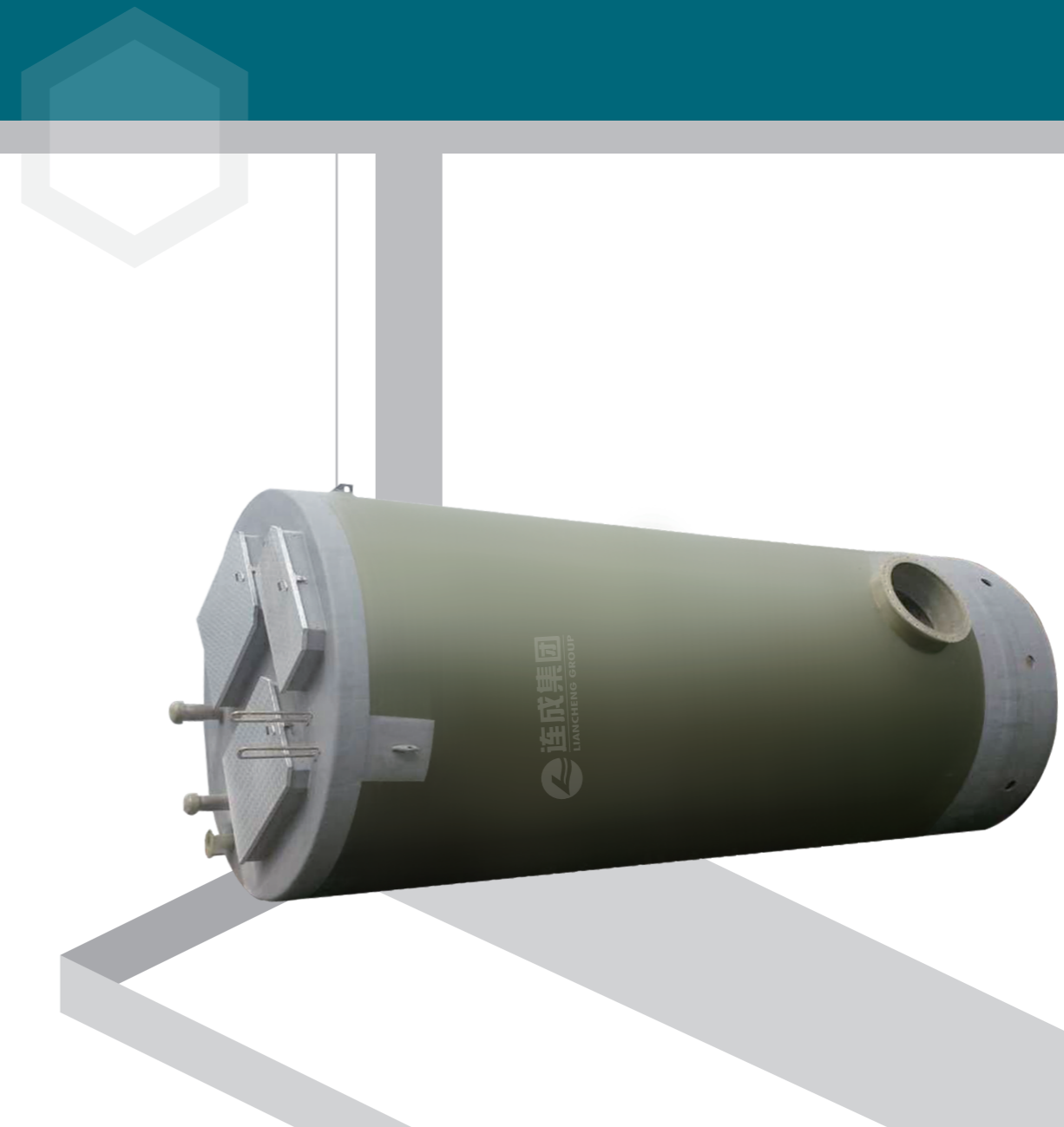




SPS智能型一体化预制泵站

SPS SMART INTEGRATED PREFABRICATED PUMPING STATION



上海连成（集团）有限公司
SHANGHAI LIANCHENG (GROUP)CO.,LTD.

