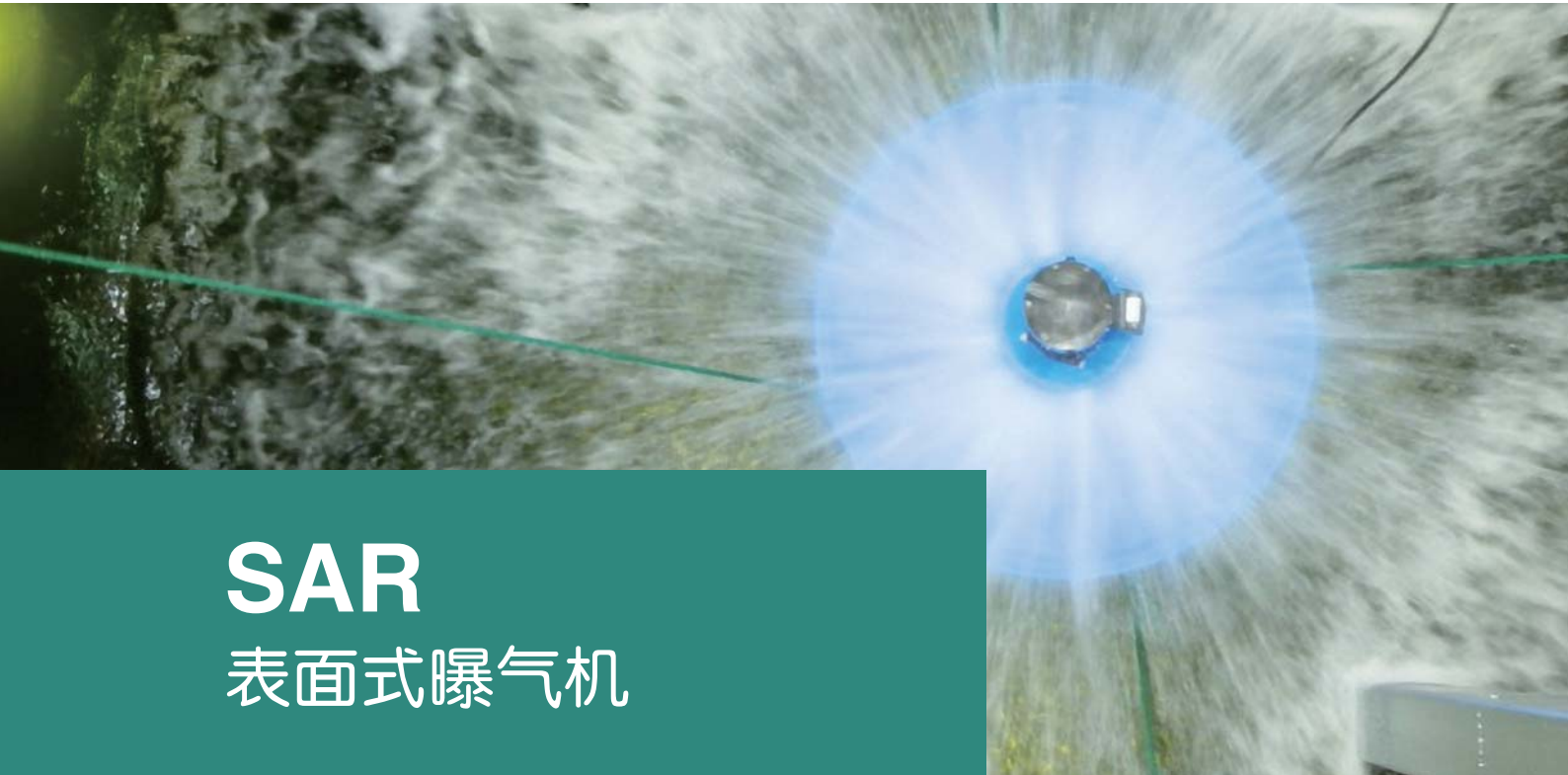




川源(中国)机械有限公司
GSD (China) Co.,Ltd.



