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| 备案号： |

团体标准

T/CGMA XXXXX—XXXX

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化工轴流泵技术条件

Technical specification for chemical axial flow pump

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前 言

本文件按照 GB/T 1.1-2020《标准化工作导则 第 1 部分：标准化文件的结构和起草规则》的规定起草。

请注意本文件的某些内容可能涉及专利。本文件的发布机构不承担识别专利的责任。

本文件由中国通用机械工业协会泵业分会提出。

本文件由中国通用机械工业协会归口。

本文件起草单位：四川省自贡工业泵有限责任公司。

GB/T 13008《混流泵、轴流泵技术条件》中所规定的适用温度范围为 0-50 ℃，输送介质为清水，材料以普通材料为主，而在化工行业中，长期的使用温度都高于此，而且材料范围、安装形式等都差异很大，所以专门制定本文件以规范化工用轴流泵的设计，使用，验收等。

本文件规定的适用温度范围 -25 ℃～+190 ℃。

本文件规定的适用工作条件为：各种化工、食品、冶金、环保等工业系统中的结晶、循环、蒸发、浓缩等过程；

本文件涵盖的材料范围：全部目前可工业化生产的金属材料及非金属材料。

本文件的附录 A 为资料性附录。

本文件主要起草人：

轴流泵技术条件

1 范围

本文件规定了轴流泵（以下简称泵）的订货条件、技术要求、工厂检验和试验要求及性能试验规则等。

本文件适用于输送清水或物理性质类似于清水的液体以及固体含量较高，但仍可以泵送的各种工业物料的泵。输送液体的温度 -25 ℃--190 ℃。

当多个文件之间含有相抵触的技术要求时，应按以下顺序决定各文件的适用性：

a) 订货单；

b) 数据表（参见附录 A )；

c) 本文件；

d) 订货单提到的其他文件。

2 规范性引用文件

下列文件中的条款通过本文件的引用而成为本文件的条款。凡是注日期的引用文件，其随后所有的修改单（不包括勘误的内容）或修订版均不适用于本文件，然而，鼓励根据本文件达成协议的各方研究是否可使用这些文件的最新版本。凡是不注日期的引用文件，其最新版本适用于本文件。

GB/T 699 优质碳素结构钢

GB/T 700 碳素结构钢

GB/T 983 不锈钢焊条

GB/T 985.1 气焊、手工电弧焊及气体保护焊焊缝坡口的基本形式和尺寸

GB/T 17853 不锈钢药芯焊丝

GB/T 1184 形状和位置公差未注公差值

GB/T 1220 不锈钢棒

GB/T 2100 通用耐蚀钢铸件

GB/T 3216 回转动力泵 水力性能验收试验1缓和2级(GB/T 3216-2005，IS0 9906：1999，MOD)

GB/T 3621 钛及钛合金板材

GB/T 4237 不锈钢热轧钢板和钢带

GB/T 7021 离心泵名词术语

GB/T 9124 钢制管法兰 技术条件

GB/T 9239.1 机械振动恒态（刚性）转子平衡品质要求第1部分：规范与平衡允差的检验（GB/T 9239.1-2006,IS0 1940-1:2003,IDT）

