12 years focuson high-end aeration system one-stop solution provider

Tube Diffuser | Membrane Diffuser | Disc Diffuser

flux has achieved national high-tech enterprise certification, ISO9001 quality management system certification, and several new utility patents. Our company's integrity, strength and product quality have been widely praised by customers around the world. We unswervingly pursue a mutually beneficial and win-win development strategy, work hard and forge ahead. Welcome friends from all walks of life as well as new and old clients to visit and guide, working together to win business opportunities.

PATENTED PRODUCT

TPU Membrane Diffuer

Patent No.: ZL202121787948.8

(German 3.0 hole balancing technology)

KSPH TPU membrane diffuse air hole

Noraml PU membrane diffuse air hole

Membrane edge of KSPH

Normal membrane edge

ACPH CARPET STYLE AERATION INSTALLATION TECHNOLOGY

Carpet aeration mode

The layout spacing of the ordinary aeration tube or disc diffuser is 50-100cm, and the ACPH integration is highly efficient biological place. The distance management system is only 10-15cm.

Low ventilation

aeration tube ventilation of ACPH integrated efficient biological treatment system is only 0.5-1m3/m.h. The test of the water center of the ministry of housing and construction shows that the bubble rising speed of the aeration method of ACPH technology is only 0.4m/s, while the bubble rising speed of the conventional aerator is about 1m/s.

Micromix environment

Bubbles rise slowly and evenly, creating a micro mix for microorganisms, contaminated organic matter in the water, and bubbles, the harmonious environment makes it easier for microorganisms to obtain oxygen during their growth. Although the concentration of dissolved oxygen in water is only 0.3mgL, the oxygen transfer efficiency is greatly improved.

flux BLANKET AERATION INSTALLATION TECHNOLOGY PRODUCT CHARACTERISTICS

High oxygen transfer efficiency

The German 3.0 equal hole pressure balancing technology is adopted, and the hole is uniform and high density, resulting in tiny bubbles of about 1-2mm. The bubbles rise slowly, increasing the contact area and contact time with sewage, so it has higher oxygen transfer efficiency.

Stable oxygen utilization rate

flux aeration technology has the function of self-cleaning, avoiding the problem of micro pores being blocked and ensuring the stability of oxygen utilization rate.

Low energy consumption

flux aeration technology has no internal support structure, reducing drag losses and requiring less fan power than conventional aerators.

Online maintenance

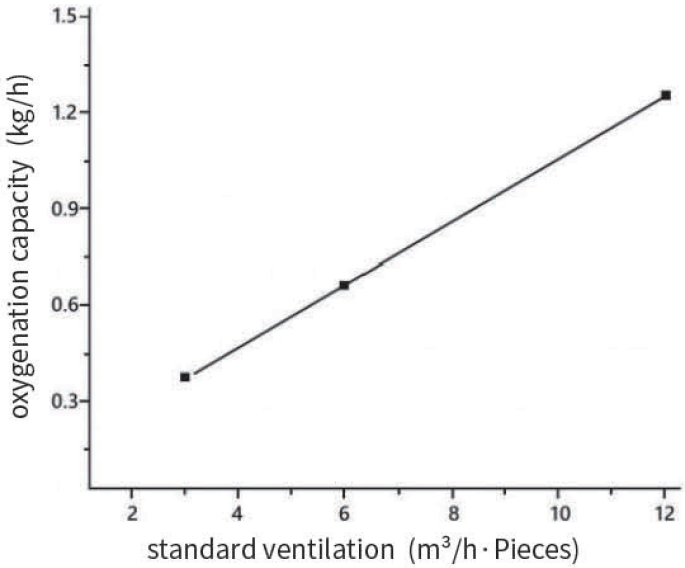
flux The unique installation method can be used to unscrew the quick-fitting joint and extend the tail rope during maintenance so that the aeration pipe can be drawn out along the branch pipe of air distribution to realize undrained maintenance.

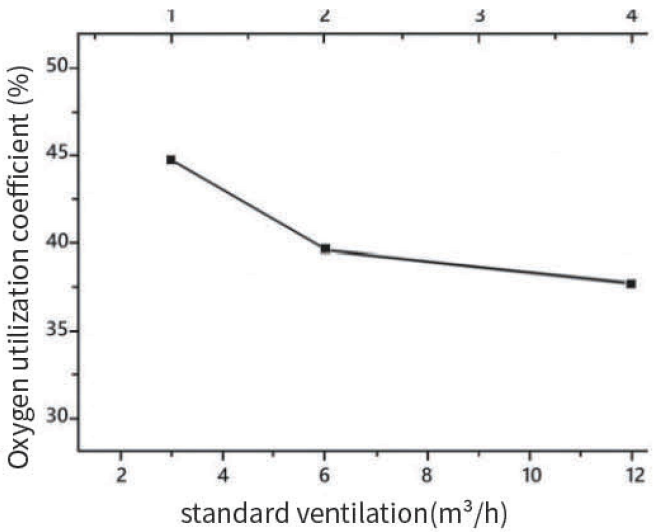
Long service life

flux Imported raw materials from Germany, high density and uniform opening, higher gas distribution efficiency, excellent performance in strength and toughness, and high corrosion resistance to acid and alkali, designed service life of 8 years +

