



## Disc diffusers

HD 270 / HD 340

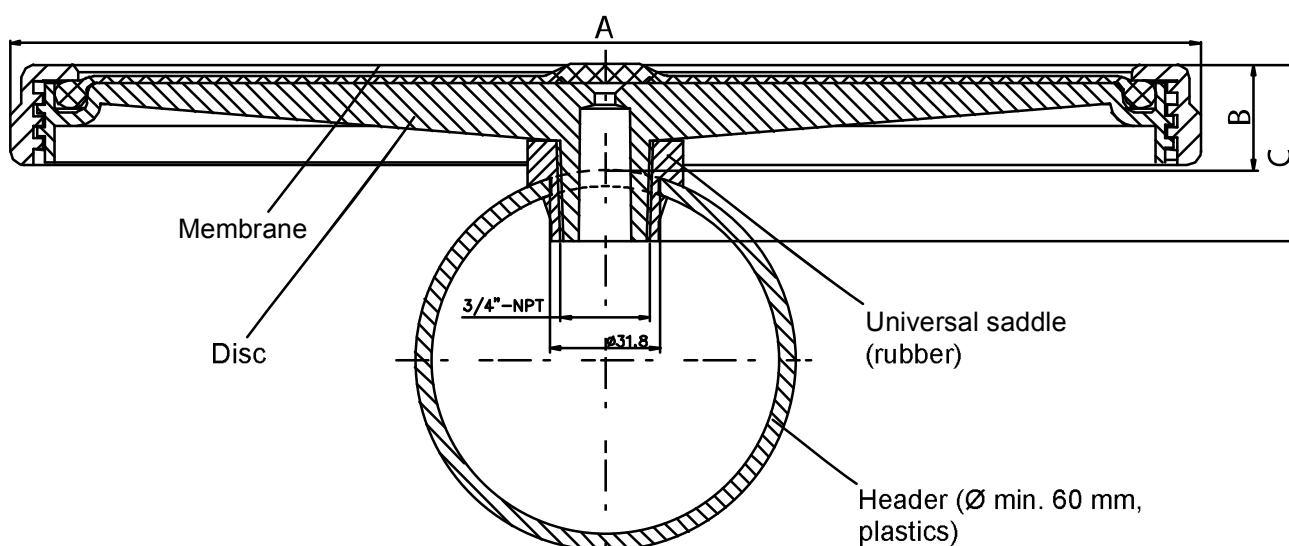
### Product characteristics

- Low installation costs
- High reliability
- Great performance
- Low maintenance
- Cost effective design

### Dimensions

Type	Height (C) mm	Diameter total (A) mm	Diameter effective mm	Overall height membrane - top of tube (B) mm	Perforated area m <sup>2</sup>	Disc material	Membrane material	Total weight kg
HD 270	58	270	220	30	0.037	PP GF 30	EPDM/Silicone	0.60
HD 340	76	340	310	46	0.060	PP GF 30	EPDM	0.85

All diffusers are provided with 3/4" NPT thread.



Type	Permitted wall thickness of header tube mm	Diameter straight-drilled hole mm	Material	Colour
Universal saddle	2-8	31.8 (1 1/4")	EPDM 75 Sh A	Black

