

潜水搅拌机

Submersible Mixer

## 概述 Summary

一种在水处理工艺和工业流程中保持固、液二相或固、液、气三相介质均匀混合反应的设备。

A device that keeps solid, liquid two-phase or solid, liquid, and gas three-phase medium uniformly mixed and reacted in water treatment process and industrial process.

通过潜水搅拌机的搅拌作用，可以产生水流，改善水质，有效防止悬浮物沉淀

Through the stirring action of the submersible mixer, the water flow can be created, the water quality can be improved, and the precipitation of suspended solids can be effectively prevented.

在活性污泥水处理工艺中，通过潜水搅拌机的搅拌，活性污泥可以与污（废）水中的有机物充分接触，从而去除这些有机污染物。

In the activated sludge water treatment process, through the stirring of the submersible mixer, the activated sludge can be fully contacted with the organic matter in the sewage (waste) water, thereby removing these organic pollutants.

## 特点 Features

两道独立机械密封，保证潜水电机长期可靠运行。

The two rows of independent mechanical sealing ensure the long-term and reliable operation of the submersible motor.

高质量国际知名品牌免维护轴承，使用寿命长。

The international well-known high-quality bearings have longer service life, which are maintenance free.

独特的电缆密封设计，排除了电缆漏水的隐患。

The unique sealing design for the cables removes the hidden danger of water leakage for the cables.

电机轴为不锈钢材质，转子经动平衡检测，运转平稳。

The shaft of the motor employs the stainless steel and the rotors are inspected with the use of dynamic balancing leading to smooth rotation.



内部设有泄漏传感器和定子绕组超温保护装置(部分型号无泄漏传感器)。

The in-built leakage sensor and the device for the overtemperature protection for the windings of the stator (No leakage sensor for some model).

混合搅拌器的不锈钢冲压叶浆，经优化设计叶片呈后掠式，效率高，具有自清洁功能。

The mixer agitators have the stainless steel pressing impeller which are of the sweptback shape through the optimized design, resulted in high efficiency and self-cleaning function.

## 适用条件 Conditions of usage

介质温度:  $\leq 40^{\circ}\text{C}$

The highest temperature of the media shall not exceed  $40^{\circ}\text{C}$

介质pH值: 5~9

The pH value of the media: 5~9

介质密度:  $< 1150\text{kg}/\text{m}^3$

The density of the media shall not exceed  $1150\text{kg}/\text{m}^3$

潜水深度:  $< 20\text{m}$

The depth of submersion shall not exceed 20m.

