

# WQ/ES系列轻型切碎式排污泵

WQ/ES Series Light Type Mincing Pump



➤ **Reliable Waterproof and Seal**  
Cable sealing head integration

➤ **Reliable Mincing Function**  
Separate cutting modules

➤ **Reliable Sealing**  
Two mechanical seals

➤ **Reliable Operation**  
The functions of mincing and conveying do not interfere with each other



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### Application Areas

WQ/ES light mincing submersible sewage pump is mainly used in municipal engineering, building construction, industrial sewage and sewage treatment occasions to discharge sewage, waste water and rainwater containing solids and short fibers.

### Product Characteristics

WQ/ES light submersible shredding pump is to meet the market demand, and combined with the advantages of domestic and foreign mincing pump new development of a new type of mincing pump. Professional design and manufacture of submersible motor, protection grade IP68, F insulation grade, because of the submersible motor cooling effect is good, low winding temperature rise, so the motor is more durable.

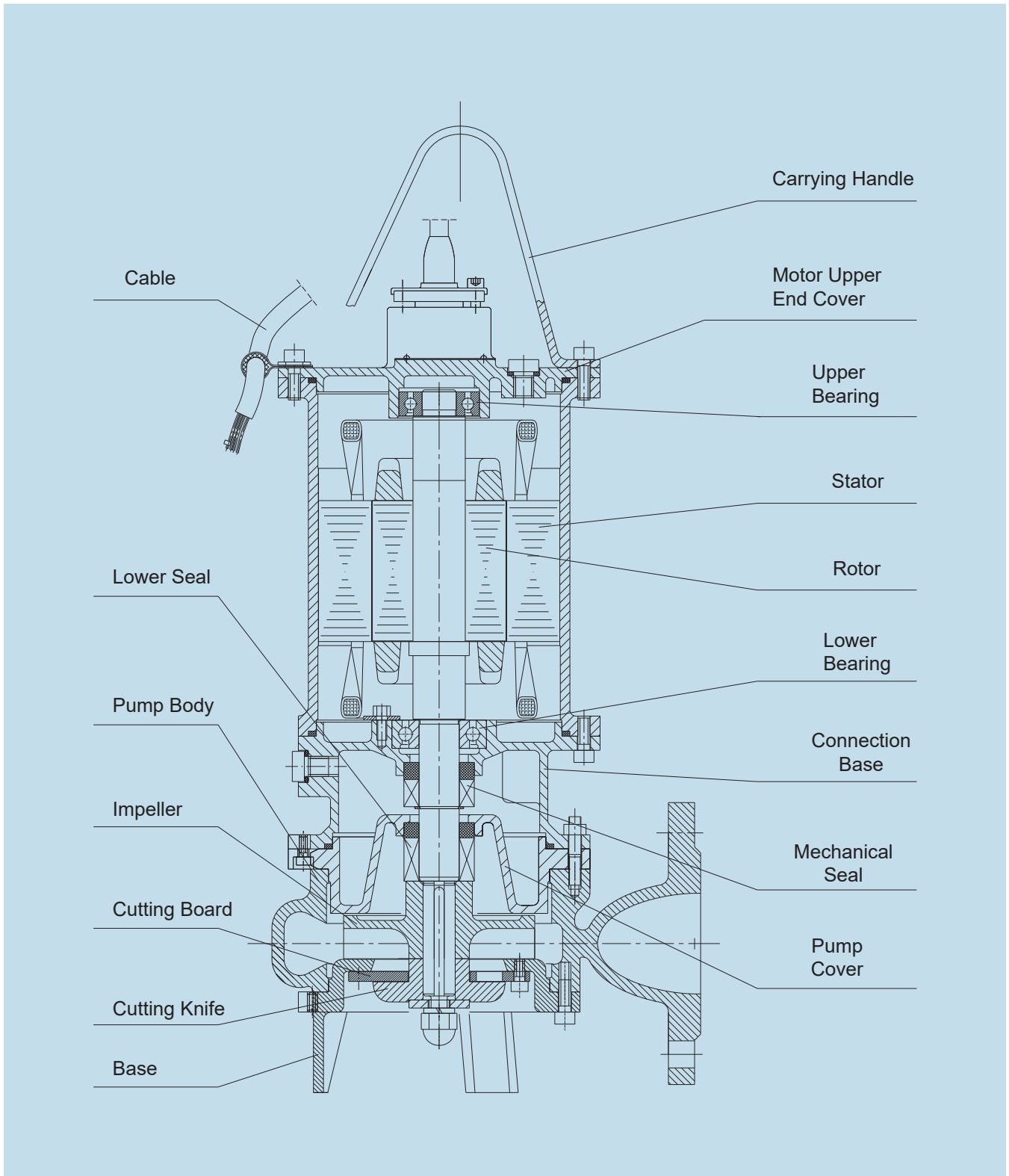
### Superiority

1. Independent cutting module, good cutting function, not easy to block. It can be easily chopped as long as it can be entered through the suction port. Transporting light waste water, septic tank, hospital sewage and other containing long fine fiber medium, large particle medium can not be transported. The cutting function can prevent the pump and pipeline from being blocked by debris in the sewage. But in order to better ensure the reliability of the pump operation, it is suggested to set up a pollution blocking device in the external environment of the medium.
2. The cutting module is made of stainless steel and subjected to heat treatment, and the edge has enough hardness to maintain a strong cutting ability for a long time. If the cutting capacity decreases for a long time, the cutting module can also be replaced separately.
3. The pump side and the motor side are equipped with mechanical seal, to achieve the motor reliable double submersible shaft seal protection. The oil in the oil chamber fully lubricates and cools the mechanical seal.