GB/T 9439 灰铸铁件

GB/T 11352 一般工程用铸造碳钢件

GB/T 13384 机电产品包装通用技术条件

JB/T 4297 泵产品涂漆技术条件

JB/T 8097 泵的振动测量与评价方法

JB/T 8098 泵的噪声测量与评价方法

3 术语和定义

GB/T 7021界定的以及下列术语和定义适用于本文件。

3.1

轴流泵 axial-flow pump

叶轮中的液体沿着与主轴同心的圆筒内排出的泵。

3.2

半调节 half adjusting

泵停止运转后，将叶片取下重新安装成需要的安装角度，达到改变工况目的的调节方法。

3.3

卧式 horizontal

泵轴为水平方向的结构，底部有固定支撑。

3.4

立式 vertical

泵轴为铅直方向的结构。

3.5

全悬挂式 suspending type

泵整体及电机与悬吊的系统连接为一体，泵轴为水平方向的结构，下部没有支撑。

3.6

半悬挂式 half-suspending type

泵整体与悬吊的系统连接为一体，泵轴为水平方向的结构，泵的下部没有支撑，电机有底座。

3.7

整轴 monobloc shaft

整个泵轴用一种材料制造。

3.8

对焊轴（焊接轴） welded shaft

轴的接触液体部分用耐腐蚀的不锈钢材料，另一半用其他材料，两半轴焊接为一个整体。

4 订货条件

4.1 采购商与制造商／供货商在订货时应明确下列信息：

a) 泵运行工况参数（流量、扬程、转速、效率等）；

b) 泵输送介质性质（温度、密度、腐蚀性、悬浮物种类及其含量等）；

c) 泵布置及安装条件；

d) 泵运行环境条件；

e) 传动方式。

4.2 如采购商对产品有不同于本文件的要求时，应在订货单或数据表(参见附录A)中予以规定。

4.3 采购商可根据需要订购下列成套供应范围的全部或部分，井在订货单中写明：

a) 泵；

b) 原动机；

c) 传动装置；

d) 联轴器及防护罩；

e) 出水法兰及进口法兰；

f) 底座和地脚螺栓；

g) 润滑冷却水或润滑油装置；

h) 仪器、仪表；

i) 备品备件和专用工具；

j) 其他辅助设备或附件；

k) 订货之后应提供的文件和/或服务。

5 技术要求

5.1 总则

泵应符合本文件的规定，并按经规定程序批准的图样和技术文件制造。

5.2 性能

5.2.1 泵的性能参数应符合订货单或相应文件的规定。水力性能验收试验应符合GB/T 3216的规定。

5.2.2 制造商／供货商应确定泵的允许工作范围，并绘出性能曲线（扬程、效率、轴功率与流量的关系曲线）。对可调式叶轮的泵应给出叶片调整后的安装角度的性能曲线（扬程、效率、轴功率与流量的关系曲线）对立式泵应给出泵叶轮中心线的最低淹没深度和提供进水流道的尺寸。

5.2.3 泵在允许工作范围内运转时，其振动烈度应符合GB/T 29531的规定。泵试验的振动测量与评价应符合GB/T 29531的规定。

5.2.4 泵在允许工作范围内运转时，其噪声应符合GB/T 29529的规定。泵试验的噪声测量与评价应符合GB/T 29529的规定。

5.3 设计

5.3.1 原动机

5.3.1.1 确定原动机的额定性能时应考虑下列因素：

a) 泵的用途和工作方式；

b) 泵特性曲线上工作点的位置；

c) 泵输送介质的密度；

d) 传动装置的功率损失和滑差损失；

e) 泵现场的大气条件。

5.3.1.2 原动机的输出功率原则上按照1.3选取安全系数。

5.3.2 临界转速

卧式泵的第一临界转速至少应高出最大允许连续运行转速10%；立式泵的第一临界转速至少应高出最大允许连续运行转速40%。

5.3.3 平衡

叶轮部件应按GB/T 9239.1作静平衡试验，其平衡品质等级为G6.3级。

半可调式叶轮部件的静平衡应在额定工况所在的叶片角度下进行。

5.3.4 承受压力的零件

5.3.4.1 受内压的壳体，设计时应作强度计算和设置加强筋以保证足够的强度和刚性，使之能承受泵允许工作范围内的最大工作压力和规定的水压试验压力，并能限制变形。水压试验应符合6.3.1.1的规定。

