

## GRUNDFOS – DIFFUSERS

### Diffuser 9"

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Diffusers are delivered ready to install with diffuser body, retainer ring, POM gasket, and membrane preassembled from our workshop. The outer diameter of the disc is 270 mm with an active surface of the membrane of 381 cm<sup>2</sup>. Both the body of the diffuser as well as the retainer ring are made of polypropylene (PP) to ensure that the diffuser will not deteriorate at elevated temperatures. The POM gasket substitutes the use of grease/oil if dismounting or mounting of the retainer ring is necessary. Diffusers are designed with a male threaded connection (NPT ¾") which fits into the pre-mounted female threaded (NPT ¾") saddles on the air distribution pipes.

The flexible membrane is made of an EPDM compound that has been developed specifically for wastewater treatment: no hardening or shrinkage has been found in tests. The membrane is perforated with more than 7,200 slots distributed uniformly over the entire surface. The thickness of the membrane increases passing from the edge to the centre of the membrane. This design gives a uniform bubble distribution utilising the entire surface of the membrane even at low airflow. The membrane is designed with an integrated check valve which prevents sludge from entering into the air distribution system when air supply is shut off.

Technical data	
Diffuser diameter:	270 mm
Active surface:	0.0381 m <sup>2</sup>
Airflow: high efficiency fine bubble membrane (1-1):	min. 1.0 Nm <sup>3</sup> /h nominal 3.5 Nm <sup>3</sup> /h max. 7.0 Nm <sup>3</sup> /h
Airflow: fine bubble medium flow membrane (1.5-1.5):	min. 2.0 Nm <sup>3</sup> /h nominal 5.5 Nm <sup>3</sup> /h max. 11.0 Nm <sup>3</sup> /h
Membrane material	EPDM
Number of slots high efficiency fine bubble membrane (1-1):	>7200
Number of slots fine bubble medium flow membrane (1.5-1.5):	>4500
Medium thickness:	>2.2 mm
Tensile strength:	about 140 Kg/cm <sup>2</sup>
Ultimate elongation capability:	about 600%
Share strength:	about 1785 Kg/m
Hardness:	60 Shore A
Plasticizer content:	less than 10%
Male connection:	NPT ¾"

It is recommended that diffusers only be installed prior to putting the system into operation or when it is possible to cover them with water to protect the membranes from UV radiation.

### Air Distribution System

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To minimize installation time on-site and prevent erroneous assembly of the system the air distribution system is pre-assembled and delivered in carefully numbered crates and boxes, itemized in detail. To reduce pressure losses and to ensure a uniform air distribution of the entire system the manifold and lateral pipes are oversized. The pipes of the air distribution system are mechanical connected through one-bolt quick connect flanges.

All pipes are fastened to the tank floor by means of sliding supports. This type of support will allow longitudinal movements and prevent tensions of the pipes due to temperature variations. Supports are made of stainless steel (AISI 304 or AISI 316) or of a special plastic compound. They are fastened to the tank floor with the included AISI 316 stainless steel mechanical anchor bolts. All supports are simple and easy to adjust and level during installation.

Each manifold includes a purge system for removal of condensed water. The pipe of the purge system is fixed to the tank wall with stainless steel brackets and connected to the manifold through a stainless steel reinforced flexible hose.