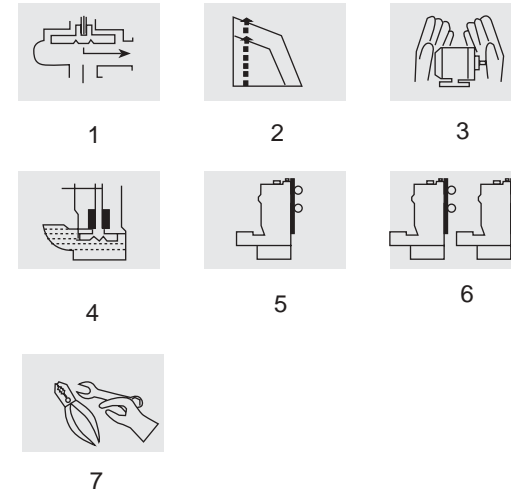


# Submersible Sewage Pump

## DAS、QW系列潜水排污泵 DAS、QW series submersible sewage pump

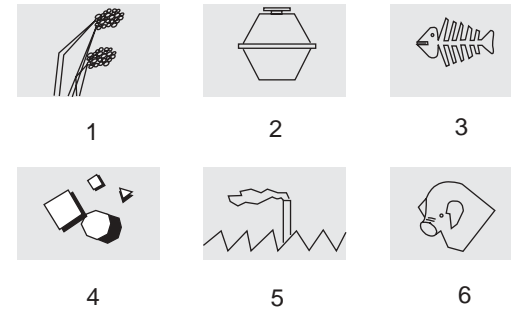
### DAS 系列潜水排污泵 DAS series submersible sewage pump

#### 一、产品特点 Features



- 1、采用旋流式水力，无堵塞
  - 2、独有设计，效率高
  - 3、内置电机热保护器
  - 4、采用双端面机械密封，无渗漏
  - 5、DASA型可单独自动运行
  - 6、DASA和DASJ型可并联切换运行
  - 7、拆装方便
- 1.To adopt vortex flow guide vane,free from blockage
  - 2.Unique design with high efficiency from Qingyuan PumpCO.,Ltd
  - 3.In-built thermal protector for the motor
  - 4.Double end face of mechanical seal,free from leakage
  - 5.DASA series pump with independent and automatic operation.
  - 6.Switchable between DASA and DASJ in parallel connection
  - 7.Easy to remove

#### 三、主要用途 Applications



- |           |                                     |
|-----------|-------------------------------------|
| 1、灌溉      | 1.Irrigation                        |
| 2、化粪池排污   | 2.Septic tank                       |
| 3、厨房用     | 3.Kitchen                           |
| 4、外来物质的排除 | 4.Exclusion of foreign materials    |
| 5、工业排污    | 5.Drainage of the industrial sewage |
| 6、畜牧业     | 6.Stockbreeding                     |

#### 三、型号说明 Model

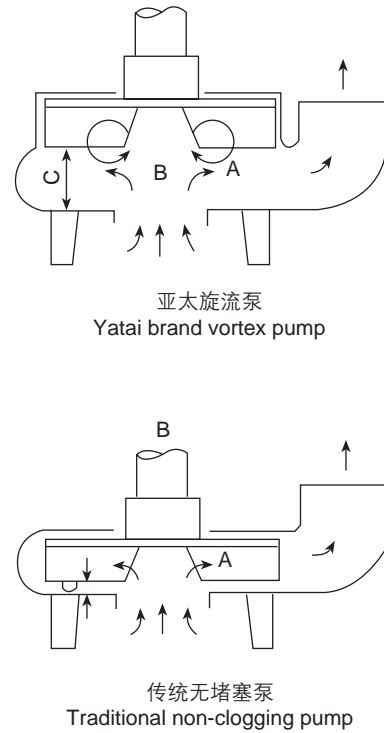


## 潜水排污泵 SUBMERSIBLE SEWAGE PUMP

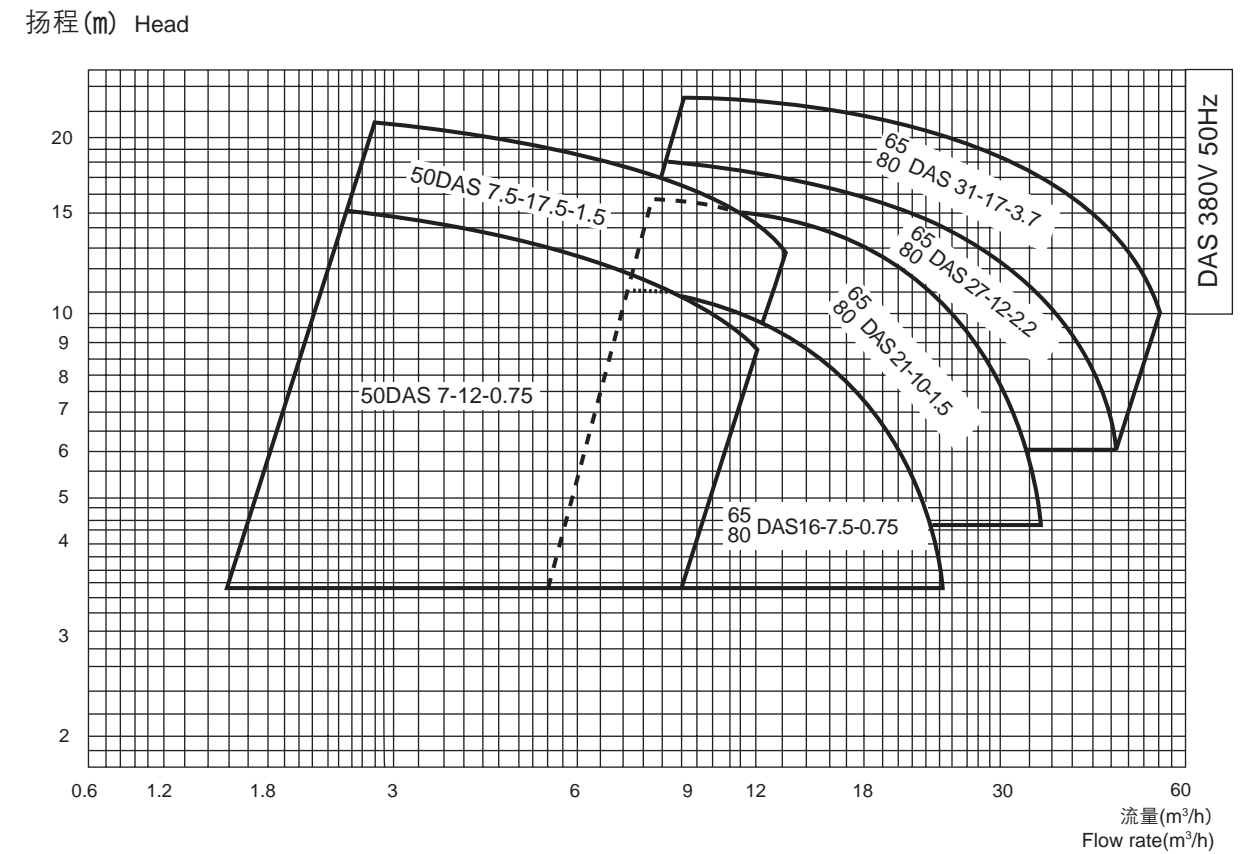
### 四、旋流式水泵 vortex water pump

DAS系列潜水排污泵具有亚太自行设计的独有的旋流式结构。此种泵与传统的利用离心力来抽送液体的无堵塞水泵(见右图)都用于排送污水。众所周知,任何吸入泵内的外来物质都必须通过叶轮,而黏附的杂草和易堵塞的石子可能引起堵塞。利用旋流泵,叶轮和吸入盖“C”之间的宽阔空间形成涡流“B”,便于将外来杂物排出,堵塞的可能性很小。

The DAS series submersible sewage pump has a unique vortex structure, which is exclusively owned by JiChuanPumpCo.,Ltd. It has the same role as a non-clogging water pump, which traditionally uses centrifugal force to pump water (refer to pictures). As we know, any foreign materials, which have been extracted into the pump, have to go through the impeller, therefore the trapped grass and stone may cause block or jam. With the vortex water pump, a vortex flow, which forms like "B", occurs between the impeller and the C-shaped suction cover, and helps you to exclude foreign objects. Therefore, the chance to get choked is fewness.



### 五、DAS系列潜水排污泵型谱图 Performance chart for DAS series submersible sewage pump



### 六、DAS系列潜水排污泵性能参数表 Performance parameter table for DAS series submersible sewage pump

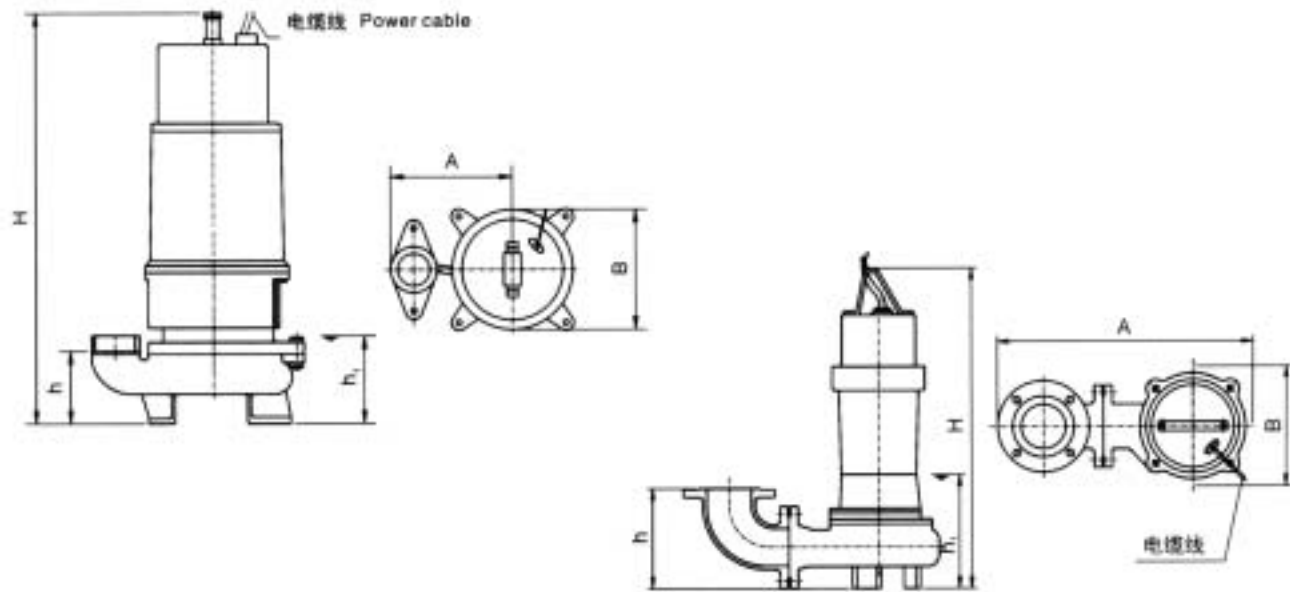
序号 Item	型号 Type	排出口径 (mm) Outlet diameter	功率 (kW) Power	流量 (m³/h) Flow rate	扬程 (m) Head
1	50DAS7-12-0.75	50	0.75	2.1~12	14.8~9
2	50DAS7.5-17.5-1.5	50	1.5	2.1~13.2	21.4~13.5
3	65DAS16-7.5-0.75	65	0.75	8.4~24	10.9~3.8
4	65DAS21-10-1.5	65	1.5	8.4~34.2	15.9~4.2
5	65DAS27-12-2.2	65	2.2	8.4~46.2	18.3~6.0
6	65DAS31-17-3.7	65	3.7	8.4~54	23.6~10.4
7	80DAS16-7.5-0.75	80	0.75	8.4~24	10.9~3.8
8	80DAS21-10-1.5	80	1.5	8.4~34.2	15.9~4.2
9	80DAS27-12-2.2	80	2.2	8.4~46.2	18.3~6.0
10	80DAS31-17-3.7	80	3.7	8.4~54	23.6~10.4

## 潜水排污泵 SUBMERSIBLE SEWAGE PUMP

### 七、DAS系列潜水排污泵外形尺寸 Dimensions and sizes for DAS series submersible sewage pump

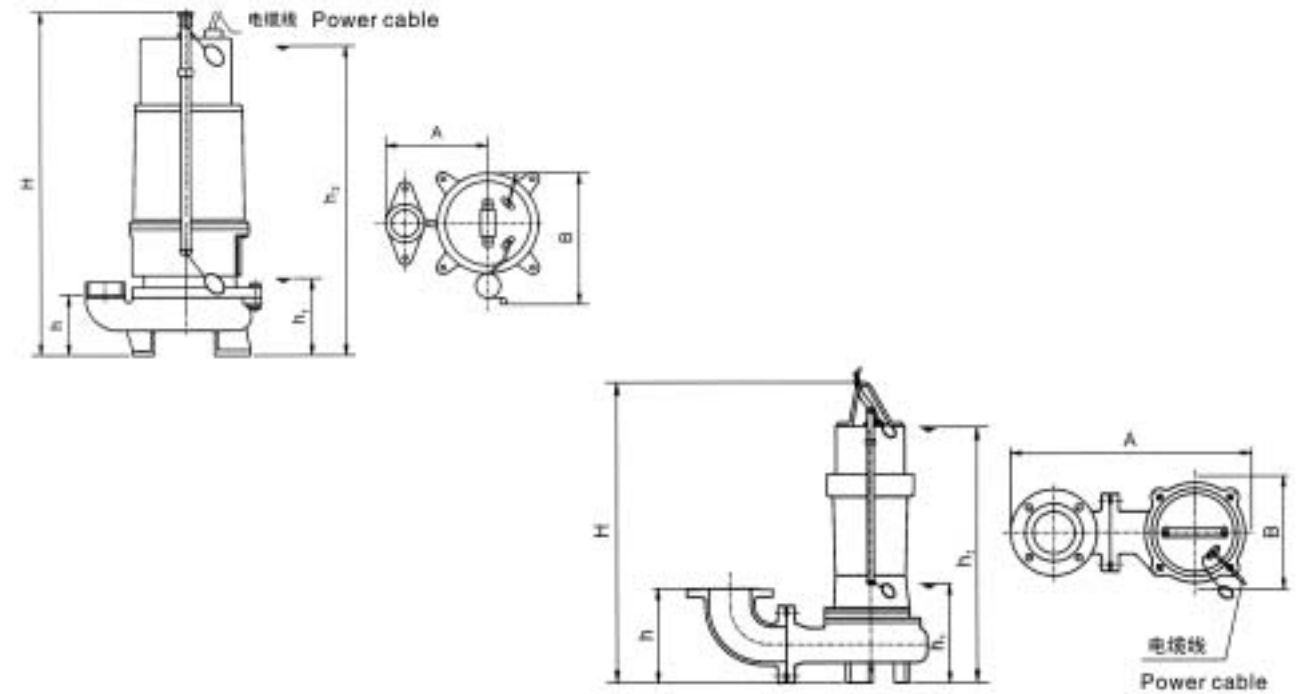
#### 手动型 Manual type

排出口径 Outlet diameter	型号 Type	功率 (kW) Power	泵外形尺寸 Pump dimension					重量 (kg) Weight
			A	B	h	H	h <sub>1</sub>	
50	50DAS7-12-0.75	0.75	162	160	82	404	170	21
	50DAS7.5-17.5-1.5	1.5				454	180	28