5.3.4.2 泵的连接法兰应能承受允许的最大工作压力，泵的进出口法兰尺寸应符合GB/T 9124的规定或与用户共同规定的其他法兰标准。

5.3.4.3 承受压力的零件的连接紧固件性能等级应适合于泵允许的最大工作压力和常规的拧紧方式。

制造商应规定螺栓连接扭矩。

5.3.5 叶轮

叶轮采用开式型式，其叶片可以设计成固定式、半调节式。

叶轮应可靠地固定在轴上，防止产生轴向和周向移动。

5.3.6 进水流道

立式泵的进水流道为泵整体设计的一部分，应合理确定进水流道的尺寸。

5.3.7 运转间隙

叶轮外圆与泵体内壳的间隙应均匀，单侧间隙值不小于 1 mm，必要时需放大间隙以避免流动状态不稳定时或结晶块掉落冲击时叶轮擦泵体。

5.3.8 轴和轴套

5.3.8.1 轴应进行强度计算，保证有足够的强度和刚性；在计算确定轴的挠度时，不应考虑软填料的支承作用。

5.3.8.2 轴上的螺纹旋向在轴旋转时，应使螺母处于拧紧状态。实心轴应保留中心孔。

5.3.8.3 轴或轴套的材料应与叶轮一致或相当，对焊轴触液部分的材料应与叶轮相同或相当。

5.3.8.4 轴密封件的材料应与叶轮材料相同或更适合的，抗介质腐蚀能力更强的材料。

5.3.8.5 采用轴套结构的泵，应与叶轮一同做水压试验，应耐磨，并可靠地固定在轴上；对轴封处的轴套，应防止其与轴之间的液体渗漏。

5.3.8.6 轴封处的轴套端部应伸到轴封压盖之外。

5.3.8.7 对于钛材可以使用轴套结构，也可以使用整轴或其他经过验证的结构形式。

5.3.8.8 轴的抗腐蚀材料或防护措施分为：

1) 不带轴套的结构，轴采用与叶轮的材料相同或相当；

2) 采用对焊轴结构的泵，接触液体部分的材料与与叶轮相同或相当；

3) 带轴套结构的泵，轴套材料与叶轮相同或相当，应保证轴套的密封完好及抗腐蚀性能。

5.3.9 轴承

5.3.9.1 总则

应计算泵在允许工作范围内工作时轴承的额定寿命并规定轴承的润滑方式。需要时，制造商／供货商应提供轴承的最高温度限值及报警温度和停机温度。为使轴承温度保持在规定的极限温度内，制造商应采取必要的冷却措施。

5.3.9.2 推力轴承

泵的轴向力（包括转子重量）由泵的传动装置承受。

泵轴承通常采用滚动轴承，可采用稀油润滑或油脂润滑。

轴承体与外部相通的缝隙应能防止污物浸入和润滑油漏失。轴承体上部应设置放气塞，下部应设置放油管堵。

5.3.9.3 导叶

泵不设置导叶，以避免结晶堵塞流道。

5.3.9.4 传动方式

泵的传动方式可采用三角皮带传动，电机直联传动，减速器加万向节传动等方式。

5.3.9.5 安装方式

对于卧式泵，用户须在泵的进出口设置膨胀节，以消除热膨胀所带来的应力。

5.3.10 轴封

5.3.10.1 泵的轴封一般推荐采用集装式机械密封，立式泵可以选用软填料密封，可以让泄漏的液体回到液体的容器中。

如果用户工艺要求水平泵采用软填料密封，须设置漏液回收系统。

5.3.10.2 密封部位上应设置密封润滑水的进出水孔。

5.3.10.3 采用填料密封时，填料函外应有足够的空间，以便更换填料。

5.3.11 联轴器

5.3.11.1 泵与电机直联的情况，采用弹性联轴器与原动机连接；减速器加万向节传动的情况，原动机与减速器之间采用弹性联轴器连接，减速器通过万向节与泵连接。

5.3.11.2 联轴器应能传递原动机的最大扭矩，其许用的转速应与原动机或传动装置的转速相适应。

5.3.12 作用在法兰（进口和出口）上的外力和外力矩

制造商／供货商应计算并提供泵允许承受的由管路传递给泵的力和力矩；采购商也应计算出管路系统作用在泵上的力和力矩，并保证使负荷低于允许值。

5.3.13 底座

5.3.13.1 底座应设计成能承受5.3.12给出的允许作用在泵进出口法兰上的外力和外力矩，且不致使泵和原动机的两半联轴器同轴度超过规定值。

5.3.13.2 需要灌浆的底座的设计应能保证有良好的灌浆（例如应防止空气被截留）。如果必须有灌浆孔，底座上应有足够数量的、直径不小于100 mm或面积与此相当的灌浆孔。

5.3.13.3 卧式泵和原动机采用公共底座时，如原动机不由泵制造商／供货商安装，底座应经机械加工，但不加工与原动机连接的螺栓孔。

5.3.13.4 底座通常采用铸铁件或焊接钢结构件。需灌浆的底座，在安装现场应除去防锈油漆。

5.4 主要零件材料

5.4.1 通常泵主要零件材料列在订货单或数据表（参见附录 A）中。如果材料是由采购商选定的但泵制造商认为另外的材料更为合适，制造商应在投标书或数据表（参见附录A）中把这些材料作为替代材料提出。

5.4.2 泵主要零件的材料通常按表1的规定。

表1 泵主要零件材料

|  |  |  |  |
| --- | --- | --- | --- |
| 零件名称 | 材料类别 | 文件代号 | 应用 |
| 泵体 | 不锈钢钛材 | GB/T 2100 | 耐蚀钢铸件 |
| 叶轮 | GB/T 4237 | 不锈钢板和钢带 |
| 轴 | GB/T 3621 | 钛及钛合金板材 |
| 轴套 | — | — |
| 轴 | 碳素结构钢 | GB/T 699 | 钢棒 |
| 轴承箱 | 灰铸铁 | GB/T 9439 | — |

