HAM BAKER GROUP

Disc Diffusers

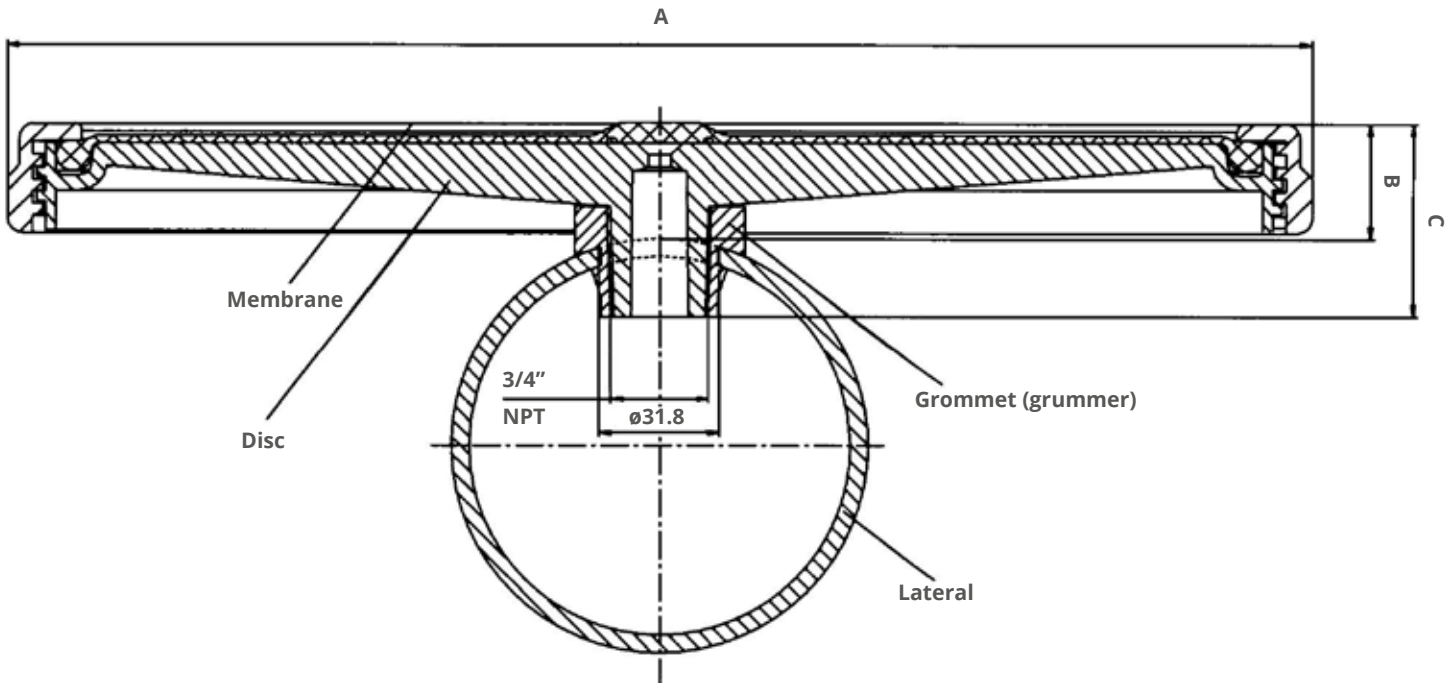
Overview

In partnership with SCM Tecnologie, Ham Baker Adams can provide aeration systems for basins at civil and industrial wastewater treatment plants. These systems are intended for the aeration of wastewater by finebubble compressed air in activated sludge basins. Our membranes made of EPDM rubber allow intermittent operations thanks to their long-term elasticity.

S. C. M. Tecnologie
Wastewater Treatment Aeration & Mixing

HAM BAKER GROUP

Disc Diffusers



Technical Characteristics and Dimensions

Type	Height	Diameter effective	Perforated area	Material of base	Material of membrane	Weight	Diameter ø	h top + membrane	h diffuser
							A	B	C
	mm	mm	m²			Kg	mm	mm	mm
HD 270	64	270	0.038	PP GF 30	EPDM / Silicone	0.6	268	30	60
HD 340	76	346	0.060	PP GF 30	EPDM / Silicone	0.85	346	46	76

Only overall dimensions, diffuser design does not correspond with drawing.