#### 自动型 Auto-type

排出口径 Outlet diameter	型号 Type	功率 (kW) Power	泵外形尺寸 Pump dimension						重量 (kg) Weight
			A	B	h	H	h <sub>1</sub>	h <sub>2</sub>	
50	50DASA7-12-0.75	0.75	162	160	82	500	150	340	23.5
	50DASA7.5-17.5-1.5	1.5				560			30.4



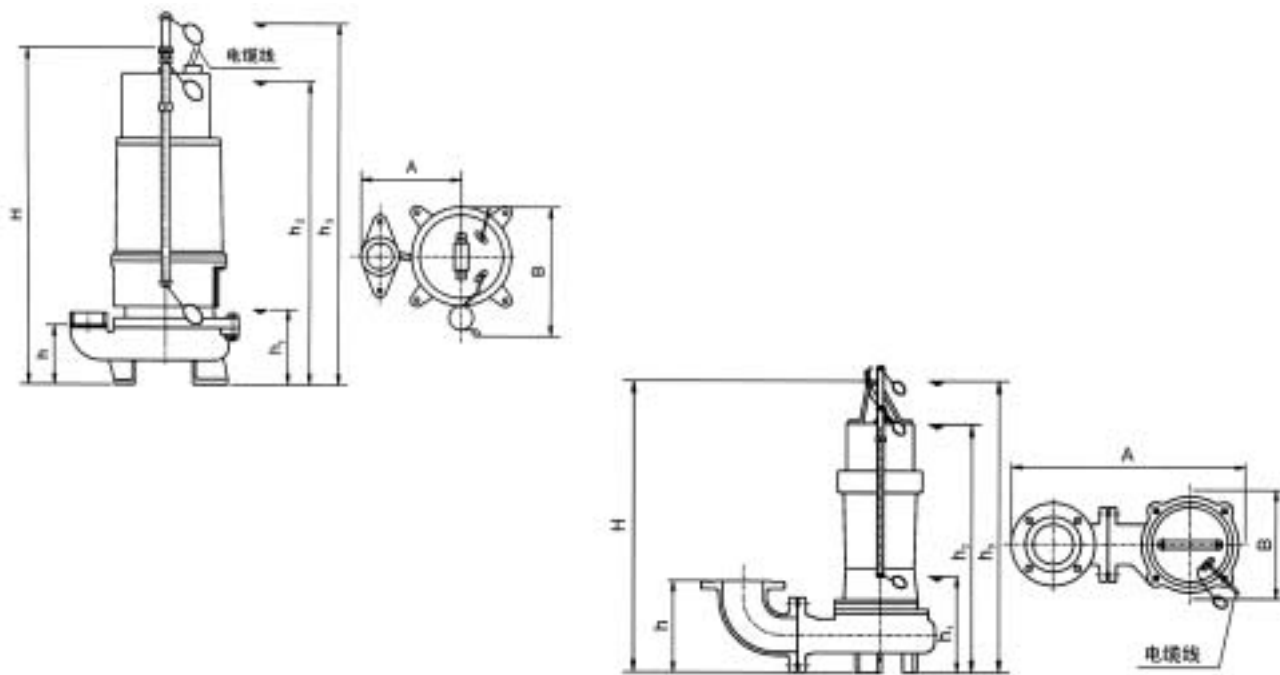
排出口径 Outlet diameter	型号 Type	功率 (kW) Power	泵外形尺寸 Pump dimension					重量 (kg) Weight				
			A	B	h	H	h <sub>1</sub>					
65	65DAS16-7.5-0.75	0.75	411	200	180	440	260	28				
	65DAS21-10-1.5	1.5				480		35				
	65DAS27-12-2.2	2.2				442		225	200	700	300	56
	65DAS31-17-3.7	3.7				442		225	200	700	300	60
80	80DAS16-7.5-0.75	0.75	411	260	180	440	280	29				
	80DAS21-10-1.5	1.5				480		36				
	80DAS27-12-2.2	2.2				442		300	202	700	300	58
	80DAS31-17-3.7	3.7				442		300	202	700	300	60

排出口径 Outlet diameter	型号 Type	功率 (kW) Power	泵外形尺寸 Pump dimension						重量 (kg) Weight					
			A	B	h	H	h <sub>1</sub>	h <sub>2</sub>						
65	65DASA16-7.5-0.75	0.75	411	200	180	440	150	490	30					
	65DASA21-10-1.5	1.5				585			36					
	65DASA27-12-2.2	2.2				442			225	200	750	200	690	55
	65DASA31-17-3.7	3.7				442			225	200	750	200	690	63
80	80DASA16-7.5-0.75	0.75	411	260	180	480	150	490	30					
	80DASA21-10-1.5	1.5				585			36					
	80DASA27-12-2.2	2.2				442			300	202	750	200	690	55
	80DASA31-17-3.7	3.7				442			300	202	750	200	690	63

## 潜水排污泵 SUBMERSIBLE SEWAGE PUMP

并联自动切换型 Auto-switch type

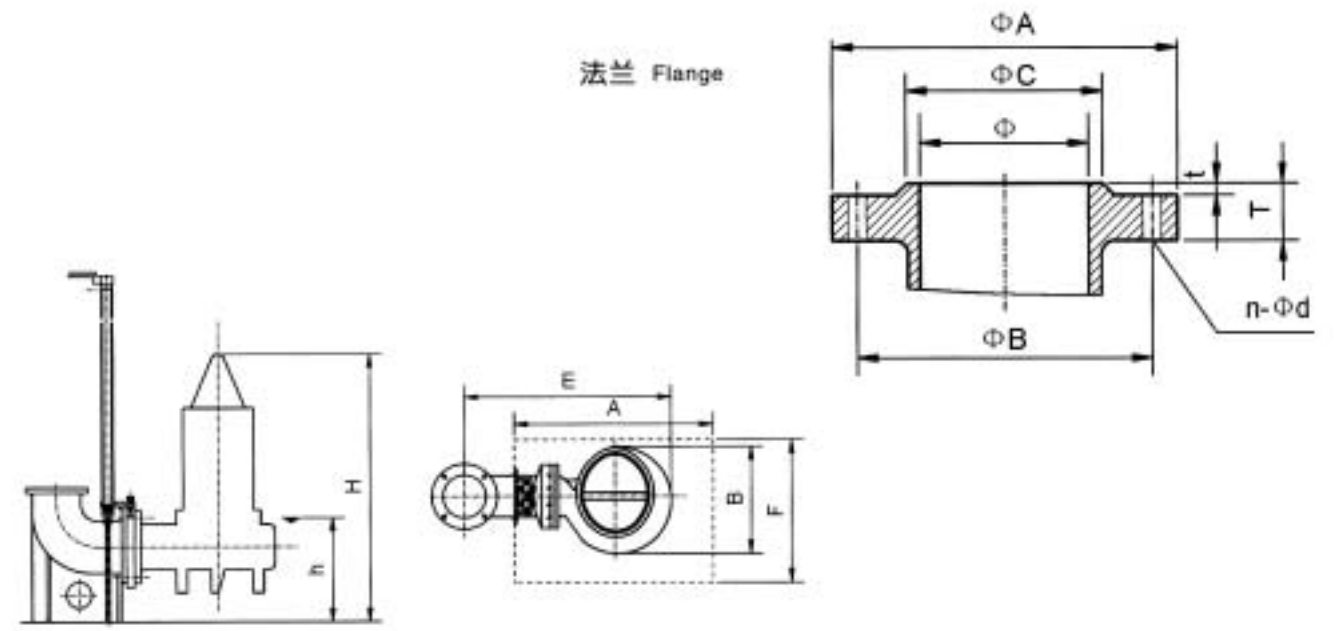
排出口径 Outlet diameter	型号 Type	功率 (kW) Power	泵外形尺寸 Pump dimension							重量 (kg) Weight
			A	B	h	H	h <sub>1</sub>	h <sub>2</sub>	h <sub>3</sub>	
50	50DASJ7-12-0.75	0.75	162	160	82	500	120	410	600	24
	50DASJ7.5-17.5-1.5	1.5				560				30.9



快速安装结构尺寸表

Size table for quick installation structures

排出口径 Outlet diameter	A	B	C	t	T	n	d
65	160	130	108	3	16	4	14
80	190	150	124	3	18	4	19



排出口径 Outlet diameter	型号 Type	功率 (kW) Power	泵外形尺寸 Pump dimension							重量 (kg) Weight
			A	B	h	H	h <sub>1</sub>	h <sub>2</sub>	h <sub>3</sub>	
65	65DASJ16-7.5-0.75	0.75	411	200	180	440	120	410	600	30.5
	65DASJ21-10-1.5	1.5				585				36.5
	65DASJ27-12-2.2	2.2				750				55.5
	65DASJ31-17-3.7	3.7				800				63.5
80	80DASJ16-7.5-0.75	0.75	411	260	180	480	120	410	600	30.5
	80DASJ21-10-1.5	1.5				585				36.5
	80DASJ27-12-2.2	2.2				750				55.5
	80DASJ31-17-3.7	3.7				800				63.5

排出口径 Outlet diameter	型号 Type	泵外形尺寸 Pump dimension						重量 (kg) Weight
		H	E	B	h	A	F	
50	50DAS7-12-0.75	514	420	160	300	800	700	11
	50DAS7.5-17.5-1.5	564						
65	65DAS16-7.5-0.75	540	540	200	300	800	700	16
	65DAS21-10-1.5	580						
	65DAS27-12-2.2	778						
	65DAS31-17-3.7	778						
80	80DAS16-7.5-0.75	540	550	260	400	800	700	18
	80DAS21-10-1.5	580						
	80DAS27-12-2.2	778						
	80DAS31-17-3.7	778						

## 潜水排污泵 SUBMERSIBLE SEWAGE PUMP

### 八、规格和附件 Specifications and Accessories

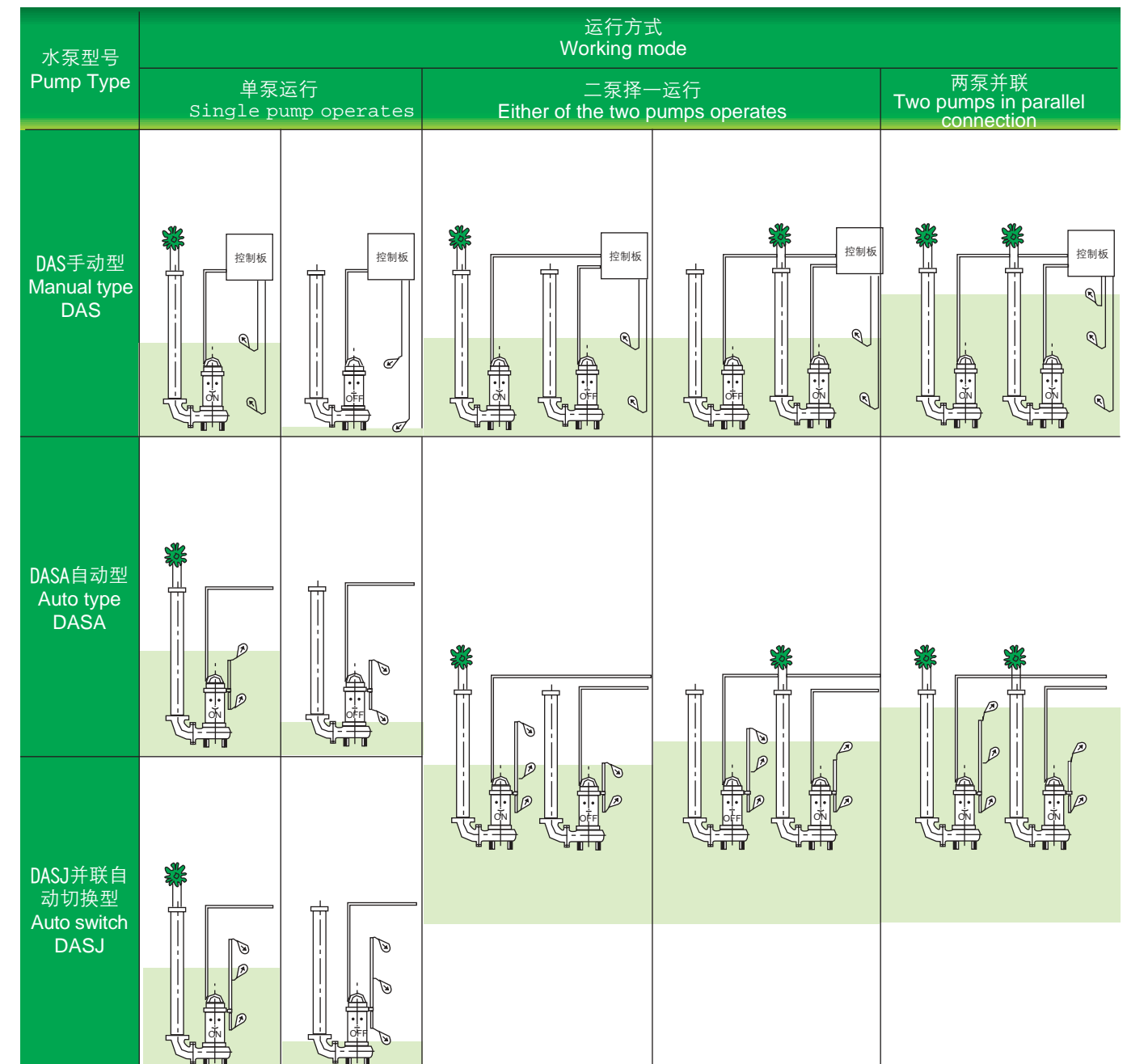
规格 被处理的液体: 河水、污水 液体温度: 50℃ (DAS, DASA系列) 32℃ (DASJ系列)	材质: 壳体: 铸铁 叶轮: 铸铁 轴: 2Cr13
最大颗粒: 固体直径: 水泵尺寸 固体尺寸 50mm 35mm 65(80)mm 45mm	机械密封: 叶轮端: 碳化硅/碳化硅 电机端: 陶瓷/石墨 O形圈: 丁腈橡胶
最大浸没深度: 0.75~1.5kW 4m 2.2~3.7kW 8m	电机: 2极干式电机 绝缘等级: F 输出功率: 0.75~3.7kW三相 保护: 内置式热保护器
最小浸没深度: 请参见最低水位h <sub>1</sub> 能在低水位运行30分钟	轴承: 密封式球轴承
结构: 机械密封: 双端面机械密封 叶轮型式: 旋流式	配件: 带螺栓的法兰一套
	电缆长度: 6m
	快速安装系统(选购件)

Specifications: Liquid to be Treated: river water and sewage Liquid Temperature: 50℃ (DAS, DASA series) 32℃ (DASJ series)	Materials: Casing: cast iron Impeller: cast iron Shaft: 2Cr13
Maximum Grain: Solid Diameter: Pump Size Solid Size 50mm 35mm 65(80)mm 45mm	Mechanical Seal: Impeller End: Silicon Carbide/Silicon Carbide Motor End: Ceramics/Graphite O-shaped Ring: Nitrile Rubbers
Maximum Submersible Depth: 0.75~1.5Kw 4m 2.2~3.7Kw 8m	Motor: 2-Pole Dry Motor Insulation Class: F Output Power: 3 Phases Protection: Built-in Thermal Protector
Maximum Submersible Depth: h <sub>1</sub> See The Minimum Hydraulic Level Able To Operate In A Low Hydraulic Level For 30 Minutes	Bearing: Sealed Ball Bearing
Structure: Mechanical Seal: Double Mechanical Seal Type of Impeller: Vortex Flow Type	Accessories: 1 Set of Flanges With Bolts
	Length of Cable: 6m
	Quick Installation System(Optional)

### 九、DAS系列潜水排污泵控制方式 control mode for DAS series submersible sewage pump

所有的潜水泵在水下靠控制板和浮动开关自动控制, 亚太水泵的特点是无需另外配置控制系统, 即可实现自动控制。

All submersible water pumps depend on control panels and float switches to perform automatic control. But the Yatai brand water pump does not need an external control system to achieve this.