5.4.3 材料的化学成分、机械性能、热处理和焊接过程等应符合有关文件。

5.5 制造

5.5.1 铸件

5.5.1.1 铸件不应有影响力学性能的铸造缺陷。

5.5.1.2 铸件表面可用喷砂、喷丸或其他方法清理干净，分型面的飞边或浇、冒口的残余均应切除，使铸件表面齐平。

5.5.1.3 当铸造缺陷允许用焊接或其他工艺方法进行修补时，应符合有关文件的规定。禁止用塞堵、锤击、涂漆或浸渍等办法来修补承压铸件的渗漏处和缺陷。

5.5.1.4 轴流泵叶片表面应修整光洁，需用组合样板检查其工作面几何形状及尺寸时，检查部位见图1，其允许偏差应符合表2的规定。

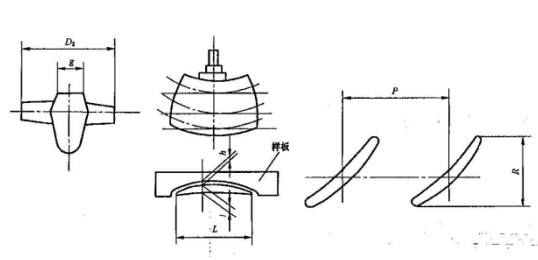


图1 轴流泵叶片样板检查部位

表2 叶片尺寸允许偏差

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 零件名称 | 项目 | 尺寸允许偏差 | | 备注 |
| 模型泵 | 实泵 |
| 叶片 | 节距P | ±2% | ±2% | 与公称尺寸之比 |
| 安装高度R | ±1% |
| 厚度i | ±5% | ±8% | 与各断面最大公称厚度之比 |
| 外径D2 | ±0.1% | ±0.1% | 与公称外径尺寸之比 |
| 断面形状h | ±0.2% | 与公称尺寸之比 |
| 弦长L | — | ±1% |

5.5.1.5 可调式叶轮每组叶片各叶片之间质量差：叶轮直径小于1000 mm时，为单叶片公称质量的±2%;叶轮直径大于或等于1000 mm时，为单叶片公称质量的±4%。单叶片质量允许偏差为叶片公称质量的±6%。

5.5.2 机械加工

5.5.2.1 叶轮毂各叶片间安装孔的节距允许偏差：偏差为公称节距的±0.3%。

5.5.2.2 叶片安装孔的轴线在同一面上的允许偏差：叶轮直径小于或等于2000 mm时，偏差为叶轮公称半径的±0.1%；叶轮直径大于2000 mm时，其偏差减半。

5.5.2.3 叶片的零度线和叶轮毂上的角度线应有明显的标记。

5.5.2.4 叶片装于叶轮毂上时，安装角度偏差应为±15°，并检查叶轮外圆的圆跳动，其精度按GB/T 1184的9级规定。

5.5.3 装配

5.5.3.1 泵的零件应在检查合格和清洗干净后，方可装配。

5.5.3.2 卧式轴流泵转子部件应检查径向跳动，其公差应符合表3的规定。

表3 泵转子部件允许径向跳动

单位为毫米

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 基本尺寸 | ≤50 | >50～80 | >80～110 | >110～160 | >160～300 |
| 轴（装叶轮处） | 0.12 | 0.15 | 0.18 | 0.21 | 0.25 |
| 轴（配机封处） | 0.04 | 0.06 | 0.07 | 0.08 | 0.09 |

5.5.3.3 零、部件的配合部位应能保证互换，泵的安装尺寸应与图样一致。

5.5.3.4 出口直径小于500 mm的泵，应整台出厂。凡因受起重、运输等条件不能整台出厂的泵，应在厂内预装。预装后各相关零、部件应作出标记。

5.5.3.5 泵装配完后，转动转子应灵活。

5.5.4 防锈和涂漆

5.5.4.1 泵在装配前和装配过程中应作如下防锈处理：

a) 流道和铸件的非加工表面去除铁锈和油污后涂防锈漆；

b) 加工的过水面涂以防锈油脂；

c) 轴承体储油室内表面应清理干净后涂耐油磁漆；

d) 轴、联轴器、轴套等外露加工表面应涂油脂或其他涂料进行防锈。

5.5.4.2 涂漆表面处理与涂漆技术要求按JB/T 4297的规定。

5.5.4.3 泵经性能试验合格后，应除净泵内积水，并重新作防锈处理。

6 工厂检验和试验

6.1 总则

采购商可要求进行下列检验和试验项目中的任一项或全部，但应在订货单或数据表（参见附录A）中规定所要求的检验和试验项目，并规定这些项目是目睹见证或文件报告见证。

6.2 材料试验

6.2.1 泵用材料应有合格证或工厂检验数据，证明符合有关文件的规定。如用户要求，可提供材料的化学成分、力学性能和无损探伤试验报告。

6.2.2 材料的化学成分分析方法和力学性能试验方法按表2中有关文件的规定。

6.3 泵的试验和检查

6.3.1 静压强度试验

6.3.1.1 受内压的壳体应作水压试验，水压试验压力为工作压力的1.5倍，但最低水压试验压力应不低于0.6 MPa，试验介质为常温清水，保压时间应不少于10 min，保压时间内不得有渗漏。