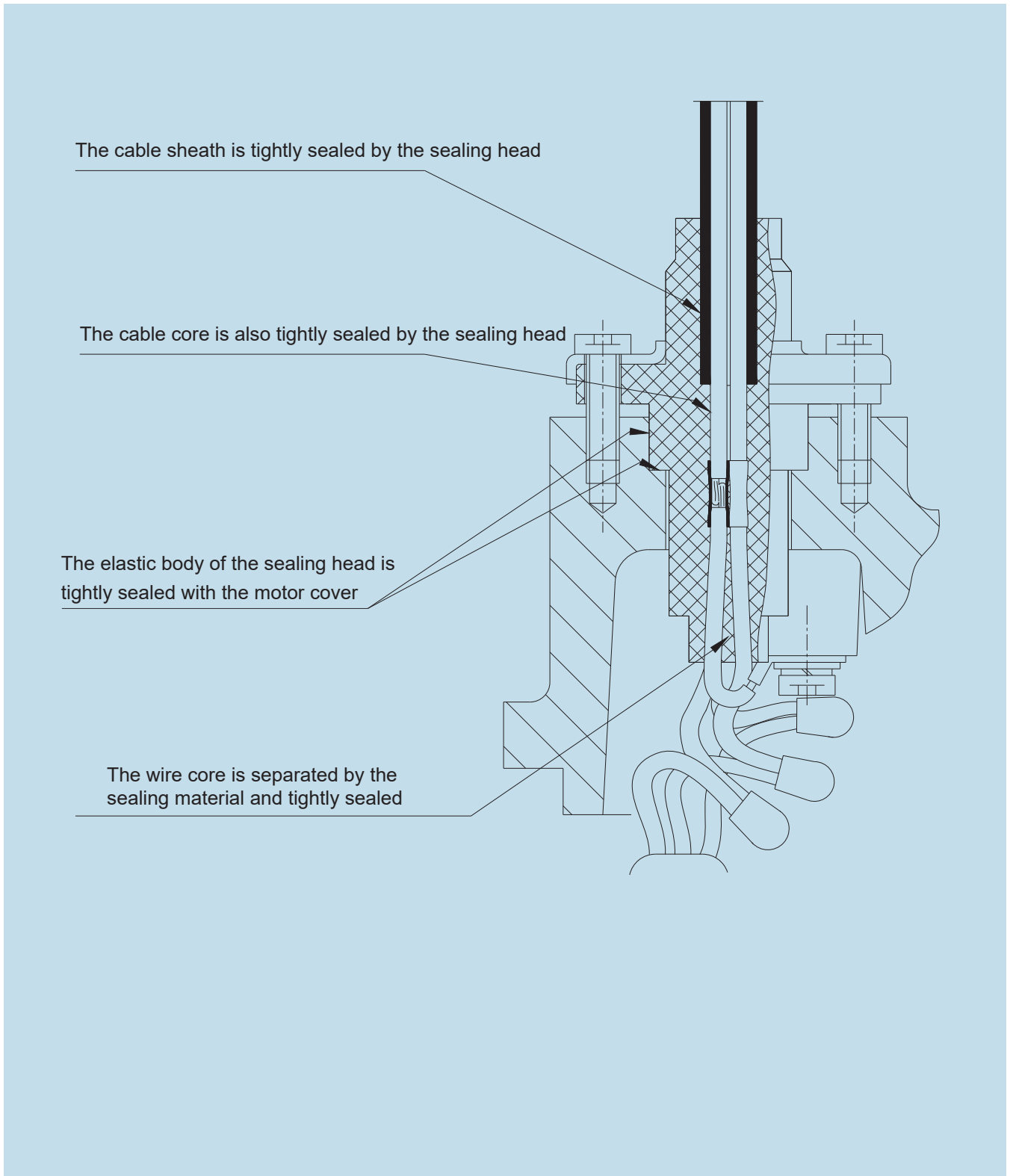
### Working Conditions

1. The power supply is 380V, three-phase and 50HZ.
2. The temperature of the medium is not more than 40℃, the pH value is 4-10, the density of the medium is less than 1050kg/m<sup>3</sup>.
3. The lowest liquid level should conform to the installation size diagram with "▽" marked liquid level.
4. Can not be used for strong corrosive and large particle medium.

Structure Diagram and Description



The cable sealing head is completely sealed with the cable



1. Selected Pump Body and Impeller

The CAD technology is used to repeatedly modify the design, so that the impeller and the cutting module are optimally matched, and the long fibers are easy to pass through after being chopped, without being entangled and blocked. The impeller is strictly balanced, so that the pump has low vibration and stable operation.

2. Highly Reliable Submersible Motor

Specially designed and manufactured submersible motor, the protection level is IP68, the stator winding is F-class insulation, due to the good cooling effect of submersible operation, the actual temperature rise of the winding is low, so the motor is more durable.

The motor dissipates heat through the casing, and the medium can operate reliably and safely as long as the medium submerges half of the height of the motor stator. The more submerged, the more conducive to the cooling of the motor.

The cable is a heavy-duty sewage-resistant rubber-sheathed flexible cable. The cross-section of the cable core is selected for continuous full-load operation at an ambient temperature of 40°C, which is very reliable. The cable is fixed twice on the handle to avoid damage during transportation, installation and use.

3. The Motor Has Tight Seals and Strict Inspections.

1) Seal of the Shaft

Two independent single-end mechanical seals are arranged on the pump side and the motor side respectively to form two shaft seals. The leakage is only ten percent of the double-end mechanical seal. One below. The lubricating oil in the oil chamber lubricates and cools the friction pair of the motor side seal. The mechanical seal on the pump side that is in contact with the medium uses a silicon carbide/silicon carbide "hard-to-hard" friction pair, which has high hardness and low friction coefficient, which is not easy to wear and fail; the motor side mechanical seal that is immersed in oil is graphite/carbonized Silicon "soft to hard" friction pair has a low friction coefficient and is easy to "run-in", and the seal is reliable. The small gap between the impeller and the pump cover can prevent impurities from entering the shaft seal cavity while maintaining good working conditions of the mechanical seal. The rubber parts of the mechanical seal are made of nitrile rubber with excellent oil resistance, and the springs and other structural parts are made of stainless steel.

2) The cable is completely sealed

The WQ/ES pump motor cable adopts a fully sealed structure with a casting head. The cable sheath, cable core and casting head are vulcanized into a whole to ensure that water will not pass through the cable sheath or between the cores. The gap enters the motor cavity. However, the cable end should not be in contact with water. After all, water entering the cable will seriously reduce the insulation of the cable and affect its safety.

3) Sealing Between Parts

Use O-ring seals as reliable static seals at the joints between the parts.

4) Tightness Inspection

The parts can only be assembled after passing the pressure test. Each pump undergoes strict air pressure test during and after the assembly process to ensure the airtightness of the motor.