### QW系列潜水排污泵

#### QW series submersible sewage pump

##### 一、产品简介 Introduction

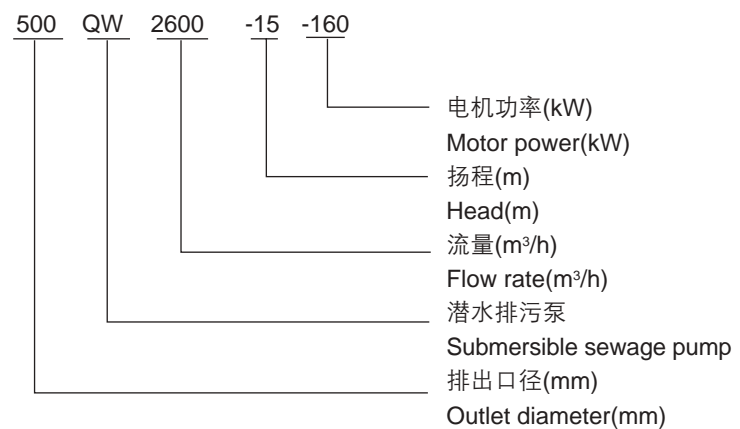
QW系列潜水排污泵是在消化、吸收国内外同类产品先进技术的基础上研制而成的。本公司具有多年的设计、制造经验，经过多次技术创新，产品性能已更可靠、更成熟。该产品设计型谱化，具有效率高、防缠绕、无堵塞、高可靠性、自动耦合、自动控制和自动保护等优点。泵的性能覆盖面广；泵与电机共轴，结构紧凑，便于维修；可按用户要求提供各种电压的潜水排污泵。

该系列泵排出口径为50~600mm，流量为7~6000m³/h，扬程为5~60m，功率为0.75~450kW，电压为380V(也可根据用户需求660V、3kV、6kV、10kV)。根据用户需要可提供特别设计的高温、耐磨或防爆型潜水排污泵。

QW series submersible sewage pump is based on the advanced technology of domestic and foreign similar products. We have many years of experience in design and manufacture. After several rounds of technical innovation, it has become more functionally reliable and sophisticated. Its design has been streamlined with chart playing and it has advantages such as high efficiency, winding protection, no clogging, high reliability, automatic coupling, automatic control and automatic protection. It is versatile and has a large working scope. The pump and the motor are sharing the same shafts to form a compact structure. So it is easy to maintain. Upon customer's request, various submersible sewage pumps are available to meet voltage requirements.

This pump has a outlet diameter 50- 600mm, a flow rate 7- 6000m³/h, a head 5 ~ 60m, a power 0.75-450kW and a voltage 380V(660V, 3kV, 6kV and 10kV are also available upon customers' demand). We could also offer hyperthermal, wearable, explosion proof submersible sewage pump of special design upon customer's demand.

##### 三、型号说明 Type



##### 三、主要用途及使用条件 Applications and operating conditions

QW系列潜水排污泵主要适用于市政工程、工农业、医院、建筑、宾馆、饭店等行业、用于输送带固体颗粒及各种长纤维的废水、城市生活污水和雨水，还包括原水的输送、水产养殖、灌溉等(配以特种材质，可用于有一定腐蚀性介质的场合)，可根据用户要求进行水位控制，并配有自动保护装置及控制柜。

使用条件:

- 1、输送介质温度 ≤ +40℃；
- 2、输送介质PH值4~10；
- 3、输送介质中的固相物的容积比在2%以下；
- 4、电压380V、50Hz(其它电压可按合同制造)；
- 5、潜水深度：最深20m；
- 6、最低水位：见附后的安装尺寸表。

QW series submersible sewage pump is mainly used in municipal engineering ,industry & agriculture, hospitals, buildings,hotels and restaurant to transport waste water,urban sewage and rainwater,which contains solid particles and filaments,as well as in raw water supply,aquiculture and irrigation(with special material,it can be used with a corrosive medium).It is fitted with self-protected devices and control cabinet and can control the water level according to customers' requirements.

##### Operating Conditions

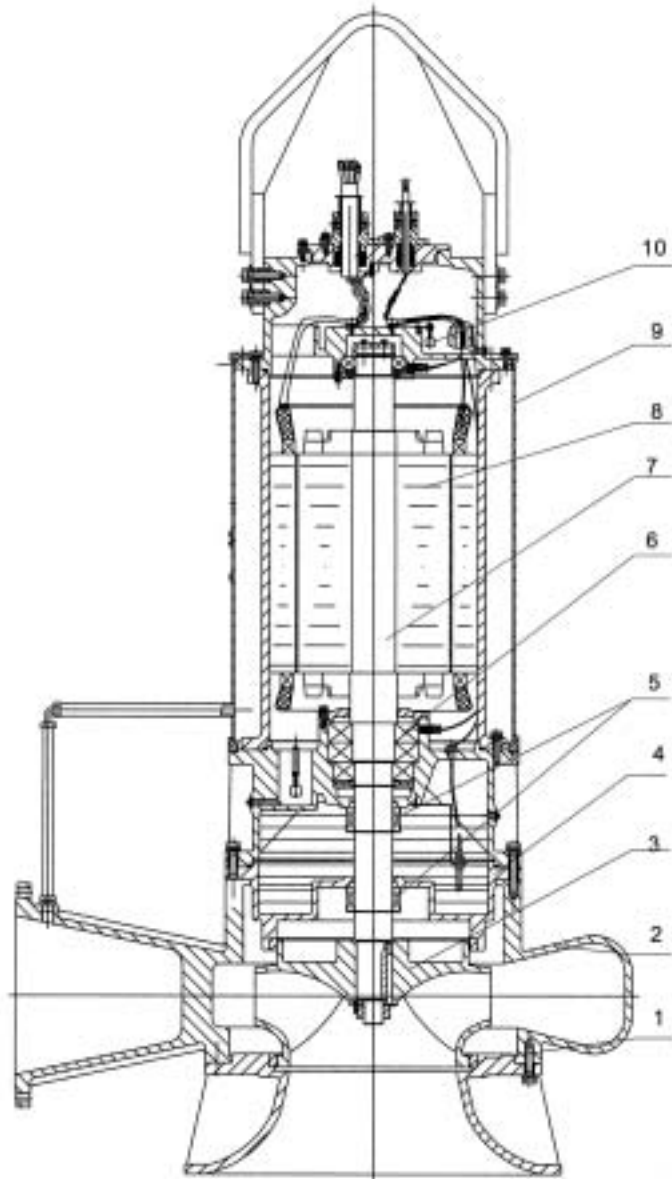
- 1 .The temperature of transported medium should not be more than +40℃ ;
- 2.The PH value of the medium should be 4~10;
- 3.The volume ratio of solids in the transported medium should be under 2%;
- 4.The voltage is 380V and 50Hz (other voltages are also available according to contracts);
- 5.Diving depth: 20m at the most;
- 6.Lowest water level: refer to the installation size table below.



## 潜水排污泵 SUBMERSIBLE SEWAGE PUMP

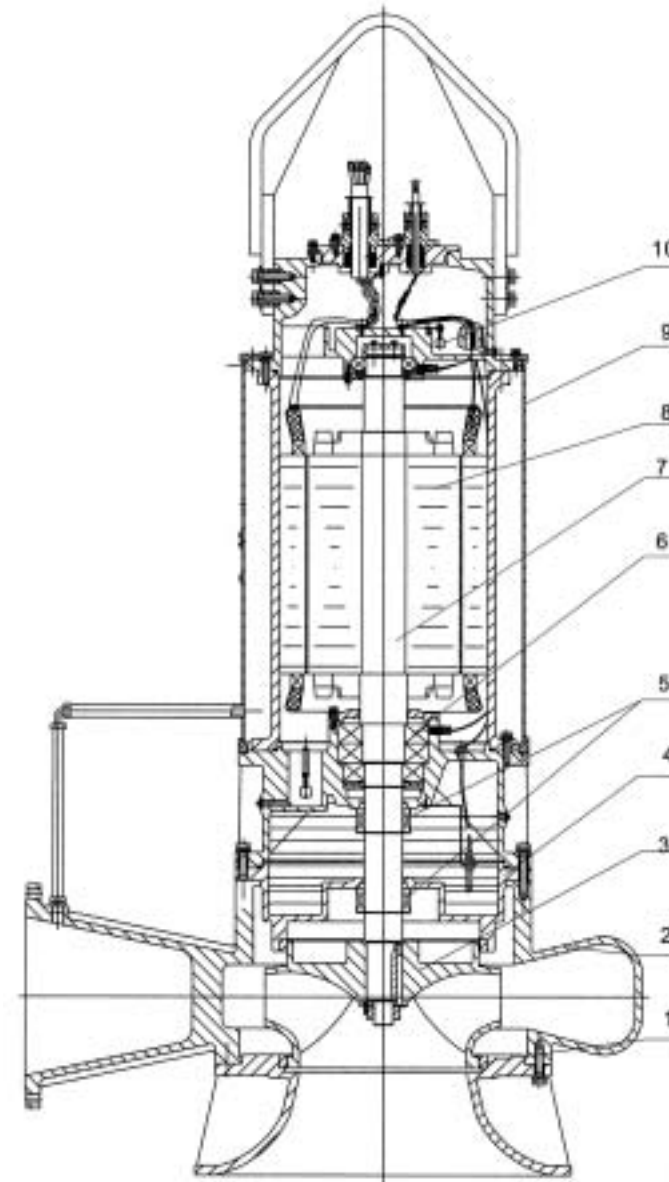
### 四、结构说明

QW系列潜水排污泵结构紧凑，并设置了各种状态显示及保护装置，使泵的运行更加安全、可靠。



QW系列潜水排污泵结构示意图  
Structural drawing for QW series submersible sewage pump

- 1、耐磨环**  
泵壳和叶轮之间装有易于更换的耐磨环。
- 2、泵壳**  
泵壳为单蜗壳型，分布于叶轮周围收集液体。过流表面光滑，通道断面大，效率高，无堵塞。
- 3、叶轮**  
叶片式或流道式大通道叶轮，具有较强的抗缠绕和无堵塞性能，经过动平衡试验，运行平稳。
- 4、油室**  
油润滑并冷却密封，在电机与所输送的介质之间起到隔离作用。内留的体积可减缓油室内压力升高。
- 5、轴密封**  
两套独立的机械密封(视泵的结构而不同)，使电机与泵密封隔离；上下串联安装，提供双重保险，提高了可靠性。
- 6、轴承**  
采用滚动轴承，能承受轴向和径向载荷，并完全与泵所输送的介质分开。
- 7、泵/电机轴**  
泵与电机同轴，结构紧凑，轴伸尽量缩短，从设计上减小挠度，运行时振动小，密封和轴承寿命更长。
- 8、电机**  
高性能鼠笼式感应电机，特别为潜水泵设计制造，符合GB755标准。绝缘等级为F级，最高工作温度可达135℃。
- 9、冷却水罩**  
电机外壳采用内循环冷却(22kW以上泵适用)。
- 10、监测装置**  
潜水排污泵装有多道监测保护装置，可把引线引至电控箱。保护装置有：过载、缺相、泄漏、超温、湿度、浸水保护等(视泵的结构不同而有所差别)。