地址：上海市江桥镇曹安公路3616-3618号
邮编：201812
总机：(021) 59138888
传真：(021) 59136782
800免费咨询电话：800-820-5009
400免费咨询电话：400-188-5009

Address:3616-3618 Cao'an Road,Jiangqiao Shanghai
P.C.: 201812
Switchboard:(021) 5913888
Fax:(021) 59136782
800 Free consultation Tel: 800-820-5009
400 Free consultation Tel: 400-188-5009



连成集团微信公众号

目 录

CONTENTS

产品概述 Product overview	1
产品特点 Product features	1
使用范围 Use range	2
型号意义 Model meaning	2
性能参数 Performance parameters	3
结构分类 Structural classification	3
结构说明 Structure specification	5
设计选型参考 Design and selection of reference	9
材质说明 Material description	9
选型须知 The selection of notes	10

产品概述 Product review

连成SPS智能型一体化预制泵站是公司针对传统泵站所暴露出的种种弊端而研制开发出的一种专用污水提升装置。泵站为埋地式，泵站主体由井筒、潜污泵、耦合装置、管道、阀门、液位传感器、控制系统、格栅和通风系统等部件组成。是一种使用方便，质量可靠，土建工作少，成本较低的新型一体化泵站设备，可以作为中小型混凝土泵站的替代品。泵站内部配置WQ、WQJ等系列潜水排污泵，配合专用控制系统，以便远程对泵设施进行监管。连成SPS智能型一体化预制泵站几乎可以克服传统混凝土泵站的所有缺点，且最显著的特点就是优化了泵站的体积，从而克服了传统混凝土泵站的不足。

泵站符合GB50014《室外排水设计规范》、GB50069《给水排水工程构筑物结构设计规范》、GB50265《泵站设计规范》、GB/T3797《电气控制设备》等规定，满足通风、采暖和采光要求，并符合防潮、防火、节能、劳动安全与工业卫生等技术规定。预制泵站运行过程中的噪声符合现行国家标准《工业企业噪声控制设计规范》GB/T50087的规定。

Liancheng SPS smart integrated prefabricated pumping station is the drawbacks of the traditional pump company exposed the development of a dedicated sewage lifting device developed. The pump station is buried, the main pumping station is composed of shaft, submersible sewage pump, pipe line, valve, coupling device, sensor, control system and ventilation system, grid etc. Is a convenient, reliable quality, civil work, a new integrated pumping equipment and low cost, can be used as a substitute in small concrete pumping station. Pumping station within configuration WQ, WQJ series submersible sewage pump, with the special control system for remote supervision of pump facilities. Liancheng SPS smart integrated prefabricated pumping station can overcome the shortcomings of traditional concrete almost all pumping stations, and the most significant is to optimize the volume of pump station, so as to overcome the shortcomings of traditional concrete pumping station.

Pumping station with GB50014 "outdoor drainage design code" GB50069 ", the water supply and drainage engineering structure design specification", GB50265 ", " GB/T3797 "code for design of pumping station electrical control equipment" and other regulations, meet the ventilation, heating and lighting requirements, and comply with the provisions of proof, fire prevention, energy saving, labor safety and industrial hygiene technology. Prefabricated pumping station operation process noise is consistent with existing national standards " for noise control design of industrial enterprises" GB/T50087 regulations.

产品特点 Productures

1、筒体体积小，但可利用有效容积优良，在任何环境和狭小的空间都能轻松安装；

2、筒体采用先进的耐腐蚀材质如强化玻璃钢机械缠绕而成(GRP)，质量稳定；

3、泵坑采用流体学设计，具有流态好、无堵塞，自清洁功能；

4、质量可靠，重量轻，造价较低；

5、配备高质量、高性能的潜水排污泵，并且应用传感器时刻监控水泵运行状况，大大降低了维护费用；

1. The cylinder volume is small, but the volume is good, can be easily installed in any environment and narrow space;

2. The cylinder adopts advanced corrosion resistant materials such as glass and steel mechanical winding (GRP), stable quality;

3. The fluid pump pit design, has a good flow pattern, no clogging, self cleaning function;

4. Reliable quality, light weight, low cost;

5. Submersible sewage pump 5, equipped with high quality, high performance, and the application of sensor monitoring operation condition of water pump, greatly reduces the maintenance cost;

6、自动化集成度高，可实现异地监控与管理，还可以实现手机监控，同时可以实现远程数据无限传送和自动生成运行报表等功能；

7、使用安全，其合理的设计大大减少了剧毒及恶臭气体产生，保护环境；

8、安全地埋式安装，安装后不影响周围环境与景观；

9、安装周期短，节省了大部分费用，维护省时省力；

10、一次性投入，长期运行成本低，节能效益明显，且在遇到拆迁或被占地的情况下可以二次吊装起来进行二次填埋再次利用；

11、完全定制，可以根据工程不同，设计不同直径和不同高度进出水管位置的泵站，满足各种场所的需要。

6. A high degree of automation, can realize remote monitoring and management, but also can realize mobile phone monitoring, and can realize the long-distance data transmission and automatic generation of infinite operation reports and other functions;