4. Reliable Bearing Configuration

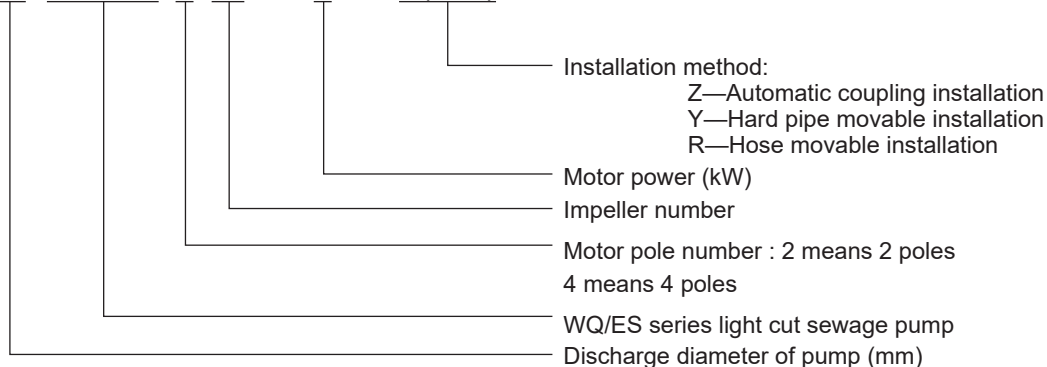
Select the famous brand high quality deep groove ball bearings, which have sufficient load margin to ensure the reliable operation of the product.

5. Cutting Module

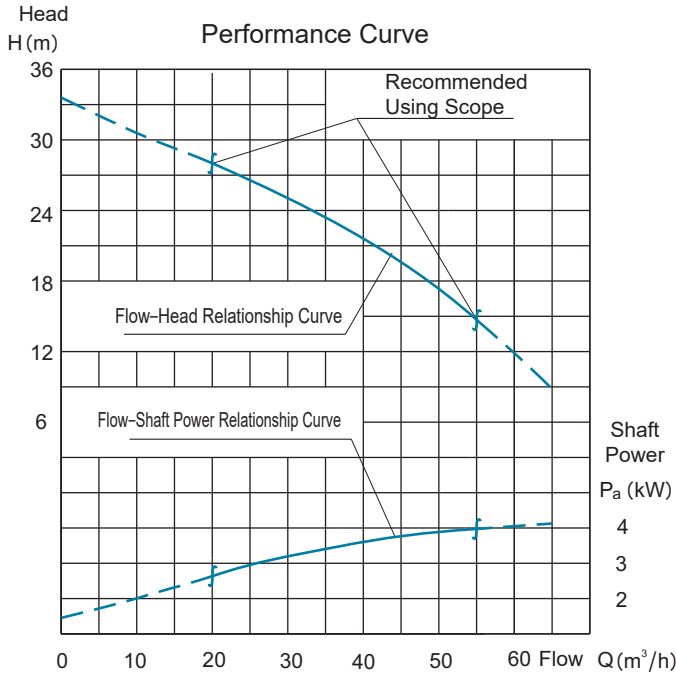
The cutting knife rotates with the rotor at high speed and forms a shearing effect with the cutting disc. High-speed rotary shearing is performed on the sucked long fibers, and the chopped fibers enter the pump body and follow the rotation of the impeller to be thrown into the pipeline and discharged. The cutting knife is made of stainless steel and heat treated, and the blade has sufficient hardness to maintain strong shredding performance for a long time.

Model Description

65 WQ/ES 2 51 — 4 — Z(Y.R)



**Pump Performance Curve and Main Parameters Description**



**Main Parameter**

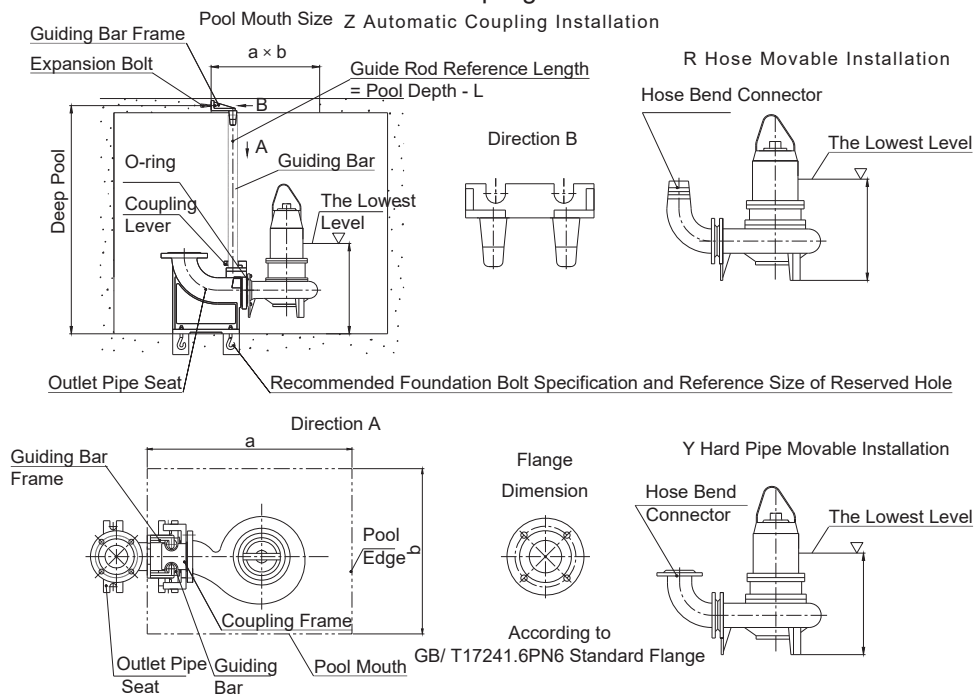
Pump Model	Rated Motor Power (kW)	Rotation Speed (r/min)	Weight (kg)
65WQ/ES251-4	4	2890	50
Rated Current (A)	Motor Power Factor cos φ	Motor Efficiency	Block Torque / Rated Torque
8.2	0.87	85.5	2.2

The solid part of the curve on the graph indicates the recommended application range of the pump. The user should carefully check the flow and head when selecting the type, so that the selected pump can work within the recommended range.