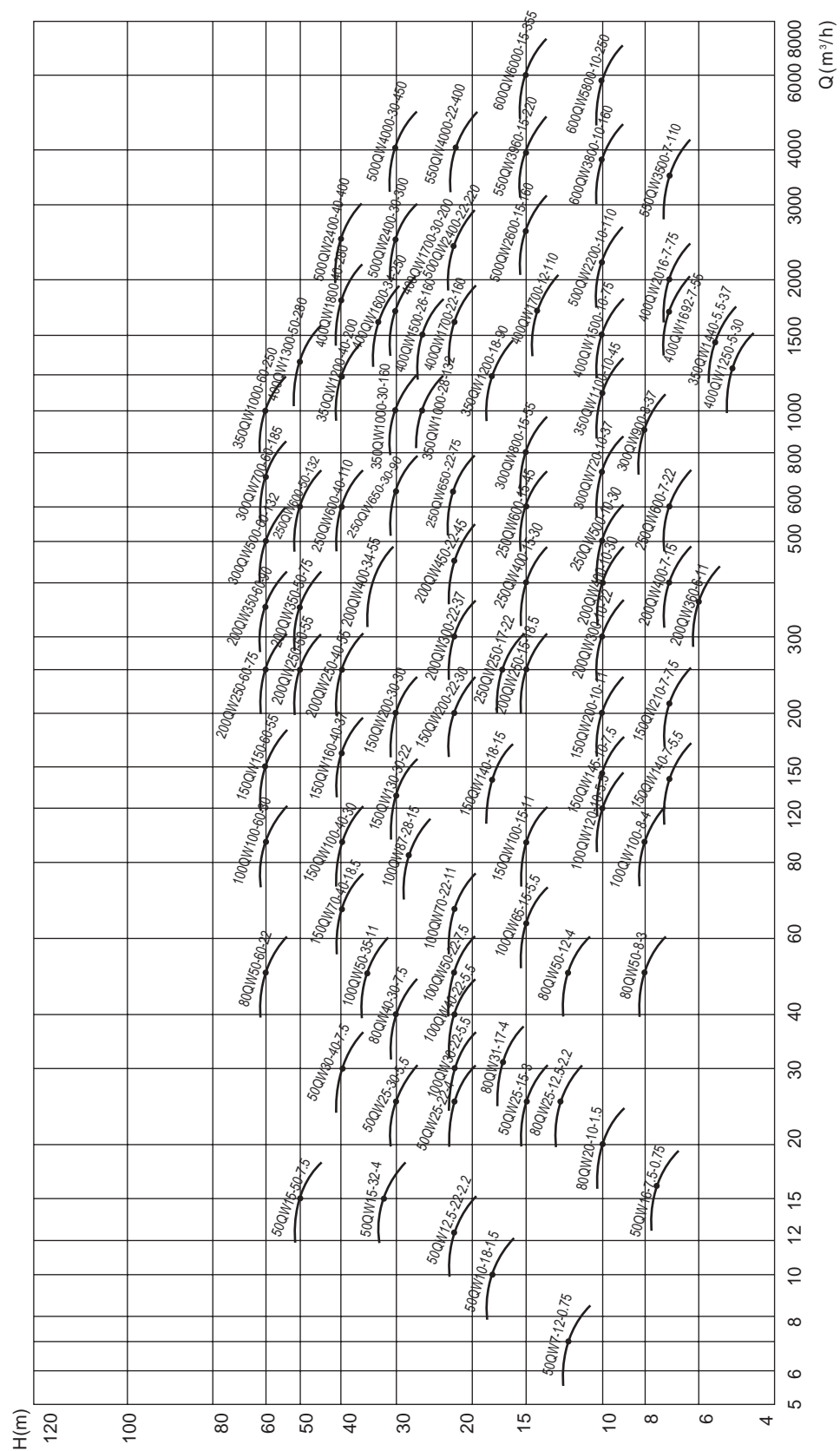
QW系列潜水排污泵结构示意图  
Structural drawing for QW series submersible sewage pump

QW series submersible sewage pump has a compact structure and is configured with various status displays and protective devices, which make the pump operate more safely and reliably.

- 1. Wearable ring**  
Between the house and the impeller, wearable rings are installed, which are easy to replace.
- 2. Pump house**  
The pump has a single volute, which surrounds the impeller to collect fluid. The overflow surface is smooth and the channel has a large section, which enables high efficiency and no clogging existence.
- 3. Impeller**  
Vaneor channel-style impellers have strong anti-winding and non-clogging performance. They have gone through balance test and work reliably.
- 4. Oil cavity**  
The oil is used to lubricate and cool the seal. Its cavity operates like an isolator between the motor and the transported medium. Its volume can alleviate the pressure rise within the oil cavity.
- 5. Shaft seal**  
Two sets of separate mechanical seals are installed in tandem. This provides duplicate defence against failure and has improved reliability.
- 6. Bearing**  
A rolling bearing is used. It can support all axial and radial loads, and is fully isolated from the pumped medium.
- 7. Pump/Motor shaft**  
A same shaft is used to serve both the pump and the motor. It is compact in structure, short in shaft extension and small in deflection. When operating, it has little vibration, and therefore provides a longer operating life to the seal and the bearing.
- 8. Motor**  
It is a high-performance squirrel cage induction motor and is designed for use with a submersible water pump. It is up to GB755 standard. The insulation level is F class. The maximum operating temperature can reach up to 135℃.
- 9. Cooling jacket**  
The motor house can be cooled using internal circulation (applicable for pumps above 22kW).
- 10. Monitor**  
The submersible sewage pump has multiple protective devices installed. It can be led to an electric control cabinet via a cable. The protective devices include the overload, phase failure, leakage, ultra temperature, humidity and damp protections (they vary depend on the pump structure).

## 潜水排污泵 SUBMERSIBLE SEWAGE PUMP

五、QW型潜水排污泵型谱图 Performance chart for QW series submersible sewage pump



## 六、性能参数

QW系列潜水排污泵性能参数 Performance parameters for QW series submersible sewage pump

序号 Item	型号 Type	排出口径 Outlet diameter (mm)	流量 Flow rate (m³/h)	扬程 Head (m)	转速 Rotating speed (r/min)	功率 Power (kW)	效率 Efficiency (%)	重量 Weight (kg)
1	50QW16-7.5-0.75	50	16	7.5	2900	0.75	59.1	28
2	50QW7-12-0.75	50	7	12	2900	0.75	58.3	21
3	50QW10-18-1.5	50	10	18	2900	1.5	58.0	45
4	50QW12.5-22-2.2	50	12.5	22	2900	2.2	59.3	50
5	50QW25-15-3	50	25	15	2900	3	64.1	52
6	50QW15-32-4	50	15	32	2900	4	65.6	55
7	50QW25-22-4	50	25	22	2900	4	65.8	56
8	50QW25-30-5.5	50	25	30	2900	5.5	63.3	95
9	50QW15-50-7.5	50	15	50	2900	7.5	62.3	98
10	50QW30-40-7.5	50	30	40	2900	7.5	64.5	98
11	80QW20-10-1.5	80	20	10	2900	1.5	60.2	45
12	80QW25-12.5-2.2	80	25	12.5	2900	2.2	61.1	50
13	80QW50-8-3	80	50	8	2900	3	63.2	53
14	80QW31-17-4	80	31	17	2900	4	64.2	60
15	80QW50-12-4	80	50	12	2900	4	67.9	60
16	80QW40-30-7.5	80	40	30	2900	7.5	68.2	95
17	80QW50-60-22	80	50	60	2900	22	51.0	302
18	100QW100-8-4	100	100	8	2900	4	67.3	65
19	100QW30-22-5.5	100	30	22	2900	5.5	64.5	95
20	100QW40-20-5.5	100	40	20	2900	5.5	63.3	105
21	100QW65-15-5.5	100	65	15	2900	5.5	65.6	110
22	100QW100-10-5.5	100	100	10	2900	5.5	70.8	110
23	100QW50-22-7.5	100	50	22	2900	7.5	66.6	98



## 潜水排污泵 SUBMERSIBLE SEWAGE PUMP

序号 Item	型号 Type	排出口径 Outlet diameter (mm)	流量 Flow rate (m³/h)	扬程 Head (m)	转速 Rotating speed (r/min)	功率 Power (kW)	效率 Efficiency (%)	重量 Weight (kg)
24	100QW70-22-11	100	70	22	1450	11	69.4	278
25	100QW50-35-11	100	50	35	1450	11	67.2	279
26	100QW87-28-15	100	87	28	1450	15	70.2	360
27	100QW100-60-30	100	100	60	2900	30	73.2	430
28	150QW140-7-5.5	150	140	7	2900	5.5	70.8	99
29	150QW145-10-7.5	150	145	10	2900	7.5	72.2	110
30	150QW210-7-7.5	150	210	7	2900	7.5	71.3	110
31	150QW100-15-11	150	100	15	1450	11	71.8	269
32	150QW200-10-11	150	200	10	1450	11	76.2	282
33	150QW140-18-15	150	140	18	1450	15	74.3	360
34	150QW70-40-18.5	150	70	40	1450	18.5	70.8	480
35	150QW130-30-22	150	130	30	1450	22	74.2	520
36	150QW100-40-30	150	100	40	1450	30	77.2	880
37	150QW200-22-30	150	200	22	980	30	78.1	900
38	150QW200-30-30	150	200	30	980	30	77.5	900
39	150QW160-40-37	150	160	40	980	37	75.4	1150
40	150QW150-60-55	150	150	60	980	55	74.8	1260
41	200QW360-6-11	200	360	6	1450	11	77.2	290
42	200QW400-7-15	200	400	7	1450	15	78.2	380
43	200QW250-15-18.5	200	250	15	1450	18.5	77.3	490
44	200QW300-10-22	200	300	10	980	22	78.6	535
45	200QW400-10-22	200	400	10	980	22	77.8	560
46	200QW300-22-37	200	300	22	980	37	78.3	1100

序号 Item	型号 Type	排出口径 Outlet diameter (mm)	流量 Flow rate (m³/h)	扬程 Head (m)	转速 Rotating speed (r/min)	功率 Power (kW)	效率 Efficiency (%)	重量 Weight (kg)
47	200QW450-22-45	200	450	22	980	45	80.5	1400
48	200QW250-40-55	200	250	40	1450	55	74.4	1380
49	200QW250-50-55	200	250	50	1450	55	74.2	1420
50	200QW400-34-55	200	400	34	980	55	75.1	1480
51	200QW250-60-75	200	250	60	1450	75	77.2	1480
52	200QW350-50-75	200	350	50	980	75	78.3	1600
53	200QW350-60-90	200	350	60	1450	90	79.3	1550
54	250QW600-7-22	250	600	7	980	22	80.1	820
55	250QW250-17-22	250	250	17	980	22	71.0	820
56	250QW500-10-30	250	500	10	980	30	78.2	900
57	250QW400-15-30	250	400	15	980	30	77.8	900
58	250QW600-15-45	250	600	15	980	45	79.6	1456
59	250QW650-22-75	250	650	22	980	75	80.4	1516
60	250QW650-30-90	250	650	30	980	90	79.5	1800
61	250QW600-40-110	250	600	40	740	110	81.0	2000
62	250QW600-50-132	250	600	50	740	132	79.3	2450
63	300QW720-10-37	300	720	10	980	37	79.6	1180
64	300QW900-8-37	300	900	8	980	37	80.3	1150
65	300QW800-15-55	300	800	15	980	55	81.3	1350
66	300QW500-60-132	300	500	60	1450	132	75.2	1980
67	300QW700-60-185	300	700	60	1450	185	78.3	2970
68	350QW1440-5.5-37	350	1440	5.5	980	37	77.5	1250
69	350QW1100-10-45	350	1100	10	980	45	81.1	1500
70	350QW1200-18-90	350	1200	18	980	90	82.0	2000
71	350QW1000-28-132	350	1000	28	740	132	80.7	2830

## 潜水排污泵 SUBMERSIBLE SEWAGE PUMP

序号 Item	型号 Type	排出口径 Outlet diameter (mm)	流量 Flow rate (m³/h)	扬程 Head (m)	转速 Rotating speed (r/min)	功率 Power (kW)	效率 Efficiency (%)	重量 Weight (kg)
72	350QW1000-30-160	350	1000	30	740	160	80.8	3150
73	350QW1200-40-200	350	1200	40	740	200	80.9	3920
74	350QW1000-60-250	350	1000	60	980	250	80.0	4610
75	400QW1250-5-30	400	1250	5	980	30	71.8	960
76	400QW1692-7-55	400	1692	7	740	55	77.9	1350
77	400QW2016-7-75	400	2016	7	740	75	85.8	1700
78	400QW1500-10-75	400	1500	10	980	75	82.5	1670
79	400QW1700-12-110	400	1700	12	740	110	82.4	2670
80	400QW1700-22-160	400	1700	22	740	160	80.3	3200
81	400QW1500-26-160	400	1500	26	740	160	80.5	3210
82	400QW1700-30-200	400	1700	30	740	200	82.5	3850
83	400QW1600-34-250	400	1600	34	740	250	83.3	4280
84	400QW1800-40-280	400	1800	40	980	280	83.5	4730
85	400QW1300-50-280	400	1300	50	980	280	79.3	4780
86	500QW2200-10-110	500	2200	10	980	110	82.5	2160
87	500QW2600-15-160	500	2600	15	740	160	82.8	3214
88	500QW2400-22-220	500	2400	22	740	220	83.3	4280
89	500QW2400-30-300	500	2400	30	740	300	84.2	5120
90	500QW2400-40-400	500	2400	40	740	400	83.9	5950
91	550QW3500-7-110	550	3500	7	740	110	82.8	2300
92	550QW3960-15-220	550	3960	15	740	220	83.5	4400
93	550QW4000-22-400	550	4000	22	740	400	85.1	6010
94	550QW4000-30-450	550	4000	30	740	450	85.1	6280
95	600QW3800-10-160	600	3800	10	740	160	84.1	3000
96	600QW5800-10-250	600	5800	10	740	250	85.0	4050
97	600QW6000-15-355	600	6000	15	740	355	82.3	5530

### 七、QW型潜水排污泵安装形式与尺寸

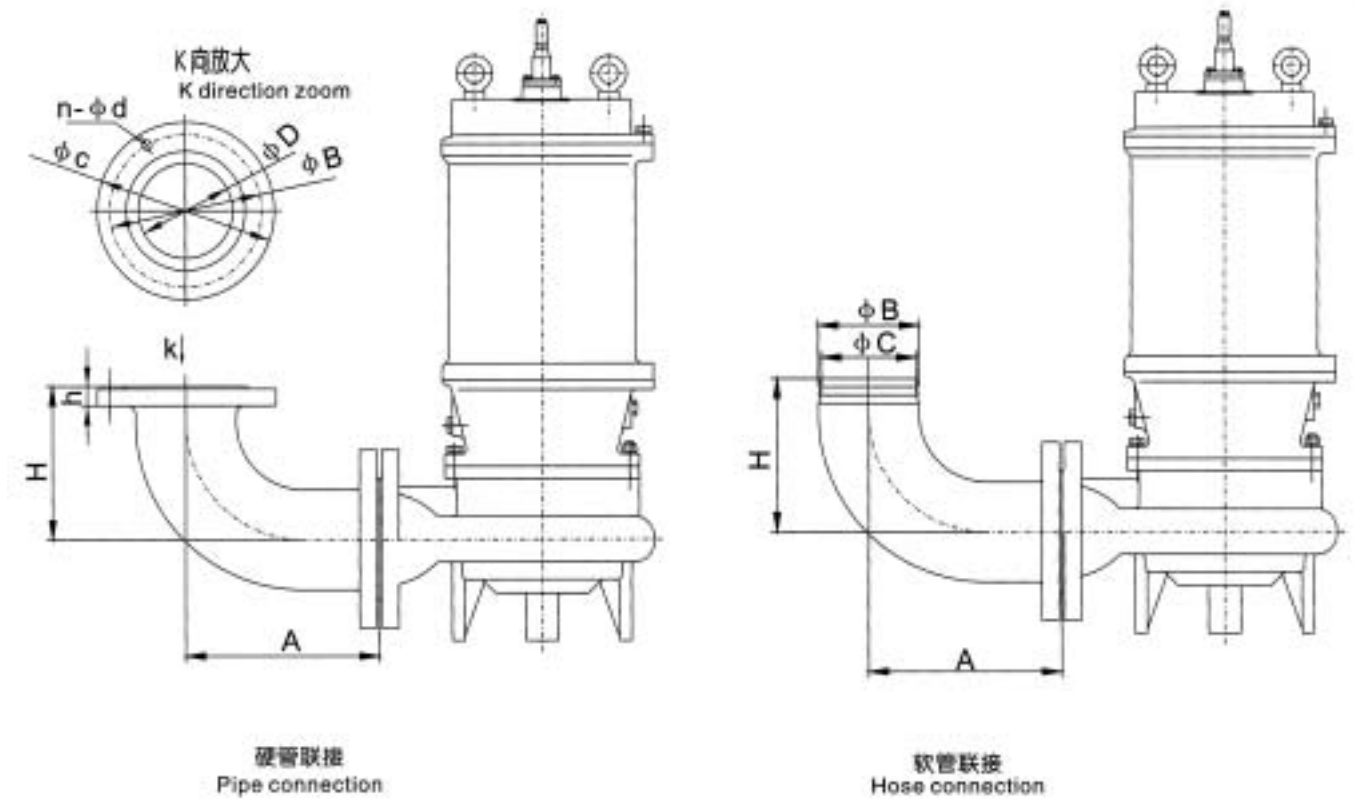
The installation and the size of QW series submersible sewage pump