7. The use of safe, reasonable design can reduce the toxic and malodorous gases, Protect environment;

8. Safety of buried installation, the installation does not affect the surrounding environment and landscape;

9. Short installation time, saving most of the cost of maintenance, saving time and effort;

10. One-time investment, long-term low operation cost, energy efficiency obviously, and in case of demolition or covers an area of two times can be lifting up two times again by landfill;

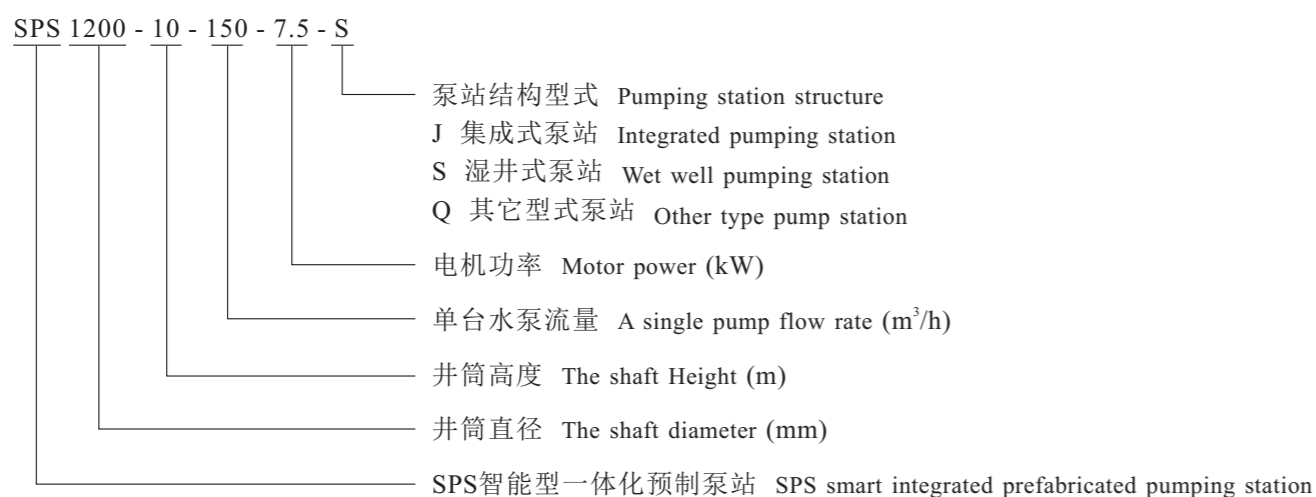
11. Fully customized, can according to different engineering design, different diameter and height of inlet position of pumping station, to meet the needs of various places.

使用范围 Usage

用于收集和排放住宅小区、饭店、学校、工厂、部队营房和其它公共场所的污水废水等，主要安装于室外地下，也可用于室内场合。

Used for collecting and discharging residential, hotels, schools, factories, military barracks and other public places such as sewage wastewater, mainly installed in the outdoor underground, can also be used for indoor occasions.

型号意义 Model meaning



性能参数 Performance parameters

井筒直径: 1200-3800mm

井筒高度: 4500-16000mm

抽排水量: 10~1200m³/h

水泵功率: 3~185kW

性能参数按用户实际所需工况确定，并根据用户要求，设计制造各种个性化的预制泵站，泵站整体打包供应。

推荐配置

The shaft diameter: 1200-3800mm

The shaft Height: 4500-16000mm

Drainage volume: 10~1200m³/h

Pump power: 3~185kW

According to the user's actual performance parameters required to determine the condition, and according to user requirements, design and manufacture of a variety of personalized prefabricated pumping station, pumping station package supply.

The recommended configuration

井筒直径 The shaft diameter (mm)	井筒高度 The shaft height (m)	水泵最大出口直径 The maximum pump outlet diameter (mm)	水泵台数(台) Number of pumps (set)
1200	4.5~16	100	2~3
1600	4.5~16	150	2~3
2000	4.5~16	200	2~3
2500	4.5~16	250	2~3
3000	4.5~16	300	2~3
3800	4.5~16	350	2~3

结构分类 Structural classification

上海连成提供各种功能的SPS智能型一体化预制泵站，并配备各种所需的泵、管道、阀门及液位控制器等设备。泵坑、水泵和控制系统可以根据特定的要求进行组合，以满足各种应用的需求。SPS智能型一体化预制泵站按照结构特点，可分为湿井式泵站、集成式泵站和完全定制型泵站。

