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HLZ 系列立式化工轴流循环泵

HLZ Series Vertical Axial-flow Pump

- 参照ISO5199、API610标准
Conform to ISO5199/API610 standard
- 输送介质温度 -40°C~300°C
Operation temperature -40°C~300°C
- 最大工作压力 1.6MPa
Max working pressure 1.6MPa
- 传动方式 直联、带传动
Driven type: direct/belt
- 安装方式 釜顶、管道连接
Installation: reactor top/pipeline connection

用我必勝
Choose Me to Win
全球兩年質保
2-years warranty Worldwide

立式化工轴流循环泵

Vertical Axial-flow Pump

主要应用于 Application

- 制盐
- 环保
- 化工
- 氯碱
- 冶金
- 发酵

- Salt
- Environment protection
- Chemical industry
- Chlor-alkali industry
- Metallurgy
- Fermentation

用法 Usage

HLZ型泵为化工立式、单级轴流式泵。适用于大流量，低扬程，物料蒸发浓缩结晶强制循环工艺，符合ISO5199标准。

HLZ series vertical axial-flow pump is vertical, single stage pump. It is mainly used in evaporation, thickening, crystallization etc. compulsive circulation process, conform to ISO5199 standard.

法兰标准 Flange standard

EN 1092-1

ASME/ANSI B16.5

公称压力 Nominal pressure

PN10

class150

材料 Material

与介质接触的过流部件，材料符合ASTM标准，常用材料如下：

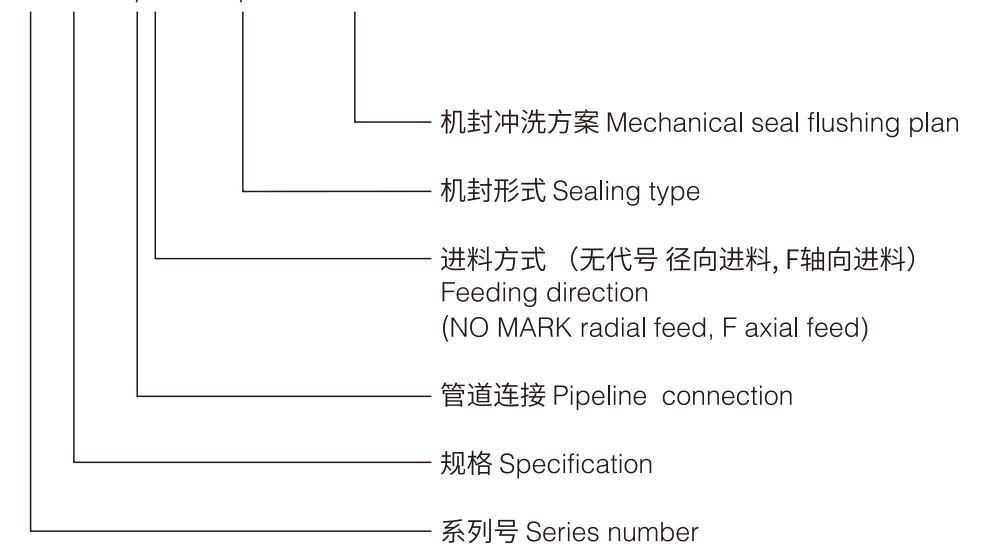
Wetted parts comply to ASTM standard, common material as follows:

- 不锈钢
- 钛材

- Stainless steel
- Titanium

泵型号说明 Pump model instruction

HLZ400 - G/F - 271L/HMU - P54



泵运行数据
Operating data

流量 (250~25000) m³/h
扬程 (2.5~5) m
温度 (-40~300) °C

Flow rate (250~25000)m³/h
Total heads (2.5~5)m
Operating temperature (-40~300)°C

现场标准条件
Standard conditions
at site

- 连续运行过程中的相对湿度不大于90%
- 环境温度不高于40°C，不低于4°C
- 海拔高度不超过1000m

- Relative humidity during continuous operation max. 90%
- Ambient temperature max.40°C, min.4°C
- Permissible altitude up to 1000m above sea level

当现场条件与上述规定不符时必须加以说明。

Deviations from the site conditions specified herein must already be disclosed in the inquiry.

流量
Flow rate

立式轴流泵的允许运行范围取决于：

Flow rate: The permissible operating range of axial flow pump depends on:

- 叶轮叶片角度
- 转速
- 振动
- 介质特性
- 轴承与轴载荷
- 工况进出口管路阻力与泵汽蚀余量

- The blade angle of impeller
- Speed
- Vibration
- Medium characteristics
- Bearing and shaft load
- The import and export pipeline resistance of the working condition and NPSH

适用工作范围在性能曲线和泵数据表中表示。

The operating range applicable to the pump is indicated in the individual characteristic curves and the pump data sheet.

出口压力
Outlet pressure

立式轴流泵出口压力取决于：

The outlet pressure of axial flow pump depends on:

- 泵入口压力
- 选定叶轮叶片角度的最大扬程
- 泵送介质的密度

- The pump inlet pressure
- The maximum total head of the selected blade angle
- The density of the medium to be pumped

压力和温度限制
Pressure and temperature limitations

泵体最大工作压力取决于工作温度：

The maximum casing operating pressure pall wc of the casing and the casing cover depends on the operating temperature:

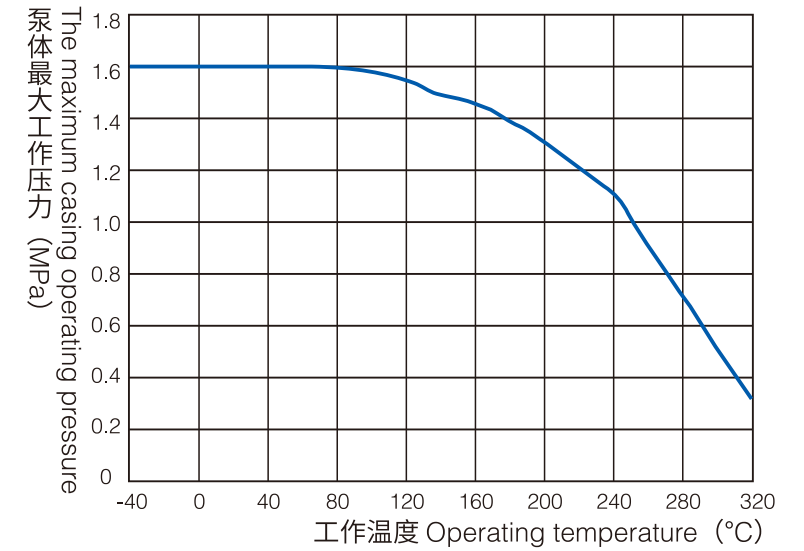


图1: 泵最大允许工作压力

Fig.1: maximum permissible casing operating pressure pall wc.

转速和叶轮直径限制
Speed and impeller diameter limitations

泵轴运行速度不能超过叶轮最大允许周转速，这相当于26m/s。

The operating speed of the pump shaft must not exceed the maximum permissible peripheral speed of the impeller, which corresponds to 26m/s.