The weight of the pump does not include accessories of various installation methods, such as coupling device, elbow joint, hose elbow joint, etc.

**Installation Method**

WQ/ES type pump has three installation methods: automatic coupling installation (Z), hose movable installation (R) and hard pipe movable installation (Y). The movable installation of the hose and the movable installation of the hard tube are very simple and need not be detailed. The following is an introduction to the automatic coupling installation:



Automatic coupling installation does not require conventional fasteners to connect pumps and pipes. The coupling device has only four parts: the outlet pipe seat, the guide rod, the guide rod frame, and the coupling frame. The guide rod only plays a guiding role and is not subject to force. It is enough to use ordinary water pipes or steel pipes to cut to the required length according to the depth of the pool, so users can prepare by themselves. When installing, install the outlet pipe seat, guide rod and guide rod frame, install the coupling frame on the pump body, lift the pump, penetrate the semicircular hole on the coupling frame into the guide rod, and slide the pump down along the guide rod. At the end, the coupling frame will be aligned and fastened with the outlet pipe seat. When the pump needs to be repaired, just lift the pump up and the pump and the outlet pipe seat will be disconnected. This installation method is very convenient for pump maintenance.

Since the coupling device and the pump are relatively independent, if your pumping station needs to be replaced with a low-head or high-head pump of the same caliber due to changes in conditions, you can still use the original coupling device.

Automatic coupling installation of related hose dimension

Movable installation of hose dimension

Unit: mm except for inches

Project \ Pump Discharge Diameter	50	65	80
Guiding bar	1 "Water Pipe /32×3.5 Seamless Steel Tube		
Guiding bar length	Deep Pool-255	Deep Pool-268	Deep Pool-303
Quantity and specification of foundation bolts	4-M16x220		4-M20x300
Quantity and specification of expansion bolts	2-M16x150 I		
Foundation bolts reserved hole dimension	80x80x270		100x100x350
Specification for hose bend joints to be fitted	50-6	65-6	80-6
The inner diameter of the hose when the hose is installed	64	76	89

## Main Parts of the Pump Material

Parts	Impeller, Underneath Pump Cover	Other Parts	Shaft	Mechanical Seal Material			
				Motor Side Mechanical Seal Friction Pair	Pump Side Mechanical Seal Friction Pair	Springs and Structural Parts	Rubber Parts
Material	HT200	HT200	2Cr13	Silicon Carbide	Silicon Carbide Tungsten Carbide	Stainless Steel	Nitrile Rubber

Note: if the user requires to make the main parts into ductile iron or other materials, such as 2Cr13, 304, etc., and has other special requirements, please contact the sewage pump research group of the technical department

## Steering

From the pump suction point of view, the impeller for counter clockwise rotation.

## The Mark of the Cable Core

Light blue (U), black (V) and brown (W) are three-phase power lines.

The Yellow / green double color wire is the grounding wire.

## Order Instructions

1. The product name, model, installation form, etc. should be indicated when ordering. The influence of the medium's severity on the power should be taken into consideration when selecting the model. Users are warmly welcome to consult the company's technical department for technical questions.
2. The standard length of the motor cable is 10m. If other lengths are required, please specify and indicate on the order.
3. The complete set of supply parts is supplied according to the installation method selected by the user. Optional parts and spare parts must be ordered separately by the user.
4. Due to the concise design of the coupling device, the guide rod only needs to use general water pipes or steel pipes. We have provided the specification and length calculation method of the water pipe or steel pipe used as the guide rod. The user only needs to purchase the water pipe or steel pipe by himself and cut it to the required length before use. Therefore, the guide rod is not used as a coupling installation. The complete set of supply parts. When the user needs the guide rod provided by our company, it must be ordered separately and written in the order.



## Supply Scope

Installation Method	Complete Supply	Options		Spare Parts
Mobile hose installation	Main pump, hose bend connector(one for each pump)	Hose	Electric control device, terminal box, gate (butterfly) valve, check valve, wire rope and rope clip or chain for lifting pump, grille (custom), hoist (custom), rectangular gate (custom)	Impeller Bearing Mechanical seal O-ring Impeller fastener
Mobile hard pipe installation	Main pump, bend joint (one for each pump)			
Automatic coupling installation	Main pump, automatic coupling device(one set for each pump)	Guiding rod Foundation bolt Expansion bolt		

## Supporting Control Cabinet Products

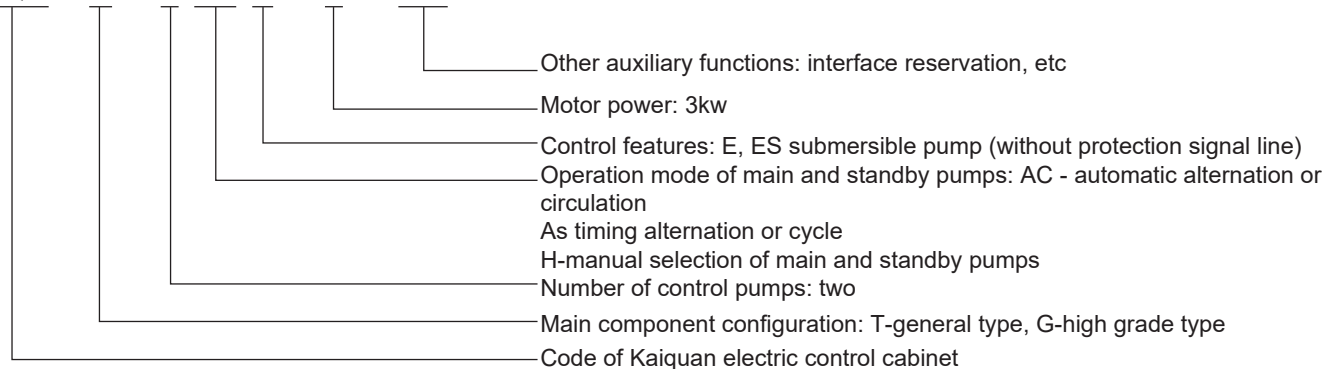
### 1. Overview of Control Cabinet Products

The KQK-E control cabinet for this series of submersible sewage pumps is an economical, safe, reliable, and easy-to-maintain automatic control system. The control cabinet adopts low-voltage electrical appliances and liquid level sensors of well-known brands at home and abroad, with protection functions such as short circuit, phase loss, and overload. The control cabinet can adopt common relay control or panel controller control, and it is equipped with float level switch, water level electrode and other liquid level sensors. In the case of unattended, it can automatically control the start and stop of the water pump according to the level of the liquid. Except for single-control products, all products with main and standby pump control have the function of automatically shutting down the faulty pump and automatically turning on the standby pump. The two-pump and three-pump control cabinet can realize automatic alternate or cyclic operation to realize the equal running time of each pump.