电源: 380V, 50Hz

The electric power supply: 380V 50Hz

电机: F/H级绝缘并符合IP68, 24小时连续运行

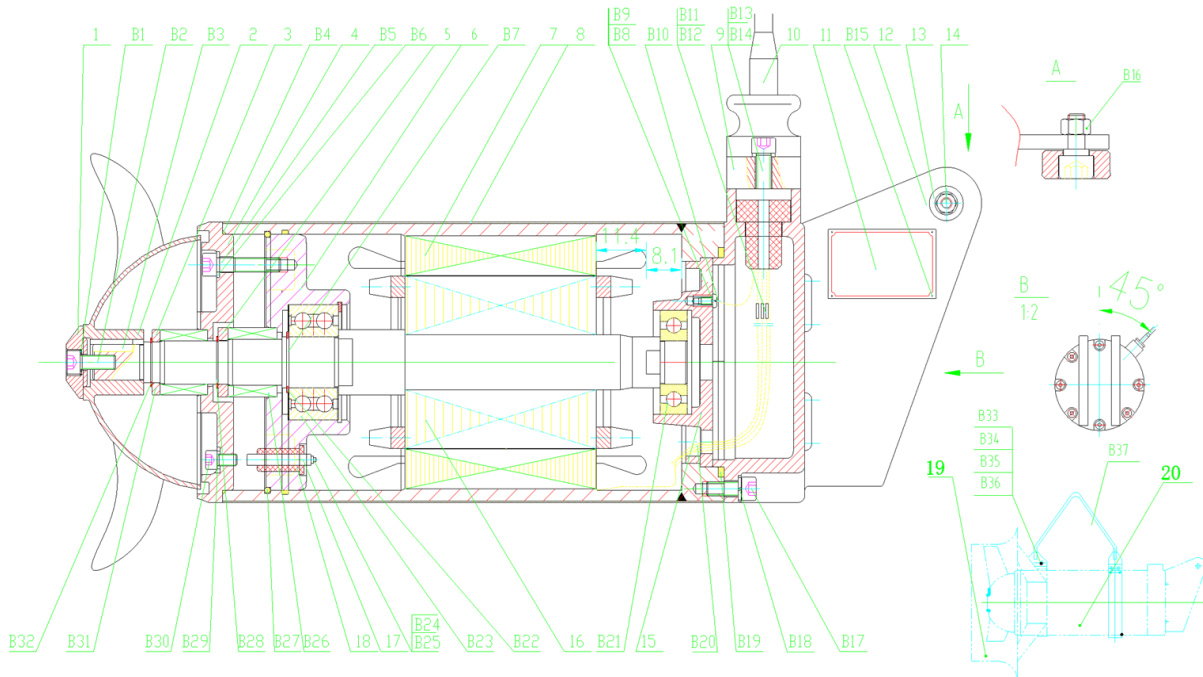
The motor: F/H class insulation and in accordance with IP68, continuous operating in 24hr.

潜水搅拌机必须完全潜入水中工作

The submersible mixer must operate in the complete submersion into water.



结构简图 Construction

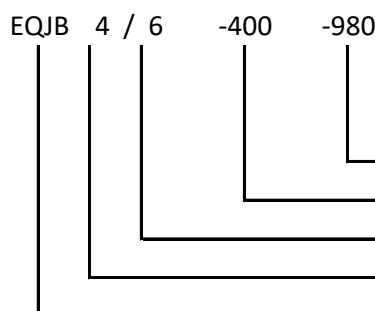


不同型号结构略有差异 The structure will be different according to the model.

20	起吊包箍	Hold hoop	1	304	304	B25	泄露信号线1mm <sup>2</sup>	Leakage signal line1mm <sup>2</sup>	1				
19	罩壳总成	Dome assembly	1	组焊件 Weidment		B24	香蕉插头	Electric connector	1				
18	绝缘套	Insulation sleeve	1	丁腈70 NBR-70		B23	轴承	Bearing	1				
17	泄漏检测器	Leak detector	1	Al	Al	B22	孔用弹性挡圈80	The spring retainer 80	1	65Mn	65Mn		
(16)	转子总成	Rotor assembly	1	组合件 Assemblies		B21	轴承	Bearing	1				
15	后轴承座	Back bearing support	1	HT200	HT200	B20	护套	Wire	1				
14	滚轮螺栓	Roller bolts	2	304	304	B19	O型密封圈	O-ring	1	丁腈70	NBR-70		
13	滚轮	Roller	2	304	304	B18	弹性垫圈10	Spring washer 10	7	304	304		
12	接线盒	Junction box	1	304	304	B17	内六角螺栓M10×30	inner hexagon screw M10×30	7	304	304		
11	铭牌	Name plate	1	304	304	B16	锁紧螺母M12	Locknut M12	2	304	304		
10	YCW水密电缆	YCW cable	1	组合件 Assemblies		B15	半圆头铆钉Ø3×4	Round head rivet Ø3×4	4	304	304		
9	电缆压盖	Cable cover	1	304	304	B14	弹性垫圈8	Spring washer 8	2	304	304		
8	套筒	Sheath	1	304	304	B13	内六角螺栓M8×25	inner hexagon screw M8×25	2	304	304		
