

Pioneering for You

wilo

Submersible Axial Pump

Wilo-FlowAx KPC

潛水軸流泵



“威乐，
值得信赖的
水泵专家。”



Contents

目 录

Series description	系列说明	4
Operating data	运行数据	5
Performance range	性能范围	10
Installation types	安装型式	11
System installation	安装系统	13



Wilo-FlowAx KPC 系列潜水泵可以提供整个系列的中型轴流泵，适用于清水及轻度污水多种场合：防洪排涝，水治理，灌溉和排水，原水取水，循环水及工业应用，污水预处理等。

www.wilo.com.cn

Wilo-FlowAx KPC

wilo

Pioneering for You

Series description 系列说明



Product series

Submersible axial flow pump in discharge tube

Main applications

- Irrigation and drainage pumping stations
- Stormwater pumping stations
- Raw and clean water pumps in waterworks and waste water treatment plants
- Cooling water pumps in power stations and in industry
- Industrial water supply
- Aquaculture

Fluids handled

- Waste water
- Sludge
- Surface water
- Stormwater
- Grey water
- Seawater
- Brackish water

Fluids nature

- Temperature: 4°C~40°C, not exceed 50°C
- PH value Standard: 6~9, Option: 4~6, 9~10
- Solid content:
Max. volume concentration of solid matter: less than 2%
- Density: Less than $1.05 \times 10^3 \text{ kg/m}^3$
- Allowable particle size: Less than 1/10 of impeller diameter

产品系列

Wilo-FlowAx KPC 潜水轴流泵

主要应用

- 灌溉和排水泵站
- 雨水泵站
- 自来水提升泵站及污水处理
- 发电站及工业的冷却水泵站
- 工业供水系统
- 水产养殖业

适用液体

- 废水
- 污水
- 地表水
- 雨水
- 轻污水
- 海水
- 苦咸水

液体性质

- 温度: 4°C~40°C, 最大不超过 50°C
- PH 值 标准: 6~9, 可选: 4~6, 9~10
- 含固量: 水中的固相物质容积比不超过 2%
- 密度: 小于 $1.05 \times 10^3 \text{ kg/m}^3$
- 可通过的颗粒: 最大通过的颗粒不大于叶轮直径的 1/10

Operating data 运行数据

Operating properties 运行性能

Characteristic value 特征值

Flow	流量	Q	Up to 最大到 12000 l/s
Head	扬程	H	Up to 最高到 21 m
Motor rating	电机功率	P2	Up to 最大到 1400 kW
Fluid temperature	液体温度	t	Up to 最高到 +40°C

Type key

Example:

Wilo-FlowAx KPC 1020.52-12/SA52-8

Key to the designation

Code Description

Wilo Brand

FlowAx Product Family

KP Kanal Propeller Pump

C Hydraulic execution types

1020 Nominal diameter of discharge tube [mm]

52 Hydraulic identification number (Q-H Raster)

12 Angular position of propeller blades (in degrees)

SA Motor type (SA = Submersible Axial propeller motor)

52 Motor size

8 Number of motor poles

命名方式

例如:

Wilo-FlowAx KPC 1020.52-12/SA52-8

描述说明

代码 描述

Wilo 品牌

FlowAx 产品系列

KP 轴流泵

C 水力类型

1020 公称直径 [mm]

52 水力标识

12 叶片安装角度

SA 电机类型

52 电机尺寸

8 电机极数

Design details 设计细则

Design

- Fully floodable submersible pump in discharge tube

(submersible motor pump)

- Not self-priming

- Close-coupled design

- Single-stage

- Vertical installation

设计

- 可完全浸入井筒中

- 无自吸

- 紧凑的设计

- 单级

- 立式安装

Operating data 运行数据

Drive

Three-phase asynchronous squirrel-cage motor

驱动

三相异步鼠笼式电动机

Shaft seal

- Two or three independent mechanical seals in tandem arrangement.
- Three shaft seal including pump side seal and motor side seal located in the oil sealing house

轴封

- 两套或三套串联式独立的机械密封
- 水泵侧与油室内电机侧三重密封

Impeller type

The opened axial propeller, the semi-adjustable blades.