6.3.1.2 可调节叶轮毂内腔应作水压试验，试验压力为0. 36 MPa，保压时间应不少于10 min，保压时间内不得有渗漏。

6.3.2 平衡试验

叶轮部件应按GB/T 9239.1作静平衡试验，其平衡品质等级为G6.3级．

6.3.3 性能试验

6.3.3.1 泵应按第7章规定的规则实施性能试验。

6.3.3.2 泵的水力性能验收试验方法按GB/T 3216的规定，验收级别为2级。

6.3.3.3 泵的噪声测量方法按GB/T 29529的规定，其噪声应符合GB/T 29529中C级的规定．

6.3.3.4 泵的振动测量方法按GB/T 29531的规定，其振动烈度应符合GB/T 29531中C级的规定。

对于没有底座的泵，可将泵的出口密封面到泵轴线间的投影距离作为中心高，图样参考GB/T 29531图8。

泵在试验室作性能试验时属于临时安装，当安装质量不如它在工作现场时，允许以工作现场测得的振动烈度为准。

6.3.4 检查

宜进行如下检查项目：

a) 装配前零部件的检查；

b) 经试验运转后有关零件运转间隙处的内部检查；

c) 安装尺寸；

d) 辅助管路和其他附件；

e) 铭牌信息。

6.3.5 最终检查

最终检查是根据订货单核实所供给的设备是否完整正确，包括对零部件标识、涂漆和防腐以及文件资料的检查。

7 性能试验规则

7.1 总则

泵的试验分为型式试验和合同试验。型式试验适用于验证泵的性能与设计要求的符合性；而合同

试验旨在验证泵的性能是否满足制造商／供货商的保证值。

7.2 型式试验

7.2.1 下列情况之一需做型式试验：

a) 新产品或老产品转厂生产的试制定型鉴定；

b) 正式生产后，如结构、材料、工艺有较大的改变，可能影响产品性能时；

c) 批量生产的产品，周期性的检验时；

d) 产品长期停产后，恢复生产时；

e) 出厂检验结果与上次型式试验有较大差异时。

7.2.2 型式试验项目的内容包括：运转试验、性能试验以及必要时进行的噪声和振动试验。

7.2.3 汽蚀试验由于叶轮为全开式，流态不稳定，且扬程低，无法试验。

7.3 合同试验

采购商与制造商／供货商应按GB/T 3216的规定对合同试验的项目（如保证的范围、需要试验的泵的数量以及附加检查等）进行商定，并在合同中明确。合同试验按采购商与制造商／供货商商定的合同条款和（或）GB/T 3216的规定实施。

7.4 模型或现场试验

7.4.1 制造商由于设备条件限制不能进行型式和出厂试验时，可采用模型或现场试验．若采用模型试验时，模型泵的叶轮直径不小于300 mm。

7.4.2 进水流道尺寸的试验可根据采购商和制造商／供货商的协议进行。

8 保证期

在用户选用产品恰当和遵守保管及使用规则的条件下，从制造商／供货商发货之日起18个月内，连续运转不超过12个月，产品因制造质量不良而发生损坏或不能正常工作时，制造商／供货商应免费为用户修理、更换零件或产品（但不包括易损件）。