flux BLANKET AERATION PERFORMANCE PARAMETER

flux-TPU	unit	parameter
Ventilatory capacity	$m^3/m.h$	0.2-1.5
Service area	m^2/m	0.2-0.4
Oxygenation capacity	kg/h	0.37-0.66
Oxygen utilization coefficient	%	⩾40
Resistance loss	Pa	<3000
Effective area	m^2/h	0.33
Membrane material	/	TPU
Thickness	mm	0.4-0.5
Stomatal density	个/m	3000-4500
Bubble size	mm	1-2
Theoretical dynamic efficiency	$kgO_2/kw.h$	>9





Tube Diffuser

Model	ϕ65*1000		
Membrane material	EPDM	Silicone	TPU
Thickness	1.8±0.1	1.6±0.1	0.6±0.02
Aeration effective area	0.21	0.21	0.21
Hole number	约18000	约18000	约18000
Bubble diameter	1.0-2.0	1.0-2.0	1.0-2.0
Lifespan	>5	>5	>8
Standard ventilation	6-8	6-8	6-8
Scope of ventilation	3.0~14.0	3.0~14.0	2.0~14.0
Resistance lass	3.0-5.0	3.0-5.0	3.5～6.0
Oxygen transfer efficiency	⩾36%	⩾38%	⩾40%
Standard oxygenation capacity	⩾0.71	⩾0.68	⩾0.90
theoretical dynamic efficiency	⩾7.6	⩾7.5	⩾7.8
Service area	0.5~2.0	0.5~2.0	0.5~2.0

EDPM Tube Diffuser

Aeration Membrane Testing Report					
No.	Testing item	Testing method	Result		Conclusion
1	Material	Material Report	EPDM		Qualified
2	Shore hardness	GB/T531.1-2008	60±3ShoreA		Qualified
3	Extension test	GB/T528-2009	Tensile strength	14.5MPa	Qualified
			Breadking elongation rate	525.42%	Qualified
4	Thermal aging test	GB/T3512-2014	ensile strength change rate	-6.80%	Qualified
		GB/T528-2009	Rate of change of elongation at break	0%	Qualified
5	Tear strength	GB/529-2009 method B process(a)	36N/mm		Qualified
6	Rebound resilience	GB/T1681-2009	48%		Qualified
7	Permanent compression	GB/T7559.1-2005 method A	15%		Qualified
8	Resistant to deionized water	GB/T1690-2010 Full immersion test	Volume change rate	1.80%	Qualified
			Quality change rate	0.90%	Qualified
9	Resistant to H_2SO_4 solution	GB/T1690-2010 Full immersion test	Rate of change of elongation at break	1.90%	Qualified
		GB/T528-2009			Qualified
10	Resistant to NaOH solution	GB/T1690-2011 Full immersion test	Rate of change of elongation at break	2.20%	Qualified
		GB/T528-2009			Qualified
11	Resistant to oil(1#standard oil, normal temperature)	GB/T1690-2010 Full immersion test	Quality change rate	1.40%	Qualified
Test condition			water deepth 6m, testing tank aera 0.5m^2		
12	Standard oxygen mass transfer rate SOTR (oxygenation capacity)	CJ/T475-2015	The standard ventilation capacity is 4m^3/H(standard state)	0.42kg/h	Qualified
			The standard ventilation capacity is 6m^3/H(standard state)	0.58kg/h	Qualified
			The standard ventilation capacity is 8m^3/H (standard state)	0.71kg/h	Qualified
13	Standard oxygen mass transfer rate SOTR (oxygenation capacity)	CJ/T475-2015	The standard ventilation capacity is 4m^3/H (standard state)	36%	Qualified
			The standard ventilation capacity is 6m^3/H (standard state)	34%	Qualified
			The standard ventilation capacity is 8m^3/H(standard state)	32%	Qualified
14	Resistance disappears	CJ/T475-2015	The standard ventilation capacity is 4m^3/H(standard state)	3352Pa	Qualified
			The standard ventilation capacity is 6m^3/H (standard state)	4409Pa	Qualified
			The standard ventilation capacity is 8m^3/H (standard state)	4913Pa	Qualified
15	Appearance	Visual inspection	Black without impurities, even punchin		Qualified