叶轮型式

开式轴向叶轮，叶片为半可调式

Bearings

Grease-packed rolling element bearings

轴承

预装润滑脂的滚动轴承

Operating data 运行数据

Product benefits

- The pump's own weight ensures self-centring seating in the discharge tube, and an O-ring seals it; quick to install or remove
- The slim motor minimizes discharge tube flow losses
- High reliability thanks to bearing temperature monitoring, vibration sensor, thermal motor protection, leakage sensors in the motor and connection space, and leakage monitoring of the mechanical seal system
- Low-vibration hydraulic system; inlet ribs and optimized bellmouth for vortex-free inflow
- Absolutely water-tight cable entries prevent any water from entering the motor – even in the event of a damaged cable

产品效益

- 利用泵自重安装到出水管路中，并用O型密封圈进行密封，方便安装或移动
- 最小的电机尺寸，减少管路的流动损失
- 轴承温度监控、振动传感器、电机过热保护、泄漏保护以及机械密封系统泄漏监控等保护措施，确保泵的高可靠性
- 低振动的水力系统；吸入口与最优化的预选出口
- 安全的、不透水的电缆密封，以保证完全防止进水

Materials 材料

Standard configuration of materials 标配材料

Description	描述	Material	材料
Blade	叶片	X20Cr13	不锈钢
Impeller hub	叶轮毂	EN-GJL-200	铸铁
Impeller casing	叶轮外壳	EN-GJL-200	铸铁
Diffuser	导叶体	EN-GJL-200	铸铁
Suction chamber	吸水室	EN-GJL-200	铸铁
Motor casing	电机壳	GJS-500-7U	铸铁
Shaft	轴	X20Cr13	不锈钢
Mechanical seal	机械密封	Burgmann	
Bearing	轴承	SKF	
Fasteners	紧固件	A2-70	不锈钢
Sealing element	密封件	NBR	
Material configuration, according to customer's actual requirements		可根据客户实际要求，进行材料配置	

Coating and preservation

Paint

- Surface treatment: SA 2 1/2 (SIS 055900) AN 1865
- Primer: primer coat on unfinished casting
- Top coat: environmentally-friendly WILO standard coating

涂层与防腐

油漆

- 表面处理: SA 2 1/2 (SIS 055900) AN 1865
- 底漆: 铸件上喷涂防腐底漆
- 面漆: 威乐标准的环保面漆

Special coating

The special coating on request.

特殊涂料

可按要求进行特殊涂层

Acceptance tests / Quantity Warranties 验收试验 / 质量保证

Functional test

- Every pump undergoes functional testing to WILO standard
- Operating data is guaranteed to DIN EN ISO 9906 / 2 / 2B

Acceptance tests

Acceptance tests to ISO/DIN or comparable standards are available against a surcharge

Warranties

Quality is assured by means of an audited and certified quality assurance system to DIN EN ISO 9001

Selection information

The documented characteristic curves refer to this data. This must be taken into account when calculating system losses. The indicated heads and performance data apply to pumped fluids with a density $\rho=1\text{kg}/\text{dm}^3$ and a kinematic viscosity v of up to $20\text{ mm}^2/\text{s}$

The pump input power must be matched to the density of the fluid handled:

$$P_{2req} = \rho_{fluid} [\text{kg}/\text{dm}^3] \times P_{2docu}$$

The operating point with the largest pump input power is decisive for the operating range of the motor. To compensate the unavoidable tolerances of the characteristic curves of system, pump and motor we recommend selecting a motor size which provides sufficient power reserves

验收试验 / 质量保证

性能测试

- 每个泵都经过WILO标准的性能测试
- 运行数据符合ISO9906标准

验收测试

依据ISO/DIN或者类似的标准，来进行验收测试，需增加单独的附加费

质量保证

通过DIN EN ISO 9001质量体系来确保质量

选型信息

特性曲线文件涉及到需求的数据。在计算时，必须考虑系统的损失选定的扬程与特性曲线，适用于液体的介质密度 $\rho=1\text{kg}/\text{dm}^3$ 和运动粘度 v 最大到 $20\text{ mm}^2/\text{s}$

泵的输入功率必须考虑到液体的密度：

$$P_{2req} = \rho_{fluid} [\text{kg}/\text{dm}^3] \times P_{2docu}$$

水泵运行在工况点时的最大输入功率对于电机的工作范围至关重要。为了补偿由于系统、水泵及电机本身特性导致的不可避免的损失，我们建议选择有足够功率余量的电机

Operating data 运行数据

Recommended minimum reserves 推荐的最小余量

Required pump input power 泵输入功率	[kW]	Motor power reserve 电机功率系数	
	Mains operation 工频运行	With frequency inverter 变频运行	
≤30	10 %	15 %	
>30	5 %	10 %	

If larger reserves are stipulated by local regulations or are required to compensate for uncertain factors in system calculations, these larger reserves must be provided.