7	定子总成	Stator assembly	1	组合件 Assemblies		B12	接线端子1	Terminal 1	3				
6	前轴承座	Front bearing support	1	HT200	HT200	B11	接线端子2.5	Terminal 2.5	3				
5	机封挡圈II	Mech.seal retainer II	1	Q235	Q235	B10	地线端子1.5	Ground terminal 1.5	1				
4	机封座	Mech.seal stand	1	304	304	B9	鞍型弹簧垫圈5	Saddle type washer 5	1	Cu	Cu		
3	机封挡圈I	Mech.seal retainer I	1	2Cr13	2Cr13	B8	开槽平头螺钉 M5×10	Flat head screws M5×10	1	304	304		
2	叶轮	Propeller	1	组焊件Weidment		B7	轴用弹性挡圈35	Circlips for shaft 35	1	65Mn	65Mn		
1	叶轮压紧圈	Propeller clamping ring	1	304	304	B6	平垫圈10	Flat washer 10	3	Cu	Cu		
						B5	内六角螺栓 M10×45	inner hexagon screw M10×45	3	304	304		
						B4	O型密封圈	O-ring	2	丁腈70	NBR-70		
						B3	单圆头平键C8×7×28	Single round flat key C8×7×28	1	45	45		
						B2	弹性垫圈10	Elastic washer 10	1	304	304		
						B1	内六角螺栓M10×30	inner hexagon screw M10×30	1	304	304		
						B37	提把	Handle	1	304	304		
						B36	六角螺母M10	Hexagon nut M10	2	304	304		
						B35	弹性垫圈10	Elastic washer 10	2	304	304		
						B34	平垫圈10	Flat washer 10	2	304	304		
						B33	内六角螺栓 M10×40	inner hexagon screw M10×40	2	304	304		
						B32	轴用弹性挡圈28	Circlips for shaft 28	1	304	304		
						B31	机械密封30	Mechanical seal 30	1	Sic,Sic			
						B29	金属空心垫圈8	Metal hollow sealing ring 8	3	Cu			
						B28	轴用弹性挡圈30	Circlips for shaft 30	1	65Mn			
						B27	孔用钢丝挡圈	The wire rings	1	60Si2MnA			
						B26	机械密封32	Mechanical seal 32	1	Sic,Sic			

标配材质，其它材质另询 This is standard material, If other material needed, Plesae contact us.

型号说明 Model directions



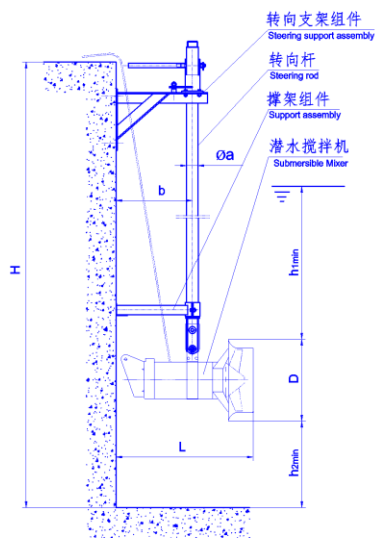
额定转速 Rated speed: rpm  
 桨叶直径 Propeller diameter: mm  
 电机级数 Motor stages  
 电机额定功率 Motor rated power: KW  
 E.CO牌潜水搅拌机 E.CO brand submersible mixer



技术参数 Technical parameter

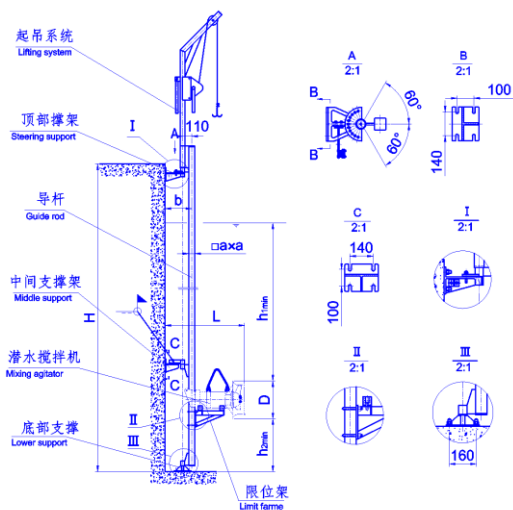
型号 Model	电机功率 Motor power (KW)	额定电流 Rated current (A)	桨叶直径 Propeller Dia. (mm)	桨叶转速 Propeller speed (rpm)	轴向推力 Axial thrust (N)	安装系统 Installation system
EQJB 0.37/6-230-980	0.37	1.3	220	980	140	I/II
EQJB 0.55/4-230-1400	0.55	1.6	220	1400	150	I/II
EQJB 0.85/8-260-740	0.85	3.1	260	740	165	I/II
EQJB 1.5/6-260-980	1.5	4	260	980	290	I/II
EQJB 1.5/8-400-740	1.5	5.4	400	740	600	II/III
EQJB 2.2/8-320-740	2.2	5.9	320	740	580	II/III
EQJB 2.5/8-400-740	2.5	9	400	740	800	II/III
EQJB 3/8-400-740	3	11	400	740	920	II/III
EQJB 4/6-400-980	4	12	400	980	1200	II/III
EQJB 4/12-620-480	4	14	620	480	1400	III
EQJB 5/12-620-480	5	18.5	620	480	1800	III
EQJB 7.5/12-620-480	7.5	27	620	480	2600	III
EQJB 10/12-620-480	10	32	620	480	3300	III
EQJB 15/12-620-480	15	39	620	480	3460	III
EQJB 18.5/12-620-480	18.5	41	620	480	4200	III
EQJB 22/12-620-480	22	47	620	480	5400	III

安装系统 Installation System



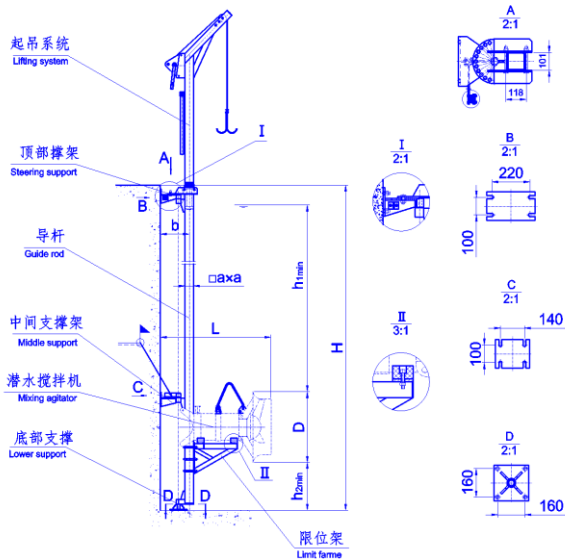
型号 Model	a	D	b	L	h <sub>1min</sub>	h <sub>2min</sub>
EQJB 0.37/6-230-980	Ø48	360	330	630	500	110
EQJB 0.55/4-230-1400	Ø48	360	330	630	500	110
EQJB 0.85/8-260-740	Ø48	360	330	630	500	110
EQJB 1.5/6-260-980	Ø48	360	330	630	500	110

Installation system I



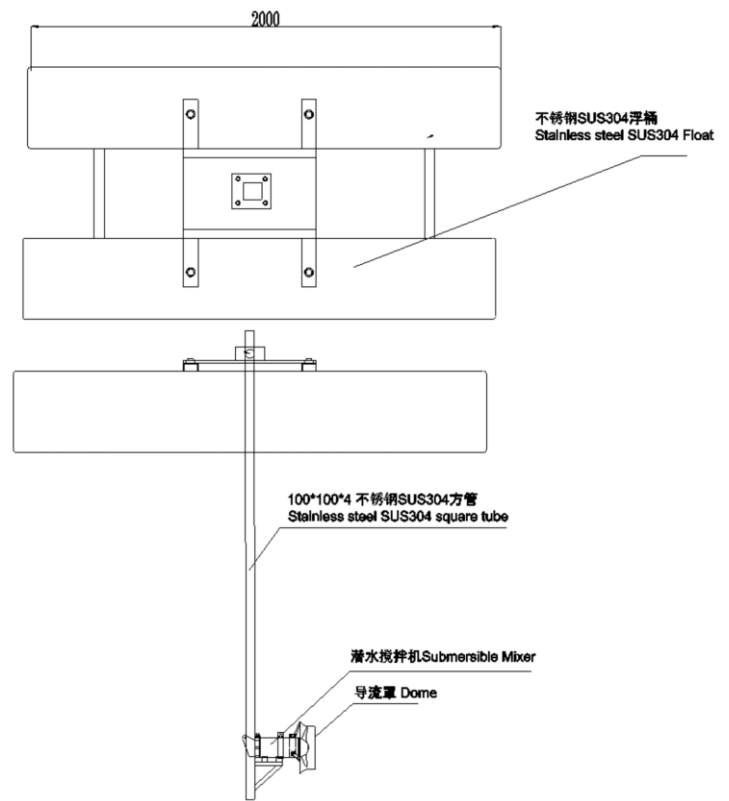
型号 Model	a	D	b	L	h <sub>1min</sub>	h <sub>2min</sub>
EQJB 2.2/8-320-740	□70	460	320	970	800	150
EQJB 4/6-320-960	□70	460	320	970	800	150
EQJB 1.5/8-400-740	□70	530	320	960	800	200
EQJB 2.5/8-400-740	□70	530	320	960	800	200
EQJB 3/8-400-740	□70	530	320	1010	800	200
EQJB 4/6-400-980	□70	530	320	1010	800	300

Installation system II



Model	a	D	b	L	h <sub>1min</sub>	h <sub>2min</sub>
EQJB 4/12-620-480	□100	760	335	1150	1100	300
EQJB 5/12-620-480	□100	760	335	1150	1100	300
EQJB 7.5/12-620-480	□100	760	335	1280	1500	300
EQJB 10/12-620-480	□100	760	335	1280	1500	300
EQJB 15/12-620-480	□100	760	335	1280	1500	300
EQJB 18.5/12-620-480	□100	760	335	1280	1500	300
EQJB 22/12-620-480	□100	760	335	1280	1500	300

Installation system III



Float mounting system

潜水搅拌机的专用安装系统，可在无需排出池中污水的情况下，快速安装和拆卸潜水搅拌机。

安装系统I只可在水平方向和垂直方向调节角度。

安装系统II/III导杆可沿水平方向绕导杆轴线旋转，最大转角为±60°。

当H>6m时需在导杆中间添加一支撑架。

支撑架和下托架与池壁、池底均可用膨胀螺栓或化学锚栓固定。

同一种安装系统，多台搅拌机可共用一套起吊系统。

安装系统材质选择采用不锈钢和碳钢防腐可供选择。

The special installation systems for the submersible mixers can facilitate the quick installation and dismantling of the submersible mixers under the conditions of no need for draining off sewage from the pond. Installation System I is only with the possibility of adjusting the angles in both the horizontal and longitudinal directions.

For installation systems II and III, the guide rod can rotate round the axial line of the guide rod along the horizontal direction with the maximum angle of rotation ±60°

If H>6m, it is necessary to add a supporting frame between the guide rods.

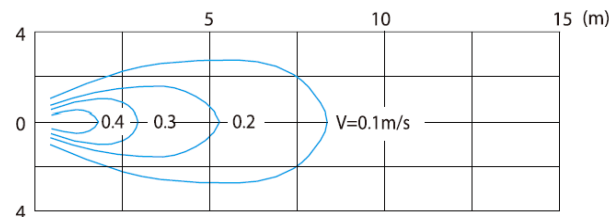
The supporting frame and the lower support shall be fixed onto the pond wall and the pond bottom with the use of expansion bolts or chemical anchors.

While placing an order by customer. Please supply the pond depth H and the drawing of the pond shape so as to determine the dimensions of the guide rod and the number of the supporting frames.

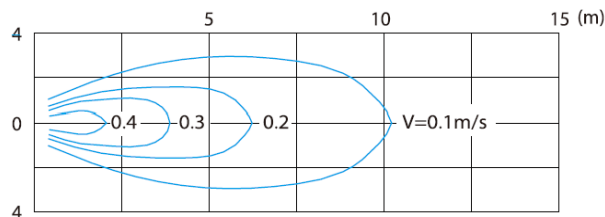
A multiple of mixers with the same installation system can share one lifting system.