SILICONE TUBE DIFFUSER

No.	Testing item	Testing method	Result		Conclusion
1	Material	Material Report	Silicone		Qualified
2	Shore hardness	GB/T531.1-2008	60±2ShoreA		Qualified
3	Extension test	GB/T528-2009	Tensile strength	10.2MPa	Qualified
			Breadking elongation rate	542.10%	Qualified
4	Thermal aging test	GB/T3512-2014	ensile strength change rate	-7.20%	Qualified
		GB/T528-2009	Rate of change of elongation at break	0%	Qualified
5	Tear strength	GB/529-2009 method B process(a)	52N/mm		Qualified
6	Rebound resilience	GB/T1681-2009	50%		Qualified
7	Permanent compression	GB/T7559.1-2005 method A	14%		Qualified
8	Resistant to deionized water	GB/T1690-2010 Full immersion test	Volume change rate	1.10%	Qualified
			Quality change rate	0.90%	Qualified
9	Resistant to H_2SO_4 solution	GB/T1690-2010 Full immersion test	Rate of change of elongation at break	2.10%	Qualified
		GB/T528-2009			Qualified
10	Resistant to NaOH solution	GB/T1690-2011 Full immersion test	Rate of change of elongation at break	5.00%	Qualified
		GB/T528-2009			Qualified
11	Resistant to oil(1#standard oil, normal temperature)	GB/T1690-2010 Full immersion test	Quality change rate	1.60%	Qualified
Test condition			water deepth 6m, testing tank aera 0.5m³		
12	Standard oxygen mass transfer rate SOTR (oxygenation capacity)	CJ/T475-2015	The standard ventilation capacity is 4m³/H (standard state	0.41kg/h	Qualified
			The standard ventilation capacity is 6m³/H (standard state)	0.56kg/h	Qualified
			The standard ventilation capacity is 8m³/H (standard state)	0.72kg/h	Qualified
13	Standard oxygen mass transfer rate SOTR (oxygenation capacity)	CJ/T475-2015	The standard ventilation capacity is 4m³/H (standard state)	38%	Qualified
			The standard ventilation capacity is 6m³/H (standard state)	34%	Qualified
			The standard ventilation capacity is 8m³/H (standard state)	32%	Qualified
14	Resistance disappears	CJ/T475-2015	The standard ventilation capacity is 4m³/H (standard state)	3340Pa	Qualified
			The standard ventilation capacity is 6m³/H (standard state)	4412Pa	Qualified
			The standard ventilation capacity is 8m³/H (standard state)	4980Pa	Qualified
15	Appearance	Visual inspection	Black without impurities, even punchin		Qualified