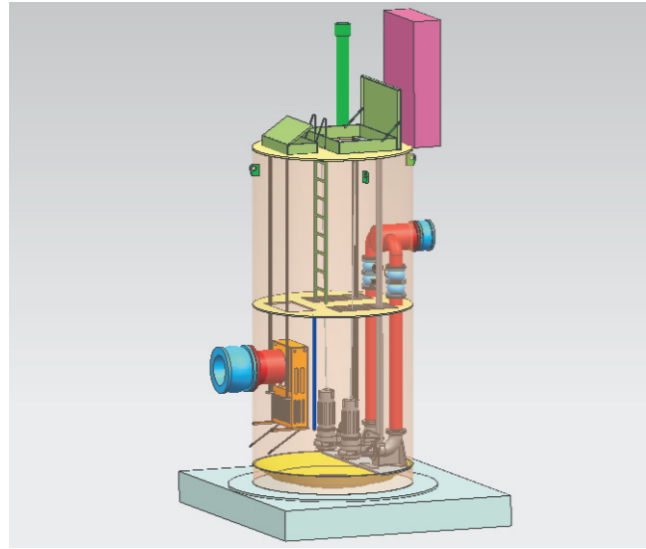
湿井式泵站

选用公司高效潜水排污泵，常规配套潜水电机。排污泵与管道之间采用自动耦合，泵站可选配内部维修服务平台和地面电机控制系统，配备液位传感器、有毒气体检测仪等控制检测系统。在出厂前进行安装和测试，保证现场安装时间最小化，提高了系统可靠性。

Shanghai Liancheng SPS smart integrated prefabricated pumping station with various functions of the equipment, pipeline, valve, pump and liquid level controller is equipped with all the necessary. The pump pit, water pump and control system can be combined according to the specific requirements, in order to meet the needs of various applications. SPS smart integrated prefabricated pumping station in accordance with the structural characteristics, can be divided into wet wells pumping station, pumping station integrated and complete customization of pumping station.

The wet well pumping station

The company, submersible sewage pump, supporting conventional submersible motor. Between the sewage pump and pipeline automatic coupling, pump optional internal maintenance service platform and the motor control system, equipped with a liquid level sensor, toxic gas detector and detection control system. Install and test before delivery, ensure the installation time minimization, improve the reliability of the system.



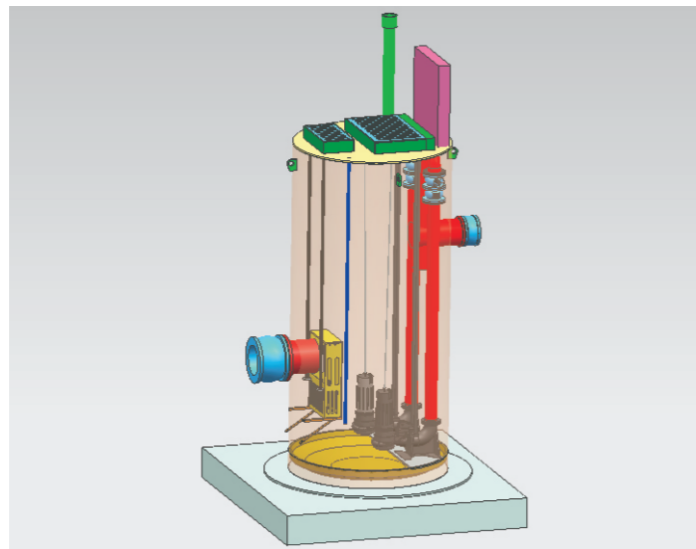
湿井式泵站模型
The wet well pumping station model

集成式泵站

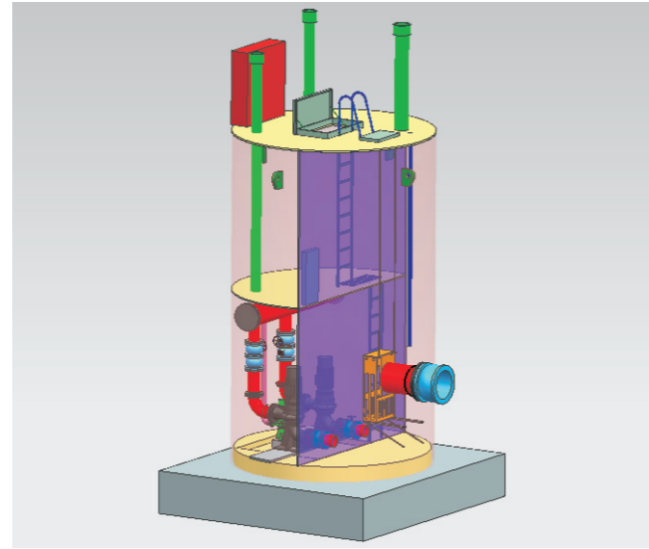
选用公司高效潜水排污泵，常规配套风冷电机。水泵可采用固定式干式安装方式。干井与湿井集成在井筒内。井筒内干井区配有排水泵和集水坑，确保干井内工作环境的干燥、清洁。配备控制面板、液位传感器、有毒气体检测仪、除臭装置等控制检测装置。在出厂前进行安装和测试，保证现场安装时间最小化，提高了系统可靠性。

完全定制型泵站

完全定制的泵站是本公司根据客户要求设计的泵站。每次可以根据工程不同，设计不同直径和不同高度的进水管位置，满足各种场所的需要。完全定制型泵站可以满足不同客户的多元化需求。



定制泵站示例模型
Custom pump model



集成式泵站模型
The integrated model of pumping station

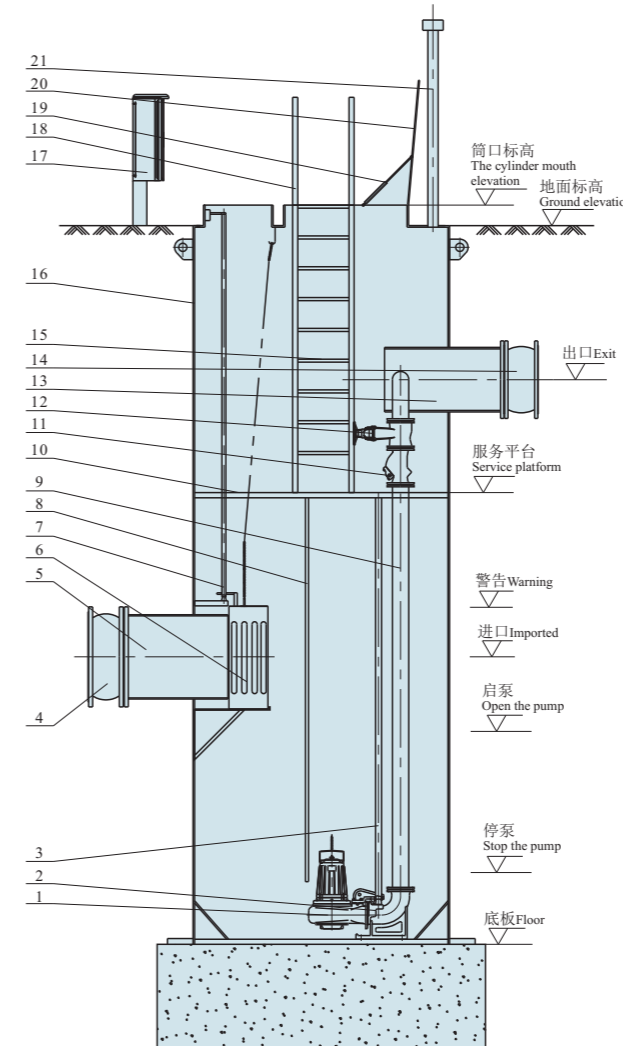
Integrated pumping station

The company, submersible sewage pump, the conventional air-cooled motor supporting. The pump can be fixed dry installation. Dry and wet well integrated in wellbore. Wellbore dry zone is equipped with a drainage pump and sump, ensure the working environment clean, dry in the dry. Equipped with a control panel, a liquid level sensor, toxic gas detector, deodorizing device control detection device. Install and test before delivery, ensure the installation time minimization, improve the reliability of the system.

Complete customization of pumping station

The company fully customized pumping station is designed according to customer requirements of the pumping station. Each can be different according to the engineering design, different diameter and height of the inlet position, meet the needs of various places. Fully customized type pump can meet the diverse needs of different customers.

结构说明 S t r u c t u r e I n f o r m a t i o n



- 1、水泵 Water pump
- 2、耦合装置 Coupling device
- 3、耦合导轨 Rail coupling
- 4、柔性接头 Flexible joint
- 5、进水管 The water inlet pipe
- 6、格栅及支架 Lattice and bracket
- 7、格栅导轨 Grille Guide
- 8、传感器、检测仪及保护管 The sensor, detector and protective tube
- 9、压力管道 Pressure pipeline
- 10、服务平台 Service platform
- 11、止回阀 Check valve
- 12、闸阀 Gate valve
- 13、出水管 The outlet pipe
- 14、柔性接头 Flexible joint
- 15、爬梯 Climb the ladder
- 16、筒体 Cylinder
- 17、电气控制柜 Electrical control cabinet
- 18、爬梯扶手 Ladder handrail
- 19、气动弹簧 Pneumatic spring
- 20、井盖、安全格栅 Well, the grid security
- 21、排风管 Exhaust pipe

水泵

选用公司研发的高质量、高性能的WQ系列潜水排污泵，运行平稳，过流能力好，安全无堵塞；独特的两道机械密封设计使轴封更可靠，水泵寿命更长；电机内设有多种保护装置，保证电机更加安全运转，减少维护费用；根据所选泵站的构造不同，有自动耦合式排污泵和固定式干式安装的排污泵可供选择。若输送含有较大的纤维体的污水时，可选用WQJ系列切割型潜水排污泵，该系列水泵内部设有铰刀，可轻松粉碎污水中夹带的纤维体，大大降低发生堵塞的可能，同时也降低了功耗，保持机组的高效运转。WQJ系列排污泵功率范围0.75~7.5kW，口径DN50~DN80。

Water pump

The company developed a high quality, high performance WQ series submersible sewage pump, stable operation, good flow capacity, safety and no blockage; two mechanical seal design unique to seal more reliable, longer pump life; multiple protection device is arranged inside the motor, motor to ensure safer operation, reduce maintenance costs; according to the structure the selected pump, sewage pump automatic coupling type sewage pump and fixed dry installation options. If the conveying fiber body contains a large sewage, can choose WQJ series of cutting type submersible sewage pump, the pump is provided with a series of internal reamer, fiber is easy to crush the entrainment of the sewage, greatly reduce the blockage, but also reduces the power consumption, high efficiency and keep the unit running. WQJ series of sewage pump power range 0.75~7.5kW, diameter DN50~DN80.

SPS智能型一体化预制泵站主要选用公司的WQ、WQJ系列排污泵



SPS smart integrated prefabricated pumping station mainly selects company WQ, WQJ series of sewage pump



筒体

使用连续缠绕加强玻璃纤维筒体，采用计算机缠绕工艺制成的玻璃钢筒体，厚度均匀。筒体外部至少装有两个外部吊耳，方便吊装。湿井式泵站，筒体底部是经过CFD特殊设计的智能化下凹式结构，这种独特的水力设计可以保证筒体能抵抗地下水的压力而不变形，同时使井筒内只允许少量的污水停留在泵坑。当水泵再次启动时，泵坑的坡面结构使泵坑内介质达到很高的流速，进而产生漩涡，使沉淀的固体再次悬浮并进入水泵入口，可以达到自清洁的效果。干式集成式泵站的筒体底部设有集水坑，并配置排水泵。筒体外部底板是平面底板，以增加泵站筒体与基础的接触面，减少地下水对泵部筒体的挤压应力，底板与基础采用化学螺栓连接，另需有其它的抗浮措施，需在投标文件中加以详细说明。

格栅

有多种类型格栅可供选择，一般选用带导轨的提篮式格栅。有特殊要求的，可以选用其它类型格栅，

Cylinder

The use of continuous winding glass fiber reinforcement cylinder, glass steel tube winding process made by computer, uniform thickness. The external cylinder is equipped with at least two external ear, convenient lifting. The wet well pumping station, the bottom of the barrel is a concave structure of intelligent CFD special design, this unique design can ensure the hydraulic cylinder can resist the water pressure without deformation, and the wellbore allows only a small amount of water in the pump pit stop. When the pump starts again when the slope structure makes the medium pump pit pit at very high velocity, and produce vortex, the precipitated solid and resuspended into the pump inlet, can achieve the self-cleaning effect. A dry sump at the bottom of the cylinder body integrated pumping station, and the configuration of the drainage pump. The external cylinder bottom is a flat plate, in order to increase the pump barrel and the base contact surface, reduce groundwater pump extrusion on the cylinder part of the stress, the bottom plate and the foundation by chemical bolt connection, the other must have other anti floating measures, should be detailed in the bid documents.

A grille

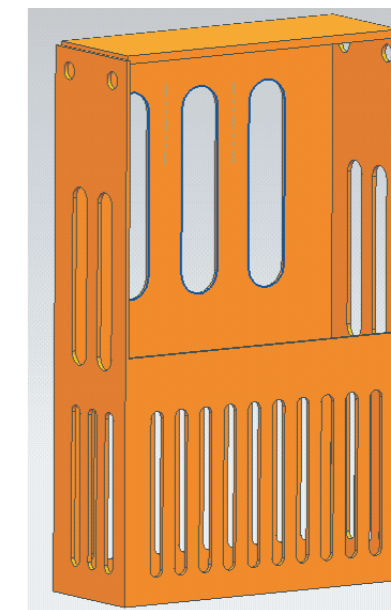
There are many types of grid available, generally use a basket type grille with guide rail. Have special requirements,