SAR

表面式曝气机

SAR surface aerator

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简介 Introduction

此高速曝气机产品系列，经设计可使曝气设备的两个最重要的功能最佳化——传输氧气和混合废水。废水经抽送通过曝气机，形成最佳的喷流型态，有利于氧气进入废水中。同时，这种废水抽送在池中形成了一定的水流速度，确保了池水的混合和氧气的扩散效果。设计和应用机械曝气设备的多年经验，结合我们广泛研究测试设备的自主能力，使提供给客户的高速曝气机不仅有最佳的传输氧气和混合废水的性能，同时达到这些性能的方式最经济、可靠。

The high-speed aerator line is designed to maximize the two most important functions of any aeration device—oxygen transfer and mixing of wastewater. The waste liquid is pumped through the unit in a manner which creates the most optimal spray pattern to facilitate oxygen into the wastewater. At the same time, this pumping action creates a tank velocity pattern which ensures the mixing of contents and thus the oxygen dispersion. Years of experience in the design and application of mechanical aeration equipment, combined with the full capabilities of our extensive research test facility, enabled us to provide a line of high speed aerators which not only maximizes oxygen transfer and tank mixing characteristics but also achieving this in the most economical and reliable way.

用途 Applications

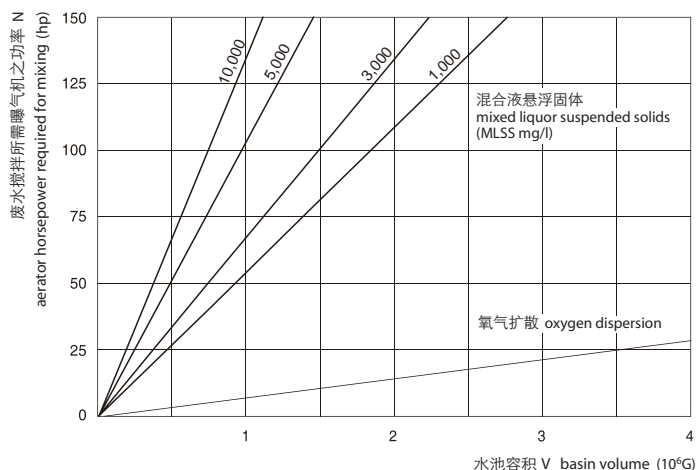
表面曝气机是利用电机直接带动轴流式叶轮，将废水由导管经导水板向四周喷出并形成一薄片（或水滴状）的水幕，在飞行途中和空气接触形成水滴，在落下时撞击液面，液面产生乱流及大量的气泡，使水中含氧增加。本机系将池底的水吸上而由上方送出，形成一循环水流，故兼有搅拌的效果，适用于生活污水，农牧养殖供氧及其他各种工业污水曝气等。

GSD's surface aerator (SAR) uses a motor to directly drive the axial flow impeller, which discharges the waste water from the conduit through the water deflector and forms a thin (or water drop-shaped) water curtain. When contact with air during the transfer, it will form water drop shape, which fall to the water surface and form the turbulence and bubbles. These bubbles will improve oxygen dispersion and increase oxygen in water. The GSD SAR device pumps water from the bottom to the top and creates circulation flows and stir processes. It is suitable for domestic waste water treatment, agriculture and aquaculture oxygen supply and other industrial waste water aeration applications.

曝气机选型 Aerator selection

下图可用于快速估计所需功率。

The chart below can be used to quickly estimate the horse-required power.

