KHN fine bubble diffuser in water treatment introduction document

Catalog

Fine bubble diffuser is suitable for urban sewage and wastewater treatment plant. Small bubble diameter, small gas-liquid interface diameter, large gas-liquid interface area, uniform bubble diffusion, no hole plugging, strong corrosion resistance. The bubble diffuser is composed of aerator, gas distribution pipeline, three-way, four-way, elbow, regulator, connector and cleaning device. The gas distribution pipeline is arranged in the usual annular shape, and the aerator is arranged in accordance with the air supply quantity and the density of the pool shape. The connection between the aerator and the gas distribution pipeline is connected by G3/4 threads, and the base is internal threads (fixed on the gas distribution pipeline) and the aerator is external threads.

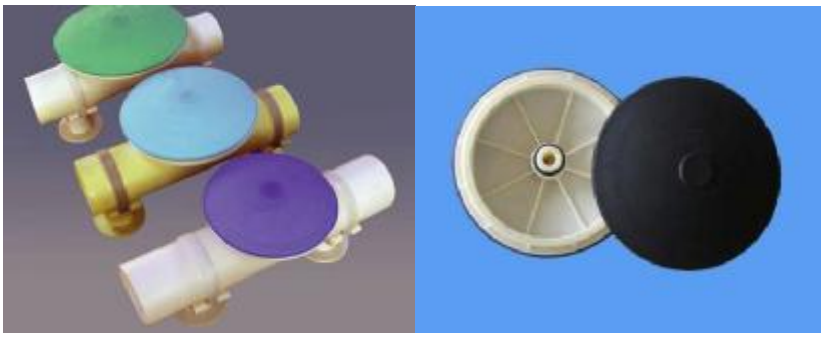
According to the different material, it can be divided into membrane diffuser, porous Ceramic Diffusers and titanium alloy ozone diffuser.

In principle, the more hydrophilic the material, the easier the water to stick to the material surface, the easier the bubbles to leave the material surface. Poor hydrophilicity results in the formation of larger diameter bubbles on the

surface of the material before leaving the membrane surface, which leads to the decrease of oxygen transfer efficiency.

As for hydrophilicity, it can be understood simply as follows: if you drop the same size of water droplets onto the horizontal surface of the material, the more dispersed the water, the better the hydrophilicity. (Of course, the oxygen transfer efficiency of the aerator is not only determined by the hydrophilicity of the aerator.

I、Fine bubble membrane diffuser(EPDM)



The Fine Bubble Disc Diffuser consists of a rubber diaphragm, several air flow guiding grooves, a chassis support and a spiral gland. The diaphragm is made of high quality rubber raw material and installed on the chassis bracket. The chassis support is the support of the diaphragm, which is arched. The upper part of the chassis support is provided with eight air diversion grooves which are distributed around the center to ensure that the air is evenly distributed. The spiral cap joins the lower part of the chassis support to the chassis support. The diaphragm is fixed on the chassis support. The chassis support and the spiral cap are molded by quality ABS engineering plastics.

Characteristics

The Fine Bubble Disc Diffuser adopts the technology of high tech CNC knife opening, which brings three advantages, such as good sealing, tearing resistance, long life and avoiding blocking on surface attachment.

There are a number of air guide grooves on the surface of the inner lining chassis of the Fine Bubble Disc Diffuser, which can ensure the releasing rate of 100% when the aerator is in working, and greatly reduces the ventilation resistance of the aerator when it starts working.

The diaphragm of the Fine Bubble Disc Diffuser and the inner lining chassis and the fastening ring are mechanically assembled by thread locking to ensure that the diaphragm will never fall off.

Fine Bubble Disc Diffuser built-in unique technology check valve, which is the latest development of a unique product, and has invention patents. Effective solution to the aerator inverted irrigation phenomenon.

The Fine Bubble Disc Diffuser has high oxygen utilization and small resistance

Application of fine bubble membrane diffuser

EPDM diaphragm with low plasticizer used in municipal wastewater containing industrial waste and industrial wastewater containing small amounts of grease and hydrocarbons. The maximum temperature is allowed 80 degrees centigrade.

Silicone rubber diaphragm is suitable for industrial wastewater containing

more grease and hydrocarbons. The maximum temperature is allowed 100 degrees centigrade.

Integrated type

Combined type

Parameter table（Fine bubble membrane disc diffuser）

Model	KFB 200(8")	KFB260(9")	KFB 300(12")
Work ventilation	1.5-3 m3/ h.no	2-5 m3/ h.no	2-8m3/ h.no
Design ventilation	1.5 m3/ h.no.	2.8 m3/ h.no	3.5 m3/ h.no
The Service Area	0.3-0.65 ㎡/.no.	0.4-0.8 ㎡/.no.	0.5-1.0 ㎡/.no.
Pure Oxygen Utilization	22-40%	22-40%	22-40%
Oxygen Filling Ability	0.13-0.2kgO2/h.no.	0.21-0.3kgO2/ h.no.	0.21-0.4kgO2/ h.no.
Submerged Depth	4-8m	4-8m	4-8m
Air Supply(H=4m)	2m3/h	3m3/h	4.25 m3/h