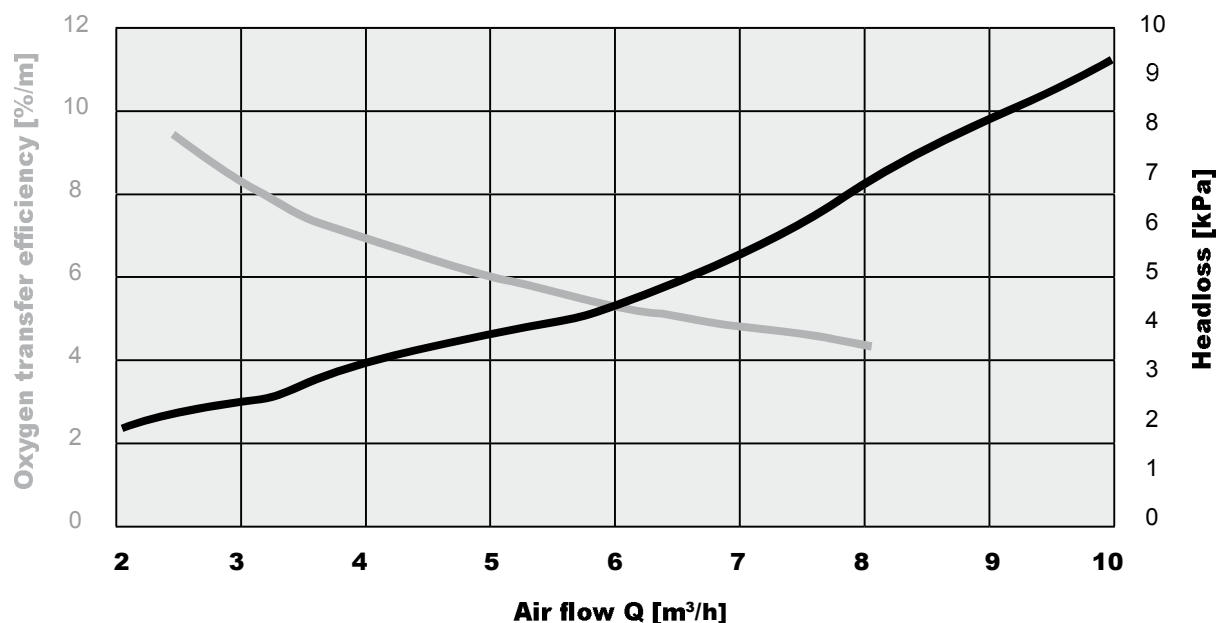
## Properties of typical membranes

Membrane	Standard	Low plasticizer	Silicone
Material	EPDM F 053 A	EPDM F057	
Colour	Black	Black	Green
Wall thickness	2.0 mm ± 0.15 mm	2.0 mm ± 0.15 mm	2.0 mm ± 0.15 mm
Density DIN 53479	< 1.2 g/cm <sup>3</sup>	< 1.1 g/cm <sup>3</sup>	< 1.15 g/cm <sup>3</sup>
Tensile strength DIN 53504	> 7 N/mm <sup>2</sup>	> 8 N/mm <sup>2</sup>	> 8 N/mm <sup>2</sup>
Elongation on break DIN 53504	> 500%	> 500%	> 650%
Tear strength DIN 53507	> 6 N/mm	> 8 N/mm	> 15 N/mm
Hardness DIN 53505	50 ± 5 Shore A	57 ± 5 Shore A	60 ± 5 Shore A
Tension set 100% Tension 24 h, RT	< 5%	< 5%	
Operating temperature	0 to 80°C	0 to 80°C	5 to 100°C
Application	Municipal waste water	Municipal waste water with enhanced industrial rate	Industrial waste water

Other materials and dimensions are available on request.

## Oxygen transfer efficiency and headloss

### Disc diffuser HD 270 with low plasticizer membrane



### Air flow

- The operating conditions depend on the selected material and the slot.
- Non-standard slots are provided 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 10 min. per day.

Type	Operation conditions m <sub>N</sub> <sup>3</sup> /h	Max. overload / maintenance m <sub>N</sub> <sup>3</sup> /h
HD 270	1.5 - 6	10
HD 340	2 - 10	15

All designs, dimensions and specifications are subject to change without notice (December 2008).



## Tube diffuser

63/2100 D / 63/2075 D / 63/2050 D

### Product characteristics

- Low installation costs
- High reliability
- Great performance
- Low maintenance
- Cost effective design

## Dimensions

Type	Perforation length mm	Total length mm	Tube diameter mm	ID-sleeve mm	Perforated area m <sup>2</sup>	Total weight kg
63/2100 D	1000	1060	63	64–66	0.180	1.3
63/2075 D	750	810	63	64–66	0.135	1.1
63/2050 D	500	560	63	64–66	0.090	0.8

Other lengths on request.