Air Flow

Type	Air flow rates at standard operation condition	Overload air flow rate
	m_N^3/h	m_N^3/h
HD 270	1 - 7	10
HD 340	5 - 12	15

Air flow rates depending on material, slit pattern etc.
Other slit patterns on request.
Shutdown of operation is highly recommended for air flow rates lowerthan minimum rate.
Overload air flow rate (e.g. cleaning) should not be applied longer than 10 min.

Grommets for 3/4" NPT threads

Type	Thickness of the tube support	Diameter of straight-drilled hole	Material	Colour
	mm	mm		
Grommet 4.7	4.7	31.8 (1 1/4")	EPDM 75 Sh A	Black
Grommet 6.3	6.3	31.8 (1 1/4")	EPDM 75 Sh A	Black
Universal Saddle	2 - 8	31.8 (1 1/4")	EPDM 75 Sh A	Black

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Tube Diffusers

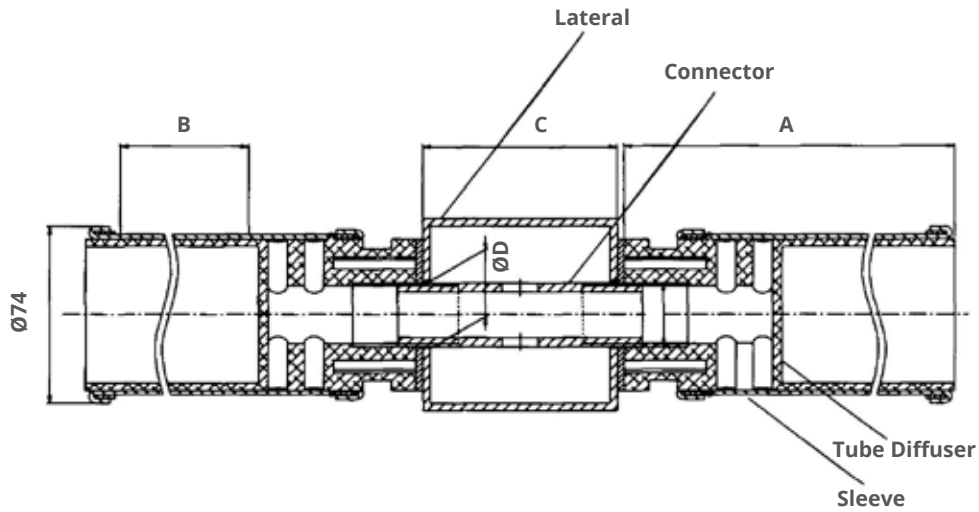
Tube Diffuser

Membrane fixing on support tube

Standard safety clamps (stainless steel 1.4571, 316 SS), membrane exchange possible without removing the support tube.

Sealing

4 mm EPDM flat-gasket.



Technical Characteristics and Dimensions

Type	Tube ø	ID - Sleeve	Perforated area	Weight	Diffuser	Perforation	Square tube	Straight drilled hole	Thread
					A	B	C	D	E
	mm	mm	m²	Kg	mm	mm	mm	mm	mm
TD 63/2100	63	64-66	0.18	1.3	1060	1000	80 / 100	28 / 35	3/4" / 1"
TD 63/2075	63	64-66	0.135	1.1	810	750	80 / 100	28 / 35	3/4" / 1"
TD 63/2050	63	64-66	0.09	0.8	560	500	80 / 100	28 / 35	3/4" / 1"

Other lengths on request.

Air Flow

Type	Air flow rates at standard operation condition	Overload airflow rate
	m_N^3/h	m_N^3/h
TD 63/2100	4 - 12 (3 - 10 silicone)	20
TD 63/2075	3 - 9 (2 - 8 silicone)	15
TD 63/2050	2 - 6 (1 - 5 silicone)	10

Air flow rates depending on material, slit pattern etc.
Other slit patterns on request.
Shutdown of operation is highly recommended for air flow rates lower than minimum rate.
Overload air flow rate (e.g. cleaning) should not be applied longer than 10min.

Dimensions for Threads and Double Nipple

Connector	Double nipple length square tube		Double nipple length tube DN 100	Colour
	80x80mm	100x100mm	114.3mm	
Withworth 1"	130	150	190	Blue
Withworth 3/4"	130	150	-	Green
NPT 3/4"	-	-	-	Grey

3/4" NPT-joint: maximal diffuser length 610 mm, diffuser will be connected to 3/4" NPT weld-on threaded nipple. Double nipples for other tube dimensions on request.