Commonly configured control cabinet components are mainly domestic well-known brands such as Tianzheng, Zhengtai, Delixi; high-end configuration control cabinet components are mainly internationally renowned brands such as Schneider, Siemens, and ABB. For a control cabinet with one control and two, if the panel controller solution is adopted, the box size is 400×300×200 (height×width×thickness).

### 2. Control Cabinet Model Naming Method

KQK / T - 2 Ac E - 3 - 001



### 3. Model Selection of Supporting Control Cabinet

Table1 Supporting WQ/ES Pump (One Control One)

No.	Power (kW)	Control Cabinet Mode		Cabinet Dimension ( Height x Width x Thickness )
		General Configuration	High Grade Configuration	
1	0.75	KQK/T-1E-0.75	KQK/G-1E-0.75	400×300×200
2	1.1	KQK/T-1E-1.1	KQK/G-1E-1.1	400×300×200
3	1.5	KQK/T-1E-1.5	KQK/G-1E-1.5	400×300×200
4	2.2	KQK/T-1E-2.2	KQK/G-1E-2.2	400×300×200
5	3	KQK/T-1E-3	KQK/G-1E-3	400×300×200
6	4	KQK/T-1E-4	KQK/G-1E-4	400×300×200
7	5.5	KQK/T-1E-5.5	KQK/G-1E-5.5	400×300×200
8	7.5	KQK/T-1E-7.5	KQK/G-1E-7.5	400×300×200

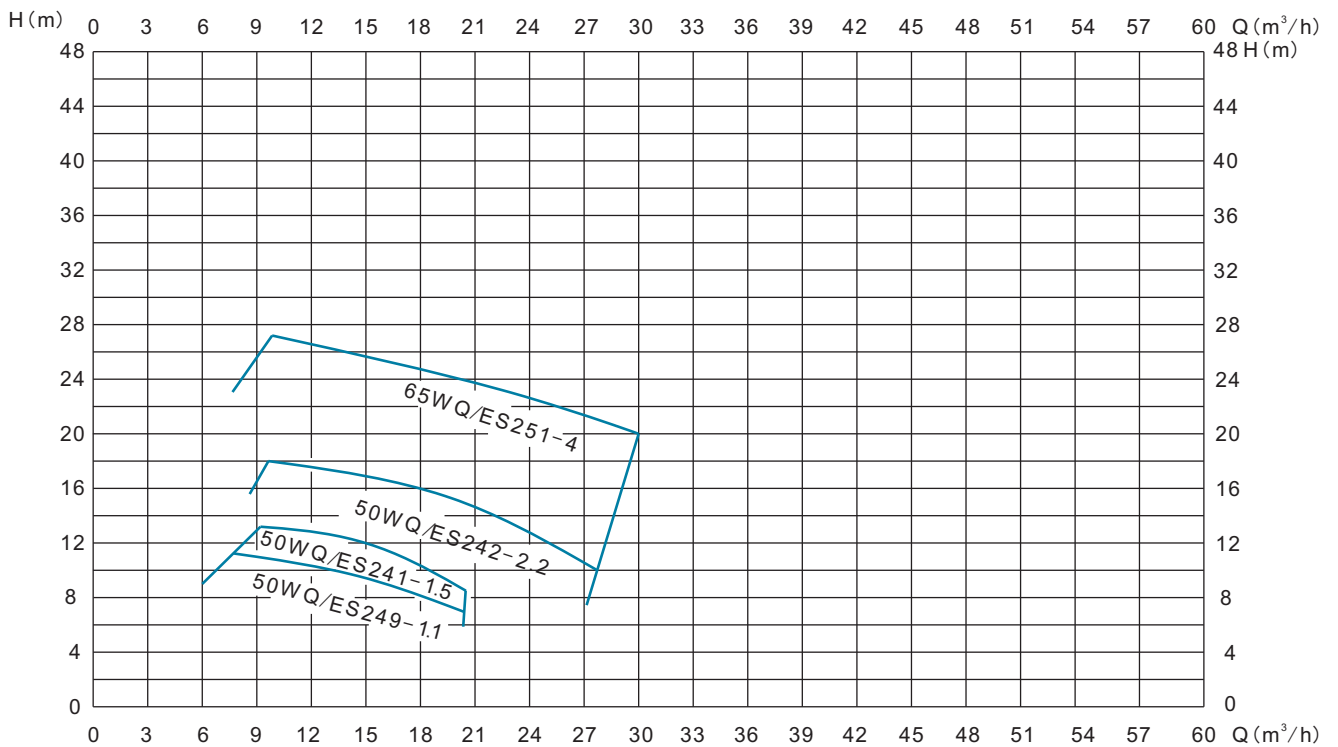
Table2

Supporting WQ/ES Pump (One Control Two)				
No.	Power (kW)	Control Cabinet Mode		Cabinet Dimension ( Height × Width × Thickness )
		General Configuration	High Grade Configuration	
1	0.75	KQK/T-2AcE-0.75	KQK/G-2AcE-0.75	500×400×200
2	1.1	KQK/T-2AcE-1.1	KQK/G-2AcE-1.1	500×400×200
3	1.5	KQK/T-2AcE-1.5	KQK/G-2AcE-1.5	500×400×200
4	2.2	KQK/T-2AcE-2.2	KQK/G-2AcE-2.2	500×400×200
5	3	KQK/T-2AcE-3	KQK/G-2AcE-3	500×400×200
6	4	KQK/T-2AcE-4	KQK/G-2AcE-4	500×400×200
7	5.5	KQK/T-2AcE-5.5	KQK/G-2AcE-5.5	500×400×200
8	7.5	KQK/T-2AcE-7.5	KQK/G-2AcE-7.5	500×400×200