## Dimensions for threads and double nipple

Connector	Colour code diffuser mm	Double nipple length for square tube 80 x 80 mm mm	Double nipple length for square tube 100 x 100 mm mm	Double nipple length for tube DN 100 (114,3 mm) mm
1" Whitworth	Blue	130	150	190
3/4" Whitworth	Green	130	150	–
3/4" NPT	Grey	–	–	–

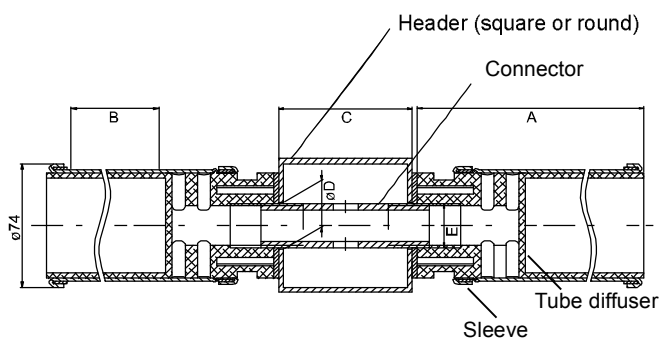
Two tube diffusers are assembled at one tube or square tube by a connector. The tube requires a rubber element adjusted to its diameter. Double nipples for other tube dimensions on request. 3/4" NPT joint: maximal diffuser length 610 mm, the diffuser will be connected to 3/4" NPT weld-on threaded nipple.

### Connection of the membrane to the support tube:

Standard secure clamp (Stainless steel, 1.4301), Exchange of the membrane is possible without demounting of the supporting body.

**Gasket for square tube:** 4 mm EPDM flat-gasket

**Gasket for tube DN 100:** EPDM gasket



A	1060		810		560		Diffuser length						
B	1000		750		500		Perforation length						
C	80	100	80	100	80	100	Square tube						
D	28	35	28	35	28	35	28	35	28	35	28	35	Straight-Drilled Hole
E	3/4	1"	3/4	1"	3/4	1"	3/4	1"	3/4	1"	3/4	1"	Thread

## Properties of typical membranes

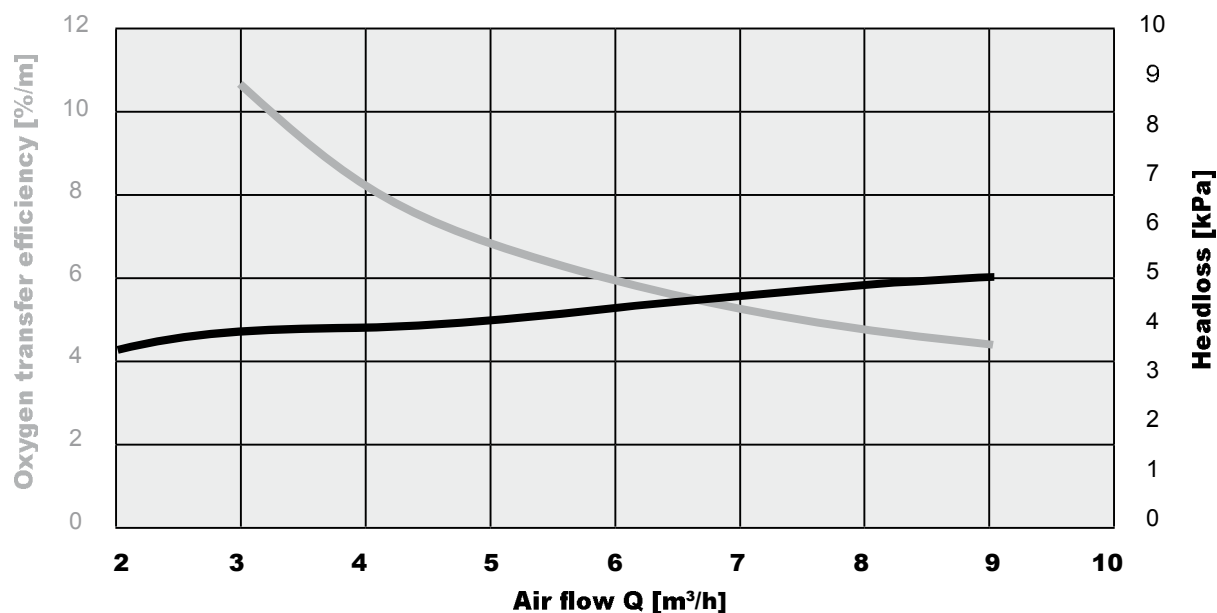
Membrane	Standard	Low plasticizer	Silicone
Material	EPDM 7312	EPDM 3510	VMQ 6001
Colour	Black	Black	Transparency
Wall thickness	1.9 mm ± 0.2 mm	1.9 mm ± 0.2 mm	1.5 mm ± 0.15 mm
Diameter	65 mm ± 1.9 mm	65 mm ± 1 mm	65 mm ± 1.5 mm
Density DIN 53479	< 1.15 g/cm <sup>3</sup>	< 1.2 g/cm <sup>3</sup>	< 1.15 g/cm <sup>3</sup>
Tensile strength DIN 53504	> 8 N/mm <sup>2</sup>	> 6.5 N/mm <sup>2</sup>	> 8 N/mm <sup>2</sup>
Elongation on break DIN 53504	> 500%	> 400%	> 650%
Tear strength DIN 53507	> 8 N/mm	> 5 N/mm	> 15 N/mm
Hardness DIN 53505	40 ± 5 Shore A	55 ± 5 Shore A 60	60 ± 5 Shore A
Tension set 100% tension 24 h, RT	< 4%	< 4%	
Operating temperature	0 to 80°C	5 to 80°C	5 to 100°C
Application	Municipal waste water	Municipal waste water with enhanced industrial rate	Industrial waste water with heavy pollution by grease, oils and required sediments