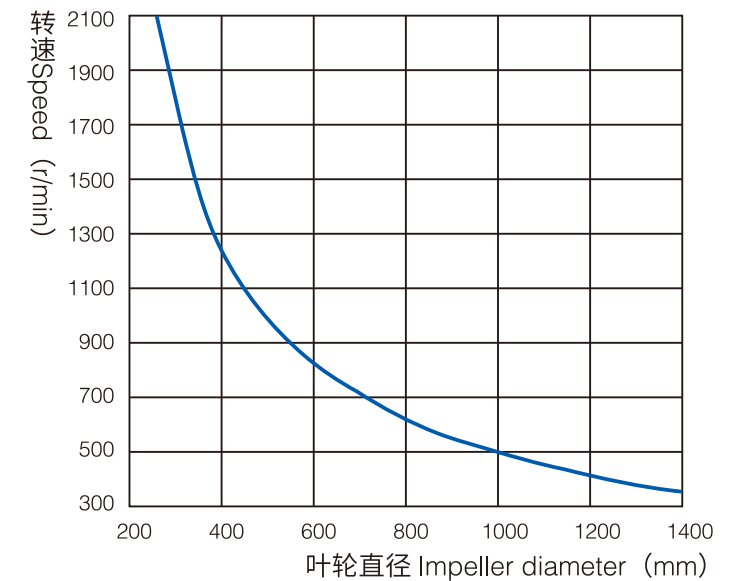


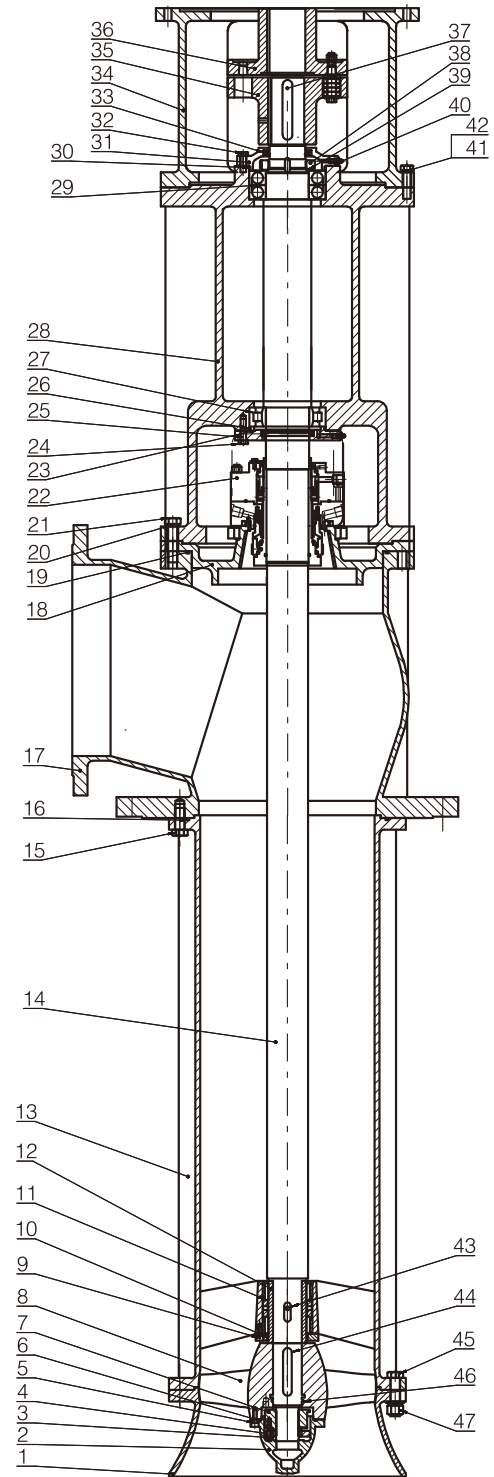
图2: 最大允许泵轴运行速度

Fig.2: maximum permissible shaft speed

HLZ化工轴流泵是立式单级单吸悬臂式泵，技术要求符合ISO5199标准。

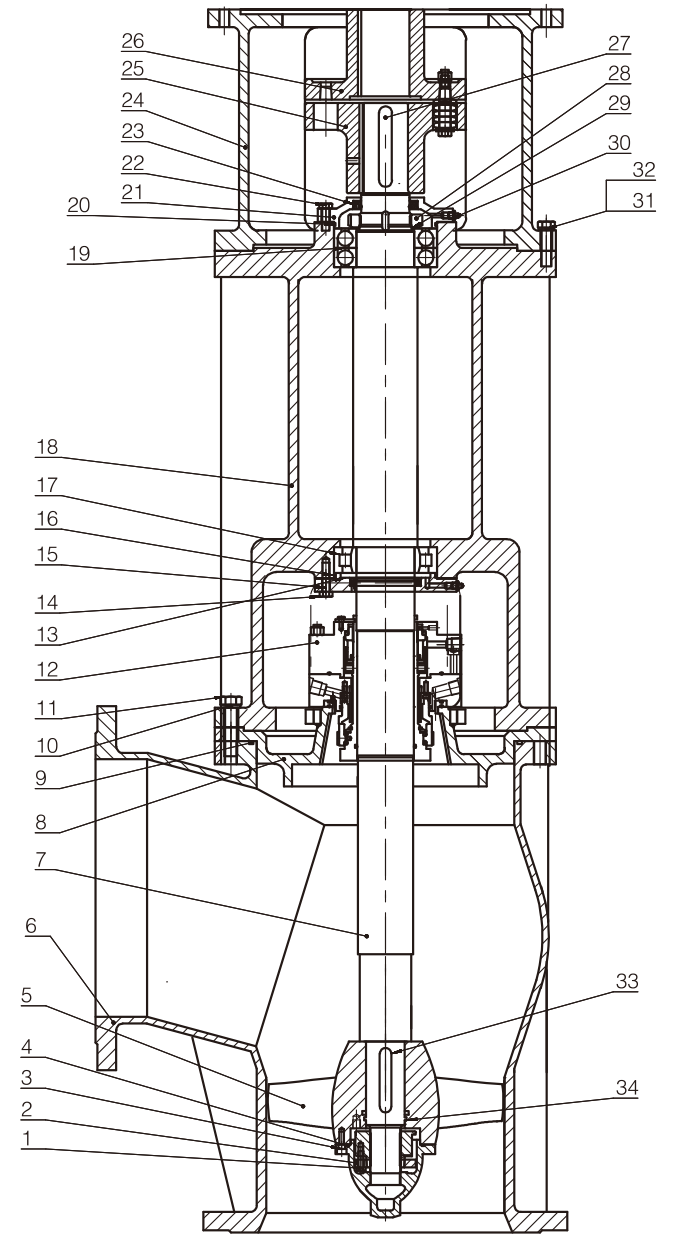
HLZ vertical axial-flow pump is vertical, single stage pump, which conforms to ISO5199.

1 进口喇叭管 / water-absorbing room	25 轴承前盖 / front bearing gland
2 导水锥 / hub cap	26 O型圈 / o-ring
3 螺栓 / bolt	27 轴承 / bearing
4 止退螺母锁圈 / stop nut ring	28 悬架体 / frame
5 内六角圆柱头螺钉 / bolt	29 轴承 / bearing
6 O型圈 / O-ring	30 O型圈 / o-ring
7 止退螺母 / stop nut	31 轴承后盖 / back bearing cover
8 叶轮 / impeller	32 螺栓 / bolt
9 内六角圆柱头螺钉 / bolt	33 油封 / skeleton oil seal
10 填料压盖 / packing gland	34 中间支架 / intermediate support
11 整体填料 / integral packing	35 泵联轴器 / coupling
12 轴套 / shaft sleeve	36 电机联轴器 / coupling
13 泵体支撑管 / supporting tube	37 键 / key
14 轴 / shaft	38 小圆螺母 / small round nut
15 螺栓 / bolt	39 止动垫圈 / tab washer
16 O型圈 / o-ring	40 直通式压注油杯 / straight hydraulic grease nipples
17 泵体 / pump casing	41 螺栓 / bolt
18 法兰体 / body flange	42 弹簧垫圈 / spring lock washer
19 O型圈 / o-ring	43 键 / key
20 弹簧垫圈 / spring lock washer	44 键 / key
21 螺栓 / bolt	45 螺栓 / bolt
22 机械密封 / mechanical seal	46 O型圈 / o-ring
23 油封 / skeleton oil seal	47 螺母 / nut
24 螺栓 / bolt	



HLZ立式轴流泵结构示意图 (釜顶)

1 螺栓 / bolt
2 止退螺母锁圈 / stop nut ring
3 内六角圆柱头螺钉 / bolt
4 O型圈 / O-ring
5 叶轮 / impeller
6 泵体 / pump casing
7 轴 / shaft
8 法兰体 / body flange
9 O型圈 / O-ring
10 弹簧垫圈 / spring lock washer
11 螺栓 / bolt
12 机械密封 / mechanical seal
13 油封 / skeleton oil seal
14 螺栓 / bolt
15 轴承前盖 / front bearing gland
16 O型圈 / O-ring
17 轴承 / bearing
18 悬架体 / frame
19 轴承 / bearing
20 O型圈 / O-ring
21 轴承后盖 / back bearing cover
22 螺栓 / bolt
23 油封 / skeleton oil seal
24 中间支架 / intermediate support
25 泵联轴器 / coupling
26 电机联轴器 / coupling
27 键 / key
28 小圆螺母 / small round nut
29 止动垫圈 / tab washer
30 直通式压注油杯 / straight hydraulic grease nipples
31 螺栓 / bolt
32 弹簧垫圈 / spring lock washer
33 键 / key
34 O型圈 / O-ring

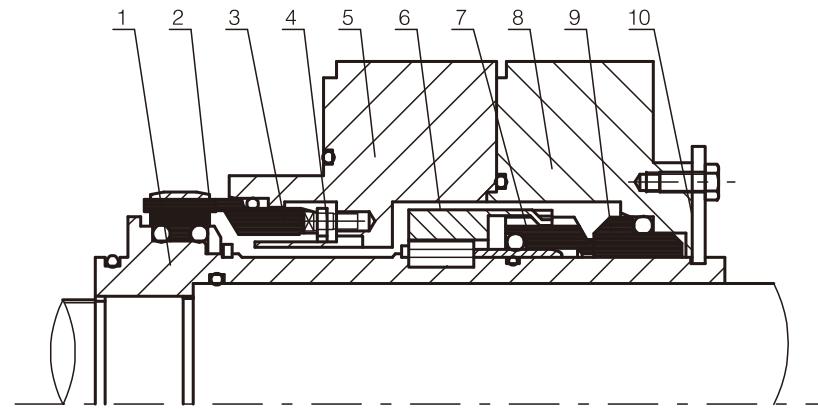


HLZ立式轴流泵结构示意图 (管道连接)

泵的密封 PUMP SEAL

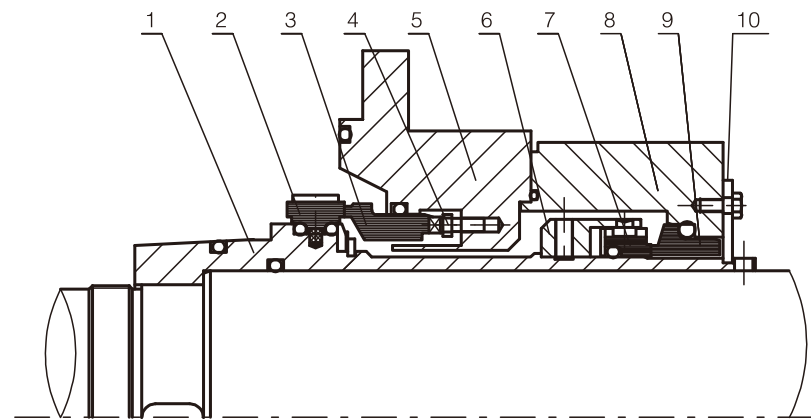
泵的密封采用本公司专业设计的 271C/HMS、271L/HMU 机封。

The shaft seal of pump is professional designed 271C/HMS, 271L/HMU seal.



■ 271C/HMS

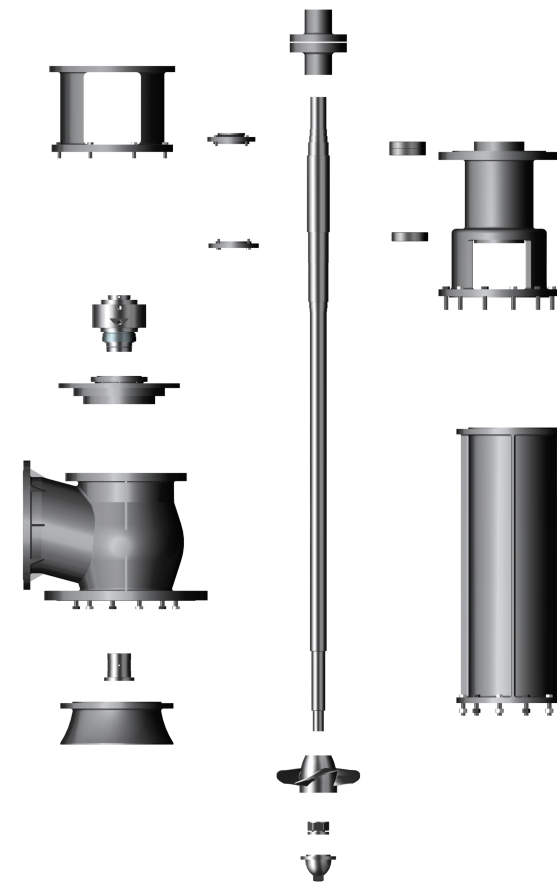
- | | |
|-----------------------|----------------------------|
| 1 机封轴套 / shaft sleeve | 6 传动座 / driving seat |
| 2 前动环 / dynamic ring | 7 后动环 / dynamic ring |
| 3 前静环 / static ring | 8 机封压盖 / gland |
| 4 推环 / thrust ring | 9 后静环 / static ring |
| 5 前压盖 / gland | 10 偏心挡板 / eccentric baffle |



■ 271L/HMU

- | | |
|-----------------------|----------------------------|
| 1 机封轴套 / shaft sleeve | 6 传动座 / driving seat |
| 2 前动环 / dynamic ring | 7 后动环 / dynamic ring |
| 3 前静环 / static ring | 8 机封压盖 / gland |
| 4 推环 / thrust ring | 9 后静环 / static ring |
| 5 前压盖 / gland | 10 偏心挡板 / eccentric baffle |

结构优化设计，操作安全性高
维修方便，使用寿命长



结构紧凑合理，安装简易，检修方便。

产品零件高度互换，降低用户备件库存。

低速型轴流泵设计，对结晶体介质无破损，汽蚀余量低，运行平稳，确保泵长周期可靠运转。

Compact and reasonable structure, simple installation and convenient maintenance.

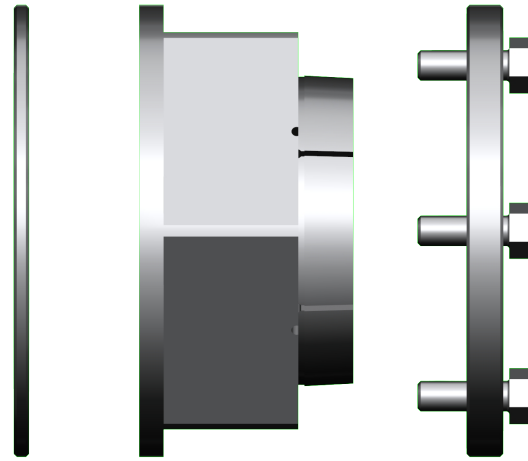
Highly interchangeable in produce parts reduce stocks of spare part for customers.

Low speed design, no damage to crystal medium, lower cavitation, higher efficiency, and smooth operation, to ensure reliable running long time.

*Optimized design, safe operation
Easy maintenance, long running life*

结构优化设计，操作安全性高
维修方便，使用寿命长

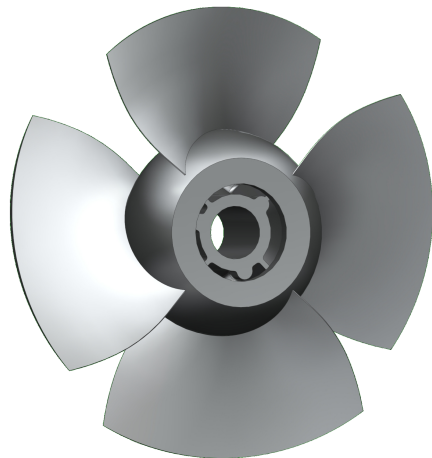
专用防螺母松脱技术，提高泵使用可靠性，消除叶轮螺母松脱危险。



Patented design of self-locking impeller nut eliminate risk of release improve reliability.

叶轮叶片优化设计，适合蒸发浓缩工艺特点，轴功率曲线平坦，高效范围宽，使用范围大，降低运行成本。

可调式叶片，适应要求不同工况，扩大使用范围并可高效运行，提高泵的通用性。



Optimized impeller for evaporation and concentration process, flat shaft power curve and wide range of high efficiency reduce the operating cost.

Adjustable blade for different working requirements, expand the application range and improve the versatility of pump.

加粗重型轴，提高轴的强度和刚度，配对轴承设计，提高承载能力及运行稳定性，降低维修费用及运行成本。

大空间轴承箱提高泵整体刚性，运行平稳延长泵使用寿命。

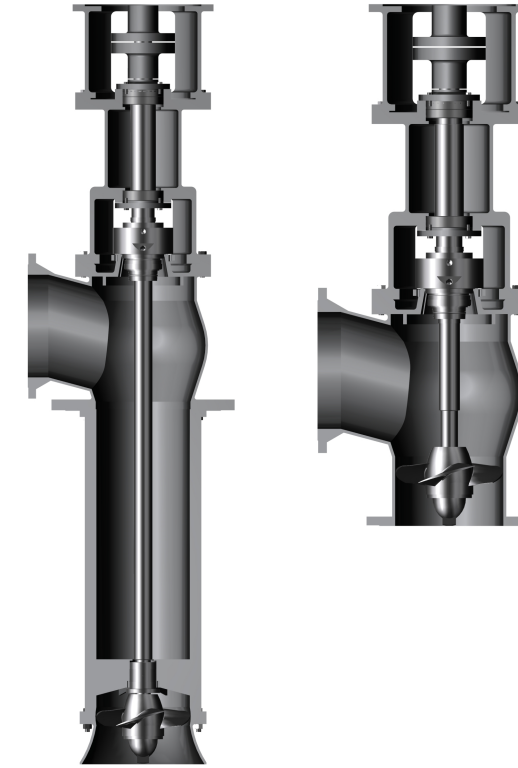
泵体优化弯管式流道设计，水力性能好；焊接结构，材料致密性好，加厚叶轮室壁厚，延长泵体使用寿命。

特殊设计导叶吸水室，速度场均匀，水力损失少，减少液流周向预旋，降低水头损失，提高效率。

双向平衡集装式锥形腔机械密封，无需调整压缩量，改善冲洗、冷却润滑条件、延长机械密封使用寿命。

机械密封加热冷却可变，输送介质适应性广，提高泵型的通用性。

Optimized design, safe operation
Easy maintenance, long running life



Heavy paired duty shaft and bearing ensure large load capacity and stable operation, saving maintenance and operation cost.

Large bearing box which improve rigidity of pump, and extend service life of pump.

Optimized bent-pipe flow passage design, good hydraulic performance, thickened impeller chamber and casing with welding structure.

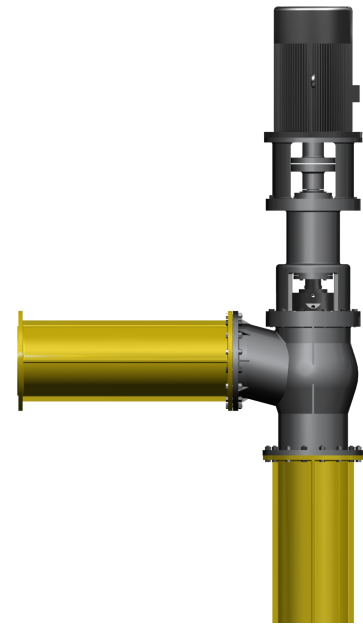
Straight tapered suction chamber, uniform velocity field, small hydraulic loss, suction chamber and guide plate, reduce the amount of liquid flow circumferential rotation, reduce head loss and improve efficiency.

Bidirectional balanced mounted conical cavity seal, no need to adjust the amount of compression, improve flushing, cooling, lubrication conditions and extend service life of mechanical seal.

Optional heating or cooling system of mechanical seal improve the adaptability of pump.

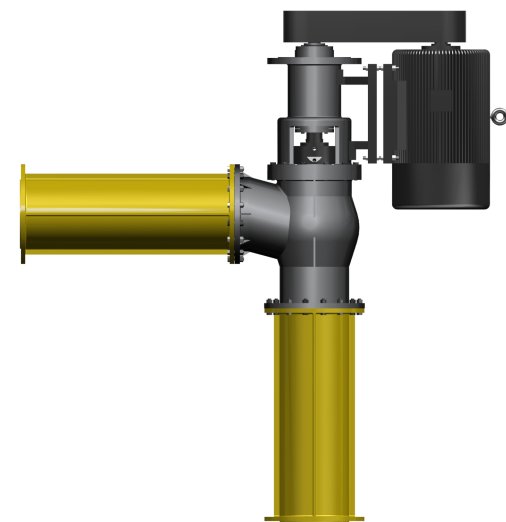
泵的安装方式有釜顶、管道连接可供用户选择，传动方式有皮带轮传动、联轴器传动几种方式方便用户选择。

Installation styles could be reactor top connection or pipeline connection, driven type has belt or coupling transmission to choose.



管道连接，联轴器直联方式：泵与电机用联轴器传动，整泵直接连接在管道上，不需要基础。

Pipeline connection, coupling transmission: pump is driven by coupling and directly connected to the pipeline, no need any basis.



管道连接，皮带轮传动方式：泵与电机用三角带传动，整泵直接连接在管道上，不需要基础。

Pipeline connection, belt transmission: pump is driven by belt and directly connected to the pipeline, no need any basis.



釜顶，联轴器直联方式：泵通过法兰连接，安装于反应釜釜顶，泵与电机用联轴器传动。

Reactor top connection, coupling transmission: pump is driven by coupling and connected to the reactor top with flange.



釜顶，皮带轮传动方式：泵通过法兰连接，安装于反应釜釜顶，泵与电机用三角带传动。

Reactor top connection, belt transmission: pump is driven by belt and connected to the reactor top with flange.

合同试验， 保证泵性能的满足

本公司依据合同和标准执行以下测试：

静水压试验

试验基于常温清水，压力为基本设计压力的1.5倍，保压10分钟。

性能试验

依据ISO9906标准测量，试验精度II类，验收类2B。

NPSH试验

依据ISO5199标准测量。

振动试验

依据ISO5199进行振动试验，泵的振动烈度级别控制在A级。

温度测量

在工作温度下，对轴承温升进行测量，测量的结果记录在案。

材料检验

零部件材质检验，铸件无损检测，保证整机可靠性。

*Order-related tests,
confirm the performance of pump conform*

The company carries out the tests below as standard:

Hydrostatic pressure test

Hydrostatic pressure test based on clean water at ambient temperature, test pressure is 1.5 times on design pressure.

Performance test

Measurement according to ISO9906, accuracy class II, acceptance class 2B.

NPSH test

According to ISO5199 standard.

Vibration test

According to ISO5199, vibration lightness level is controlled at class A.

Temperature test

Test the temperature rise of bearing, and keep records.

Raw material inspect

Spare and casting parts inspection, to ensure the reliability of the whole machinery.



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：

轴功率	百分比%	The shaft power of the pump	the ratio (%)
22kW以下	125%	Below 22kW	125%
(22~75)kW	115%	(22-75)kW	115%
75kW以上	115%	Above 75kW	115%