Table3

Supporting WQ/ES Pump (One Control Three)				
No.	Power (kW)	Control Cabinet Mode		Cabinet Dimension ( Height × Width × Thickness )
		General Configuration	High Grade Configuration	
1	0.75	KQK/T-3AcE-0.75	KQK/G-3AcE-0.75	700×500×200
2	1.1	KQK/T-3AcE-1.1	KQK/G-3AcE-1.1	700×500×200
3	1.5	KQK/T-3AcE-1.5	KQK/G-3AcE-1.5	700×500×200
4	2.2	KQK/T-3AcE-2.2	KQK/G-3AcE-2.2	700×500×200
5	3	KQK/T-3AcE-3	KQK/G-3AcE-3	700×500×200
6	4	KQK/T-3AcE-4	KQK/G-3AcE-4	700×500×200
7	5.5	KQK/T-3AcE-5.5	KQK/G-3AcE-5.5	700×500×200
8	7.5	KQK/T-3AcE-7.5	KQK/G-3AcE-7.5	700×500×200

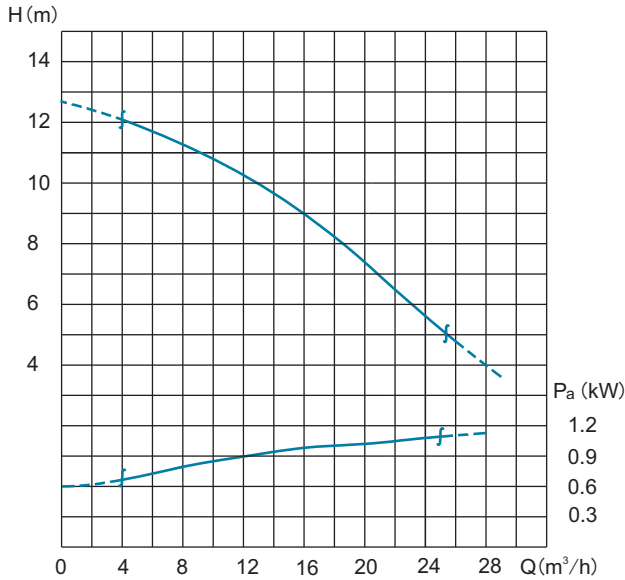
## Comprehensive Characteristic Curve Charts



Performance Curve Graph, Main Parameter Table and Installation Dimension Diagram of Each Pump

50WQ/ES249-1.1 Outlet Diameter: 50mm

Performance Curve

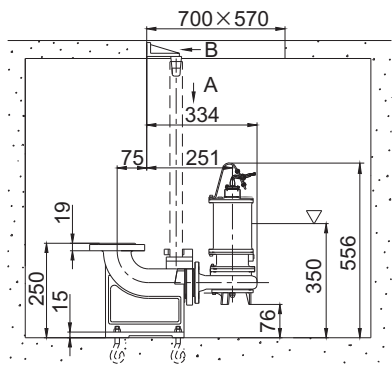


Main Parameter

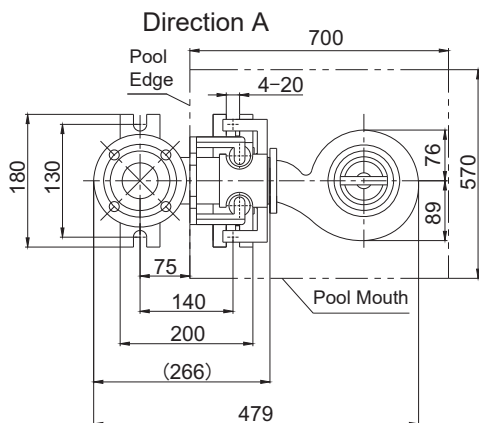
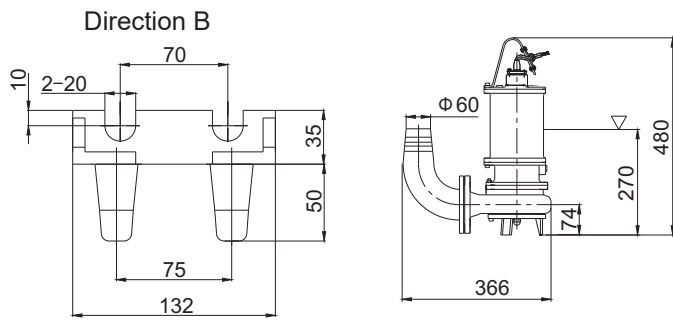
Pump Model	Rated Motor Power (kW)	Rotation Speed (r/min)	Weight (kg)
50WQ/ES249-1.1	1.1	2825	28
Rated Current (A)	Motor Power Factor cos φ	Motor Efficiency	Block Torque / Rated Torque
2.5	0.86	77	2.2
Flow-Head (m³/h-m)			
Small Flow Point	Middle Flow Point	Huge Flow Point	
8-11	15-9.5	20-7	

Installation Dimension Diagram

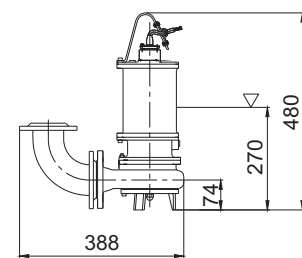
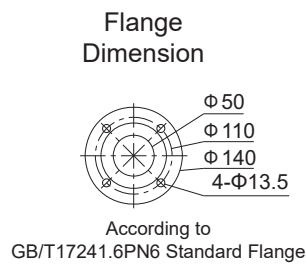
Z Automatic Coupling Installation