Intake chamber

Determine the minimum water level $t_{1\min}$ (diagram in general arrangement drawing):

The minimum water level $t_{1\min}$ is the water level required in the pump's suction chamber to ensure:

- That there is a sufficient liquid cover above the hydraulic system (propeller) (shown in diagram depending on pump size)
- That the pump does not draw in air-entraining vortices
- That there is no cavitation in the hydraulic system (check against the NPSH required value indicated in the technical literature)

The following conditions must be met:

-NPSH_{available} > NPSH_{required} + safety allowance

$$-NPSH_{available} = 10.0 + (t_1 - t_2 - h_7/2)$$

-Safety allowance:

up to $Q_{opt} \Rightarrow 0.5$ m

larger than $Q_{opt} \Rightarrow 1.0$ m

Head (H)

The total pump head is composed as follows:

$$H = H_{geo} + \Delta HV$$

H_{geo} (static head)

- Without discharge elbow – Difference between suction-side water level and overflow edge

- With discharge elbow – Difference between suction-side and discharge-side water level

ΔHV (losses in the system)

- Starting 0.5 m downstream of the pump: e.g. pipe friction, elbow, swing check valve, etc.

Losses by inlet, riser and elbow

Losses are caused by the inlet, riser and elbow (or free discharge).

- Losses in the riser up to the indicated reference level (0.5m above the motor) are taken into account in the documented characteristic curves

- Inlet and elbow losses are system losses and must be taken into account for selection

- For information on structural requirements, pump installation and pump sump design please refer to the KPC Installation types

Operating data 运行数据

Order Data 订单数据

- Designation of the pump
- Flow Q
- Head H_{total}
- Type and temperature of the fluid pumped
- Voltage, frequency, starting method, cable length
- Quantity and language of operating manuals
- Required accessories
 - For discharge tubes indicate all required depth and the type of installation
 - For a support rope indicate dimension, the number of additional lifting rings (depending on the lifting height of the hoisting tackle) as well as the elevations and type of installation
- 提升的高度，额外吊链的数量（取决于起重滑车的举升高度）以及安装的高度和类型

如果在系统计算中，考虑到地方性法规规定或要求补偿不确定因素在内，这些必须提供更大的补偿。

进水室

确定最低水位 $t_{1\min}$ (在总布置图纸中)

所需的最低水位 $t_{1\min}$ 水位在泵的吸入腔，以确保：

- 有足够的液体淹没水力系统 (叶轮)(取决于泵的大小)
- 泵不能吸入空气漩涡
- 水力系统中，不能发生汽蚀空化 (在技术文件中核对所需的汽蚀余量值)

必须满足下列条件：

-NPSH_{available} > NPSH_{required} + safety allowance

$$-NPSH_{available} = 10.0 + (t_1 - t_2 - h_7/2)$$

- 安全余量：

$Q_{opt} \Rightarrow 0.5$ m

$Q_{opt} \Rightarrow 1.0$ m

扬程 (H)

泵总扬程组成：

$$H = H_{geo} + \Delta HV$$

H_{geo} (静扬程)

- 无排水弯头 – 吸入侧水位和排水侧水位之间的高度差

- 有排水弯头 – 吸入侧水位和排水侧水位之间的高度差

ΔHV (系统损失)