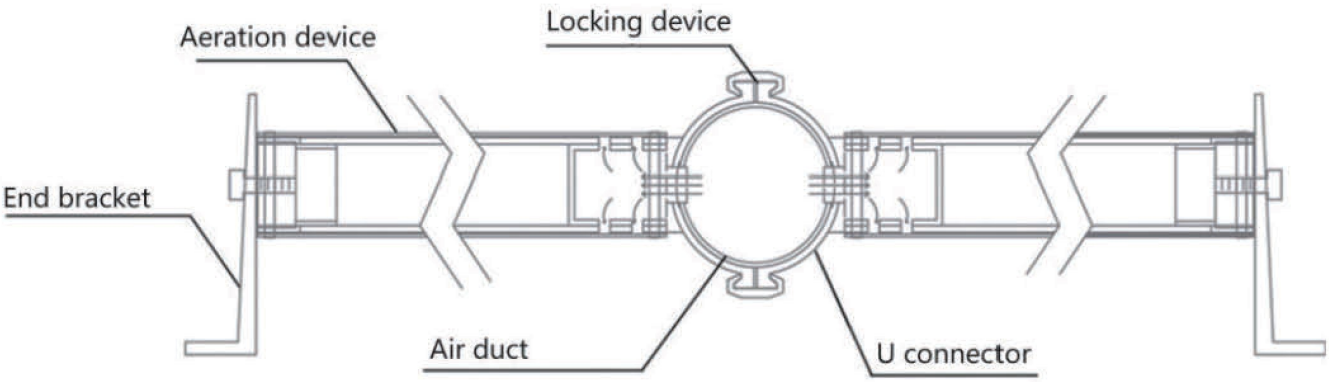
TPU TUBE DIFFUSER

No.	Testing item	Standard or indicator requirements	Testing result			Test results
			Standard ventilation			
			3m³/h (1m³/h·m)	6m³/h (2m³/h·m)	12m³/h (4m³/h·m)	
1	Oxygenation capacity(kg/h)	⩾0.10	0.376	0.667	1.267	Qualified
2	Oxygen utilization(%)	⩾17	44.766	39.706	37.722	Qualified
3	Theoretical power efficiency (kg/kWh)	⩾4	11.170	9.900	9.295	Qualified
4	Resistance disappears (Pa)	-	4420	4770	5520	-
5	Appearance Quality	The aerator aerates evenly	Meet the requirements			
6	Dimensions	Diameter 65mm	Meet the requirements			
7	Sealing performance	During normal aeration, the non-aeration holes must not leak air.	Meet the requirements			
8	Test Conditions	Water depth 6m, service area 0.33m2/m(1m2/3m); standard gas volume 1、2、4m3/h·m air pressure 0.0645、0.0649、0.0660Mpa; water temperature 28.0~28.4°C; air temperature 28~29°°C。				
9	notes	The index requirements in the table are HJ/T252-2006'Tochnical Requirements for Environmental Protection Products, Micro porous Aerators" industry standard for reinforced PVC hose type aerators with an inner diameter of 65mm, a hole diameter of 5.5mm, and an aeration area length of 1000mm. At a water depth of 4m, standard ventilation rate of 2myh-m, and a service area. The index requirements under the test condition of 0.5m2/m.This test is carried out with a water depth of 6m, a standard ventilation volume of 1. 2, 4m/h=m, and a service area of 0.33m/m, which is implemented according to national industry standards. The pore diameter (10mm) of the Inspected aeration hose is quite different from the length of the hole chain notes (5.5mm) of the reinforced PVC hose type aerator in the industry standard. The positive force loss item only issues test data, and does not make test conclusions. Conductivity0.57-0.58ms/cm, total solid 0.28-0.29g Amblent temperature 27.7~28.8°C , amblent atmospheric pressure 99.59~100.52kPa Note: The flowmeter used in the test is LZB-25F (measurement range 16-16m/hj of Yuyao Juxing Flowmeter Factory, factory number 45F, accuracy level 2.5. The dissolved oxygen analyzer used is 58-230V (measuring range 0-20mg/L) from YS1 Company of the United States, the factory number is 4034267406M166307F101713,and the verification Institution: Tianjin Metrology Supervision and Testing Science Research Institute, the certificate number: FYL1hl9045704、FYLh9045705、FYLIh19045706.				

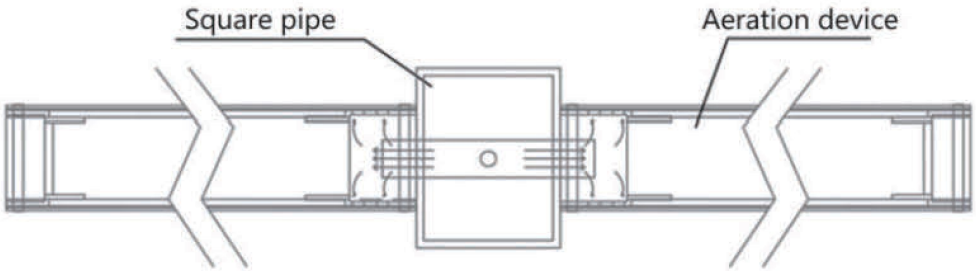
TUBE DIFFUSER INSTALLATION METHOD AND INSTRUCTIONS

Fixed Tube Diffuser

It has the advantages of simple structure, high oxygen utilization rate, reliable performance, not easy to block the pores, no backflow of sewage, uniform circumferential force, long service life, and convenient installation and maintenance. The system is cheap and so on. During aeration, the pressure air enters the air guide groove of the air guide pipe from the air distribution branch pipe through the air supply pipe, and an annular air chamber is formed between the aeration membrane tube and the support body, so that the aeration membrane tube is bulged, and the air can be stretched through the membrane tube. The micropores aerate the water body. When the air supply is stopped, the membrane tube elastically shrinks and hugs the support body tightly, and the micropores also shrink and close with the rebound, preventing the water body from flowing back into the air groove.