9 标志、包装、运输和贮存

9.1 标志

9.1.1 铭牌

铭牌应采用适合于环境条件的耐腐蚀材料制成并应牢固地固定在泵的明显位置上。铭牌内容应包括：

a) 制造商名称；

b) 泵的名称和型号；

c) 泵的主要参数：流量（m3/h）、扬程（m）、转速（r/min）、配用功率（kW）、必需汽蚀余量或最低淹没深度（m）、泵的质量（kg）；

d) 泵的出厂编号和出厂日期。

9.1.2 转向标识

泵的旋转方向应在明显位置用红色箭头表示。

9.2 包装和运输

9.2.1 泵的包装按GB/T 13384的规定。

9.2.2 应采取措施以防在运输过程中由于振动和碰撞造成的轴承的损坏。

9.2.3 每台泵出厂时应随带下列文件，并封存在防水的袋内：

a) 产品合格证；

b) 装箱单；

c) 安装使用说明书；

d) 合同规定应提供的其他文件。

9.3 贮存

泵在存放中应能防止锈蚀和损坏，泵的防锈处理有效期为12个月，到期应进行检查，重新进行防锈处理。

附 录 A

（资料性）

轴流泵数据表

表 A.1 轴流泵数据表（参考格式一）



表A．2 轴流泵数据表(参考格式二)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **院** | | | | | | | | | | | | | | | | | | | | | | | 项目 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 施工图 | | | | | | | | | | | | | | | | | | | | | | | |  | | | 版 |
| 车间 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **循环泵数据表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | | |  | | |  | | | | | | |  | |  | | |  | | |  | | | | |  |
| 1 | | 设备名称 | | | | | | | | 循环泵 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 设备位号 | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | 设备数量 | | | | | | | | 工作 | | | | |  | | | | | | | | 备用 | | | | |  | | | | | | 总计 | | | | | |  | | | | | | | 使用标准 | | | | | | | | | | | | | □API □ GB □制造厂商 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | 制造厂商 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 型号/规格 | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | **操作条件（每台泵）** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **性能** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | 介质名称 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 级数 | | | | | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | |
| 6 | | 介质成份 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | NPSHr m | | | | | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | |
| 7 | | 固体含量和粒径 | | | | | | | | %； mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 轴功率 kW | | | | | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | |
| 8 | | 介质特性 | | | | | | | | ■ | | 腐蚀 | | | | | | □ | | 磨蚀 | | | | □ | | | | | | 有毒 | | | | | | | □ | | | 可燃 | | | | | | | 转速 r/min | | | | | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | |
| 9 | |  | | | | | | | 腐蚀 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 效率 % | | | | | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | |
| 10 | | 流量 m3/h | | | | | | | | 最小 | | | | | | |  | | | | | | 正常 | | | | | |  | | | 额定 | | | | | | | |  | | | | | | | 最小连续流量 m3/h | | | | | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | |
| 11 | | 吸入温度 ℃ | | | | | | | | 最小 | | | | | | |  | | | | | | 正常 | | | | | |  | | | 最大 | | | | | | | |  | | | | | | | 设计叶轮最大扬程 m | | | | | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | |
| 12 | | 正常密度 kg/m3 | | | | | | | | ～ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 设计叶轮最大轴功率 kW | | | | | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | |
| 13 | | 正常粘度 mPa.s | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 性能曲线号 | | | | | | | | | | | | | |  | |  | |  | |  | | | | | | | | | | | | | | | | | | | | |
| 14 | | 饱和蒸汽压kPa(a) | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | ℃ | | | | | | | **※** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | | 吸入压力 MPa(g) | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | API规范 | | | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | |
| 16 | | 排出压力 MPa(g) | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 壳体 | | | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | |
| 17 | | 压差 MPa | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 叶轮 | | | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | |
| 18 | | 扬程 m | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 叶轮耐磨环 | | | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | |
| 19 | | NPSHa m | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 壳体耐磨环 | | | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | |
| 20 | | 流量控制方式 | | | | | |  | | □ 调速　　　□ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | | 轴/轴套 | | | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | |
| 21 | | 操作连续性 | | | | | |  | | ■ 连续　　　□间断 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 静环座/动环座 | | | | | | | | | | | | | | | |  | |  |  | | | | | | | | | | | | | | | | | | | | | |
| 22 | | 安装位置 | | | | | | | | ■ 室内 □室外□有采暖□无采暖 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 机械密封金属元件 | | | | | | | | | | | | | | | | | |  |  | | | | | | | | | | | | | | | | | | | | | |
| 23 | | ■ 地面 □楼面 □有顶棚 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 机械密封辅助密封元件 | | | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | |
| 24 | | 其他要求 | | |  | | |  | | □ 有　■ 无 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 填料 | | | | | | | | | | |  | |  |  | |  | |  |  | | | | | | | | | | | | | | | | | | | | | |
| 25 | | 安装型式 | | |  | | |  | | ■ 卧式 □立式 □ 管道 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 底座 | | | | | | | | | | |  | |  |  | |  | |  |  | | | | | | | | | | | | | | | | | | | | | |
| 26 | |  | | | | | | | | □ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 过流部件: | | | | | | | | | | | | | | | | | |  |  | | | | | | | | | | | | | | | | | | | | | |
| 27 | | **接管表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28 | | 符号 | 数量 | | | 用途 | | | | | | | | 管道公称直径 | | | | | | | | | | | | | | | | 泵口公称直径 | | | | | | | | | | | | 公称压力 | | | | | | | | | | | 法兰标准及法兰面型式 | | | | | | | | | | | | | | | | | | | | | 泵口方位 | | | | | | | | | | | | | |
| 29 | | N1 | 1 | | | 吸入口 | | | | | | | |  | | | | | | | | | | | | | | | |  | | | | | | | | | | | |  | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | 水平 | | | | | | | | | | | | | |