#### 1、移动式安装及尺寸

移动式安装有两种联接形式，适用于7.5kW以下的泵，即硬管联接和软管联接

#### 1.Removable installation and the size

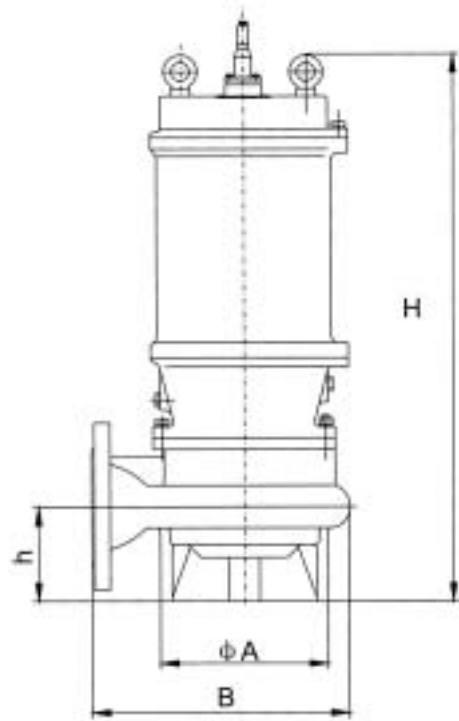
There are two ways to connect: pipe connection and hose connection .It is suitable for pumps below 7.5kW.



硬、软管联接尺寸表 Size table for pipe/hose connections

排出口径 Outlet diameter φD	硬管联接尺寸 Pipe connection size						软管联接尺寸 Hose connection size			
	A	H	h	φB	φC	n-φd	A	H	φB	φC
50	70	100	16	110	140	4-13.5	70	105	58	54
80	85	120	18	150	190	4-17.5	85	120	86	80
100	105	135	18	170	210	4-17.5	150	180	104	100
150	160	200	20	220	265	8-17.5	197	260	154	150

## 潜水排污泵 SUBMERSIBLE SEWAGE PUMP



< 7.5kW QW泵外形图

< Outline drawing for QW series pumps less than 7.5kW

7.5kW以下QW泵外形尺寸表 Size table for QW series pumps below 7.5kW

型号 Type	φA	B	H	h	型号 Type	φA	B	H	h
50QW16-7.5-0.75	156	238	440	75	80QW31-17-4	182	270	666	103
50QW7-12-0.75	170	215	424	75	80QW50-12-4	145	270	550	84
50QW10-18-1.5	175	245	565	98	80QW40-30-7.5	170	330	700	105
50QW12.5-22-2.2	175	245	565	98	100QW100-8-4	180	310	580	102
50QW25-15-3	150	275	555	94	100QW30-22-5.5	180	305	700	106
50QW15-32-4	150	275	545	92	100QW40-20-5.5	170	330	720	125
50QW25-22-4	150	275	555	94	100QW65-15-5.5	220	305	715	114
50QW25-30-5.5	180	280	690	96	100QW100-10-5.5	200	350	720	113
50QW15-50-7.5	320	326	766	165	100QW50-22-7.5	170	330	720	125
50QW30-40-7.5	180	312	710	115	150QW140-7-5.5	200	390	755	148
80QW20-10-1.5	175	245	580	105	150QW145-10-7.5	260	385	770	161
80QW25-12.5-2.2	175	245	580	105	150QW210-7-7.5	260	385	770	161
80QW50-8-3	145	270	552	88					

### 2、导轨式自动耦合安装及尺寸

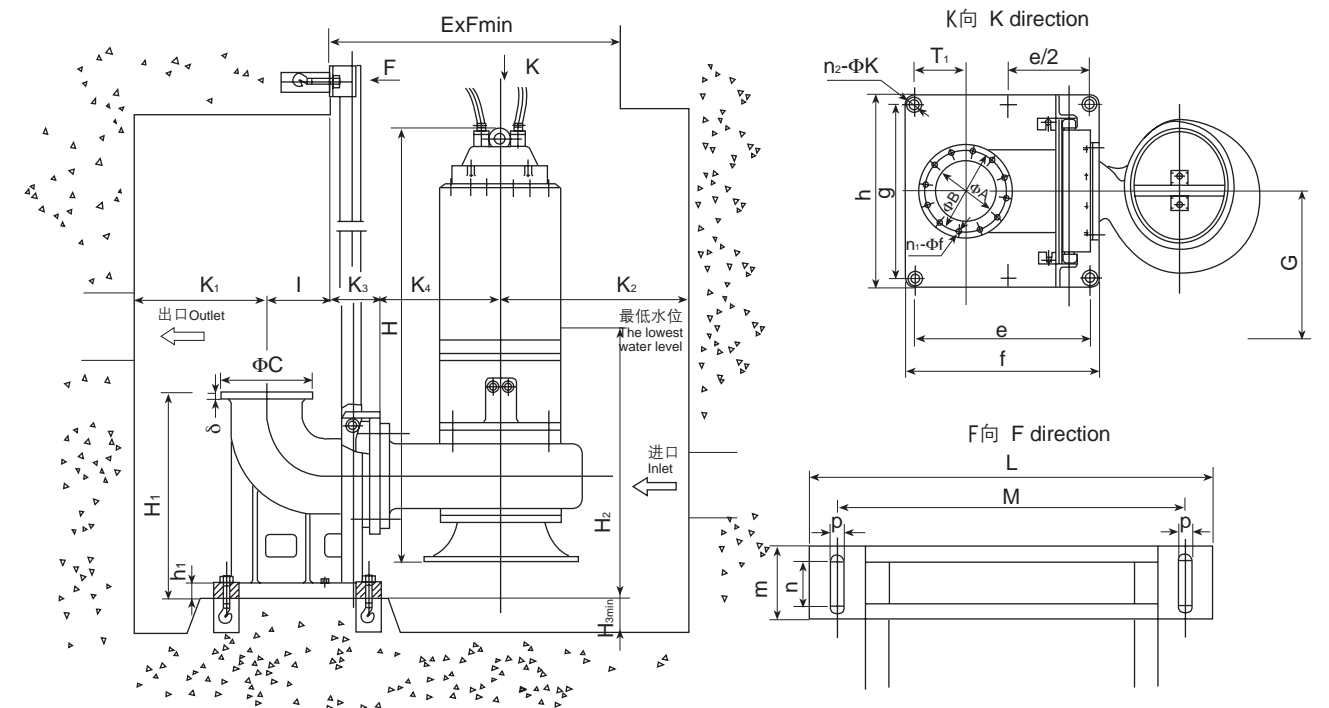
在这种安装形式中，泵与耦合接口相连，耦合底座固定于泵坑底部(在建造泵坑时，先预埋好地脚螺栓，使用耦合底座固定即可)，泵可以在导轨中上下自动移动，当泵放下时，耦合接口自动地与耦合底座耦合，而提升时泵与耦合底座自动脱落。

这种方式可根据用户要求配备液位控制开关、中间端子箱及全自动保护控制柜。

#### 2.Rail-guided coupling installation and its size

In this installation, the pump is connected to a coupler, the seat of which is fastened to the pump pit (when constructing the pit, prepare an anchor bolt in the pit, then just connect the coupler's seat to the bolt during installation). The pump can move up and down freely along a guide rail. When the pump moves down, the coupler will engage with its seat automatically. When the pump moves up, the coupler will detach from its seat voluntarily.

This installation can be fitted upon customers' requirements, with a level limit switch, a terminal box and a self-protective control cabinet.



注:

- ①G尺寸为：同池中两泵间的最小中心距；
- ②K<sub>1</sub>尺寸为出口弯管中心距池壁最小距离；K<sub>2</sub>尺寸为泵中心距进口池壁最小距离；
- ③在选型时，应注明泵的型号、安装方式、池深、泵控制保护方式，以便提供最优的系统；
- ④如用户有特别需要，我厂可提供特种材料的水泵。

Note:

- ①G represents the minimal distance between the centers of two pumps in the pit;
- ②K<sub>1</sub> represents the minimal distance between the center of the outlet bent and the pit wall; K<sub>2</sub> represents the minimal distance between the pump center and the pit wall at the inlet.
- ③When choosing a pump, you should mark out your decision depends on its type, installing mode pit depth, and pump control & protection, mode in order to purchase the most appropriate system.
- ④If special requirements should be met, we also can offer pumps to our customers with special materials.



## 潜水排污泵 SUBMERSIBLE SEWAGE PUMP

序号 Item	型号 Type	φA	φB	φC	n <sub>1</sub> - ∅f	δ	e	f	g	h	H <sub>1</sub>	h <sub>1</sub>	n <sub>2</sub> - ∅k	L	M	m	n	p	K <sub>3</sub>	K <sub>4</sub>	H	I	T <sub>1</sub>	H <sub>amin</sub>	H <sub>z</sub>	ExF	K <sub>1</sub>	K <sub>2</sub>	G	
65	300QW800-15-55																													
66	300QW500-60-132	300	395	440	12-22	30	770	870	780	880	765	45	4-40	888	800	150	90	27	177	600	2899	383	250	400	760	1450x1200	750	940	940	
67	300QW700-60-185																													
68	350QW1440-5.5-37																													
69	350QW1100-10-45																													
70	350QW1200-18-90																													
71	350QW1000-28-132	350	445	490	12-22	30	770	870	780	880	765	45	4-40	888	800	150	90	27	177	700	2528	383	250	500	780	1800x1400	1000	950	930	
72	350QW1000-30-160																													
73	350QW1200-40-200																													
74	350QW1000-60-250																													
75	400QW1250-5-30																													
76	400QW1692-7-55																													
77	400QW2016-7-75																													
78	400QW1500-10-75																													
79	400QW1700-12-110																													
80	400QW1700-22-160	400	515	565	16-26	30	850	950	780	880	800	50	6-40	630	542	150	90	27	275	900	2920	390	240	500	800	2100x1700	1100	850	1050	
81	400QW1500-26-160																													
82	400QW1700-30-200																													
83	400QW1600-34-250																													
84	400QW1800-40-280																													
85	400QW1300-50-280																													
86	500QW2200-10-110																													
87	500QW2600-15-160																													
88	500QW2400-22-220	500	620	670	20-26	32	1140	1260	830	950	1350	50	6-48	798	710	150	90	27	280	1000	3078	595	300	600	1250	2200x1800	1300	1200	1000	
89	500QW2400-30-300																													
90	500QW2400-40-400																													
91	550QW3500-7-110																													
92	550QW3960-15-220	550	675	730	20-30	32	1180	1300	1090	1210	1200	55	6-48	798	710	150	90	27	288	1000	3283	665	290	600	1300	2000x1700	1300	1250	1250	
93	550QW4000-22-400																													
94	550QW4000-30-450																													
95	600QW3800-10-160	600	725	780	20-30	32	1180	1300	1090	1210	1400	55	6-48	888	800	150	90	27	290	1200	3480	635	320	600	1350	2500x2000	1300	1250	1800	
96	600QW5800-10-250																													
97	600QW6000-15-355																													

### 3、导杆式自动耦合安装及尺寸

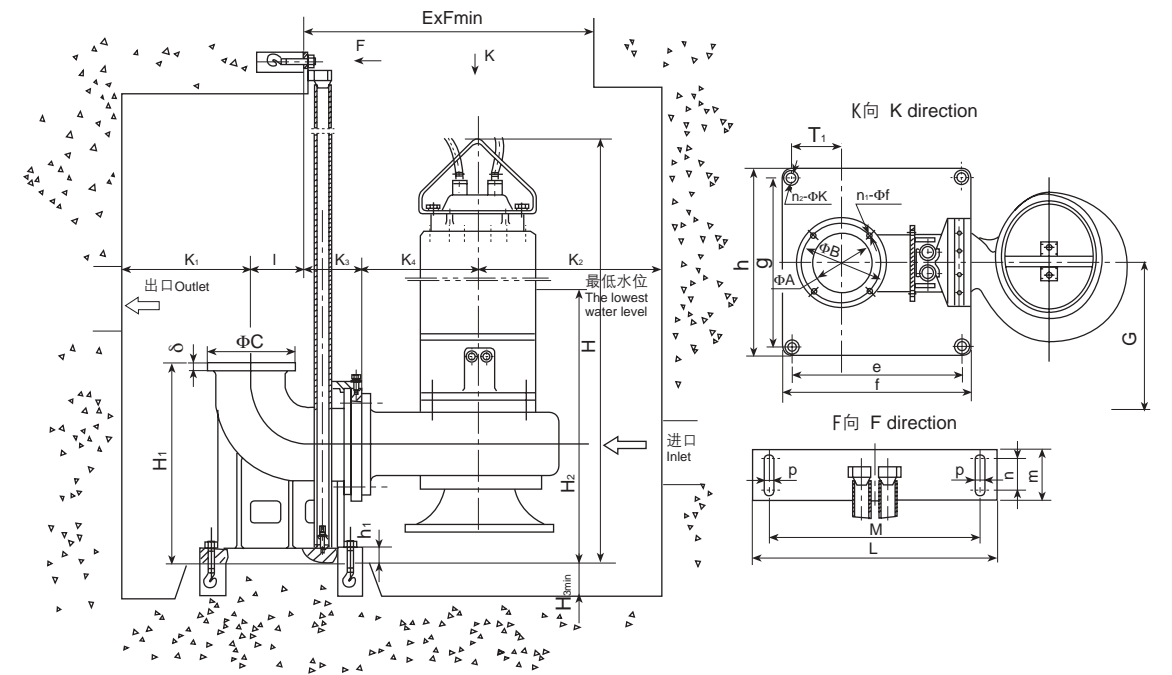
这种安装形式适用于400口径以下的潜污泵。在这种安装形式中，泵与耦合接口相连，耦合底座固定于泵坑底部(在建造泵坑时，先预埋好地脚螺栓，使用时将耦合底座固定即可)，泵可以在导杆上上下自由移动，当泵放下时，耦合接口自动与耦合底座耦合，而提升时泵与耦合底座自动脱落。

这种方式可根据用产要求配备液位控制开关、中间端子箱及全自动保护控制柜。

#### Rod-guided coupling installation and its size

This installation is suitable for outlet diameter  $\leq 400\text{mm}$  submersible pumps. In this installation, the pump is connected to a coupler, the seat of which is fastened in the pump pit (when constructing the pit, prepare an anchor bolt in the pit, then just connect the coupler's seat to the bolt during installation). The pump can move up and down freely along a guide rail. When the pump moves down, the coupler will engage with its seat automatically. When the pump moves up, the coupler will detach from its seat voluntarily.