R Hose Movable Installation

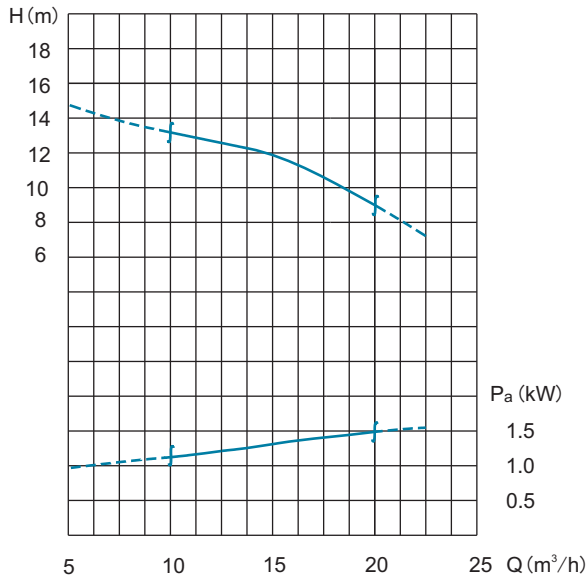


Y Hard Pipe Movable Installation



50WQ/ES241-1.5 Outlet Diameter: 50mm

Performance Curve

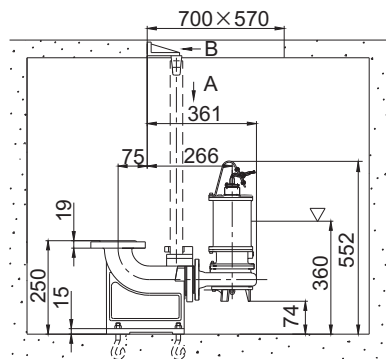


Main Parameter

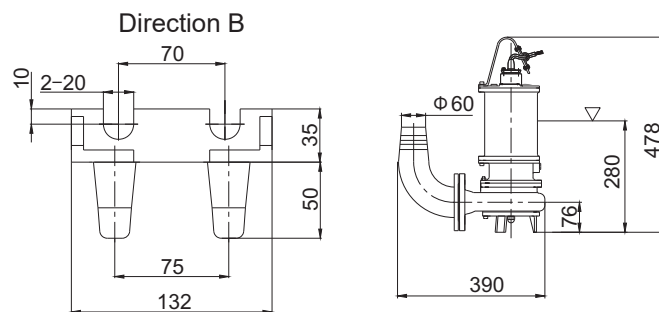
Pump Model	Rated Motor Power (kW)	Rotation Speed (r/min)	Weight (kg)
50WQ/ES241-1.5	1.5	2840	33
Rated Current (A)	Motor Power Factor cos φ	Motor Efficiency	Block Torque / Rated Torque
3.4	0.85	78	2.2
Flow-Head (m³/h-m)			
Small Flow Point	Middle Flow Point	Huge Flow Point	
10-13	15-12	20-8.5	

Installation Dimension Diagram

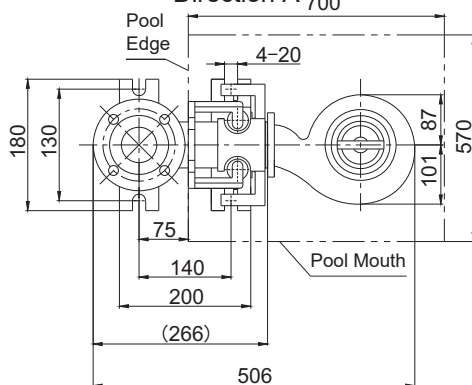
Z Automatic Coupling Installation



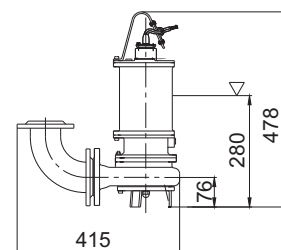
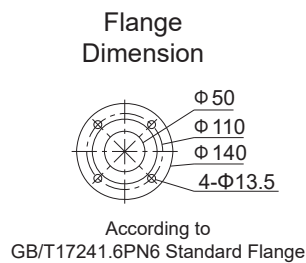
R Hose Movable Installation



Direction A 700

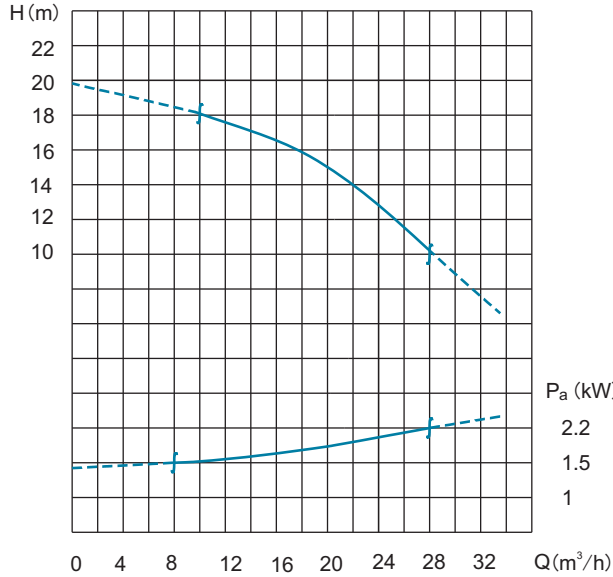


Y Hard Pipe Movable Installation



50WQ/ES242-2.2 Outlet Diameter: 50mm

Performance Curve

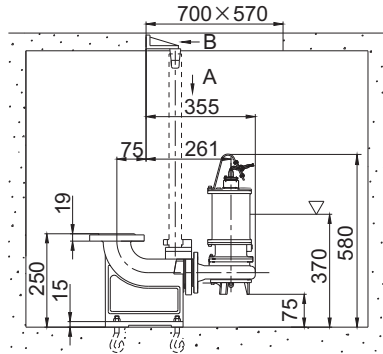


Main Parameter

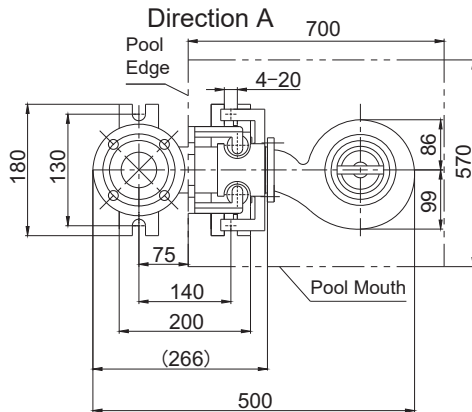
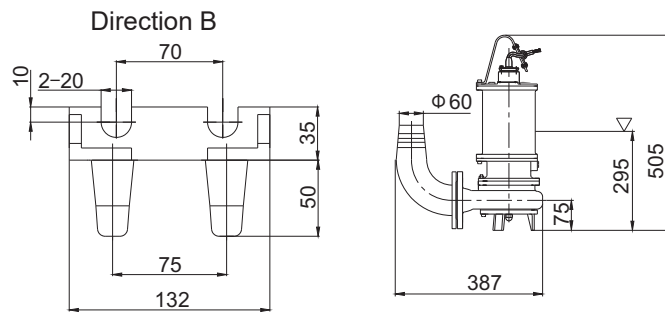
Pump Model	Rated Motor Power (kW)	Rotation Speed (r/min)	Weight (kg)
50WQ/ES242-2.2	2.2	2840	37
Rated Current (A)	Motor Power Factor cos φ	Motor Efficiency	Block Torque / Rated Torque
4.7	0.86	82	2.2
Flow-Head (m³/h-m)			
Small Flow Point	Middle Flow Point	Huge Flow Point	
10-18	20-15	28-10	