The installation systems may employ the material of stainless steel or carbon steel for the selection of the corrosion-resisting properties.

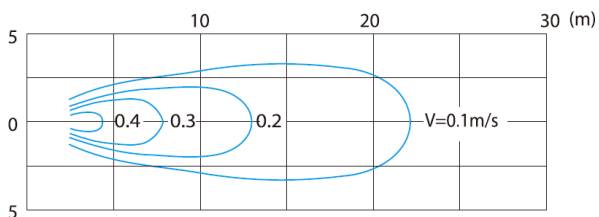
**流场图 The flow field**



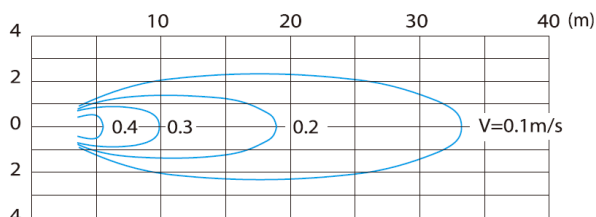
EQJB 0.37/6-230-981



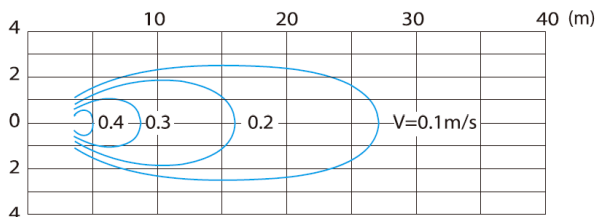
EQJB 0.55/4-230-1400



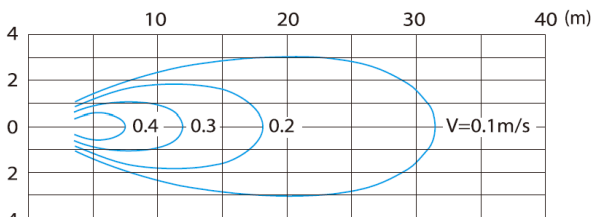
EQJB 0.85/8-260-740



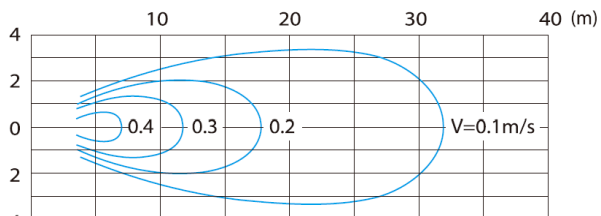
EQJB 1.5/6-260-980



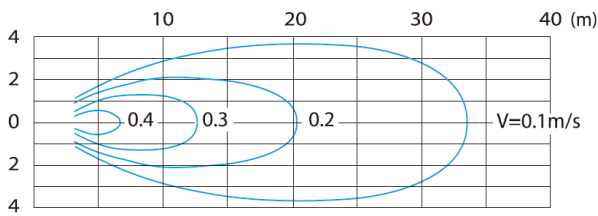
EQJB 1.5/8-400-740



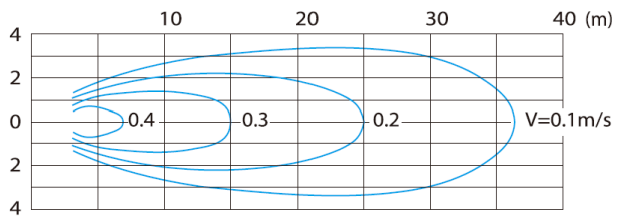
EQJB 2.2/8-320-740



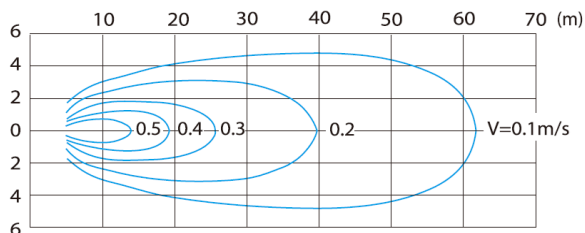
EQJB 2.5/8-400-740



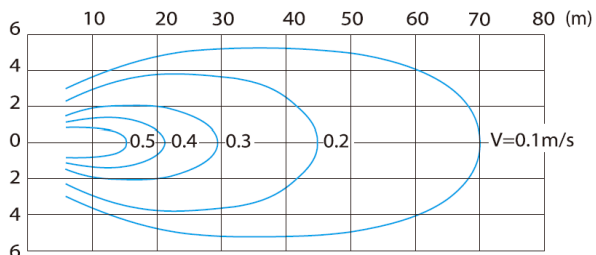
EQJB 3/8-400-740



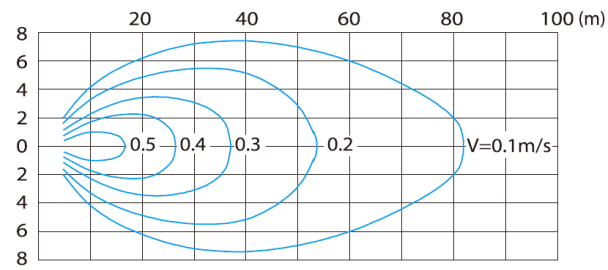
EQJB 4/6-400-980



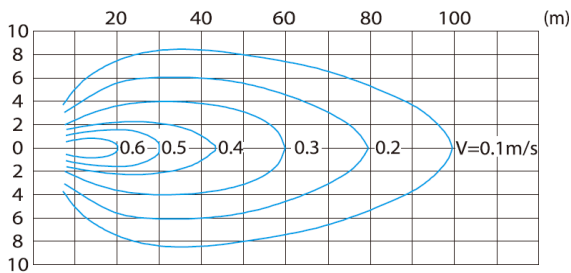
EQJB 4/12-620-480



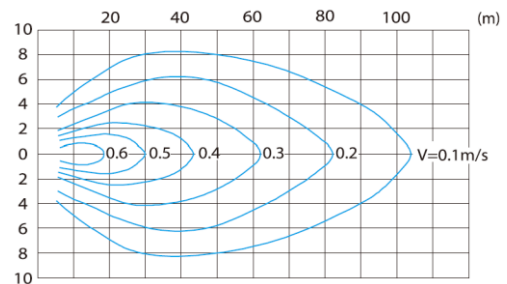
EQJB 5/12-620-480



EQJB 7.5/12-620-480



EQJB 10/12-620-480



EQJB 15/12-620-480

### 选型 Select the model

挑选潜水搅拌机是非常复杂的。需要考虑带很多因素--水量、水质、池型.....

Picking out a submersible mixer is very complicated. There are many factors to consider - water quantity, water quality, pool type...

以市政污水处理厂为例 Take the municipal sewage treatment plant as an example:

1. 计算需要的总动力 Calculate the total power required.

$$N = (u * v * G^2 / 1000) / \eta$$

N: 搅拌所需的功率 Power required for stirring KW;

u: 水的动力粘度 Dynamic viscosity of water,  $\sim 1.0 \cdot 10^{-3}$  (20°C) N\*s/m<sup>2</sup>

v: 池子容积 Pool volume, m<sup>3</sup>

G: 速度梯度 Velocity gradient, 60-120

$\eta$ : 转动效率 Rotational efficiency,  $\sim 85\%$

2. 用污泥浓度系数进行校正 Use sludge concentration coefficient for correction.
3. 用池型系数进行校正 Use pool type coefficient for correction.
4. 根据流场曲线结合池型、总功率布置潜水搅拌机  
The submersible mixer shall be arranged according to the flow field curve, pool type and total power.

**专业的工作由专业的人士完成!**

**请告诉我们完整的信息, 我们为您服务!**

**Professional work is done by professionals!**

**Please tell us the complete information and we will serve you!**