This installation can be fitted upon customers' requirements, with a level limit switch, a terminal box and a self-protective control cabinet.



注:

- ①G尺寸为：同池中两泵间的最小中心距；
- ②K<sub>1</sub>尺寸为出口弯管中心距池壁最小距离；K<sub>2</sub>尺寸为泵中心距进口池壁最小距离；
- ③在选型时，应注明泵的型号、安装方式、池深、泵控制保护方式，以便提供最优的系统；
- ④如用户有特别需要，我厂可提供特种材料的水泵。

Note:

- ①G represents the minimal distance between the centers of two pumps in the pit;
- ②K<sub>1</sub> represents the minimal distance between the center of the outlet bent and the pit wall; K<sub>2</sub> represents the minimal distance between the pump center and the pit wall at the inlet.
- ③When choosing a pump, you should mark out your decision depends on its type, installing mode, pit depth, and pump control & protection, in order to purchase the most appropriate system.
- ④If special requirements should be met, we also can offer pumps to our customers with special materials.



## 潜水排污泵 SUBMERSIBLE SEWAGE PUMP

序号 Item	型号 Type	φA	φB	φC	n <sub>1</sub> of	δ	e	f	g	h	H <sub>t</sub>	h <sub>1</sub>	n <sub>2</sub> øk	L	M	m	n	p	K <sub>3</sub>	K <sub>4</sub>	H	I	T <sub>1</sub>	H <sub>3min</sub>	H <sub>2</sub>	EXF	K <sub>1</sub>	K <sub>2</sub>	G
63	300QW720-10-37																				560	1935				1300x1000		650	940
64	300QW800-8-37																				560	1935				1300x1000		650	940
65	300QW800-15-55	300	395	440	12-22	28	520	580	500	560	715	30	4-27	320	250	150	90	18	202	555	1955	253	155	400	760	1450x1200	900	750	940
66	300QW500-60-132																			600	2899					1800x1400		1000	940
67	300QW700-60-185																			600	2699					1800x1400		1050	940
68	350QW1440-5.5-37																			600	2060					1300x1000		750	930
69	350QW1100-10-45																			550	1990					1450x1200		800	930
70	350QW1200-18-90																			620	2395					1600x1300		800	930
71	350QW1000-28-132	350	445	490	12-22	28	560	620	530	590	715	30	4-27	320	250	150	90	18	202	700	2528	283	175	500	780	1800x1400	1000	950	930
72	350QW1000-30-160																			700	2658					1900x1500		1050	950
73	350QW1200-40-200																			900	2271					1900x1500		950	950
74	350QW1000-60-250																			800	2089					1900x1500		1050	1000
75	400QW1250-5-30																			700	1496					1400x1200		750	900
76	400QW1692-7-55																			700	2546					1600x1300		750	900
77	400QW2016-7-75																			700	2600					1600x1300		800	950
78	400QW1500-10-75																			640	2432					1600x1300		800	950
79	400QW1700-12-110																			750	2660					1750x1350		950	1050
80	400QW1700-22-160	400	515	565	16-26	30	700	760	600	660	780	30	4-27	630	542	150	90	22	227	900	2920	363	175	500	800	2100x1700	1100	850	1050
81	400QW1500-26-160																			900	2897					1900x1500		900	1050
82	400QW1700-30-200																			900	3078					2100x1700		950	1100
83	400QW1600-34-250																			900	3078					2100x1700		1050	1200
84	400QW1800-40-280																			700	3045					1900x1500		1100	1250
85	400QW1300-50-280																			800	2938					1900x1500		1100	1250

## 八、成套供货范围与订货须知 Scope of whole set supply and order information

### 1、成套供货范围 Scope of whole set supply

供应范围 Scope of supply	安装方式 Mounting method			备注 Remarks	
	移动式 Removable		自动耦合式 Automatic coupling		
	软管联接 Hose connection	硬管联接 Pipe connection			
必购件 Required parts	主泵 Main pump	●	●	●	
	控制柜 Control cabinet	●	●	●	
	双法兰弯管 Bend with double flanges		●		
	单法兰弯管 Bend with single flange	●			
	自动耦合装置 Automatic coupling equipment			●	导轨长度(或池深)由用户确定 The rail length(or pit depth)to be decided by the user
选购件 Optional parts	拦污栅 Gratings	●	●	●	外形尺寸及安装尺寸由用户确定 The dimension and mouting size to be decided by the user
	启闭机及闸门 Start/stop machine and the gate	●	●	●	闸门尺寸由用户确定 The gate size to be decided by the user
	端子箱 Terminal box	●	●	●	
	液位开关 Level limit switch	●	●		
	地脚螺栓(一套) Anchor bolt(1 set)			●	
	软管 Hose	●			
	蝶(闸)阀 Butterfly (gate)valve	●	●	●	
	止回阀 Check valve	●	●	●	
可挠性橡胶接管 Bendable rubber joint	●	●	●		
易损件 Consumable parts	O形圈 O-shaped ring	●	●	●	
	叶轮 Impeller	●	●	●	
	密封环 Seal ring	●	●	●	
	轴承 Bearing	●	●	●	
	机械密封 Mechanical Seal	●	●	●	
	进线密封圈 Gasket incoming Seal cables	●	●	●	

## 潜水排污泵 SUBMERSIBLE SEWAGE PUMP

### 2、订货须知

- ①在合同中应注明准确的产品型号、产品名称、安装形式、性能参数(流量、扬程、电机功率)和使用电压;
- ②控制柜应注明其起动方式(直接起动、自耦降压起动、可控硅软起动)、液位控制方式(浮球液位、压力变送器数显液位)、安装形式(户内型、户外型);
- ③如需配端子箱,应注明是控制型,还是接线型;
- ④在“供货范围”中需由用户确定的尺寸应及时提供;
- ⑤本公司正常供货长度:7.5kW以下水泵电缆长6m,其余为10m,导轨长为3m,若用户有特殊要求,请予注明;
- ⑥如有其它特殊要求,签订合同前请与亚太销售部门联系。

### 2.Order information

- ①In the contract,the type, name, installation method,functional parameters(flow rate,head,motor power)and voltage used should be provided specifically.
- ②For the control cabinet,the way to start it(directly,self-coupling step-down,or controlled silicon soft start),the way to control the liquid level(floating level,presure transmitter's displayed liquid level)and the mode to install(indoor tpye,or outdoor type)should be indicated.
- ③If a terminal box is required,please indicate the control type or the wiring type.
- ④Please provide the size to be decided by the user for items,which are listed in the "scope of supply"section.
- ⑤Normally,we provide 6m long cable for water pumps less than 7.5kW and 10m for other types. The guide rail is 3 m long. For any special requirement,please indicate.
- ⑥For special requirements to be met,please consult our sales department before a contract.

## 潜水离心式泵站设计参考

### References to design a submersible centrifugal pump station

#### 一、潜水泵的优点 Advantagess

在进水池和泵站的整体设计中,潜水泵比非潜水泵具有更大的优点,主要包括:

- 1、在输送流量相同的情况下,进水池较小,因为备用泵不安装在进水池里,而是可以存放于它处;
- 2、泵站上层结构能被省略掉,或者至少可以设计得更小、更简单,因为仅有电气控制设备及开关被安置在水面之上;
- 3、水泵的安装十分简单快捷,因为它不需要用螺栓固定。

因此,使用了潜水泵的泵站将减少建设和运行费用。既可应用于新建泵站,也可用于老泵站的现代化改造。在用潜水泵代替非潜水泵的改建时,只需要修改小部分结构和管网即可,而其投资通常比用非潜水泵进行泵站改造要少。

潜水泵的优点在小型泵方面已广泛被认识,而其在大型泵方面具有更大的优点。随着泵站尺寸的增大,整个泵站所省下的费用也就越大。

In the overall design of the intake pool and the pump station,the submersible pump is much more advantageous than a non-submersible pump,that is:

1. Given the same flow rate,its intake pool is smaller because the standby pump is not located in the pool but somewhere else.
2. The pump station has been refined or at least the design becomes less complicated because only electrical contorl devices and switches are located above the water.
3. It is very simple and easy to install the water pump because no bolts are needed to fasten it.

Therefore,a pump station using the submersible pump will reduce construction and operation costs. The pump not only can be used for a new pump station,but also can be used to update an old pump station.When making an upgrade to a pump station having a non-submersible pump,with a submersible pump,it is only necessary to change a small portion of structure and pipe network. The resulting cost is much less than that when changing a new non-submersible pump.

The advantage of a small submersible pump has been widely recognized. But a large pump has much more advantages. As the size of the pump station increases,the saving cost also grows.

#### 二、进水池的设计 Pool design

流入泵中的理想水流应该是均匀平稳的,没有涡流,不夹杂空气。

进水池中水流状态对水泵进水性能具有显著影响,如果池中水流紊乱,出现漩涡,不仅会降低水泵效率,甚至引起机组汽蚀、振动而无法工作。而池中水流状态除取决于前池的来水外,还和进水池几何形状、尺寸、泵在池中的相对位置等因素有关,同时各因素又相互影响相互关联。

进水池的设计不但应该提供适宜的流向水泵的水流,而且应防止污物沉积,以及进水池表面浮渣。

The water that flows into a pump should,ideally,be even,smooth,and free from vortex and air.

The water flow in the pool has a significant effect on the pump suction. If there is vortex in water,and even turbulence,it will not only affect the pump performance, to the extent, it will cause cavitation,vibration and failure. In addition to the incoming water, the flow also depends on the pool's shape,size and the relative location of a pump in the pool. At the same time,all factors are interlinked and interacted.

The pool design should not only provide appropriate water flow to the pump,but also can prevent sediments and surface dross in the pool.

下面几点应予考虑:

- 从进水池进水口而来的水流应直接流向泵的进口,使到达泵进口时漩涡最小且水流能量损失最小。
- 为了防止进水池中夹带着空气的表面涡流的产生,墙必须建成平直。在靠近进水口处适当的位置安置堵墙,可降低产生局部漩涡和涡流的可能性。另外,进水池里的水必须有足够的深度以便排除表面涡流。
- 虽然过大的湍流或漩流应避免,但有些湍流和漩流有助于防止涡流的产生和形成。
- 可能会产生异味的沉淀物不能沉积在进水池中,易导致垃圾沉积的滞流区或类似的低流速区应注意避免。
- 进水池的进水口与泵进口间必须有足够的长度,使水流到达泵入口前空气可升到水表面并逸散。
- 水落下的能量必须尽量消耗,以使进水池中不致产生过大的不规则的流速,可以使进水撞击某些物体,如阻挡墙。

以下几种泵站结构供设计参考

进水池的基本尺寸如图2、3、4、5中的A到F所示,这些尺寸依据泵的设计流量而定。A到F尺寸可在图1中查到。图中的推荐尺寸是给定流量下最优的,并在实践中得到证实。



## 潜水排污泵 SUBMERSIBLE SEWAGE PUMP

任何偏离了推荐值的尺寸可能使流速增大而导致涡流的形成和空气的进入。相反，速度太低可能导致沉淀。在所有尺寸中，只有尺寸A的增大是安全的。

The following considerations should be given:

The water flow from the pool should run directly to the pump inlet, thus maximizing the occurrence of vortex at the inlet and the loss of water momentum.

In order to prevent vortex flow, which is mixed with air, the pool wall should stand straight. Near the inlet, a wall should be installed to reduce partial turbulence and vortex. Besides, the water in the pool should be deep enough to dismiss the surface vortex flow. Although a rather turbulent or rotational flow should be avoided, some of them are helpful to prevent occurrence and formation of the vortex.

The material that may cause strange odor will not sink into the water and therefore is easy to produce a dead area or a slow-down area that tends to accumulate floats. This should be avoided.

There must be sufficient distance between the pool entrance and the pump inlet, to let the air go off before the water reaches the inlet.

The momentum should be diffused as much as possible to prevent irregular water flow in the pool. This can be achieved with some buildings, such as a barrier wall.