- 从泵的下方 0.5m 算起：如管道摩擦损失、弯头损失、旋启式止回阀损失等

损失由进水管、立管和弯头组成

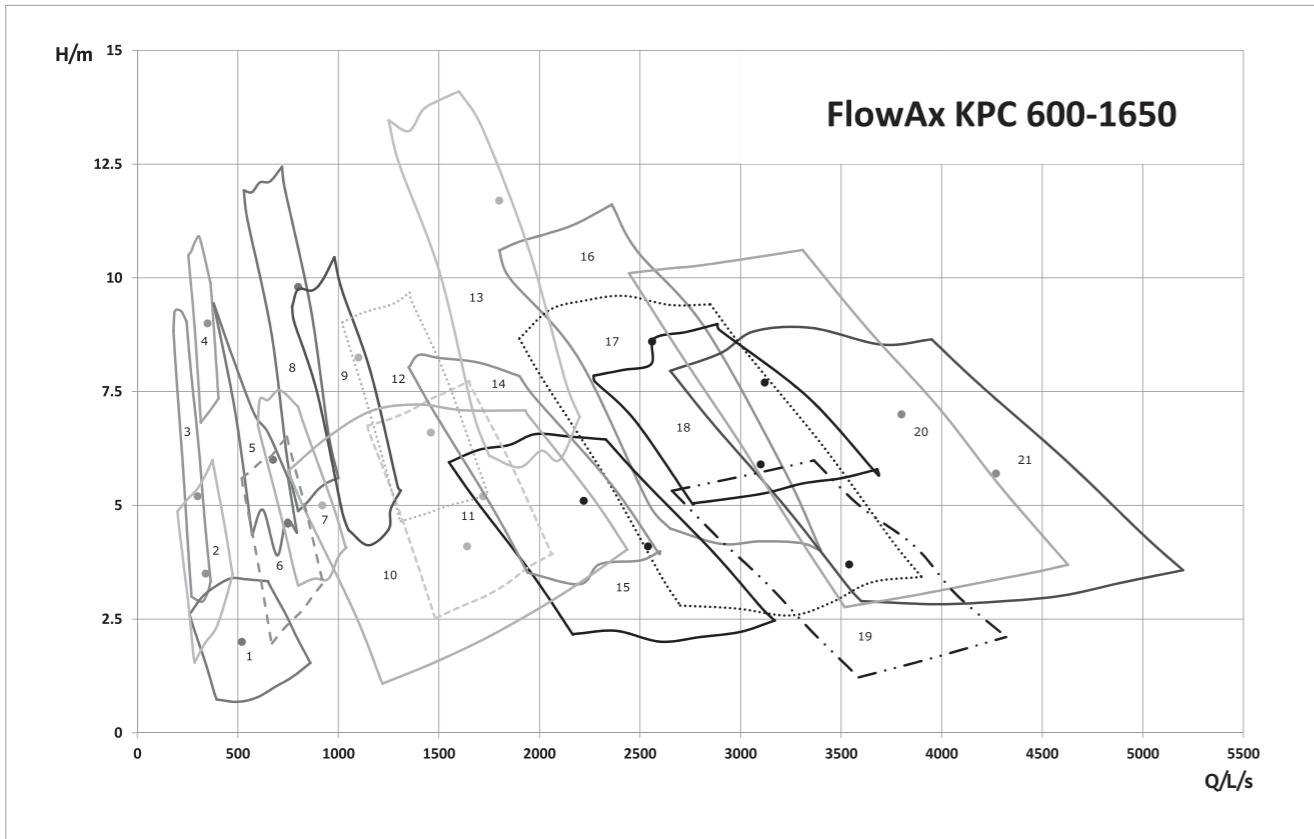
进水管、立管和弯头所造成的损失 (或自由排出)

- 特性曲线已经考虑了指示参考水平线 (电动机 0.5 米以上)
以上竖直管路的损失

- 入口和弯头损失是系统损失必须考虑

- 结构要求、泵安装以及泵井筒设计的信息请参考 KPC 安装型式

Performance range 性能范围

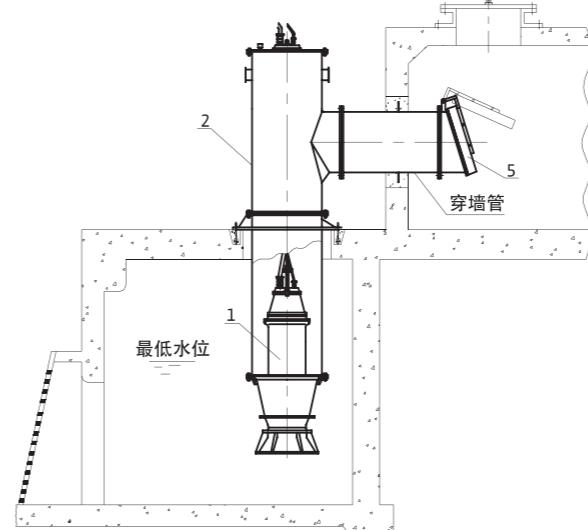


Selection chart 选择表

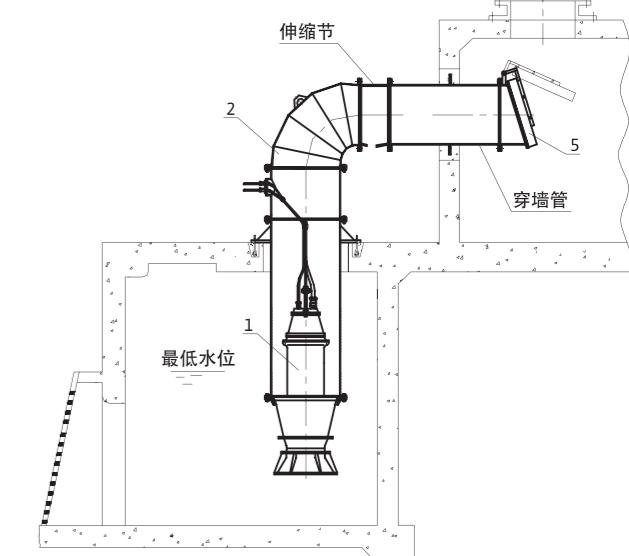
序号	泵型号	序号	泵型号	序号	泵型号
1	FlowAx KPC820.21	8	FlowAx KPC820.55	15	FlowAx KPC1420.53R
2	FlowAx KPC600.52	9	FlowAx KPC1020.35	16	FlowAx KPC1420.45
3	FlowAx KPC600.43	10	FlowAx KPC1020.52	17	FlowAx KPC1420.53
4	FlowAx KPC600.43R	11	FlowAx KPC1020.63	18	FlowAx KPC1420.54
5	FlowAx KPC820.44	12	FlowAx KPC1020.54	19	FlowAx KPC1420.72
6	FlowAx KPC820.43	13	FlowAx KPC1020.66	20	FlowAx KPC1650.54
7	FlowAx KPC1020.23	14	FlowAx KPC1420.33	21	FlowAx KPC1650.63