| 32 | | N2 | 1 | | | 排出口 | | | | | | | |  | | | | | | | | | | | | | | | |  | | | | | | | | | | | |  | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | 垂直 | | | | | | | | | | | | | |
| 33 | |  |  | | |  | | | | | | | |  | | | | | | | | | | | | | | | |  | | | | | | | | | | | |  | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | |
| 34 | |  |  | | |  | | | | | | | |  | | | | | | | | | | | | | | | |  | | | | | | | | | | | |  | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | |
| 35 | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 36 | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 37 | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 38 | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | 版次 | | 说 明 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 编 制 | | | | | | | | | | | | 校 核 | | | | | | | | | | 审 核 | | | | | | | | | | | | | 日 期 | | | | | | | | | | | | | | | | |
| 1 | | **驱动机和传动装置** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **结构** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | **□ 电动机** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **壳体** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | 制造厂: | | | | | | | | | | | | | | | | | | | | | 安装方式： | | | | | | | | | | | | | | | | | | | | | | | | 支撑方式 | | | | | | | | | | * 悬挂　□脚 □底板 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | 主电机型号： | | | | | | | | | | | | | | | | | | | | | 绝缘等级： | | | | | | | | | | | | | | | | | | | | | | | | 剖分 | | | | | | | | | | □ | | | | | | 轴向 | | | | | |  | □ | | | 径向 | | | | | | | | | | | | | | |
| 5 | | 主电机功率： | | | | | | | | | | | | | | | | | | | | | 防护等级： | | | | | | | | | | | | | | | | | | | | | | | | 蜗壳 | | | | | | | | | | ■ 单 □双 □ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | 电源电压等级： V 相数： | | | | | | | | | | | | | | | | | | | | | 防腐等级： | | | | | | | | | | | | | | | | | | | | | | | | 耐磨环 | | | | | | | | | | □ | | | | | | 有 | |  | | | |  | ■ | | | 无 | | |  | |  | | |  | | |  | | |  |
| 7 | | 电机级数： 级 | | | | | | | | | | | | | | | | | | | | | 变频：□ 是 ■否 | | | | | | | | | | | | | | | | | | | | | | | | 接口 | | | | | | | | | | □ 排放 □放空 □仪表 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | **□传动装置** | | | | | | | |  |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **叶轮** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | 传动方式 | | | | | | | | □直联 □齿轮箱 ■ 皮带 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 叶轮型式 | | | | | | | | | | | | | | ■开式 □半开式 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | 齿轮箱 | | | | | | | | 速比 | | | | | | | | | | | | | | | | | 使用系数 | | | | | | | | | | | | | | | | | | | | 吸入形式 | | | | | | | | | | | | | | ■ | | 单吸 | | | | | |  | |  | | | □ | | 双吸 | | | | | |  | |  | | |  |
| 11 | | 皮带 | | | | | | | | 传动比 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 支撑 | | | | | | | | | | | | | | □ | | 轴承间 | | | | | | | |  | | | ■ | | 悬臂 | | | | | |  | |  | | |  |
| 12 | | 变速装置 | | | | | | | | □ 机械变速□液力偶合器□变频器 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 叶轮直径 mm | | | | | | | | | | | | | | 最小 　设计 　最大 | | | | | | | | | | | | | | | | | | | | | | | | | |  |
| 13 | | 泵转向 | | | | | | | | ■顺时针 □逆时针 (从联轴器端看) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 耐磨环 | | | | | | | | | | | | | | □ | | 有 | |  | | | |  | |  | | | ■ | | 无 | | |  | | |  | |  | | |  |
| 14 | | **重量和尺寸** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **轴承** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | | 泵体 kg | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 轴承制造商 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | | 底座 kg | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 径向轴承 | | | | | | | | ■滚动 □滑动　 型号： | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
| 17 | | 电机 kg | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 止推轴承 | | | | | | | | ■滚动 □滑动 型号： | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
| 18 | | 齿轮箱 kg | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 润滑型式 | | | | | | | | □油脂 □油浴 ■油环 □强制 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | | 总重 kg | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **联轴器** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | |  | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 联轴器制造商 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | | 外形尺寸 mm | | | | | | | | 长 | |  | | | | | | | | | | 宽 | | | |  | | | | | | | | | 高 | | | |  | | | | | | | 型式 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | | **现场数据** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **密封与冲洗** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | | 海拔高度 m | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 密封型式 | | | | | | | | ■机械密封 □填料 □副叶轮 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24 | | 大气压力 MPa（a） | | | | | | | | 最小 | | | |  | | | | | | 平均 | | | | | |  | | | | | | 最大 | | | | | | |  | | | | | | 型号 | | | | | | | | 制造商 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
| 25 | | 大气温度 ℃ | | | | | | | | 最小 | | | |  | | | | | | 平均 | | | | | |  | | | | | | 最大 | | | | | | | 42.5 | | | | | | 机械密封 | | | | | | | | □ 单端面 ■双端面 □串联 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