(二) 订货时按《泵工作条件》详细填写。

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

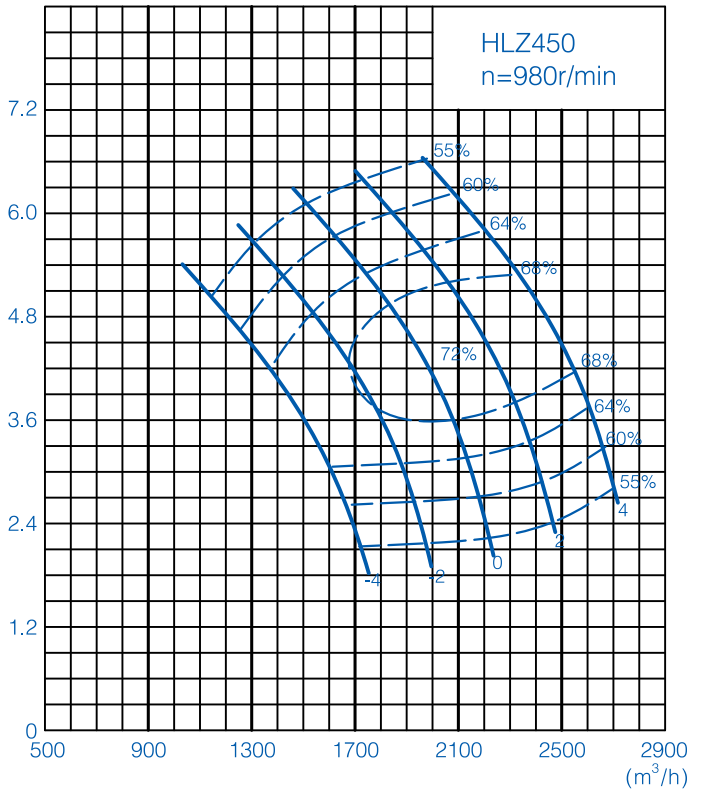
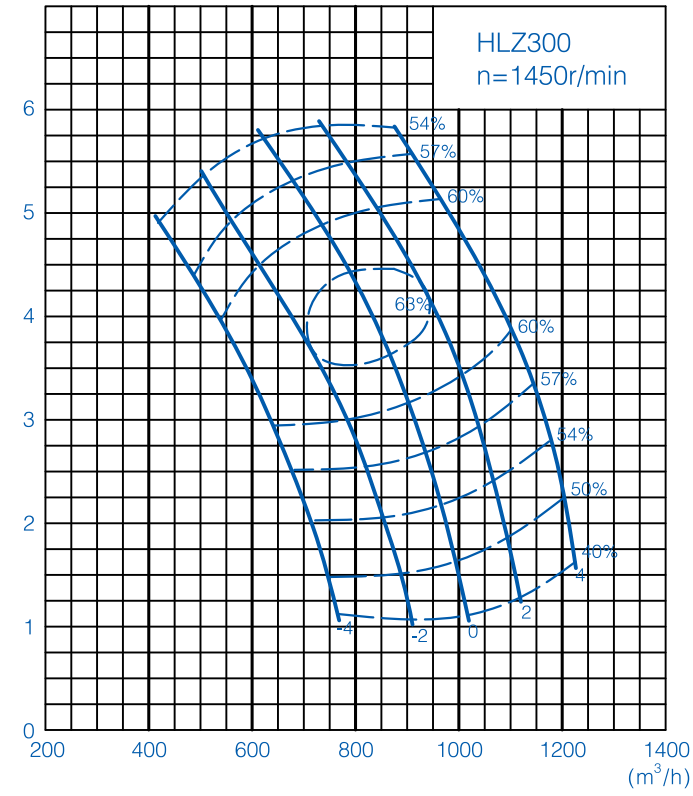
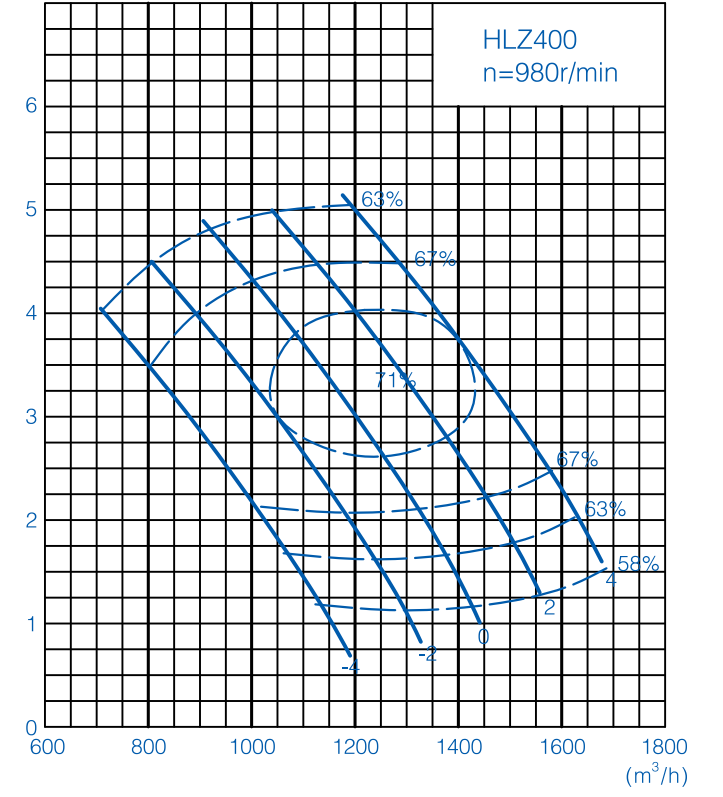
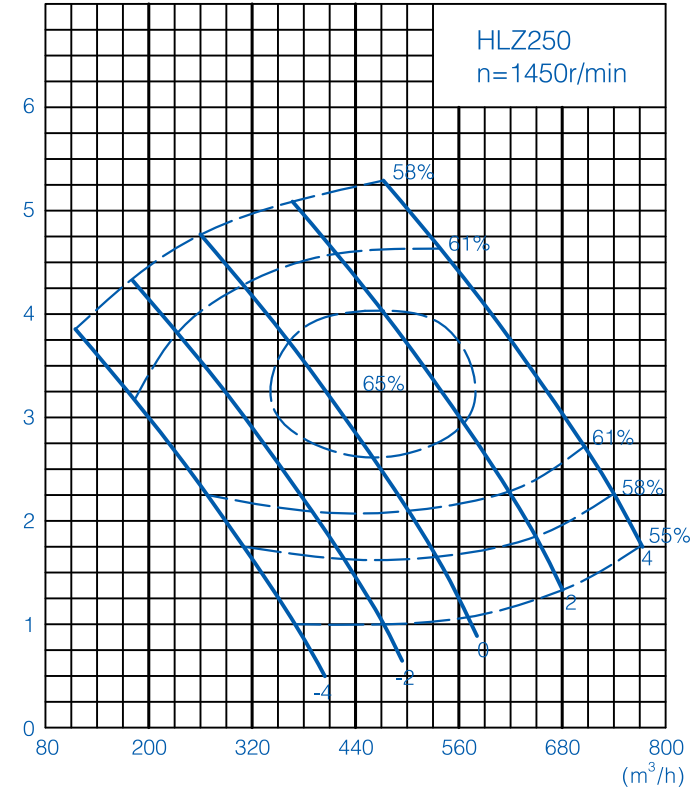
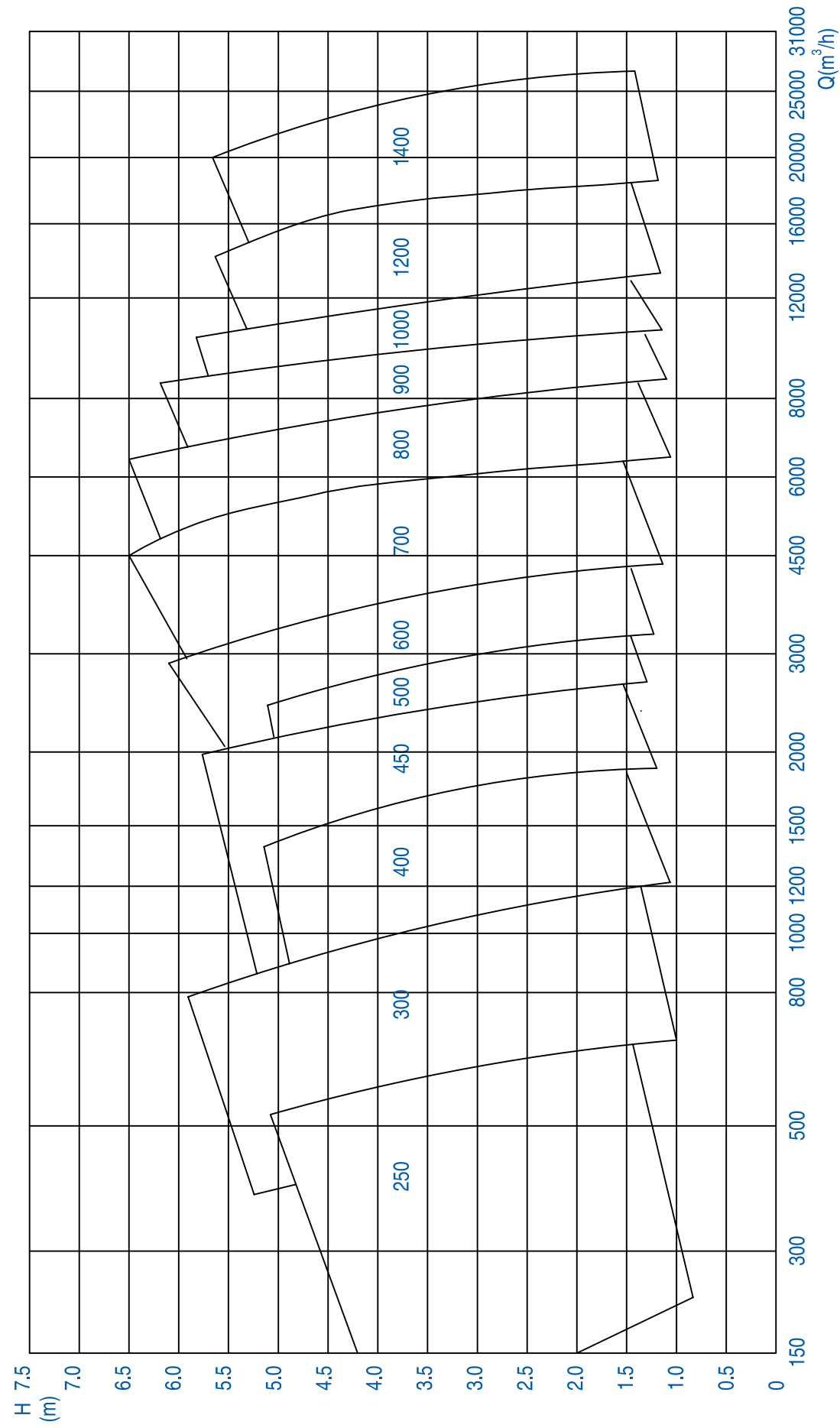
(三) 保修条款只有在使用本公司原厂备件时才有法律效力。