Fixed installation

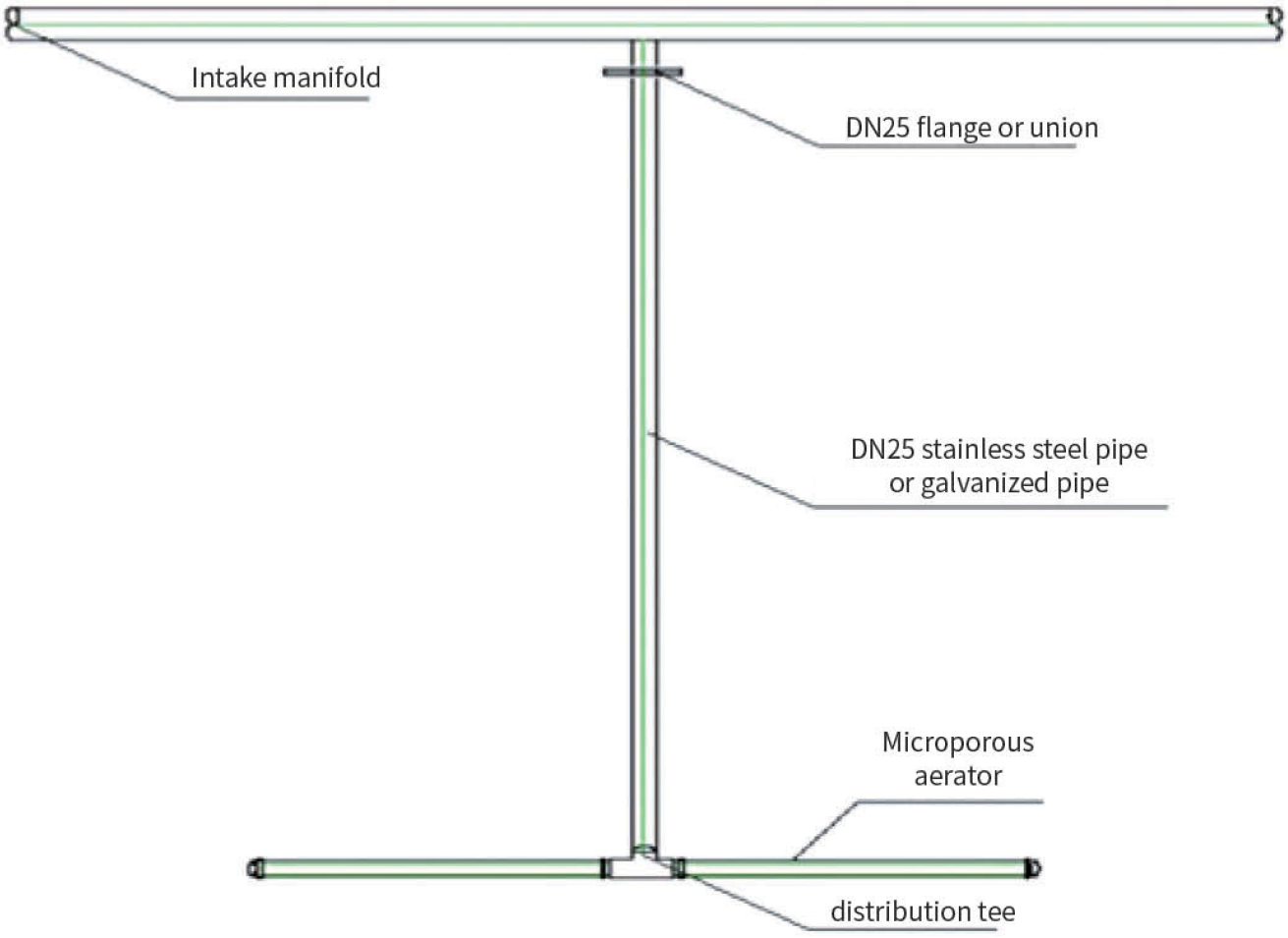


Lift installation

TUBE DIFFUSER INSTALLATION METHOD AND INSTRUCTIONS

Lifting tube diffuser

When designing applications, please refer to relevant technical parameters and calculate the usage quantity according to the air volume. The aeration pipe is installed 100-500mm away from the bottom of the pool, which can also be determined according to the design requirements. There is no need for any configuration or pre-embedding in the pool, and it can be installed with or without water. During maintenance, there is no need to drain water, shut down the fan, and replace the aeration pipe. It is convenient and quick to dismantle at the same time, without affecting the normal operation of the aeration.