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Tube Diffusers

Typical physical properties, measured on cured rubber sleeve

Tube			
Membrane type	**Standard EPDM (performance)**	**Plasticizer low EPDM (premium)**	**Silicon**
Colour	Black	Black	Translucent
Suppor thickness	1.9mm ± 0.15mm	1.9mm ± 0.15mm	1.5mm ± 0.2mm
Diameter	on request	65mm ± 1mm	65mm ± 1.5mm
Density	1.11 ± 0.03 g/cm³	1.17 ± 0.02 g/cm³	1.16 ± 0.03 g/cm³
Tensile strength	> 7 MPa	> 7 MPa	> 9 MPa
Elongation at break	> 400 %	> 400 %	> 600 %
Tear strength	> 7.5 N/mm	> 4.5 N/mm	> 35 N/mm
Hardness	40 ± 5 Shore A	47 ± 5 Shore A	60 ± 5 Shore A
Tension set	< 7 %	< 7 %	
Operation temperature range	5 - 60° C	5 - 80° C	5 - 80° C
Applications	Municipal wastewater facilities	Municipal and industrial wastewater facilities	Industrial wastewater facilities with hight load of oils and process related deposits and/or fouling

Other speciality engineered materials are available on request.

Disc			
Membrane type	**Standard EPDM (F053)**	**Plasticizer low EPDM (F057)**	**Silicon**
Colour	Black	Black	Translucent
Suppor thickness	2.0mm ± 0.15mm		1.5mm ± 0.2mm
Density	1.08 ± 0.03 g/cm³	1.07 ± 0.03 g/cm³	1.16 ± 0.03 g/cm³
Tensile strength	> 10 N/mm²	> 8 N/mm²	> 9 N/mm²
Elongation at break	> 400 %	> 450 %	> 600 %
Tear strength	> 7 N/mm	> 6 N/mm	> 35 N/mm
Hardness	53 ± 5 Shore A	60 ± 5 Shore A	60 ± 5 Shore A
Tension set	< 5 %	< 5 %	< 5 %
Operation temperature range	0 - 80° C	0 - 80° C	5 - 80° C
Applications	Municipal wastewater facilities	Municipal and industrial wastewater facilities	Industrial wastewater facilities with hight load of oils and process related deposits and/or fouling

Other speciality engineered materials are available on request.

Operation Mode

Continuous or intermittent (not Silicone for tubes)

Materials

We produce different rubber components for the special requirements of various wastewaters. The most common material is EPDM, a kind of rubber which is used extensively in many variants in municipal wastewater treatment plants.

Also silicone rubber can be used for fine bubble diffusers, but silicone membranes are more sensitive to all mechanical movements, that is why we are using special silicone compounds and also special diffuser designs. Furthermore, silicone is more expensive than EPDM, because of the material price. For all these reasons silicone membranes are a good alternative to be used in all wastewaters which damage or destroy EPDM, such as high concentrated grease, oil and hydrocarbons and should only be used there. For all wastewaters with middle and low concentrated grease and oil, it is also possible to use EPDM with low plasticiser content. The normal content of plasticiser is approximately 30% and it can be reduced to 15% for EPDM sleeves and to 10% for disc membranes. This helps a lot to prevent diffuser damages by industrial wastewater.

Storage

Diffuser and/or rubber sleeves must be stored factory-packed in a dark, dry, ventilated and dust-free storage space according to DIN 7716. Avoid frost, heat, UV-radiation, dust and working which can cause damage of diffuser and/or packing. Do not store outdoors. The storage of rubber parts until installation/starting operation should not exceed one year. At on-site delivery, all rubber and plastic parts must be stored in their original packaging. Crates exposed to direct sunlight must be covered with tarpaulin to protect against UV-radiation.

Cleaning

Diffusers can only be checked if the activated sludge tank is out of work and empty. That is why normal cleaning must be done at work. Formic acid is used very sucessfully against carbonating. To keep the pores open, formic acid is sprayed into the compressed air for a short time. Also a regular use with maximum air flow for a short time helps to keep the diffuser in good condition for a long time.

Membrane Lifetime

Up to 10 years in municipal wastewater treatment plants, depending on waste water influent and operation condition.

Disclaimer

This information is based on our present state of knowledge and is intended to provide general notes on our products and their uses. It should not therefore be construed as guaranteeing specific properties of the products described or their suitability for a particular application. Any existing industrial property rights must be observed. The quality of our products in guaranteed under our General Conditions of Sale.

Process Equipment Division

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