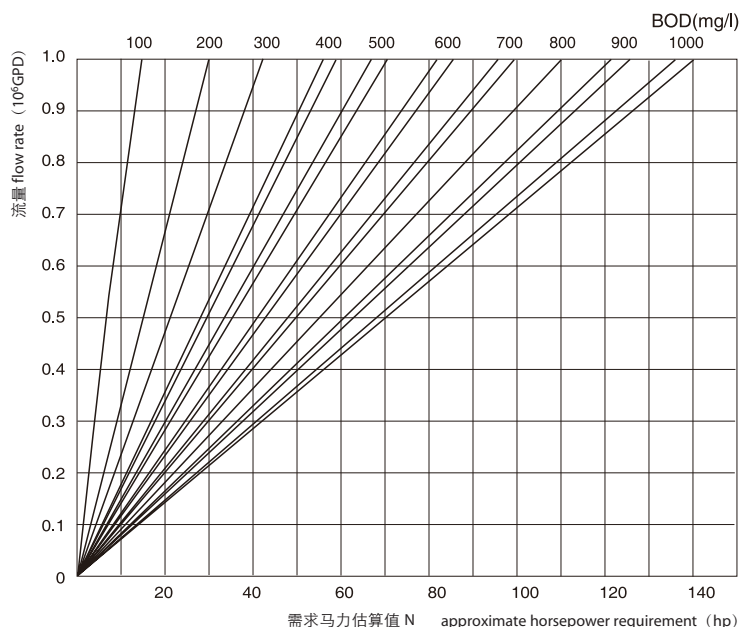


曝气机的传氧选型图

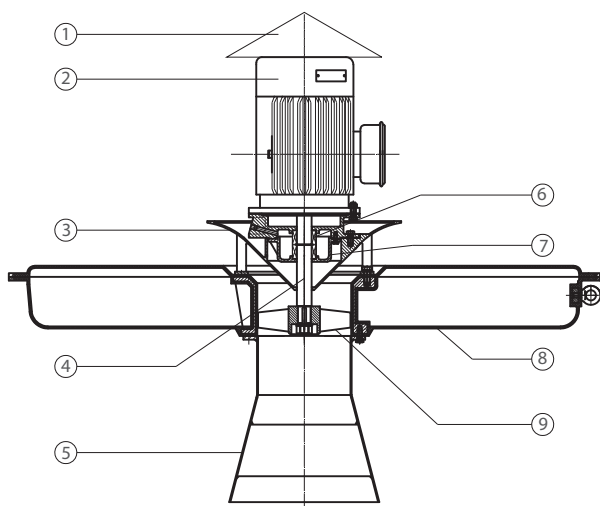
已知BOD(mg/l)及每日废水流量可利用下图选择废水处理所需曝气机之功率。使用时在图之左边选择需求之每日废水流量，然后延伸一水平线使与所需之BOD曲线相交，再由此引一垂直直线并读出在底部所需要之功率。

Selection of aerators for O₂ transfer

This chart will help to select the required horsepower of aeration if the BOD (mg/l) and daily flow rate of wastewater are known. First, select the appropriate daily waste flow on the left side of the chart. Then extend a horizontal line to the right until you intersect with the appropriate BOD curve. Drop a line vertically from the intersection to the bottom and read the horsepower required for aeration.



结构简图及材质 Construction and material



NO.	名称 Name	材质 Material	
		GB	JIS
1	防雨罩 Rain cover	0Cr18Ni9	SUS304
2	电机 Motor	-	-
3	水流导板 Water guide panel	ZG0Cr18Ni9	SUS304
4	轴 Shaft	3Cr13	SUS420J2
5	进水导管 Water inlet pipe	0Cr18Ni9	SUS304
6	机械密封 Mechanical seal	-	-
7	油室 Oil chamber	HT200	FC200
8	浮筒 Floating	FRP	FRP
9	叶轮 Impeller	ZG0Cr18Ni9	SUS304