Installation Dimension Diagram

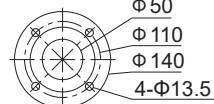
Z Automatic Coupling Installation



R Hose Movable Installation

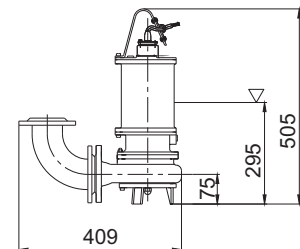


Flange Dimension

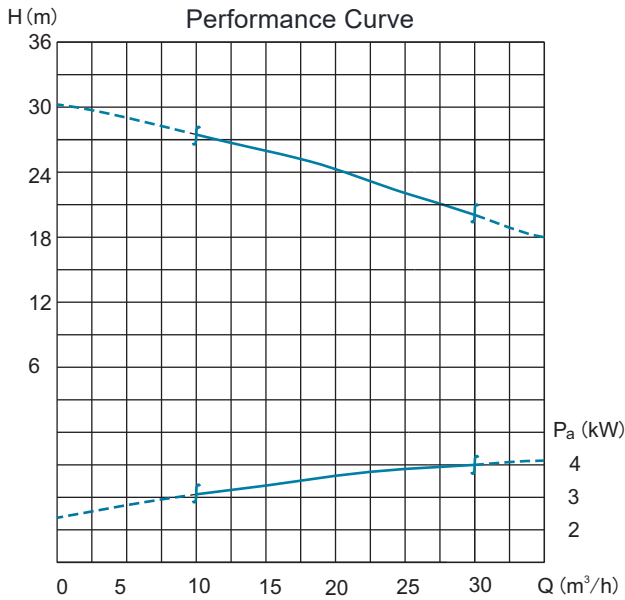


According to GB/T17241.6PN6 Standard Flange

Y Hard Pipe Movable Installation



65WQ/ES251-4 Outlet Diameter: 50mm

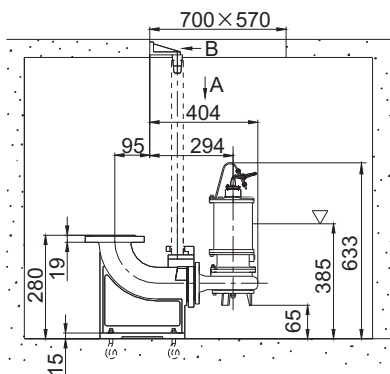


Main Parameter

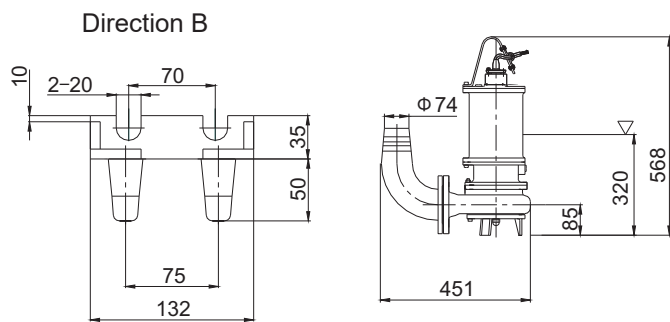
Pump Model	Rated Motor Power (kW)	Rotation Speed (r/min)	Weight (kg)
65WQ/ES251-4	4	2890	50
Rated Current (A)	Motor Power Factor cos φ	Motor Efficiency	Block Torque / Rated Torque
8.2	0.87	85.5	2.2
Flow-Head (m³/h-m)			
Small Flow Point	Middle Flow Point	Huge Flow Point	
10-27	25-22	30-20	

Installation Dimension Diagram

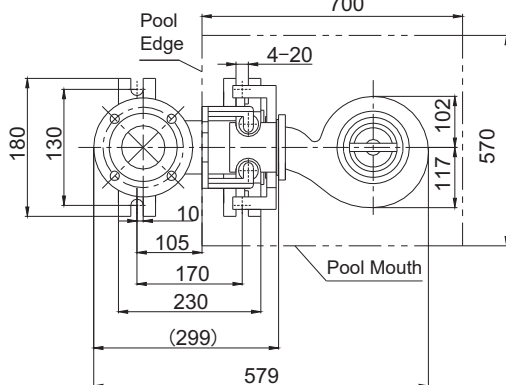
Z Automatic Coupling Installation



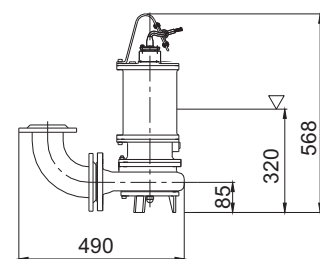
R Hose Movable Installation



Direction A



Y Hard Pipe Movable Installation



Flange Dimension



According to GB/T17241.6PN6 Standard Flange

Independent Mincing Module



## Leading the Rise of Chinese Pump Industry



### 上海凯泉泵业(集团)有限公司 SHANGHAI KAIQUAN PUMP(GROUP) CO., LTD.

Company Address: No. 4255/4287, Caoan  
Highway, Jiading District, Shanghai Company  
Website: [www.kaiquan.com.cn](http://www.kaiquan.com.cn)  
Customer Service Hotline: 400-002-6600

### 合肥凯泉电机泵有限公司 HEFEI KAIQUAN MOTOR AND PUMP CO., LTD.

Company Address: No. 611, Tianshui Road, Xinzhan District, Hefei  
(the intersection of Dangtu North Road and Tianshui Road)  
Fax: 0551-65459127  
Company Telephone: 0551-65459133  
Customer Service Hotline: 0551-65459293



YB/KQ WQ/S-2020/07