若输送若含有较大的纤维体的污水时，可选用粉碎型格栅。粉碎型格栅具有占地小，使用方便的功能，配以高质量的潜污泵，粉碎后的小颗粒杂质可以通过潜污泵直接泵出，而无需人工清渣。粉碎型格栅配套于预制泵站内部，无需增加任何土建工作，轻松达到格栅的效果，使得整套预制泵站设施保持紧凑实用。也可选用防跌水式的提篮式格栅，不夹带气泡，确保水泵运行安全。

you can use other types of grid, if the transfer if they contain larger fiber wastewater, can choose the crushing grille. The pulverizing screen has the advantages of small occupation, convenient function, with the submersible sewage pump with high quality, small particles of impurities can be crushed by the submersible sewage pump pump directly, without artificial slag. Comminutor supporting prefabricated pumping station, without any increase in civil work, easily achieve grid effect, which makes the whole prefabricated pumping station facilities keep compact and practical. Can also use anti basket type grille drop, not entrained bubbles, to ensure the safe operation of water pump.



转鼓式粉碎性格栅
Drum type crushing grille



提篮式格栅
Basket type grille

井盖

井盖材料可由玻璃钢或铝合金等轻质材料制成，盖板内外表面平整、光滑，盖沿高于地面，以防行人意外跌入井筒内部。可加装方便开启井盖的气动弹簧、安全格栅和安全锁等附件。

服务平台

内置于井筒内部，主要用来方便检修水泵、阀门等元件，平台表面带有防滑花纹。可根据客户需要定制不同形式、位置和高度平台。

Manhole cover

The cover material can be made of glass steel or aluminum alloy and other lightweight materials, both inside and outside the plate surface smooth, edge of the cover above the ground, to prevent pedestrians accidentally fell into the well bore. Can be installed conveniently open the manhole cover pneumatic spring, safety grille and safety lock accessories.

Service platform

Built in wellbore inside, mainly to facilitate the maintenance of pumps, valves and other components, with a slip on the surface of the platform. Can be customized according to customer needs in different forms, location and height of platform.

控制系统

控制柜一般安装在泵站的顶盖上或地面，用户有特殊要求时，也可置于井筒内部。泵站配套控制柜采用公司专用水泵控制系统，实现SPS智能型一体化预制泵站的自动控制，泵站内部安装浮球液位变送器及液位浮球等元件，将泵站内高低液位连锁信号上传至SPS智能型一体化预制泵站就地控制柜，由就地控制柜发出指令，根据高低液位，连锁启停潜水排污泵。粉碎型格栅根据时间设定及泵站内液位双重控制间隙运行。由控制柜内的PLC控制，可以实现无人值守，当水泵或粉碎型格栅堵塞时，能自动报警和具有断电自动恢复功能，所有信号均可以接入已有的或待建的中央控制系统（SPS智能型一体化预制泵站控制上预留上述功能接口）。可配备远程控制系统，在控制柜中安装专用控制器，与水泵控制系统、液位传感器等数据采集系统及监控系统相互结合使用，配置泵站无人管理模块、GPRS通信接口模块等，以便从远程对泵站设施进行监管。减少了现场检查的必要，而且在发生警报时，直接通过短信等方式通知相关人员。

有毒气体检测仪

由于污水泵站长期使用之后均会产生硫化氢等有毒气体，为确保人员下井安全，设计时需根据输送的污水检测报告，针对性配置有可能产生的有毒气体检测仪（如硫化氢检测仪等），检修人员下井前需先观察仪表读数，确保安全后方可下井。

阀门、管路及其它附件

所有管路在出厂前均经过压力测试，其余附件，如扶梯等，按照设计手册要求规范设计。

传感器

液位控制设备的电子仪表装置安装于控制柜内，实现泵站液位自动控制运行。传感器及悬挂电缆安装在特制的保护管内，避免了缠结。

Control system

The control cabinet is usually installed in the pumping station on the roof or the ground, if users have special requirements, can also be placed inside the wellbore. Pump control cabinet matched the company special pump control system, realizes the automatic control of SPS smart integrated prefabricated pumping station, pumping station installed inside the floating ball liquid level transmitter and liquid level floating ball element, will pump liquid level linkage signal uploaded to the SPS smart integrated prefabricated pumping station on-site control cabinet, the instruction issued by the local control cabinet, according to the liquid level, the chain start and stop diving sewage pump. Comminutor run according to the time setting and pump station level dual control gap. The control cabinet of PLC control, can realize the unattended, when the water pump or pulverizing screen clogging, automatic alarm and automatic power-off has the recovery function, central control system, all signals are access to existing or planned (SPS smart integrated prefabricated pumping station control reserved on the function interface). Can be equipped with remote control system, the installation of special controller in the control cabinet, combined with the data acquisition system of pump control system, liquid level sensors and monitoring system, configuration management module, unmanned station GPRS communication interface module and so on, so that the regulation from the remote pumping station facilities. Reduces the need for on-site inspection, and in the event of alarm, directly notify the relevant personnel via SMS etc..