Note: the integrated type and combined type have the same parameter

Parameter table（Fine bubble membrane tube diffuser）

Model	Size	Service Area	Recommended
KTD1000	500mm*2	0.98-2.35 ㎡/no.	7.5m³/hr
KTD 2000	1000mm*2	1.96-4.7 ㎡/no.	15m³/hr
Basic Performance			
Diaphragm Thickness	mm	1.7-2	
Tear Resistance	KN/m	60-68	
The Resistance Loss	Pa	3000-8000	
Pore Length	mm	0.8-2	
Diaphragm Diameter	mm	65-69	
Dissolved Oxygen Effect	ppm(Clear water)	>6	
Compressive Strength	kg/cm2	>3	
Theoretical Dynamic Efficiency	kgo2/kw·h	6.5	
Oxygen Filling Ability	kg/h·pcs	0.9-1.5	
The Oxygen Utilization	%	>30	
Number of Pores	pcs	14000	

II、Porous Ceramic Diffusers

In terms of oxygen transfer efficiency, a good Porous Ceramic Diffusers is not worse or even higher than a membrane micro-porous aerator. Its principle is to pour a pile of mixture, quartz sand, lime and other things into the film forming, and then burn them through several process sections, so that the mixture in the inner part is burnt out and filled with voids. When air passes through these voids, it is divided into tiny bubbles.

Characteristic of Porous Ceramic Diffusers

1. The structure is simple. The original aerator has five parts, while the whole aerator has only three parts. It has fast assembly speed and easy installation and debugging at the bottom of the tank.
2. Good sealing, the original aerator, the contact surface of the sealing part is large, and there are three kinds of materials and three contacts, one side of which is not even, there will be leakage phenomenon. In the aeration tank, there will be bubbles, one-piece aerator, two-side contact parts are fired in one, there is no leakage phenomenon.

3. Large surface area, the estimated surface area increases by nearly 75%, which also increases the aeration volume, improves the aeration efficiency, or enlarges the service area. The integrated aerator can reach 0.5-0.8m2/unit. D aeration agitation is good, the original aerator only has front aeration, the integrated aerator is both positive and negative aeration at the same time, can make the bottom sewage agitation easier upward push flow.
4. Aeration agitation is good. The original aerator only has front aeration. The integrated aerator aerates both sides at the same time, which can make the bottom sewage agitate more easily and push upward.
5. Suitable for sewage tank with strong corrosive sludge

Parameter table（Porous Ceramic Diffusers）

Item	Air Volume	service areas	Oxygen absorption rate	Resistance loss	Oxygenation capacity	water depth
Φ85	0.25-0.75m³/hr·no.	0.17-0.25 ㎡/pcs	22-33%	≤2300Pa	0.2-0.5kg/m³·h	3-6m
Φ110	0.3-0.9 m³/hr·no.	0.2-0.3 ㎡/pcs	23-35%	≤2300Pa	0.2-0.5kg/m³·h	3-6m

Φ160	1.3-2.5 m³/hr·no.	0.24-0.52 ㎡/pcs	30-42%	≤2300Pa	0.2-0.5kg/m³·h	3-6m
Φ178	1.5-3.8 m³/hr·no.	0.25-0.6 ㎡/pcs	30-42%	≤2300Pa	0.2-0.5kg/m³·h	3-6m
Φ180	2-5.2 m³/hr·no.	0.3-0.7 ㎡/pcs	30-42%	≤2300Pa	0.2-0.5kg/m³·h	3-6m
Φ190	2-5.8 m³/hr·no.	0.3-0.71 ㎡/pcs	30-42%	≤2300Pa	0.2-0.5kg/m³·h	3-6m
Φ200	2.2-6.5 m³/hr·no.	0.31-0.72 ㎡/pcs	30-42%	≤2300Pa	0.2-0.5kg/m³·h	3-6m
Φ215	2.2-6.7 m³/hr·no.	0.35-0.75 ㎡/pcs	30-42%	≤2300Pa	0.2-0.5kg/m³·h	3-6m
Φ225	2.5-7 m³/hr·no.	0.37-0.75 ㎡/pcs	30-42%	≤2300Pa	0.2-0.5kg/m³·h	3-6m
Φ230	3-7.5 m³/hr·no.	0.4-0.81 ㎡/pcs	30-42%	≤2300Pa	0.2-0.5kg/m³·h	3-6m

III、 Titanium alloy ozone diffuser

The titanium alloy ozone diffuser is made of industrial pure titanium powder with purity (> 99.789%) as the main raw material, plus a certain amount of barren and plastic raw materials. The micropore size is 0.21-100 micron after high temperature sintering. The porosity is 35-51%. The hemisphere and the base plate are all made of titanium powder. The internal thread of the connection is made of 95%. The whole bond is made of ceramic material. It can be

firmly bonded together by sintering at high temperature. It has the functions of high temperature resistance, acid resistance, alkali resistance and corrosion resistance.

Titanium alloy ozone diffuser has small and uniform pore size, high porosity, large aeration area, corrosion resistance, oxidation resistance, high compressive strength, good sealing performance

Titanium alloy ozone diffuser is widely used in drinking water and reclaimed water reuse ozone sterilization, sewage tre atment aeration tank aeration and fermentation aeration, petroch emical wastewater ozone aeration, etc.

Parameter table（titanium alloy ozone diffuser）

Diameter mm	H mm	Stomatal rate %	Acid resistance %	Alkali resistance %	Connection	Air volume m^3/hr·no.	Service area m^2/no.
110	55	35-51	97.7	97.1	G1/2	1-1.5	0.15-0.31
150	58	35-51	97.7	97.1	G1/2	1.3-2.5	0.21-0.51
180	62	35-51	97.7	97.1	G1/2	2.1-3.2	0.25-0.72

Thanks

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