结构概述

表面式曝气机包括电机，传动轴，直联式定速转动的轴流式叶轮及浮筒。浮筒将支撑所有必备之附件。

电机及轴：电机安装在水流喷射区的上方。电机为防水全封闭风扇冷却型，F级绝缘。3 ϕ ，50HZ/60HZ，防护等级IP56。轴由不锈钢制成。

叶轮：叶轮由不锈钢制成。叶轮设计独特，叶片栅距设计确保在马达不过载的前提下能达到最大的水力传输。

浮筒：浮筒外壳由加强之玻璃纤维制成，浮筒内填充高密度的聚氨酯泡沫塑料。系留孔可将张力在系留索间传递。

Construction introduction

Surface aerator consists of motor, driving shaft, axial-flow type impeller, and floater. The motor and impeller are coaxially connected and rotate at constant speed. The floater supports the entire body.

Motor and shaft: The electric motor is installed above the water spray range, which is TEFC type, F class insulation, 3 ϕ , 50hz/60hz, the protection grade is IP56. The shaft is made of stainless steel.

Impeller: The impeller is made of stainless steel. The impellers are uniquely designed to achieve maximum hydraulic transmission while motor is guaranteed to be free from over-load.

Floater: The floater body is made of reinforced fiber glass, inside of which is filled with high density polyurethane (PU) foamed plastics. The mooring holes transfer tensions among the mooring cables.

性能参数 Performance parameters

型号 Type	电机 Motor		曝气机 Aerator				
	功率 (hp)	转速 (r/min)	OC-HR (kg/h)	MD (m)	MZ (m)	D (m)	PR (m ³ /min)
SAR-32	2	1450	3.0	6	12	2~3	5
SAR-33	3	1450	4.2	9	18	3~4	7
SAR-35	5	1450	6.6	12	24	3~4	9
SAR-37	7 ¹ / ₂	1450	9.6	16	32	3~4	11
SAR-310	10	1450	11.5	19	38	3~4	19
SAR-315	15	1450	16.5	27	54	3~4	24
SAR-320	20	1450	21.0	32	64	3~4	29
SAR-325	25	1450	27.5	36	72	3~4	33
SAR-330	30	1450	31.0	40	80	3~4	37
SAR-340	40	1450	38.0	45	90	5~6	46
SAR-350	50	1450	50	50	100	5~6	55
SAR-360	60	1450	61	56	112	5~6	65
SAR-375	75	1450	73	62.5	125	5~6	80
SAR-3100	100	1450	95	70	140	5~6	120

MZ: 混合区域之直径(m)

OC-HR: 每小时传氧量(kg/h)

MD: 最低平均速度(大约1.2米/秒)时的安全混合直径(m)

D: 完全混合之深度，和MD相关

PR: 流量(m³/min)

MZ: Diameter of Mixing Zone. (m)

OC-HR: Kgs Oxygenation Capacity per Hour. (kg/h)