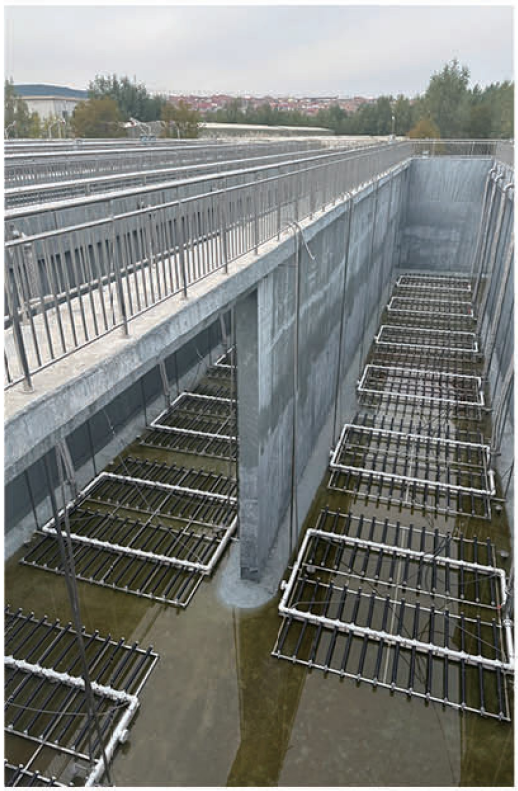


INTEGRAL FRAME TYPE LIFTING AERATION SYSTEM

The overall frame-type aeration system that is lifted by a lifting device is also called a mechanically lifting aeration system. The aeration system adopts an overall frame design. From the perspective of the layout of the pool bottom, it is not much different from the design of the aeration system with a fixed dry bottom: usually, microporous aeration tubes or large-diameter aeration tubes are used. Plate matched with stainless steel piping.

The overall frame system is mainly composed of a bottom aeration system, riser and riser, guide rail system, and lifting boom. The lifting equipment consists of five parts. The single-group aeration system is designed to install 20-40 sets of microporous aerators. There are two options for lifting during maintenance. A small lifting device installed on the walkway slab or a large mechanical crane can be lifted above the water surface or outside the pool as a whole, and then repaired or replaced.

It is applicable to new projects, renovation projects, and non-stop water renovation projects. Especially for large and medium-sized municipal sewage treatment plants and industrial wastewater treatment plants, it is recommended to adopt the overall frame type to improve the aeration system and give priority to ensuring the stability and reliability of the system.