Installation types 安装型式

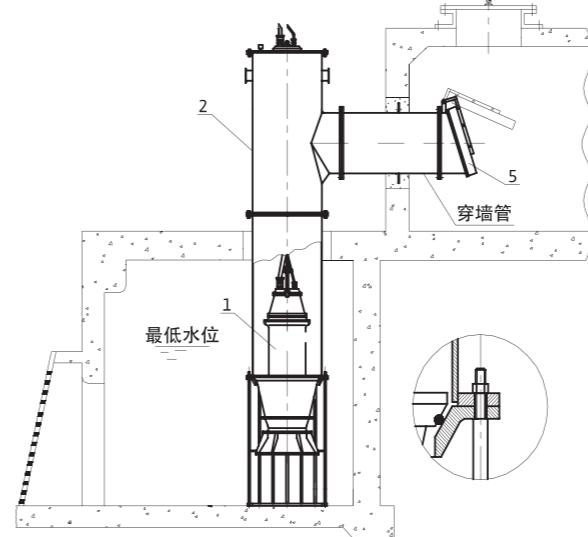
Overview of installation types 安装型式一览



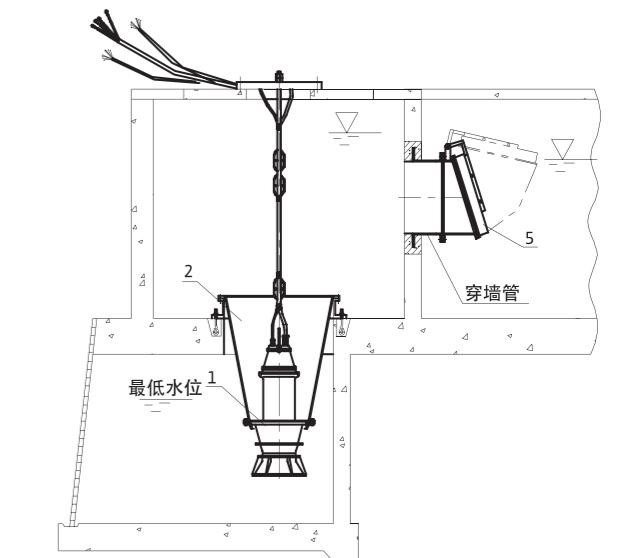
1、井筒安装型式 GT



2、井筒弯管安装型式 GTW



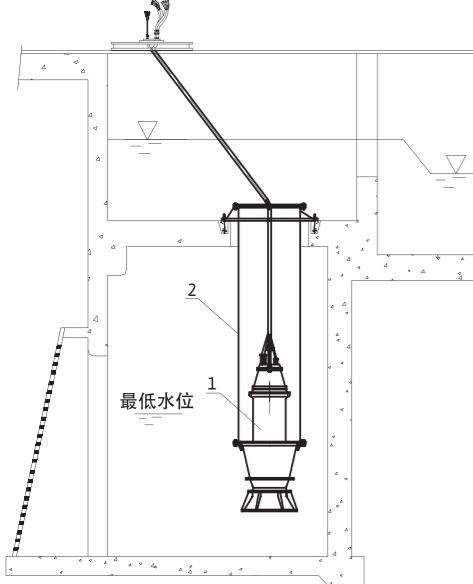
3、井筒落地安装型式 GD



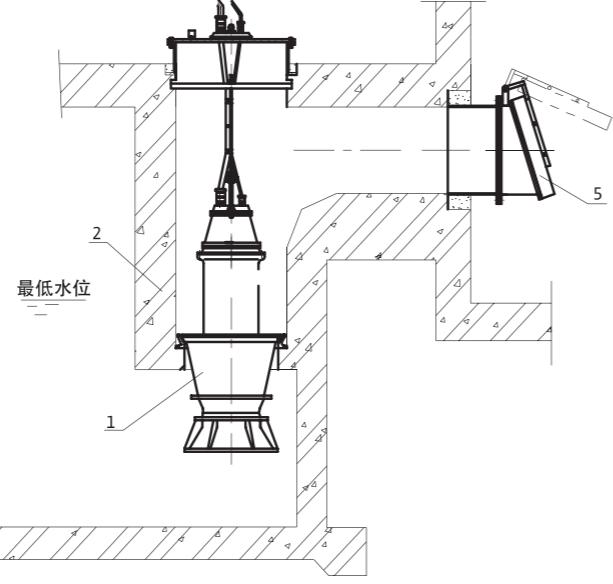
4、敞开式安装型式 GK1

Installation types 安装型式

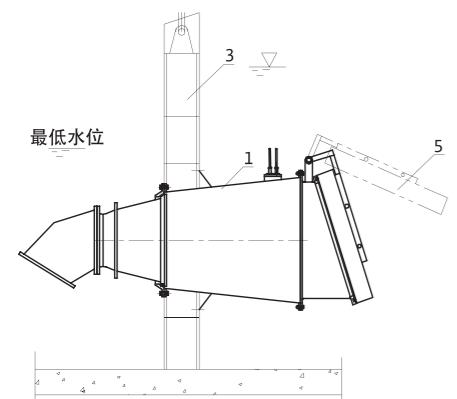
Overview of installation types 安装型式一览



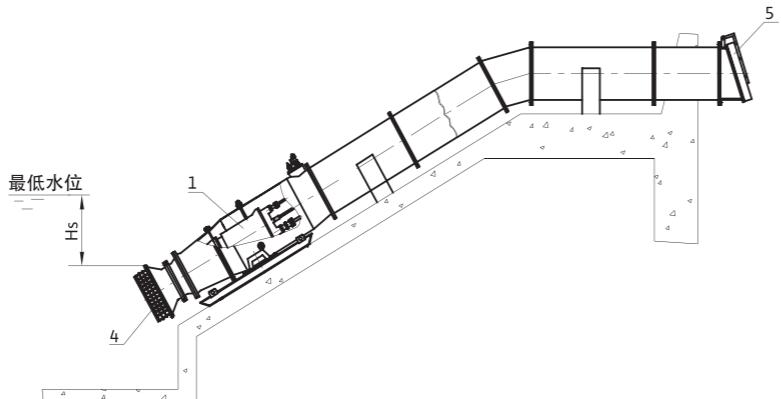
5、敞开式安装型式 GK2



6、水泥井筒安装型式 SGT



7、安装在阀门上型式 GZ

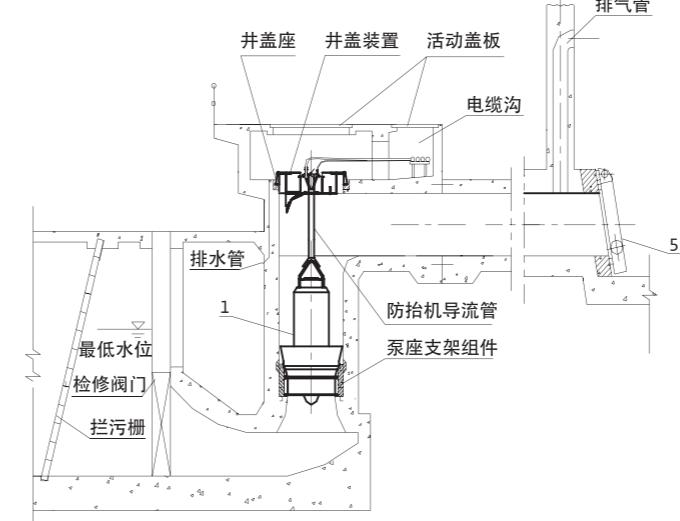


8、斜式安装型式 GW

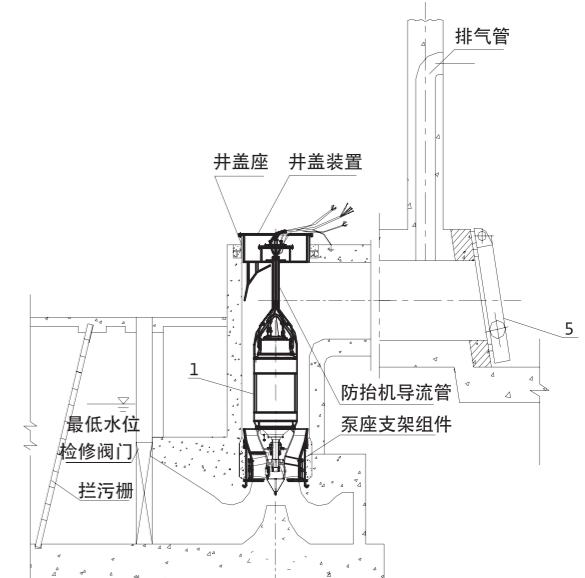
1 泵, 2 井筒, 3 阀门, 4 滤网, 5 拍门

Installation types 安装型式

Overview of installation types 安装型式一览



9、簸箕形进水流道水泥井筒安装方式



10、钟形进水流道水泥井筒安装方式

Scope of supply

Depending on the model, the following items are included in the scope of supply:

- Pump set complete with 15 m power cable
- O-ring

Accessories (optional):

- Support rope
- Accessories for cable support
- Spacer
- Turnbuckle
- Cable support sleeves
- Discharge tube

供货范围

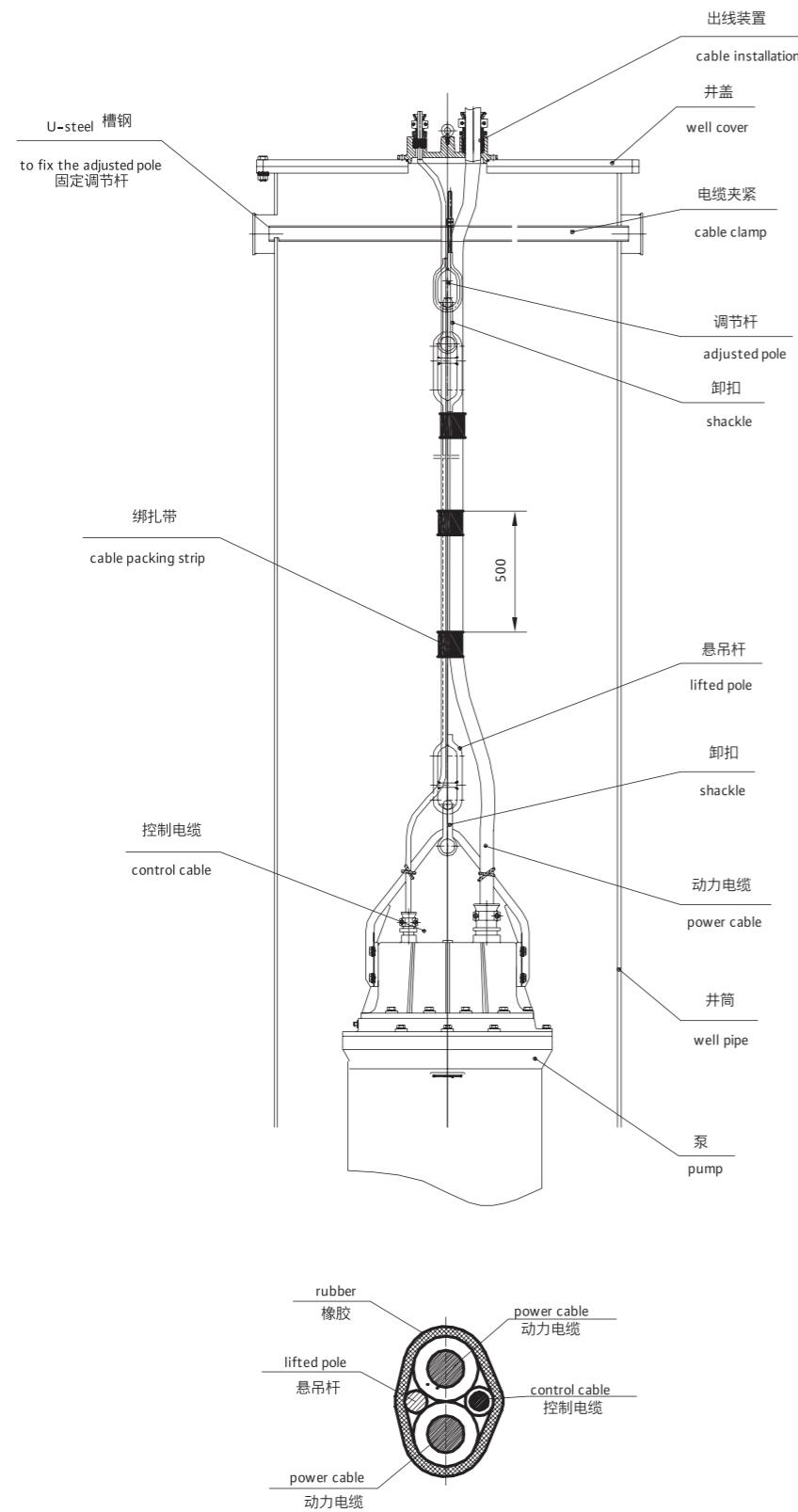
根据型号，以下物品包括在供货范围内

- 整机（含 15m 电缆）
- O 型密封圈

附件（可选）

- 安装吊链
- 安装电缆附件
- 垫片
- 电缆螺母
- 电缆护套
- 井筒组件

System Installation 安装系统



电缆绑扎截面 Cross-section of cable support

“威乐的产品节能
降耗，技术领先，
服务更出色！”





扫描二维码可获取威乐(Wilo)微博和微信信息

Wilo-FlowAx KPC/1606/EN/CHN

威乐中国总部
威乐（中国）水泵系统有限公司

厂区地址：
北京市顺义区赵全营兆丰工业区兆丰二街 10 号
101300

电 话：010-52347888
传 真：010-52347666
E-mail：wilo.info@wilo.com.cn
[Http:// www.wilo.com.cn](http://www.wilo.com.cn)
销售热线：800-810-8049
售后服务热线：400-898-4886

威乐（中国）销售网络

北京：010-52347916	重庆：023-67723781
上海：021-52981538	天津：022-58316023
广州：020-38817608	青岛：0532-66775608
成都：028-85031360	长沙：0731-82296546
沈阳：024-31300733	深圳：0755-23995481
西安：029-87651288	大连：0411-83700725/6
武汉：027-85355868	石家庄：0311-89690580
南京：025-83108033	

本资料全部内容属于威乐（中国）水泵系统有限公司所有，未经本公司书面许可，任何单位及个人不得以任何形式转载。威乐（中国）水泵系统有限公司有权追究任何非法转载者或复制者的法律责任。