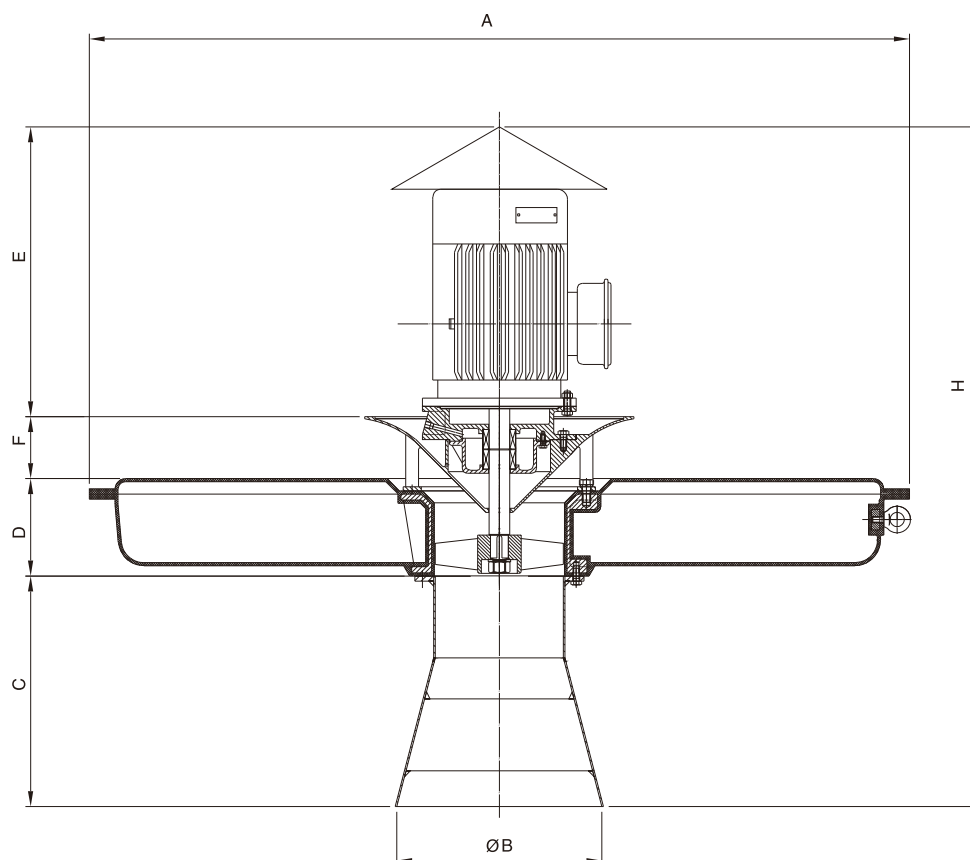
MD: Diameter of Complete Mixing in Meter at minimum average velocity of 1.2 meter per second (approx). (m)

D: Depth in Meter of Complete Mixing, related to MD.

PR: Pumping Rate, m³ per Minute.



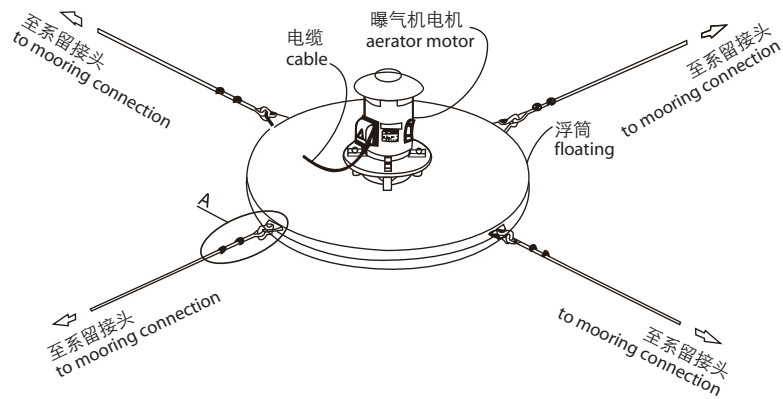
外形及安装尺寸 Installation dimensions



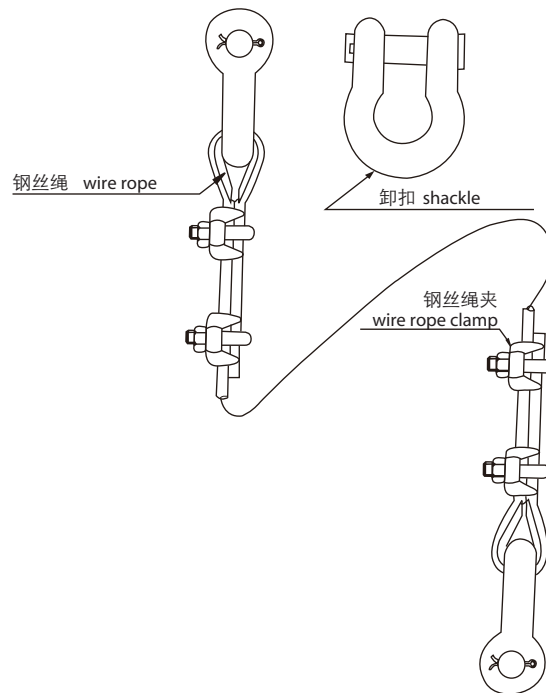
型号 Type	尺寸 Dimensions(mm)							
	A	B	C	D	E	F	H	W(kg)
SAR-32	1350	255	300	150	370	75	895	85
SAR-33	1350	255	300	150	400	75	925	90
SAR-35	1600	400	450	190	460	120	1220	130
SAR-37	1600	400	450	190	480	120	1240	160
SAR-310	1600	400	450	190	530	120	1310	180
SAR-315	1940	500	600	310	620	125	1655	250
SAR-320	1940	500	600	310	660	125	1695	290
SAR-325	1940	500	600	310	690	125	1725	350
SAR-330	1940	500	600	310	690	125	1725	390
SAR-340	2140	500	600	310	785	125	1820	430
SAR-350	2140	500	600	310	800	125	1835	430
SAR-360	2200	800	800	380	820	250	2250	720
SAR-375	2200	800	800	380	900	250	2330	795
SAR-3100	2340	800	800	480	910	250	2440	1075