Other materials and dimensions are available on request. (e.g. Vitor® for extreme exposures).

Support tube material: High quality, waste water resistant polypropylene, connector glass filled

## Oxygen transfer efficiency and headloss

### Tube diffuser TD 63/2100 with hose EPDM 6367



### Air flow

- The operating conditions depend on the selected material and the slot.
- Non-standard slots are provided 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 10 min. per day.

Type	Operation conditions m <sub>N</sub> <sup>3</sup> /h	max. overload / maintenance m <sub>N</sub> <sup>3</sup> /h
63/2100 D	3 - 12	20
63/2075 D	2 - 9	15
63/2050 D	1 - 6	10

## Information about disc and tube diffusers

### Operation method of the diffuser

permanent or intermitted diffusion (not for silicone)

### Materials

Various rubber substances are available as materials which have been especially adapted to the basic conditions for waste water. EPDM is the most frequently used of these. This material has been tested over many years in a wide variety of versions and should be used as the material of choice in sewerage plants which treat municipal and industrial waste water.

Silicon can also be used. However, this material is much more apt to tear than EPDM. Since the perforation of the aerators has already damaged the material, the danger of further tearing and resulting destruction of the aerator is much greater than for EPDM aerators. Special silicon compounds and construction measures on the aerator are used to counteract this danger. However, silicon aerators are more prone to damage than EPDM aerators. In addition, silicon material is more expensive than EPDM. Such costs are also reflected in the prices of these aerators.

The conclusion: silicon should only be used in plants which treat waste water which is corrosive to EPDM material. This applies primarily to plants which process a very high proportion of industrial waste water. Grease, oil and aromatic hydrocarbons are the main trouble-makers. Rubber compounds with a reduced amount of softener have also proven effective for waste water with an elevated grease content. The normal softener content of EPDM aerators is approximately 30%. This can be reduced to approx. 10% for plates and approx. 15% for hoses. This makes these membranes much more resistant to the corrosive effects of industrial waste water.

The values specified here may vary depending on basin geometry, pipe length, slits, material, water depth and surface utilization.

### 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.

### Maintenance

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 successfully 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 keep the diffuser in good conditions for a long time.

### Membrane lifetime

6 - 10 years in municipal waste water treatment plants, depending on waste water influent and operation condition.