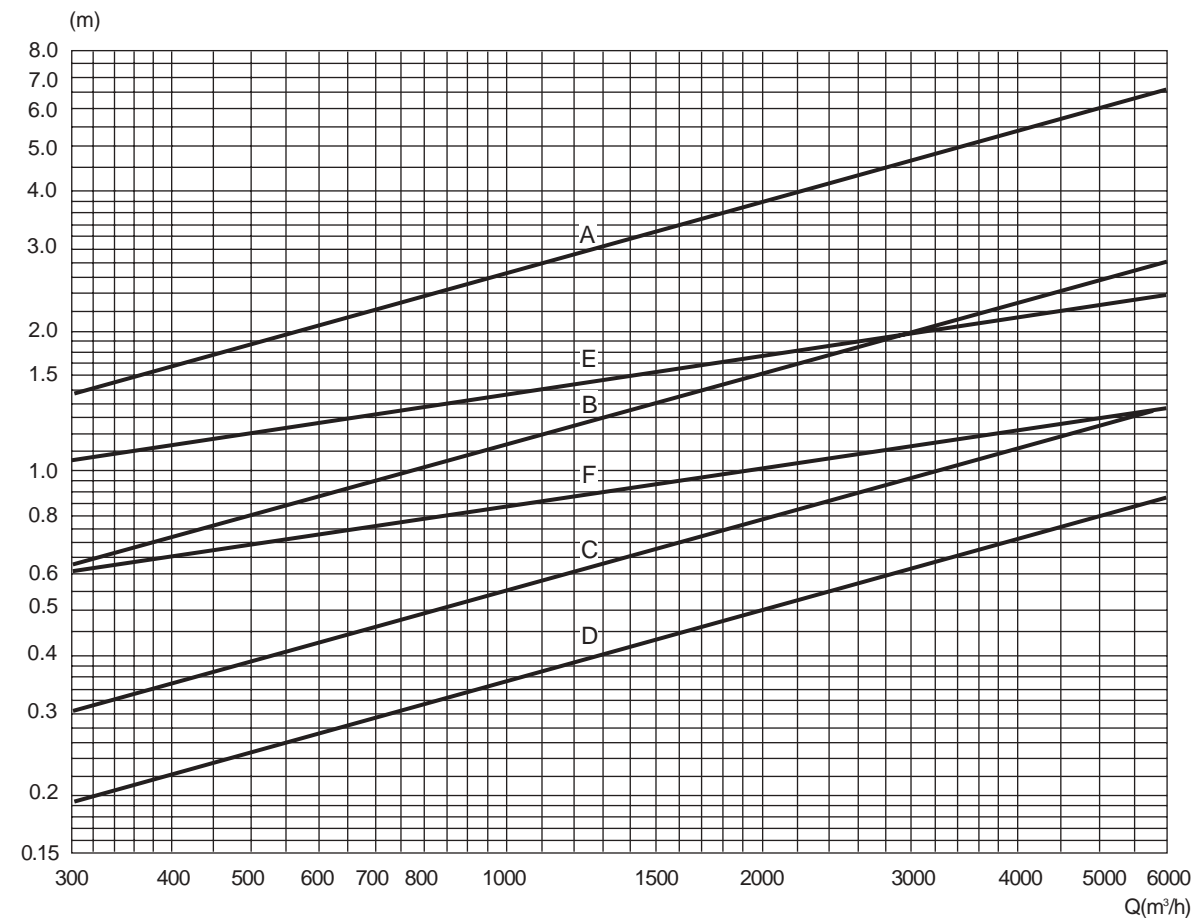


图1 有关进水池尺寸关系的确定  
Drawing 1 The determination to the relation with the pool size

注:

- ①参数A: A是进水管到达泵的长度, 足够的长度可以使水流在到达泵之前能达到大体均匀的状况。
- ②参数B: 两泵中心距, 当此值小于安装尺寸时, 两泵之间的安装间隙至少应取200毫米。
- ③参数C: 侧墙和泵壳之间的间隙, 必须至少100毫米。
- ④参数F: 进水池中水的最小深度。F尺寸应同时满足下列几点: 最后一个泵的关系水位不应该低于尺寸F; 液面不应低于泵的最低运行水位; NPSH要求也必须满足。
- ⑤本公司产品的安装尺寸, 可以在自动耦合式安装尺寸表中查到。

Note:

- ①Parameter A: A is the length of the intake pipe to the pump. An adequate length can compromise the water flow before reaches the pipe.
- ②Parameter B: the distance between the centers of two pumps. When it is less than the installation size, the gap between two pumps should be at least 200 mm.
- ③Parameter C: the gap between the side wall and the pump housing. It must be at least 100 mm.
- ④Parameter F: the minimal depth of the water pool. The size F should meet the following requirement: the water level of the last pump during shutdown should not be lower than F; the liquid surface should not be lower than the lowest water level where a pump operates; the NPSH requirement also should be satisfied.
- ⑤The installation size can be found in the size table for the automatic coupling installation.

### 1、高位进水口的进水池

根据进水管的位置可选择两种不同的高水位进口方案: (1) 正面进口 (图2); (2) 侧面进口 (图3)。

#### (1) 正面进口

下图所示的布置设计, 能应用于单泵和更为常见的多泵系统, 它占有空间最小, 并可组成更为复杂的其他布置形式。

#### 1. The pool with a high-level water entrance

According to the location of the intake pipes, there are two different high-level water entrance schemes to choose: (1) Front-run entrance (drawing 2); (2) side-run entrance (drawing 3)

#### (1) Front-run entrance

The following layout can be used for a single pump and, more commonly, multi-pump system. It has the least space occupation and can be built into a more complex one.

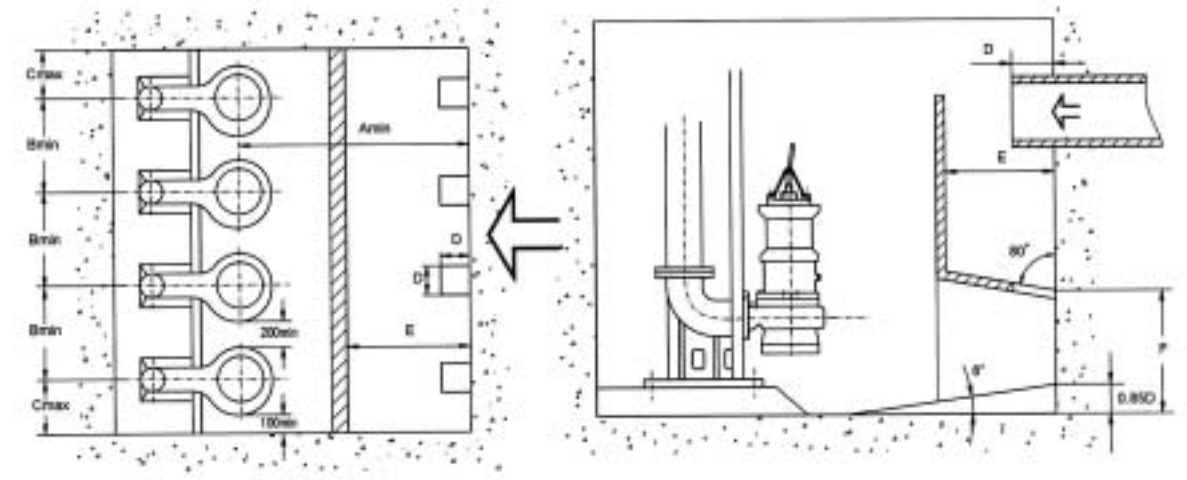


图2 正面进水, 高位进水口的进水池  
Drawing 2 Front-run water, the pool with a high-level water entrance

## 潜水排污泵 SUBMERSIBLE SEWAGE PUMP

### (2) 侧面进口

下图所示的进水池设计适用于污水从进水池的一侧进口。由于进口腔必须适应污水管的要求，它应比管的直径大25%。隔墙高度应至少是污水管直径的3/4倍。不然的话，进水池应采用类似于图2的结构。

### (2) Side-run entrance

The pool design shown below is used to import the sewage from the side of the pool. The intake chamber should adapt to the sewage pipe and be 25 percent larger than the pipe diameter. The height of the isolator wall should be at least 3/4 times than the diameter of the sewage pipe, or the pool should use a structure like drawing 2.

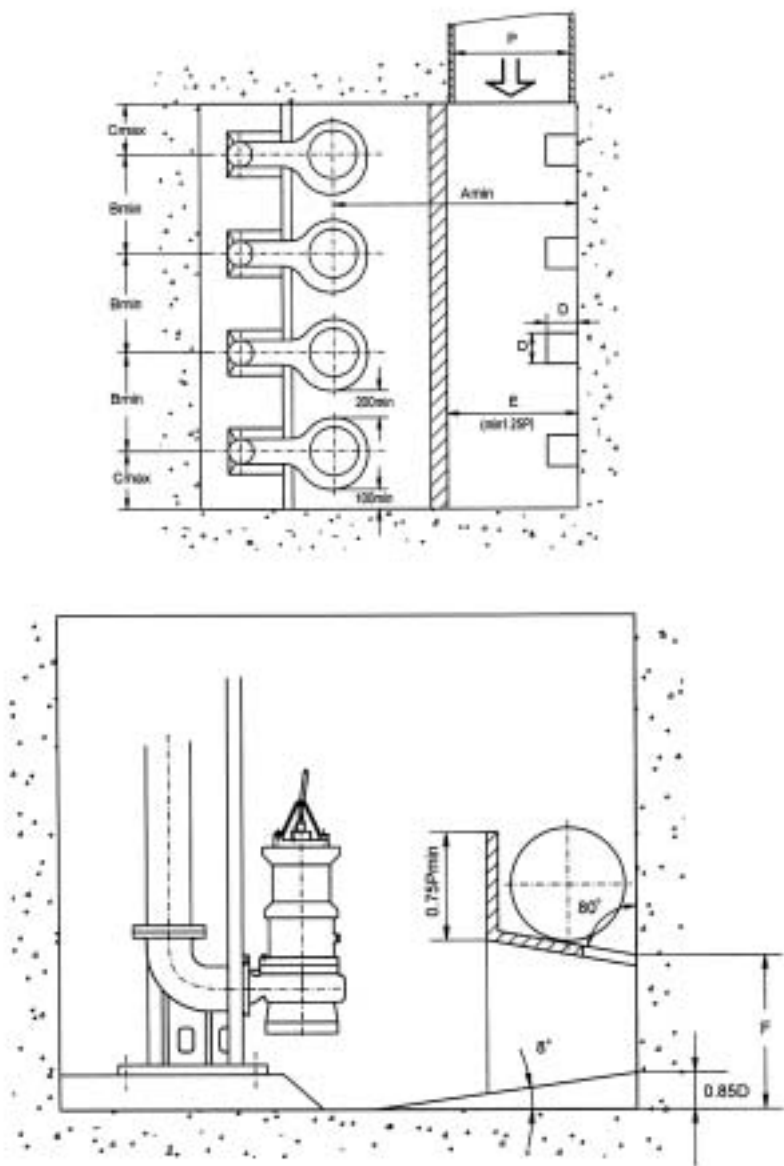


图3 侧面进水，高位进水口的进水池  
Drawing 2 Side-run water, the pool with a high-level water entrance

### 2、低位进水口的进水池

在这种布置中，或者是进水口低于进水池正常水面高度，或者是进水池由开式渠道供水。由于没有进水的落差，能避免大量空气进入的情况。因此进口腔可大大简化，只需平均分配水流到泵中去。另外，正面进口(图4)和侧面进口(图5)也是有区别的。

### (1) 正面进口

如果进水管从前方进入进水池，进口腔就不需要。水流仍必须被均匀分配到所有泵上，可用图4中所示的扩散结构。水池与以前的一样。在一些情况下，各泵之间的分隔物或低位开孔的一种横置的隔墙(如图5所示)可帮助分配水流。

### 2. The pool with a low-level entrance

In this layout, either the entrance is lower than the normal water level in the pool, or the pool is changed through an open channel. Because there is no drop difference, the intake of excessive air can be avoided. Therefore, the intake chamber can be simplified and is just needed to evenly allocated to the pump. Furthermore, the front-run entrance (drawing 4) and the side-run entrance (drawing 5) are different in some way.

### (1) Front-run entrance

If the intake pipe goes into the pool from the front side, the intake chamber is not needed any more. The water flow must be evenly distributed into all pumps. A distributor shown in drawing 4 can be used, the pool is the same as before. In some cases, the isolator between pumps, or a barrier wall with holes at low level, can help you to distribute the water flow.

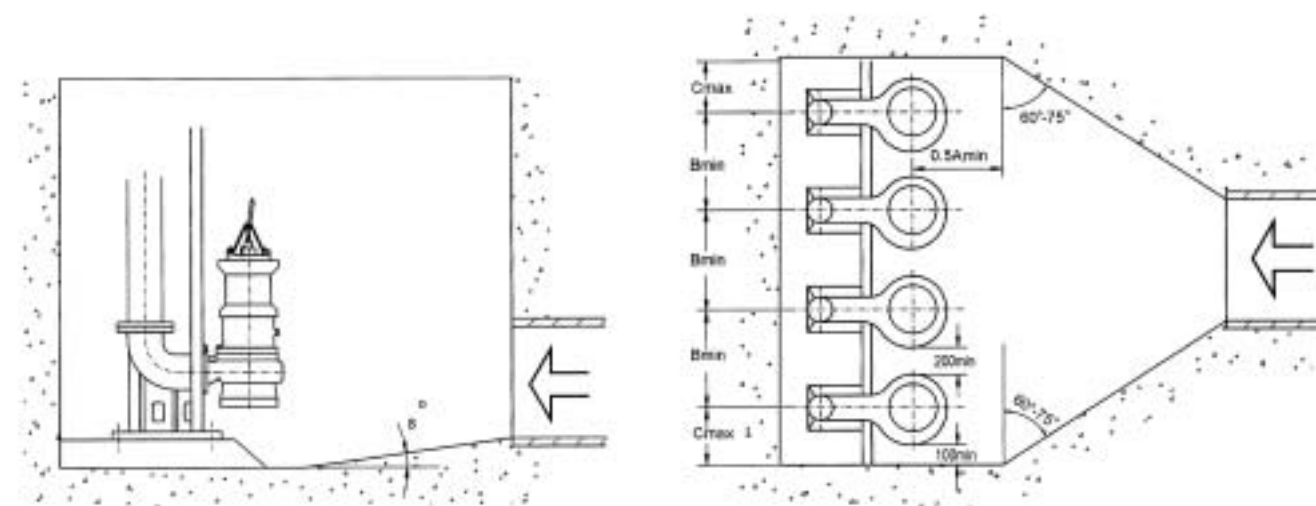


图4 正面进水，低位进水口的进水池  
Drawing 4 Front entrance, the pool with a low-level water entrance

## 潜水排污泵 SUBMERSIBLE SEWAGE PUMP

### (2) 侧面进口

图5显示了进水池底部的进水管。进口腔仅仅由垂直挡墙构成。出水孔在挡墙上接近进水池底板处。墙顶部或部分墙顶应该低于任何泵的最高启动水位，以便允许飘浮物进入进水池中。

### (2) Side-run entrance

Drawing 5 shows the intake pipe at the bottom of a pool. The intake chamber is just formed with vertical walls. The outlet hole is located near the bottom plate of the pool. The wall top or its part should be lower than the maximum water level to start any pump, thus allowing floats to enter the pool.