Toxic gas detector

Because after the sewage pumping station long-term use will produce hydrogen sulfide and other toxic gases, as well to ensure the security personnel, design according to the inspection report for the transport of sewage, toxic gas allocation are likely to produce the detector (such as hydrogen sulfide detector etc.), maintenance personnel well before the need to observe the reading, to ensure the safety of the rear be well.

Valve, pipe and other accessories

All lines in the factory have to undergo a stress test, the other accessories, such as escalator, in accordance with the design requirements specification design manual.

Sensor

Electronic instrumentation level control equipment installed in the control cabinet, the pump station level automatic control operation. The sensor and suspension cables installed in a protective tube, to avoid entanglement.

设计选型参考 Design reference

首先根据输送水量、输送距离等确定泵参数，然后可以估算出预制泵站有效容积。预制泵站的最小有效容积可以按下式估算：

$$V=Q/4Z$$

其中 V: 最小有效容积, m³

Q: 泵额定点流量, m³/h

Z: 泵每小时允许启动次数

得出最小有效容积后，根据现场情况及功能模块配置，确定实际容积、筒体直径、高度等尺寸，结合样本进行选型。

According to the determined parameters of pump water, transport transportation distance, then we can estimate the effective volume of prefabricated pumping station. The minimum effective volume can be estimated by prefabricated pumping station:

$$V=Q/4Z$$

V: the minimum effective volume, m³

Q: pump rated flow, m³/h

Z: Pump allowed per hour starting times

The minimum effective volume, according to the situation and function of module configuration, determine the actual volume, the diameter of the cylinder, the height of size, with the sample selection.

材质说明 Material description

部件 Part	标准材质 Standard material	可选材质 Optional material
筒体和底部 The cylinder and the bottom	GRP	
井筒顶部 The top of the shaft	GRP	
顶盖（人孔） Cover (manhole cover)	铝 Aluminum	GRP
扶手 Handrail	304	
排风管 Exhaust pipe	304	PVC
压力管道 Pressure pipeline	304	PE、316
法兰 Flange	热镀锌钢 Hot dip galvanized steel	304、316
止回阀 Check valve	QT500, 环氧树脂涂层 Epoxy resin coating	QT400, 环氧树脂涂层 Epoxy resin coating
闸阀/蝶阀 Valve / valve	QT500, 环氧树脂涂层 Epoxy resin coating	铸铁蝶阀, 304阀盘 Iron butterfly valve, the valve disc 304
导轨 Guide	304	
爬梯 Climb the ladder	铝合金 Aluminium alloy	GRP、Q235
耦合架/支架 The coupling frame / bracket	HT250	304、316
服务平台 Service platform	花纹不锈钢 The pattern of stainless steel	铝 Aluminum、GRP
柔性接头 Flexible joint	热镀锌法兰/橡胶 Galvanized flange / rubber	
柔性接头螺栓 Flexible joint bolt	热镀锌钢 Hot dip galvanized steel	
泵上螺栓、螺母 Pump bolt, nut	304	316
锚固件：压板 Anchor: plate	HT200	
锚固螺栓、螺母 Anchor bolt, nut	热镀锌钢 Hot dip galvanized steel	

选型须知 The selection notes

在正确选型前，我们必须知道以下信息：

1、尺寸、参数

设计流量、扬程、所需配备的水泵数量（包括工作泵和备用泵）、地面标高，进水管/出水管标高、进水管/出水管管径

2、结构形式

湿井式泵站、集成式泵站、以及完全客户定制的泵站。

3、传感器

有毒气体检测仪、压力传感器（标准）、浮子开关、超声液位传感器等等。

4、控制系统

现场自动液位控制、远程控制

5、应用

应用领域：市政工程、工业、建筑或其它室内/室外、地面上或地面下等

6、内部管路的材质

304不锈钢（标准）、316、PVC

7、可选项

格栅、粉碎机、简易除臭装置等

The correct selection before, we must know the following information:

1. Size, parameter

The design flow, lift, the required number of pumps equipped (including pump and standby pump), the ground elevation of the water inlet pipe, outlet pipe, inlet / outlet pipe / elevation

2. Structure

The wet well pumping station, pumping station, and fully integrated customized pumping station.

3. Sensor

Pressure sensor, toxic gas detector (standard), float switch, ultrasonic level sensor etc..

4. Control system

The automatic level control, remote control

5. Application

Application: Municipal Engineering, industrial, building or other indoor / outdoor, on the ground or on the ground.

6. The internal pipe material

304 stainless steel (standard), 316, PVC

7. Optional

Grille, grinder, simple deodorizing device etc.