INTEGRAL FRAME TYPE LIFTING AERATION SYSTEM

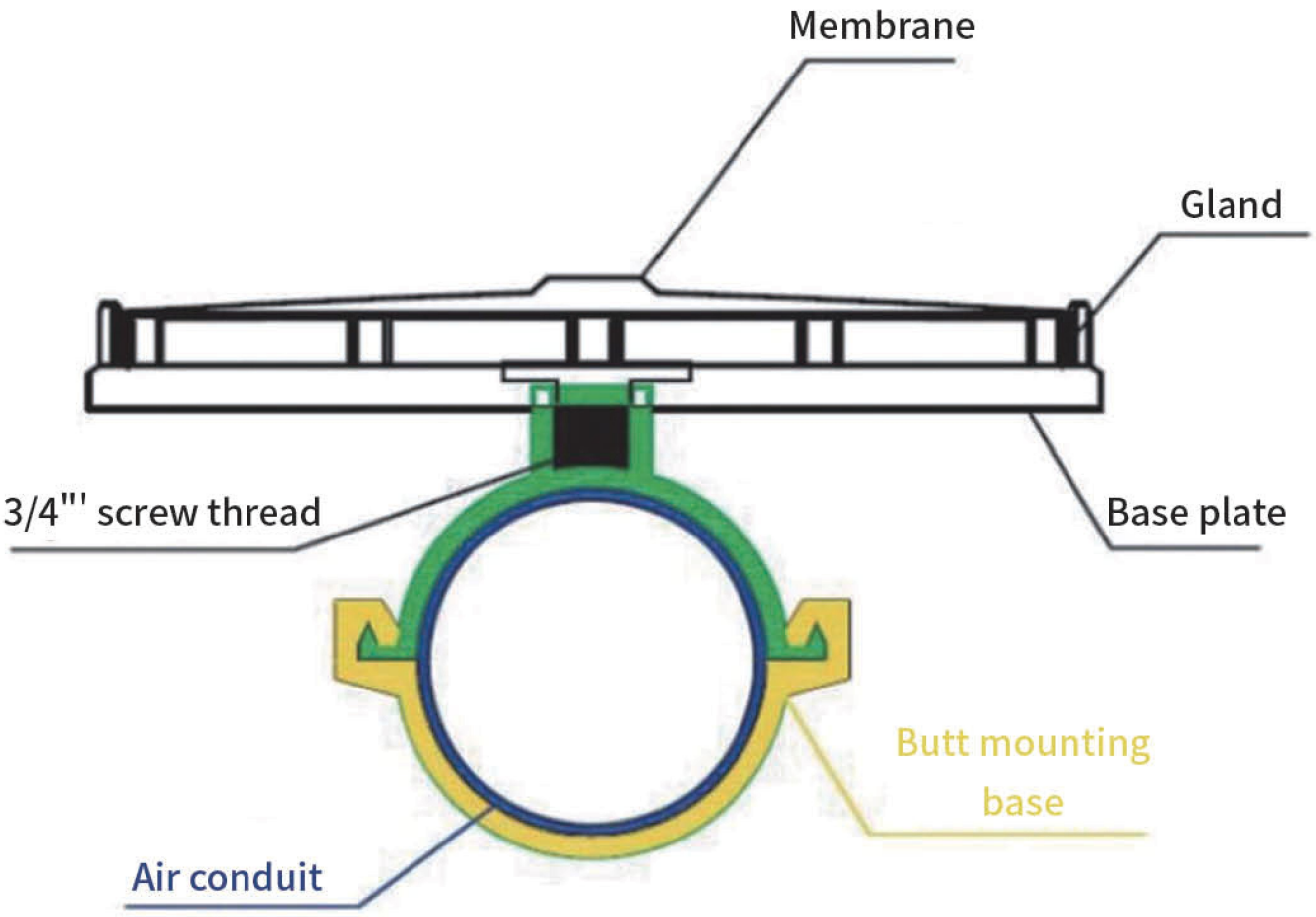
Model	ϕ215		ϕ260		ϕ300	
Membrane material	EPDM	Silicone	EPDM	Silicone	EPDM	Silicone
Thickness	2.0±0.1	2.0±0.1	2.0±0.1	2.0±0.1	2.0+0.1	2.0+0.1
Aeration effective aera	0.023	0.023	0.045	0.045	0.070	0.070
Hole number	约5500	约5500	约8500	约8500	约11000	约11000
Bubble diameter	0.8-1.5	1.0-1.8	0.8-1.5	1.0-1.8	0.8-1.5	1.0-1.8
Lifespan	>5	>5	>5	>5	>5	>5
Standard ventilation	1.5-2.5	15-2.5	3-4	3-4	5-6	5-6
Scope of ventilation	1~5	1~5	1.5~7	1.5~7	2.5~10	2.5~10
resistance loss	2.0~4.5	2.0~4.0	2.0~4.3	2.0~4.0	2.0~4.3	2.0~4.0
Oxygen transfer efficiency	⩾38%	⩾36.5%	⩾38%	⩾36.5%	⩾38%	⩾37.5%
Standard oxygenation capacity	⩾0.30	⩾0.28	⩾0.37	⩾0.34	⩾0.55	⩾0.52
theoretical dynamic efficiency	⩾7.6	⩾7.5	⩾7.6	⩾7.5	⩾7.6	⩾7.5
Service aera	0.2~0.64	0.2~0.64	0.25~1.0	0.25~1.0	0.40~1.5	0.40~1.5

No.	Testing item		Unit	Technology requirementsa	Testing result	Single evaluation
1	Hardness(ShoreA)		Degree	60±5	61	Qualified
2	Tensile strength		Mpa	⩾18.0	19.7	Qualified
3	Elongation at break		-	200%	640%	Qualified
4	Air aging (100°C,96H)	Tensile strength	Mpa	⩾15.0	16.7	Qualified
		Elongation at break	-	400%	620%	Qualified

No.	material quality	picture	advantage
1	EPDM		In municipal sewage and most industrial sewage, it can maintain its physical properties for a long time, resist tearing, maintain its shape after several years of use, and produce fine air bubbles. Not suitable for organic solvents, oils, greases, and occasions with high concentrations of metal salts.
2	Silicone		In municipal sewage and most industrial sewage, it can maintain its physical properties for a long time, resist tearing, maintain its shape after several years of use, and produce fine air bubbles. Not suitable for organic solvents, oils, greases, and occasions with high concentrations of metal salts.

PERFORMANCE CHARACTERISTICS OF DISC DIFFUSE

The flat diaphragm aerator is a new type of aeration device developed in the 1980s. The diameter of the aeration bubbles of this device is small, the diameter of the gas-liquid interface is small, the area of the gas-liquid interface is large, the bubbles diffuse evenly, and the pores will not be blocked, and the corrosion resistance is strong. , after the School of Environmental Engineering of Shanghai Tongji University and the North China Design Institute of Municipal Engineering of China conducted the oxygenation test of clean water and sewage, and it has been used by more than 50 users for many years with good results. Good (compared with conventional fixed spiral aerators, diffuse flow aerators and perforated tube aerators, the energy consumption is reduced by 40%, or the sewage treatment capacity is increased by 40%). It is especially suitable for urban sewage and large-scale factory new expansion and renovation of old aeration tanks, and the aeration tanks can be operated intermittently.