| 26 | | 相对湿度 % | | | | | | | | 最小 | | | |  | | | | | | 平均 | | | | | |  | | | | | | 最大 | | | | | | |  | | | | | | API标准 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | | 地震烈度 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 冲洗介质 | | | | | | | | 名称　 m3/h　 MPa g | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28 | | **公用物料数据** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 背冷介质类型 | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 29 | | **蒸汽** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 填料函压力 MPa(g) | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | | 压力等级 | | | | | | | |  | | | | | | | | | | | |  | | | | | | | | | | | |  | | | | | | | | | | | 辅助管道材质 | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 31 | | 压力 MPa（g） | | | | | | | |  | | | | | | | | | | | |  | | | | | | | | | | | |  | | | | | | | | | | | **底座** | | | | | □ 泵驱动机共用 ■驱动机单独 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
| 32 | | 温度 ℃ | | | | | | | |  | | | | | | | | | | | |  | | | | | | | | | | | |  | | | | | | | | | | | **冷却和保温** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 33 | | **冷却水** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 冷却位置 | | | | | | □ 轴承箱 □背冷 □密封冷却器 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 34 | | 温度 ℃ | | | | | |  | | 供水 | | | | | | |  | | | | | | | | | 回水 | | | | | | | |  | | | | | | | | | | | 冷却水 | | | | | | 温度　 ℃ | | | | | | | | | | | | 压力 MPa(G) | | | | | | | | | | | | | | | | | | | | | | | |
| 35 | | 压力 MPa（g） | | | | | |  | | 供水 | | | | | | |  | | | | | | | | | 回水 | | | | | | | |  | | | | | | | | | | | 流量　 l/h | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 36 | | **仪表空气** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 保温位置 | | | | | | □ 泵壳体　　 □填料函 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | |  |
| 37 | | 压力 MPa（g） | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 蒸汽 | | | | | | 温度　 ℃ | | | | | | | | | | | | | | | | | | 压力　MPa(G) | | | | | | | | | | | | | | | | | |
| 38 | | **氮气** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 流量　　　 l/h | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 39 | | 压力 MPa（g） | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | |  | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 41 | |  | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | | **供货范围(■表示为卖方供货范围)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | ■ 泵 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | ■润滑油系统(如果有) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
| 3 | | ■ 驱动机 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | ■专用工具 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
| 4 | | □ 底座 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | □ 辅助管道材料：□冷却水 □密封 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
| 5 | | □ 加长的联轴器和无火花联轴器护罩 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | ■ 密封及附件 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
| 6 | | □ 壳体排污阀 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | ■ 备品备件：　■两年 　　□ 开车 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
| 7 | | □ 吸入口过滤网 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | ■ 泵驱动机安装： | | | | | | | | | | | | □ 制造商工厂 ■装置现场 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | □ 出口止逆阀 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | ■ 地脚螺栓 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
| 9 | | ■进出口配对法兰 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | □ 就地仪表 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
| 10 | | ■ 泵装置所必需的其它辅助设施 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | □ 变速装置 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
| 11 | | ■ 皮带传动装置和无火花护罩 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | ■制造厂图纸和资料 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
| 12 | | □ 齿轮箱 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
| 13 | | **检验和试验** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | | ■ 制造商车间检验 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | ■ 提供材料合格证 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
| 15 | | ■ 制造商车间试验 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | □ 审核制造商质量管理体系程序文件 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
| 16 | | 水压试验 □见证 ■非见证 □目睹 ■ 批准性能曲线 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
| 17 | | 性能试验　　 　 □见证 ■非见证 □目睹 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
| 18 | | 整个机组的运转试验　 □见证 ■非见证 □目睹 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
| 19 | | 噪声试验 □见证 ■非见证 □目睹 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
| 20 | | 最终组装前的清洁检查 □见证 ■非见证 □目睹 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
| 21 | | 试验后的拆卸检查　 □见证 ■非见证 □目睹 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
| 22 | | 辅助设备试验　　　 □见证 ■非见证 □目睹 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
| 23 | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
| 24 | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
| 25 | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
| 26 | | **备注** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | | 1 卧式泵的NPSHa计算基准为泵底板标高。 立式液下泵的NPSHa计算基准为最小操作液位。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28 | | 2 本数据表空白处由卖方填写。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 29 | | 3 卖方提供的所有配套的电气仪表设备均应满足电机数据表中规定的危险区域划分等级要求。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | |  | |  | | |  | | |  | |  |
| 30 | | 4 各厂家设备的结构及效率不尽相同，表中电机功率仅供参考，设备订货若有变动，应经设计确认。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 31 | | 5.机械密封无故障连续运行时间≥ h | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 32 | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 33 | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 34 | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 35 | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 36 | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 37 | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 38 | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 39 | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |