980	67.5	15	5.9	47	Y160M-6/7.5	3.0
		80	14	5.9	52	Y160M-6/7.5	
		112.5	14	7.1	60	Y160L-6/11	
HZJ125-80-360	1480	93	47	24.8	48	Y200L-4/30	3.7
		135	44	28.9	56	Y225M-4/45	
		185	40	33.6	60	Y225M-4/45	
	980	61.5	21	7.8	45	Y160L-6/11	3.3
		89	19	8.7	53	Y160L-6/11	
		122	17.5	10.2	57	Y180L-6/15	
HZJ125-80-400	1480	120	60	35.0	56	Y225M-4/45	4.0
		158	56	40.1	60	Y250M-4/55	
		190	54	45.0	62	Y250M-4/55	
	980	80	26	10.7	53	Y180L-6/15	3.7
		105	24	12.3	56	Y180L-6/15	
		126	23	13.6	58	Y200L ₁ -6/18.5	
HZJ125-80-420	1480	130	70	42.0	59	Y250M-4/55	4.2
		170	64	46.3	64	Y280S-4/75	
		200	62	51.9	65	Y280S-4/75	
	980	86	30	12.5	56	Y200L ₁ -6/18.5	4.0
		112	28	14.0	61	Y200L ₁ -6/18.5	
		132	27	15.6	62	Y200L ₂ -6/22	
HZJ125-80-520	1480	140	94	74.6	48	Y280M-4/90	4.3
		180	91	81.1	55	Y315S-4/110	
		240	88	99.1	58	Y315M ₁ -4/132	

型号 Pump model	转速 r/min Speed	流量 m ³ /h Capacity Range	扬程 m Total head	轴功率 kW Shaft power	效率 % Efficiency	配用电机 Matched motor 比重 $\gamma = 1.35$	必需汽蚀余量 NPSHr
HZJ125-80-520	980	93	41	23.1	45	Y225M-6/30	4.0
		119	40	24.9	52	Y225M-6/30	
		159	38	29.9	55	Y250M-6/37	
HZJ150-100-320	1480	140	33	20.3	62	Y200L-4/30	3.2
		200	32	26.0	67	Y225S-4/37	
		230	30	27.6	68	Y225S-4/37	
	980	92	14	5.9	59	Y160M-6/7.5	2.9
		132	14	7.9	64	Y160L-6/11	
		152	13	9.6	56	Y180L-6/15	
HZJ150-100-360	1480	180	41	32.4	62	Y225M-4/45	3.5
		210	37	32.0	66	Y225M-4/45	
		250	35	35.0	68	Y225M-4/45	
	980	119	18	9.9	59	Y180L-6/15	3.2
		139	16	9.6	63	Y180L-6/15	
		165	15	10.4	65	Y180L-6/15	
HZJ150-100-390	1480	160	56	46.9	52	Y280S-4/75	3.8
		220	53	48.1	66	Y280S-4/75	
		250	52	52.0	68	Y280S-4/75	
	980	106	24.5	14.4	49	Y200L1-6/18.5	3.5
		146	23	14.5	63	Y200L1-6/18.5	
		166	23	16.0	65	Y200L2-6/22	
HZJ150-100-420	1480	180	67	55.6	59	Y280S-4/75	4.0
		280	64	78.7	62	Y315S-4/110	
		320	60	79.2	66	Y315S-4/110	
	980	119	39	22.6	56	Y225M-6/30	3.7
		185	28	23.9	59	Y225M-6/30	
		212	26	23.8	63	Y225M-6/30	
HZJ150-100-460	1480	180	74	64.8	56	Y280M-4/90	4.2
		280	72	85.8	64	Y315S-4/110	
		320	70	93.8	65	Y315M1-4/132	
	980	119	32	19.6	53	Y225M-6/30	3.9
		185	32	26.4	61	Y250M-6/37	
		212	31	28.9	62	Y250M-6/37	
HZJ150-100-500	1480	200	88	82.6	58	Y315S-4/110	4.5
		300	85	106.8	65	Y315M1-4/132	
		360	82	116.5	69	Y315L1-4/160	
	980	132	39	25.5	55	Y250M-6/37	4.2
		199	37	32.3	62	Y280S-6/45	
		238	36	35.3	66	Y280S-6/45	

型号 Pump model	转速 r/min Speed	流量 m ³ /h Capacity Range	扬程 m Total head	轴功率 kW Shaft power	效率 % Efficiency	配用电机 Matched motor 比重 $\gamma = 1.35$	必需汽蚀余量 NPSHr
HZJ200-150-480	980	250	33	35.1	64	Y280S-6/45	3.0
		380	32	47.3	70	Y315S-6/75	
		450	30	51.0	72	Y315S-6/75	
	730	186	18	14.9	61	Y225S-8/18.5	2.7
		294	18	21.5	67	Y250M-8/30	
		335	17	22.5	69	Y250M-8/30	
HZJ200-150-520	980	700	42	102.6	78	Y315L2-6/318	3.2
		500	46	83.5	75	Y315L1-6/110	
		400	48	74.7	70	Y315L1-6/110	
	730	500	15	26.1	78	Y280S-8/37	3.0
		360	17	22.2	75	Y250M-8/30	
		270	18	18.9	70	Y250M-8/30	
HZJ200-150-550	980	300	52	70.8	60	Y315M-6/90	3.2
		430	50	88.7	66	Y315L1-6/110	
		500	46	92.1	68	Y315L2-6/132	
	730	223	29	30.9	57	Y280M-8/45	2.9
		320	28	38.7	63	Y315S-8/55	
		372	25	38.9	65	Y315S-8/55	
HZJ200-150-600	980	300	58	78.9	60	Y315L1-6/110	3.8
		470	56	105.4	68	Y315L2-6/132	
		550	54	112.3	72	Y355M1-6/160	
	730	223	32	34.1	57	Y280M-8/45	3.5
		350	31	45.4	65	Y315S-5/55	
		409	30	48.4	69	Y315M1-8/75	
HZJ200-150-650	980	350	34	101.6	60	Y315L2-6/132	4.0
		500	62	124.1	68	Y355M1-6/160	
		600	58	137.3	69	Y355M2-6/200	
	730	260	35	43.5	57	Y315S-8/55	3.7
		372	34	53.0	65	Y315M1-8/75	
		446	32	58.9	66	Y315M1-8/75	
HZJ200-150-700	980	400	70	141.2	54	Y355M2-6/200	4.2
		510	68	160.0	59	Y355M2-6/200	
		630	65	176.9	63	Y355L-6/250	
	730	298	39	62.0	51	Y315M1-8/75	4.0
		379	38	70.0	56	Y315M2-8/90	
		469	36	76.6	60	Y315M3-8/110	
HZJ250-200-580	980	480	53	106.5	65	Y315L2-8/90	4.7
		740	51	133.4	77	Y355M2-6/200	
		800	48	132.3	79	Y355M1-6/160	

型号 Pump model	转速 r/min Speed	流量 m ³ /h Capacity Range	扬程 m Total head	轴功率 kW Shaft power	效率 % Efficiency	配用电机 Matched motor 比重 $\gamma = 1.35$	必需汽蚀余量 NPSHr
HZJ250-200-580	730	357	29	45.5	62	Y315S-8/55	4.3
		550	28	56.7	74	Y315M1-8/75	
		595	27	57.5	76	Y315M1-8/75	
HZJ250-200-620	980	540	61	135.9	66	Y355M2-6/200	4.4
		780	59	171.6	73	Y355L-6/250	
		850	56	170.5	76	Y355L-6/250	
	730	402	34	59.1	63	Y315M1-8/75	4.1
		580	33	74.4	70	Y315M2-8/90	
		632	31	73.1	73	Y315M2-8/90	
HZJ250-200-650	980	540	66	140.6	69	Y355M2-6/200	4.5
		820	64	193.1	74	Y355L-6/250	
		900	62	197.3	77	Y355L-6/250	
	730	418	37	63.8	66	Y315M2-8/90	4.2
		635	35	85.2	71	Y315M3-8/110	
		697	34	87.2	74	Y315M3-8/110	
HZJ250-200-700	980	650	75	221.2	60	Y4002-6/280	4.8
		730	73	213.3	68	Y4002-6/280	
		950	70	248	73	Y4003-6/315	
	730	484	42	97.1	57	Y355M1-8/132	4.5
		543	40	91.0	65	Y315M3-8/110	
		707	39	107.2	70	Y355M1-8/132	
HZJ250-200-750	980	540	88	208.6	62	Y4002-6/280	4.0
		750	85	247.9	70	Y4003-6/315	
		900	82	279.0	72	Y4004-6/355	
	730	402	49	90.9	59	Y315M3-8/110	3.8
		558	47	106.6	67	Y355M1-8/132	
		670	45	118.9	69	Y355M2-8/160	
HZJ250-200-850	980	620	115	329.0	59	Y4005-6/400	3.9
		850	113	390.3	67	Y4502-6/500	
		910	110	394.9	69	Y4502-6/500	
	730	461	64	143.4	56	Y355L-8/200	3.7
		632	63	169.4	64	Y4003-8/220	
		677	61	170.3	66	Y4003-8/220	
HZJ350-300-813	730	1500	45	183.82	80	Y4502-8/250	4.5
	600	1350	30	137.86	80	Y355L2-10/185	
HZJ350-300-1116	500	3000	45	448.35	82	Y6302-12/630	5.0
HZJ400-350-1118	500	3240	45	484.2	82	Y6301-12/710	5.3
		2450	49	408.6	80	Y5602-12/560	
		1800	51	333.3	75	Y5601-12/500	

十一、常见故障及排除措施 TROUBLESHOOTING

故 障 Problem	产生原因 Probable Cause	消除方法 Remedy
轴承过热 The bearing is too hot	1、润滑油过多或过少 2、润滑油老化、变质 3、机组不同心、轴偏心 4、振动 5、轴承安装不当、轴承有故障 1. Too much or too little lubricating oil. 2. The lubricating oil deteriorated. 3. The shaft is eccentric. 4. Vibration . 5. The bearing is installed unsuitably, there is a malfunction.	1、保证润滑油在设计位置 2、放出脏油，清洗悬架体后加新油 3、重新找正、调整 4、检查转子的平衡度或在较小流量处运转 5、检查、修理或更换 1. Ensure that the lubricating oil is on the designed location. 2. Let out the dirty oil, dose new oil after cleaning the frame. 3. Reinstall or adjust. 4. Check the balanced degree of the rotor, or operate at a small flow. 5. Check, repair and replace it.
起动负荷太大 Overload when start	1、起动时没有关闭出口阀门 2、填料密封时填料压得过紧 3、原动机、线路发生故障 1. The outlet valve hasn't been closed when start 2. The packing is too tight 3. Malfunction of the motor or circuit	1、关闭出口阀门重新起动 2、放松填料 3、检查、修理 1. Close the outlet valve and restart. 2. Loosen it 3. Check and repair
泵不吸液 No water out	1、吸入管路或泵内留有空气 2、进口或出口阀门关闭 3、装置扬程高于泵的最大扬程 4、泵吸入管路漏气 5、叶轮旋转方向反了 6、叶轮内有异物 7、吸上高度太高 8、吸入管路太小或杂物堵塞 9、转速不符 1. There is gas in the pump or suction pipe. 2. The inlet or outlet valve is closed. 3. The head is higher than the max head of the pump. 4. The suction pipe leaks gas. 5. Rotation direction of impeller is reverse. 6. There are foreign matters in the impeller. 7. The suction height is too high. 8. The diameter of suction pipe is too short, or the pipe is jammed. 9. The speed is wrong.	1、注满液体、排除空气 2、开启阀门 3、更换扬程高的泵 4、杜绝进口侧的泄漏 5、纠正电机方向 6、拆卸并清除异物 7、降低安装高度，增加进口处压力 8、加大吸入管径，消除堵塞物 9、使转速符合设计要求 1. Infuse water to discharge the gas. 2. Open it. 3. Change a pump with higher head. 4. Stop the leakage on the inlet side. 5. Correct it. 6. Dismantle and clean it. 7. Lower the height and increase the suction pressure. 8. Increase the diameter of suction pipe, or remove the blockage . 9. Make the speed conform to the designed requirement.

故障 Problem	产生原因 Probable Cause	消除方法 Remedy
流量扬程不足 The pump don't produce rated flow or head	<ol style="list-style-type: none"> 1、有空气吸入 2、由于水位降低、淹没深度不够 3、叶轮损坏、叶轮内有异物 4、泵体密封环磨损过多 5、进口或出口阀门未充分打开 6、配置直径太大，流速慢，固体颗粒沉淀堵塞管道 7、介质特性与泵要求不符 8、装置扬程高于泵的最大扬程 9、叶轮旋转方向反了 <ol style="list-style-type: none"> 1. There is gas entering. 2. Low water level, low submerged depth. 3. Damaged impeller or foreign matters in the impeller 4. Pump casing wears too much. 5. The inlet or outlet valve isn't opened completely. 6. The piping diameter is too long, liquid flows slowly, or the pipe clogged. 7. Properties of medium don't conform to requirements of pump. 8. The head is higher than the max head of the pump. 9. Rotation direction of impeller is reverse. 	<ol style="list-style-type: none"> 1、检查吸入管路和泵的密封 2、延长吸水管、加深淹没深度 3、更换新叶轮、清除异物 4、更换密封环 5、充分打开 6、更换管道 7、换泵 8、更换扬程高的泵 9、纠正原动机旋转方向 <ol style="list-style-type: none"> 1. Check suction pipe and pump seal. 2. Prolong the suction pipe, and deepen the submerged depth. 3. Replace the impeller, get rid of the foreign matters. 4. Replace the sealing ring. 5. Open it completely. 6. Replace the pipeline. 7. Change the pump. 8. Change a pump with higher head. 9. Correct it.
超负荷 Excess load	<ol style="list-style-type: none"> 1、泵和原动机不对中或轴弯曲 2、介质相对密度变大 3、装置阻力降低、泵在大流量处运行 4、转动部分发生摩擦 5、填料密封压得过紧、轴套磨损 6、原动机配备过小 7、机械密封动、静环安装不到位其豁口没有对准定位销 8、装置扬程与泵扬程不符 <ol style="list-style-type: none"> 1. The pump and the motor are not centered, or the shaft is distorted. 2. The relative density of the media becomes dense. 3. Resistance of the equipment decreases, pump operates at big flow. 4. Friction happens between the rotating parts. 5. Tight packing seal, or worn shaft sleeve. 6. Power of prime motor is low. 7. Wrong installation of static and dynamic rings of mechanical seal. 8. Head of equipment doesn't conform to head of pump. 	<ol style="list-style-type: none"> 1、重新调整或修理 2、改变操作工艺、更换泵或原动机 3、调整出口阀门开度，减少流量 4、修复摩擦部位 5、适当放松压紧量、更换轴套 6、更换原动机 7、拆卸并重新安装或更换机械密封 8、设法降低吐出系统阻力或高度 <ol style="list-style-type: none"> 1. Readjust and repair them. 2. Change the operating process, or replace the pump or motor. 3. Adjust the outlet valve, decrease the flow. 4. Repair the friction parts. 5. Loosen the packing seal properly, replace the shaft sleeve. 6. Replace it. 7. Dismantle and reinstall or replace mechanical seal. 8. Try to lower the resistance or height of discharge system.

故障 Problem	产生原因 Probable Cause	消除方法 Remedy
泵发生振动及噪音 Pump vibrates or has noise	<ol style="list-style-type: none"> 1、泵和原动机不对中 2、轴弯曲 3、轴承破损 4、基础不牢固、地脚螺栓松动 5、叶轮破损或局部堵塞、不平衡 6、进口管路过小、进口阀门未全部打开、泵流量过小 7、混入空气、发生汽蚀 8、转动部分发生摩擦 <ol style="list-style-type: none"> 1. The pump and the motor are not centered. 2. The shaft is tortuous. 3. The bearing is damaged. 4. The foundation is not rigid, the feet bolts are loose. 5. The impeller is broken, or jammed and out of balance. 6. The inlet pipeline is too narrow, the inlet valve is not fully opened, or the flow is too small. 7. Air goes in . 8. Friction happens between the rotating parts. 	<ol style="list-style-type: none"> 1、重新调整 2、更换新轴 3、更换轴承 4、加固基础、拧紧地脚螺栓 5、更换叶轮、清除堵塞 6、加大进口管径、打开进口阀门、调节出口阀门 7、改变吸入水位、改善吸水管 8、修复摩擦部位 <ol style="list-style-type: none"> 1. Readjust them. 2. Replace a new one. 3. Replace a new one. 4. Fasten the foundation, and screw up the feet bolts. 5. Replace the impeller and get rid of the blockage. 6. Increase the diameter of inlet pipe, open the inlet valve, or adjust the outlet valve. 7. Change suctioning water level, improve the suction pipe. 8. Repair it.
轴封漏液 Shaft seal leaks	<ol style="list-style-type: none"> 1、振动严重 2、轴承损坏 3、叶轮螺母松脱 4、副叶轮密封泵进口压力过高 5、副叶轮密封泵出口阀门未全部打开 6、填料密封泵的填料或填料轴套磨损 <ol style="list-style-type: none"> 1. Serious vibration 2. Damaged bearing 3. The impeller nut is loose 4. Inlet pressure for the secondary impeller sealing pump is too high 5. The outlet valve of the secondary impeller sealing pump is not fully opened. 6. Worn packing or packing shaft sleeve in packing seal pump 	<ol style="list-style-type: none"> 1、找出振动原因、针对处理 2、更换轴承 3、拧紧叶轮螺母 4、降低进口压力 5、打开出口阀门、在设计扬程附近运转 6、更换填料和填料轴套 <ol style="list-style-type: none"> 1. Find out reasons and deal with it 2. Replace the bearing 3. Screw it on 4. Decrease it 5. Open the outlet valve, operate at the designed head. 6. Replace the packing and packing shaft sleeve