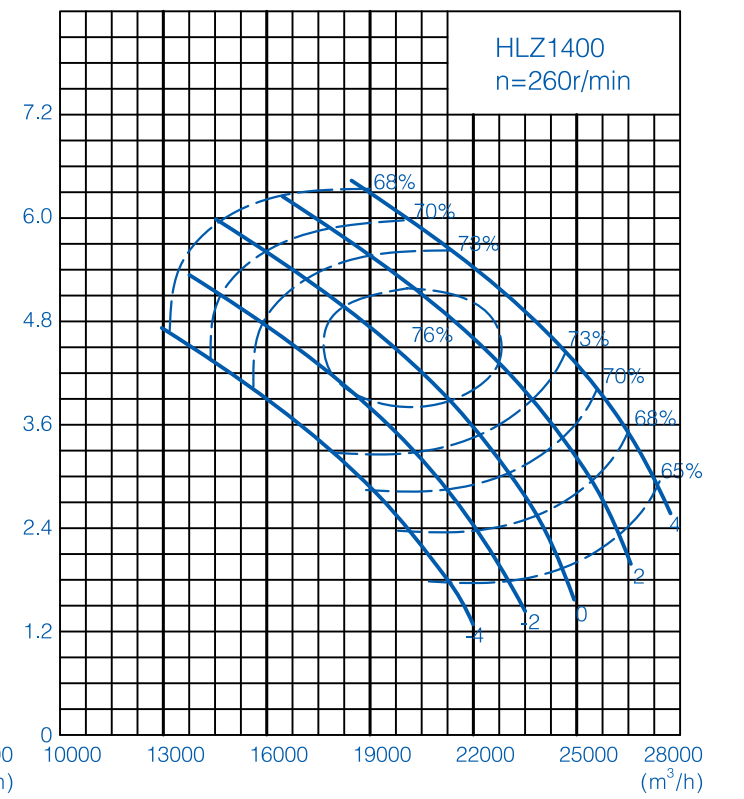
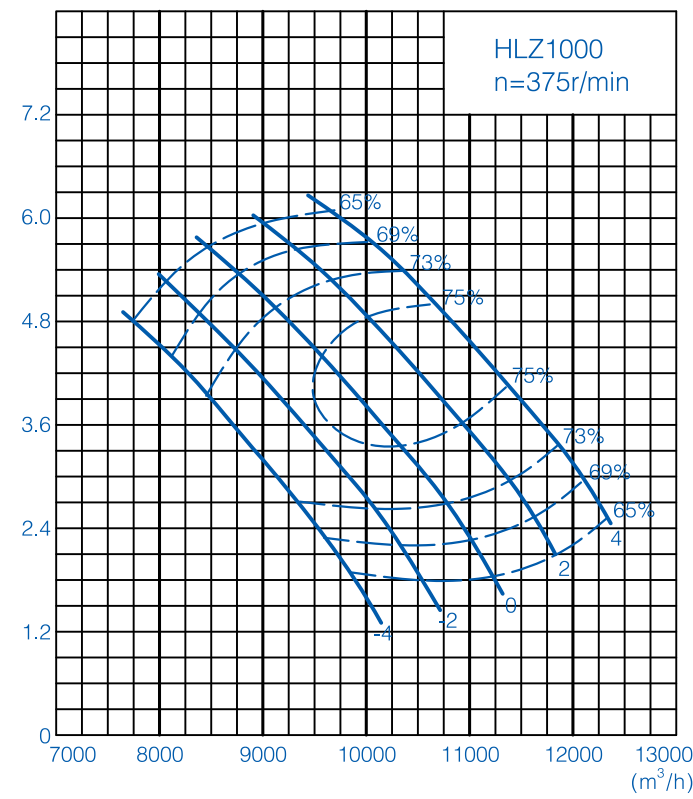
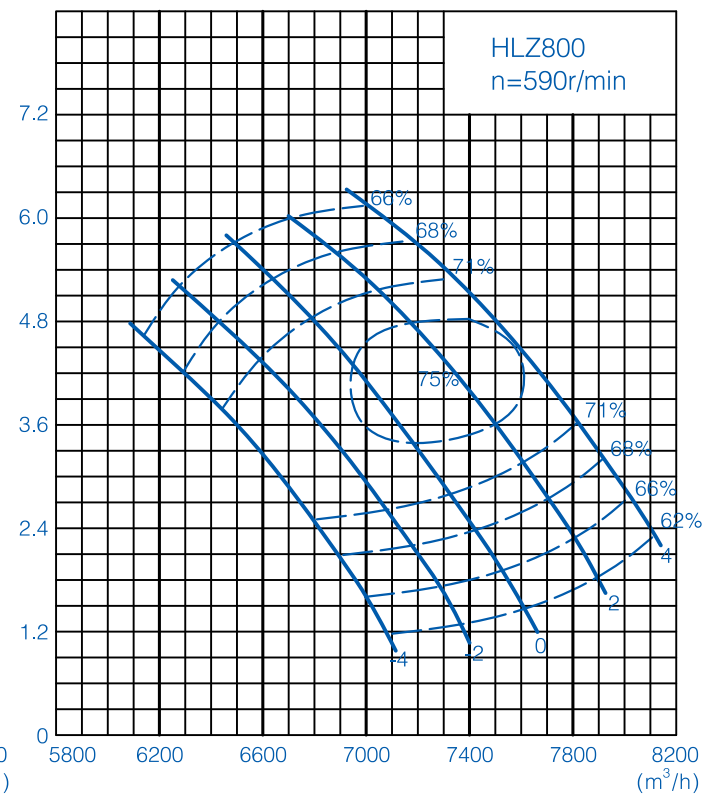
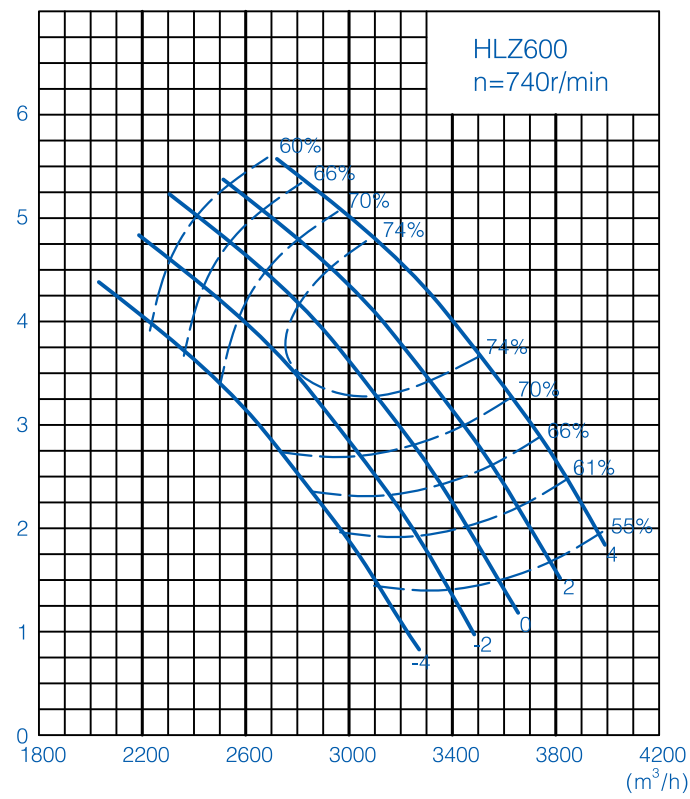
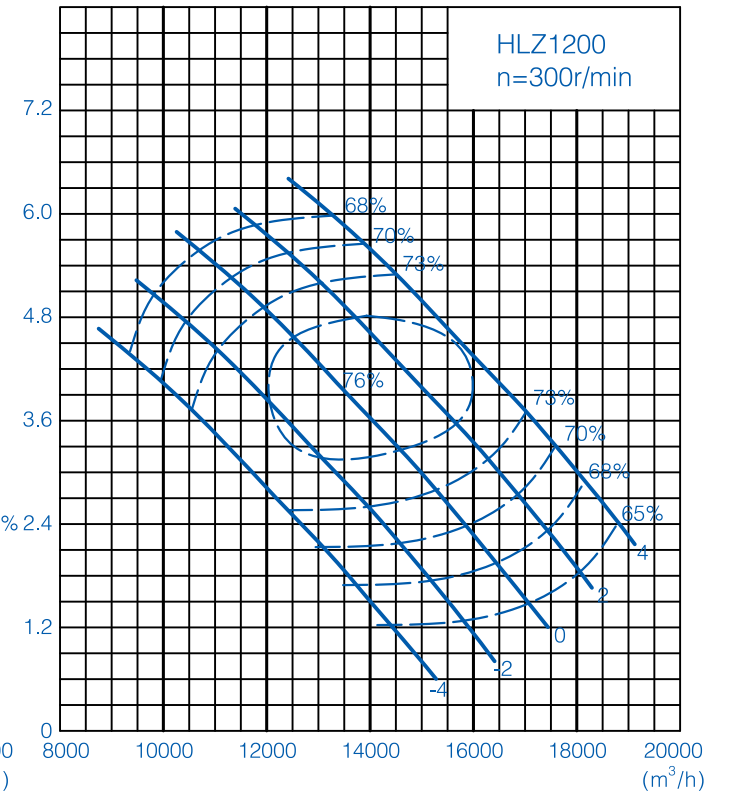
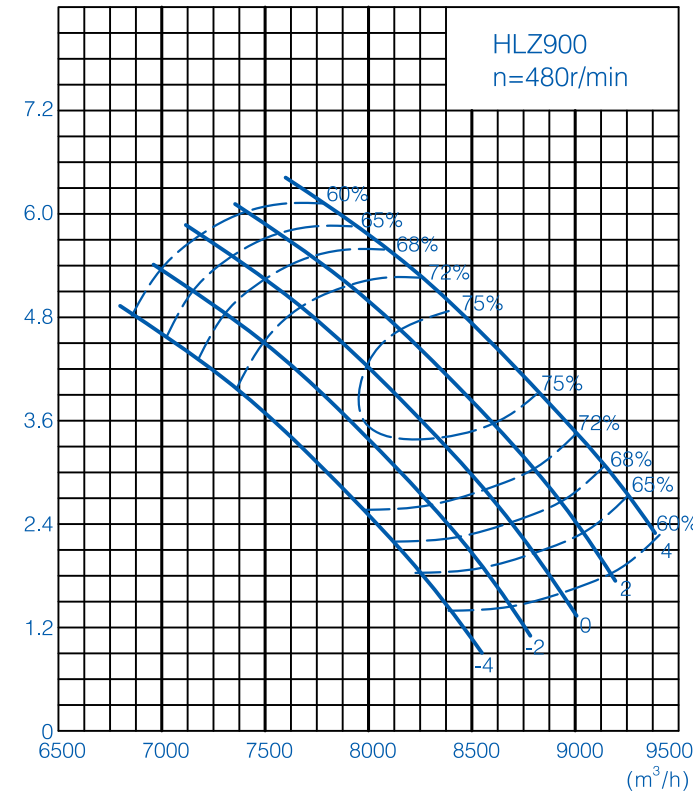
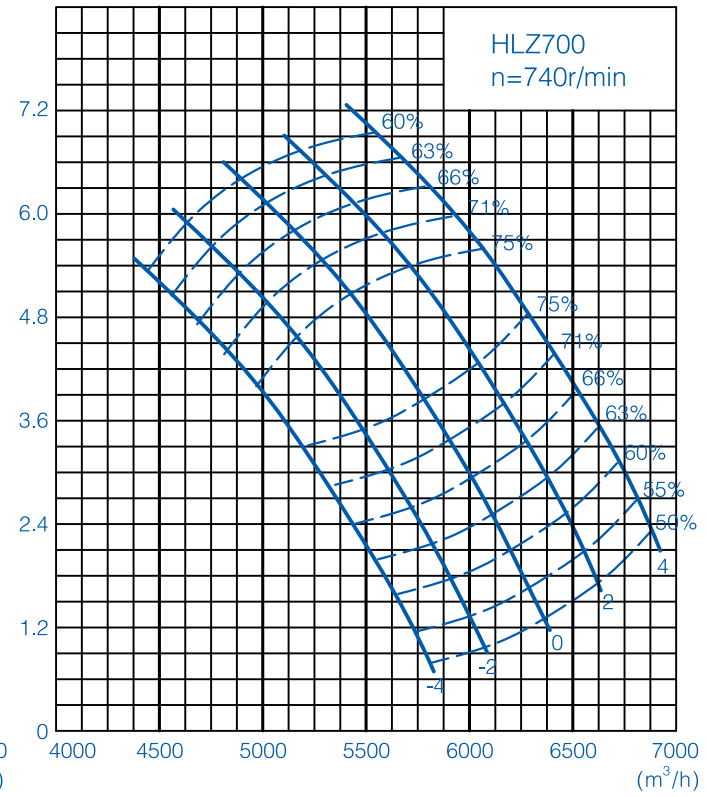
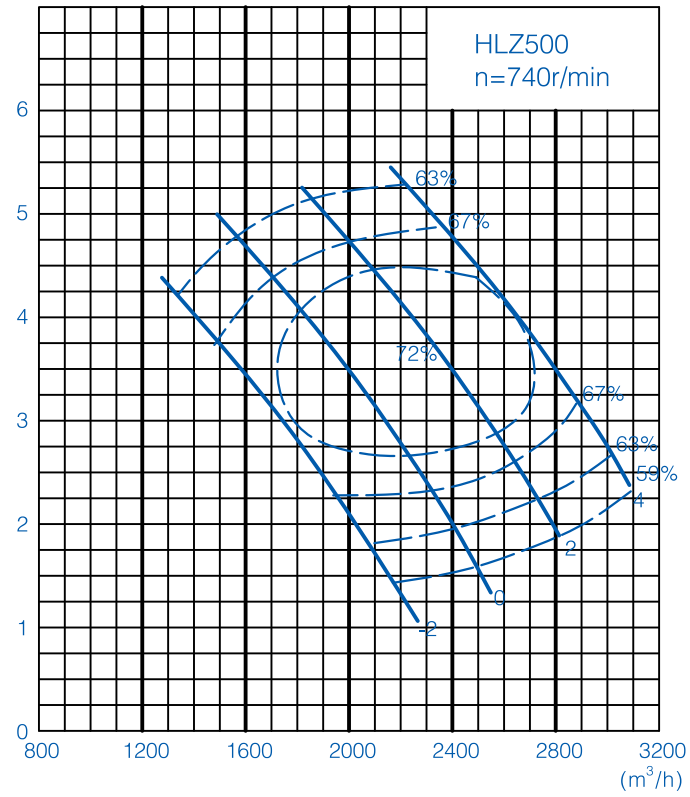
Warranty is valid only when genuine spare parts of our company are used.

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	介质 1 Media	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	介质 2 Media	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	介质 3 Media	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 %			
必需汽蚀余量 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	°C	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°C			
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	°C				
环境温度范围 Ambient temp. Range	°C			结晶温度 Crystallization temp	°C				
异常条件 Abnormal conditions	粉尘 Dust	烟雾 Smoking		熔点 Smelting point	°C				
危险区域 Electrical classification	类 Class	级 Division	组 Group	闪点 Point of flammability	°C				
电源 Power source	伏特 Volt	赫兹 Hz	相 Phase	相溶的液体 Compatible liquid					
冷却水 Cooling water	温度 Temp	°C	压力 Pressure	相溶的橡胶 Compatible rubber					
				氯化物浓度 Chloride concentration	临界温度 Critical temp	°C			
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									

性能范围 Performance Range





注：上图数据仅供用户初步选型用，具体选型请咨询本公司专业技术人员。

Note: The data are based on clean water at ambient temperature, and are only for user's preliminary selection. For specific selection, please consult our company technical personnel.