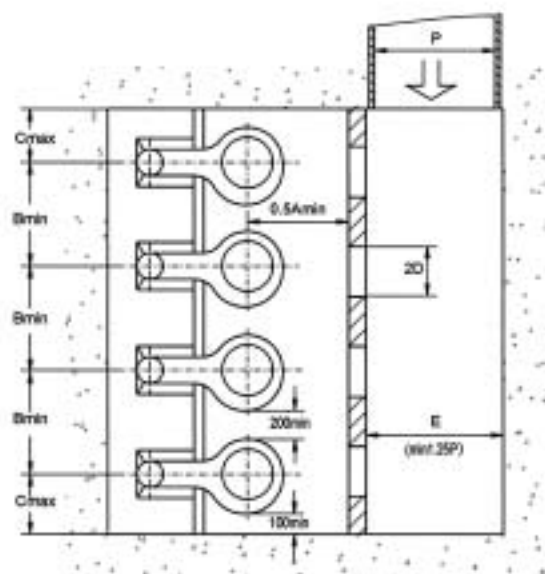
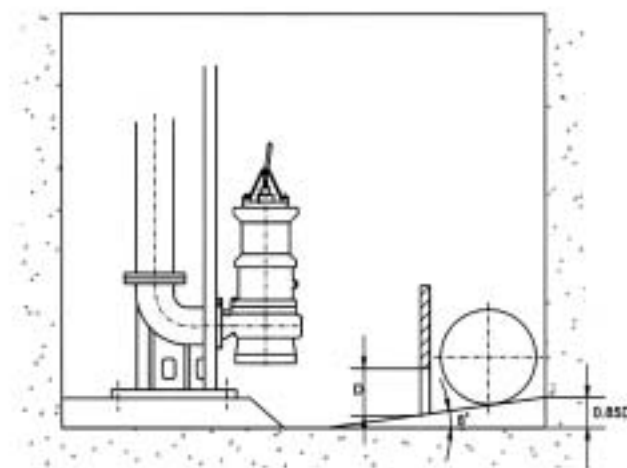


图5 侧面进水，低位进水口的进水池  
Drawing 5 Side-run entrance, the pool with a low-level water entrance



### 3、结构变化

如图2所示的标准矩形进水池设计原理，它能作为开发其它布置形式的进水池的基础。

当泵的数量超过6个，进水池布置长度可能过长。在这样的情况下，双进水池(如图6、7所示)可能更加适用。

### 3. Structural changes

As drawing 2 shows, the design principle for a standard rectangle pool can be used as a basis to construct other pools.

When the number of pumps is more than 6, the length of the pool may be too large. In this case, double pools (see drawing 6 and 7) are possibly more suitable.

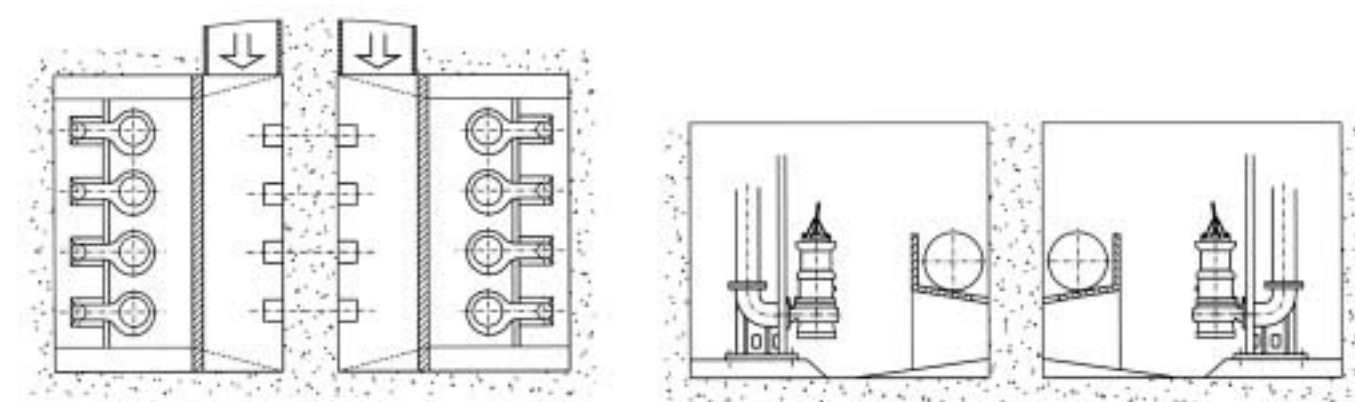


图6 侧面进水，中位进水口的双进水池  
Drawing 6 Side-run entrance, double pools with the mid-level entrance

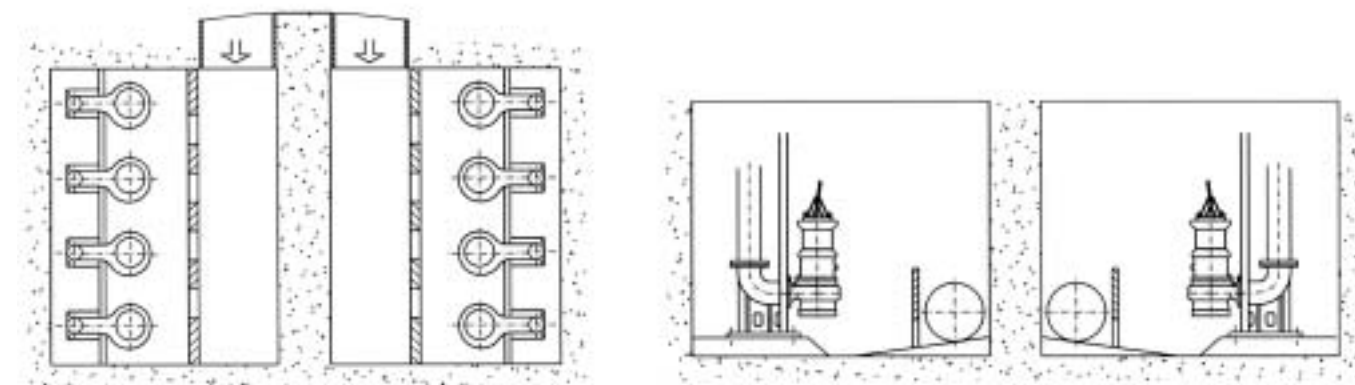


图7 侧面进水，低位进水口的双进水池  
Drawing 7 Side-run entrance, double pools with the low-level entrance

## 潜水排污泵 SUBMERSIBLE SEWAGE PUMP

对于较深的进水池，从结构观点来看，一种圆形的结构可能更具优越性。在这一结构中容纳了类似于简单进水池的各个水泵进水池(如图8所示)。

For a deep pool, a round external structure can be more advantageous from the view of structure. In this structure, various pump pools similar to a simple pool are included (refer to drawing 8)

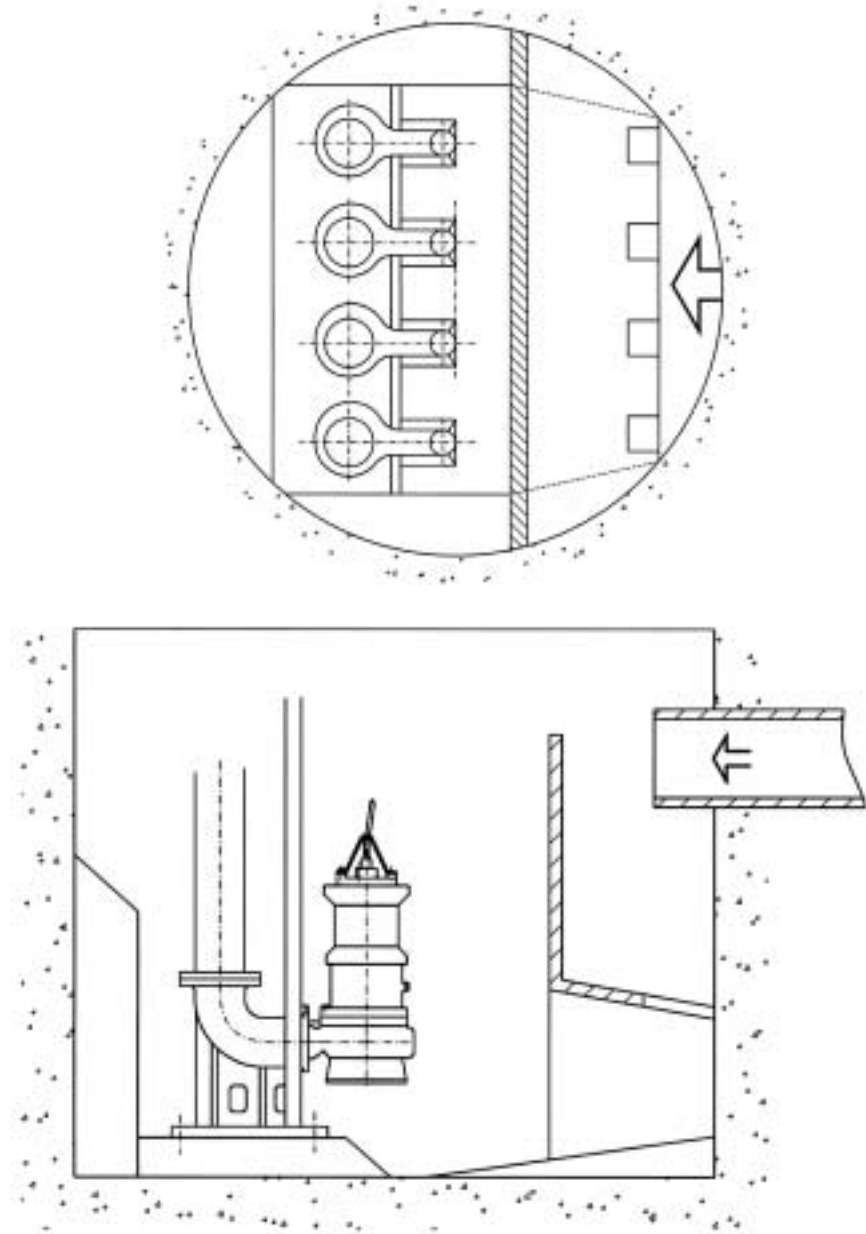


图8 采用圆形的结构，进口腔在泵的前方的进水池

Drawing 8 uses a round external structure and the intake chamber is located in the pool in front of the pump

一种将进口腔放于泵后面的特别布置(如图9所示)，圆形是由于结构的原因所选定。水通过进水池每边底部的开口进入泵腔，在高水位时则是通过溢流口。

This is a special layout, which puts the intake chamber behind the pump (see drawing 9). The round is chosen according to the structure. The water flows through the opening at the bottom on each side of the pool into pump chamber. For high water level, it flows through overflow port.

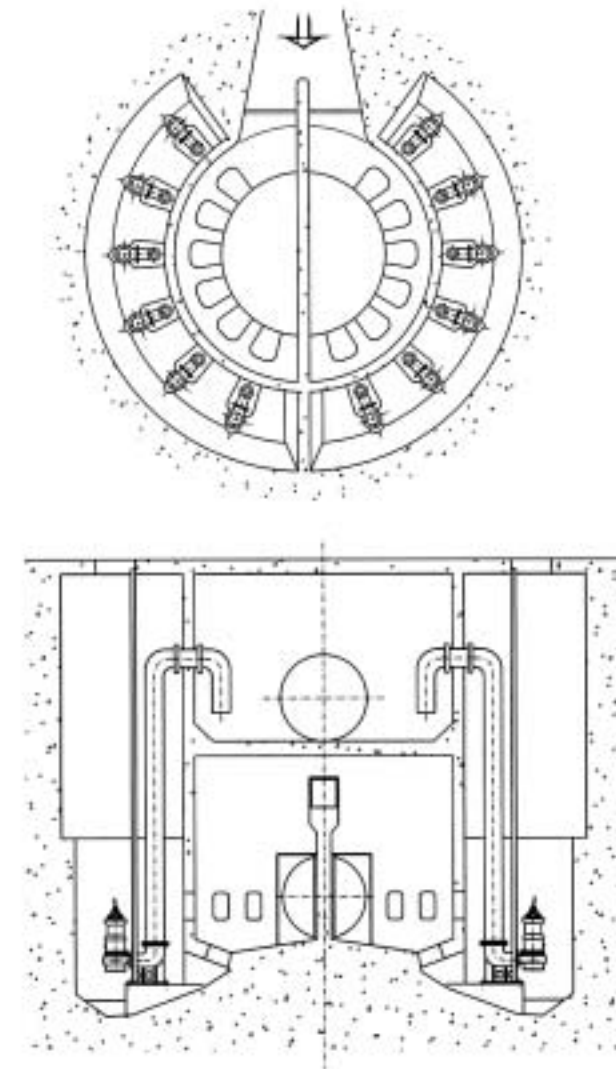


图9 圆环形进水，上部出水的进水池

Drawing 9 Circular water entrance, the pool with water entrance at top

任何新的泵站设计都需要研究，并应采用模型试验进行验证，特别是采用全新结构，尚无类似结构泵站运行经验时。

Any designs for a new pump station should be studied and verified through model experiments, especially when a structure is new or has not been proved.

## 三、一般考虑的内容 General considerations

完整的泵站设计有相当多的内容，这里仅讨论涉及泵站设计的一些较重要的事项。

- 1、对潜水泵泵站而言，泵站上层的建筑物不是水泵运行所必需的，但是如果必须在现场进行检修服务，要考虑建造房间(有时随当地规定)。
- 2、应建检修门以用于关闭泵站或它的局部，以便检查修理其结构和对固定组件检查修理。大泵站应细分，以确保任何时候能局部进行输水(尤其是有泵在检修时)。
- 3、为了便于安装，服务和大修，进出方便十分重要，安排合理的盖、梯子和操纵装置能节省很多工时，同时也有助于防止事故。
- 4、泵站内还应有提升装置，它应能提升水泵及阀门，以及其他重型物。
- 5、现场建筑物的通风供热也是必要的，通风是特别重要的，不仅排污泵站，而且其它情况下均有需要。它能防止进水池附近的有毒或爆炸气体的聚集。
- 6、如果污水中含大量的草、树叶、破布及其它纤维材料而可能阻塞水泵时，则必须采用格栅以防堵塞。没有格栅，泵的容量会下降，动力消耗增加，而当超出功率极限时，便会被迫停止运转。
- 7、如果水中含有大量的沙子，则应设立集沙井，防止沙子进入进水池而可能对泵造成损坏。集沙井应易于清理。

To achieve a perfect design for a pump station,there are many contents to be considered.The following are some important items to be covered.

- 1.For a pump station using a submersible water pump,the top portion is not mandatory for pump operation,However,if on-site services are required,please consider to construct a room(sometimes according to the local authorities).
2. Inspection door should be provided to shut down the pump station or its portion,thus to facilitate inspection and maintenance for the structure as well as fixed components.A large pump station should be subdivided so that any portion can fulfill its task to transport water at any time,especially when services are made on the pump.
3. In order to install,service and overhaul the equipment,a smooth access is very important. Well-arranged covers,ladders and actuators can save a lot of effort and can help to prevent accidents as well.
- 4, Within a pump station,there should be an elevator, which can lift up the water pump and the valve,as well as other heavy equipment.
5. Sufficient ventilation and heating is necessarily required in a building .The ventilation is the most important. It is required not only at a sewage pump station,but other situations as well. It can prevent toxic or exploisive gas accumulating near a pool.
6. If there is a lot of grass,leaves,rags and other fiber materials in the sewage,there is a high possibility for the pump to get blocked.Therefore,grates should be provided to prevent block. Without grates,the capacity of a pump will decrease while the power dissipation will increase.When the power limit exceeds,the pump will be forced to stop operating.
7. If there is a lot of sand in the water,sand traps should be provided, so as to prevent the sand from entering the pool and even making damage to the pump. It is easy to clean sand traps.