DISC AERATOR MODEL SELECTION

ϕ300mm

ϕ260mm

ϕ215mm

PH-215: Small size, small force, more stable and reliable system, suitable for high-intensity working conditions.

PH-260: Moderate and balanced performance in all aspects, the choice of most customers.

PH-300: It has higher oxygen utilization rate and lower resistance loss under the same air flow rate. The product is highly efficient and energy-saving, saves pipelines, has a wide aeration area, and the bubble distribution is more uniform. It is recommended to use it with a dedicated fixed adapter. It is suitable for aeration Customers who have certain requirements for gas system quality.

TPU DISC AERATOR

Technical field

1. This utility model relates to the technical field of aerators, in particular to a TPU disk-type aerator.

Background technology

2. The existing rubber aerators have a short lifespan, the rubber diaphragm is prone to tearing, and sewage is prone to backflow to the gas pipe.

Technical implementation elements

3. To solve the above technical problems, the technical solution adopted by this utility model is: a TPU disc aerator, which includes a base, an airbag, a support plate, an aeration film, and a pressure cover;

4. An aeration membrane, a support plate, and an airbag are arranged from top to bottom between the base and the gland; An intake chamber is formed between the support plate and the airbag; An intake pipe connected to the intake chamber is arranged on the base; A support plate hole is arranged on the support plate, which is communicated with the intake chamber; The aeration membrane is equipped with several aeration holes for discharging gas from the intake chamber; The intake pipe is used to introduce compressed air into the intake chamber; Several balancing holes are arranged on the base; The aeration membrane and airbag are made of elastic materials; Maintain the pressure inside the intake chamber through the deformation of the aeration membrane and airbag.

5. The aeration membrane is made of TPU material.

POLYURETHANE AERATION TRAY

inspection report

Inspection items	Standard ventilation capacity (m³/h.Pieces)			
	1.5	2.0	3.0	4.0
Oxygen filling capacity(kg/h)	0.147	0.194	0.285	0.374
Oxygen utilization rate(%)	35.03	34.62	33.92	33.37
Standard aeration efficiency(kg/KW. h)	10.72	10.58	10.29	9.99
Resistance loss(Pa)	3060	3360	3960	4560
Test conditions	Water depth of 6m, testing standard air volume of 1.5, 2.0, 3.0, 4.0m³/ h. No., with a service area of 0.38 square meters per unit.			
remarks	The main detection condition parameters are as follows: total dissolved solids Remarks 0.59-0.96g/L; The ambient temperature is 18.3~21.9°C, and the ambient atmospheric pressure is 102.45-102.75Kpa; Water temperature 20-22°C; Temperature 19-23.5°C; Air pressure 0.065 - 0.068Mpa			

Appendix1:test curve

1.Relation between resistance loss (RL) and gas volume

Table 1 Tube diffuser resistance loss under different standard ventilation rates

Rem	tandard ventilation rates (m²/h/pc)									
	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5
resistance loss (Pa)	2360	2760	3060	3360	3660	3960	4260	4560	4860	5160

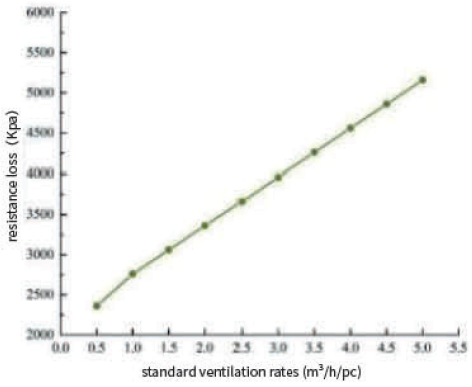


Figure 1 Resistance loss of aerator under different standard ventilation rates

2.The relationship between oxygen filling capacity (SOTR) and gas volume

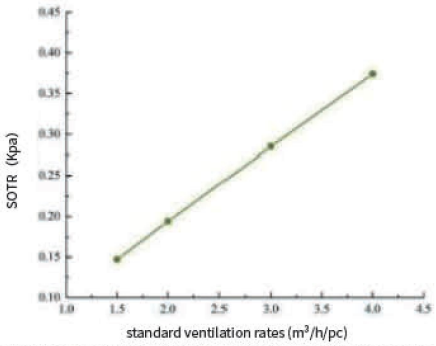


Table 2 Tube diffuser oxygen filling capacity under different standard ventilation rates

3.The relationship between oxygen utilization rate (SOTL) and gas volume