安装方法 Installation method



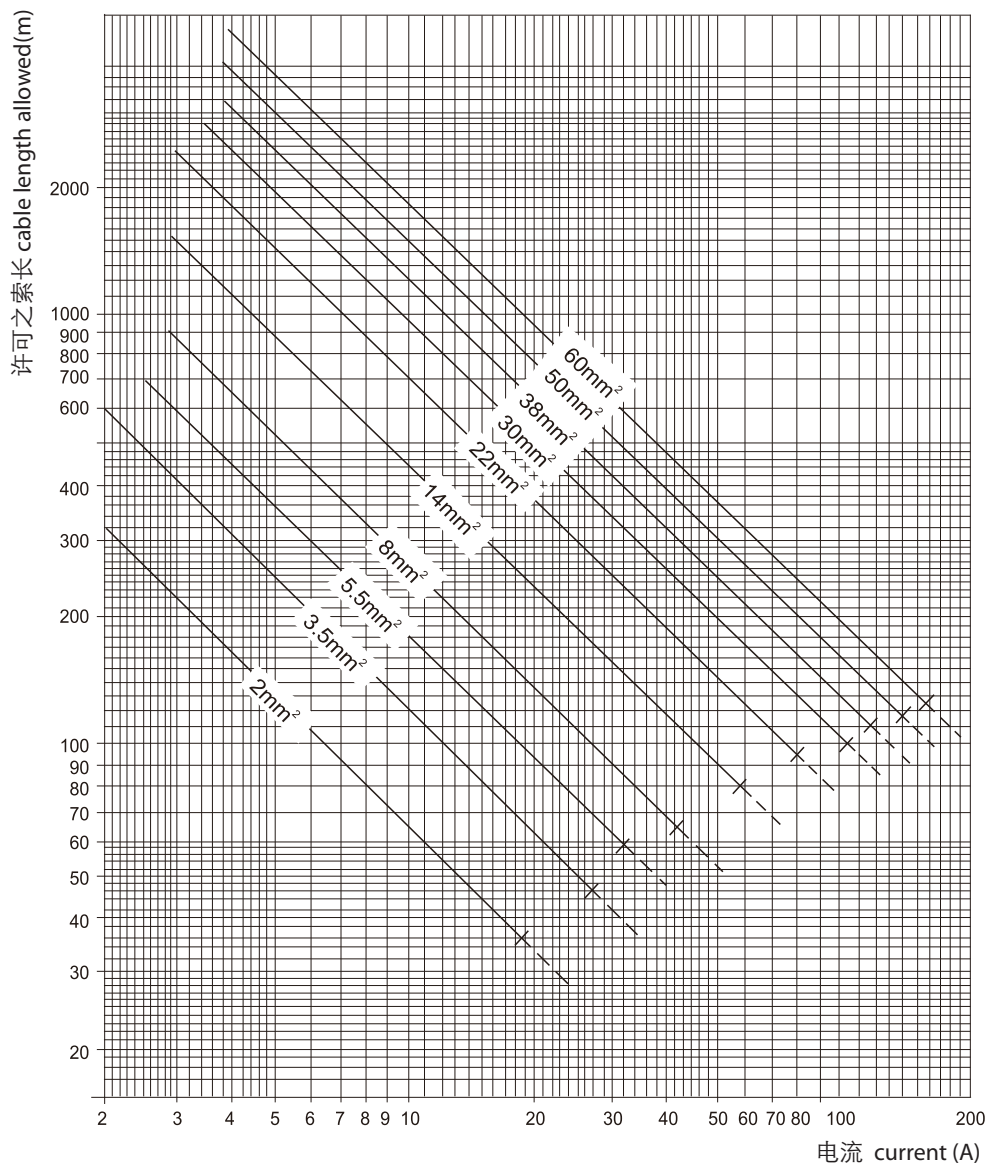
系留附件 Mooring accessories



系留索规格 Mooring cable specifications

功率 Power(hp)	索直径 Cable diameter	索型 Cable size	抗拉强度 Breaking strength	材质 Material
2~100	Ø6mm	6×19	2180KGS	SUS304

电缆选择图 Power cable selection chart



电缆应尽可能依上所示之尺寸选取用（最高环境温度30℃；在控制器与曝气机之间允许电压降为5%）。

Conductor shall be sized in accordance with the tables above whenever possible. The tables are based on 30 C maximum ambient temperature with an allowable voltage drop between controller and aerator of 5%.



表面式曝气机安装注意事项

依表面式曝气机特性及水池之大小安装于适当地方。检查表面式曝气机之固定钢索是否完全绑好，浮筒是否在倾斜状态等。确认表面式曝气机之电缆是否正确被固定。一般来说，电缆应附装有挂吊环，挂吊在固定钢索上，以防止电缆因额外拉力受损。检查电压及频率是否与表面式曝气机铭牌上所示相同。

Surface aerator installation precautions

Install the SURFACE AERATOR in the proper position according to the characteristics of the SURFACE AERATOR and the size of the pool. Check the fixing steel wires for the SURFACE AERATOR are completely fastened and the Flotation Unit is in an inclined state. Ensure the electric cables for the SURFACE AERATOR are properly fixed. In general, one of the electric cables is fixed with a hanging ring on the fixing steel wires according to the on-the-spot situation to prevent the wiring terminals from being damaged due to excessive pulling force of the electric cables. Check the for voltage and frequency of the power supply for the acceptor and make sure they are consistent with the marking on name plate of the SURFACE AERATOR.

表面式曝气机运转注意事项

- 1、检查电源电压及频率是否与表面曝气机铭牌上所示相同。
- 2、确认控制盘之防护设备是否与表面曝气机之铭牌上所示相同。
- 3、在运转中控制盘应放在自动位置而非手动位置，以便负荷太大时自动跳开。
- 4、确认运行电流在曝气机铭牌所示电流范围以内。

Surface aerator operation precautions

1. Check the voltage and frequency of the power supply for the acceptor, make sure they are consistent with the marking on the name plate of the SURFACE AERATOR.
2. Ensure the capacity of the protective device for the control disc is consistent to the hp(kW) marked on the name plate of the SURFACE AERATOR in order to protect the operating lifetime of the SURFACE AERATOR.
3. During operation, the control disc should be switched to the "AUTO" position, not on the "MANUAL" position. The purpose of this is to automatically trip when the load is too large.
4. Make sure the operating electric current is within the rated current range marked on the name plate of the SURFACE AERATOR during operation.



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