

Supratec

Gesellschaft für Umwelt-
und Verfahrenstechnik mbH

OXYFLEX[®] - MT235 / MT300 MEMBRANE DISC DIFFUSER



Supratec

GESELLSCHAFT FÜR UMWELT-
UND VERFAHRENSTECHNIK MBH

AERATION TECHNOLOGY

von-Drais-Straße 7
D-55469 Simmern / Hunsrück

Tel.: +49 6761 / 9 65 09-00

Fax: +49 6761 / 9 65 09-01

e-mail: info@oxyflex.de

internet: www.oxyflex.de

OXYFLEX® - MT235 / MT300 **MEMBRANE DISC DIFFUSER**

DESIGNS

OXYFLEX® - MT Membrane Disc Diffusers consist of a flat, heavily ribbed and fibreglass-reinforced polypropylene base plate and a mounted membrane (e.g. EPDM).

The OXYFLEX® - MT Membrane Disc Diffuser is manufactured in two sizes: OXYFLEX® - MT 235 (free membrane diameter of 235 mm) and OXYFLEX® - MT 300 (free membrane diameter of 300 mm).

The base construction is a fibreglass-reinforced polypropylene disc. The membrane is form-fitted to this disc with a plastic ring made of fibreglass-reinforced polypropylene.

The OXYFLEX® - MT - MT is supplied with a robust 1" thread connector as standard. It is also available with a ¾" connector on request.

The OXYFLEX® - MT - MTAS design includes a clamp saddle for the assembly on round pipes.

MEMBRANE VARIANTS

Our disc diffusers are equipped with a robust EPDM membrane as standard. For special requirements, the MT300 is also available with silicon membranes.

The membrane has a special slot arrangement. The size and arrangement of the slots are such that the perfect oxygen transfer or minimum pressure loss is achieved for high specific loads depending on the application.

All OXYFLEX® - MT disc diffusers are available with both a fine bubble and coarse bubble membrane perforation.

PRODUCT CHARACTERISTICS

OXYFLEX® - MT Membrane Disc Diffuser

- ⇒ have a low pressure loss,
- ⇒ are resistant against contamination,
- ⇒ in the fine-bubble design, they produce gas bubbles with a diameter < 1-3 mm.

Since, in contrast to the tube diffusers, the entire diffuser surface is on the same hydraulic level, the gas through put is even across the entire membrane surface and control range. As a result, both the service life and performance are optimised.

OPERATING RANGE AND PERFORMANCE

OXYFLEX® - MT Membrane Disc Diffusers are suited for the installation on plastic or steel pipes and for all tank shapes, but they are particularly suited for small tank volumes, grit chambers and first high loaded stages.

OXYFLEX® - MT Membrane Disc Diffusers have successfully proven their capabilities in communal and industrial plants in all parts of the world. The membrane diffuser element can easily be changed if required.

OXYFLEX® - MT Membrane Disc Diffusers can be operated intermittently.

OXYFLEX® - MT Membrane Disc Diffusers have a very broad control range between 0 and 15 m_N^3/h .

For normal specific loads please refer to the data sheets of the relevant variant.

OXYFLEX® - MT Membrane Disc Diffusers achieve very high oxygen transfer rates in pure water of more than $25 \text{ g O}_2 / \text{m}_N^3 \times \text{m}_{\text{ET}}$ for a flat layout and suitable water depths.



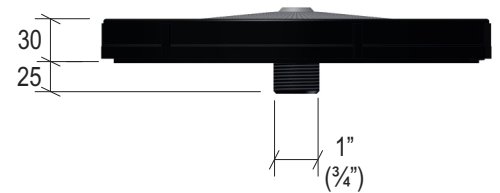
PRODUCT DATA SHEET FOR OXYFLEX® - MT300

Features

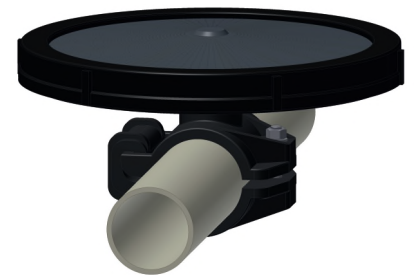
1" (3/4") connector thread
 Outside diameter 350 mm
 Active aeration surface 0.07 m²

Materials

Base plate and support ring: Polypropylene (PP-GF)
 Membrane: EPDM / silicon
 Seals: EPDM



The recommended minimum distance between the bores in the pipe is 360 mm.



PRODUCT DATA SHEET FOR OXYFLEX® - MT235

Features

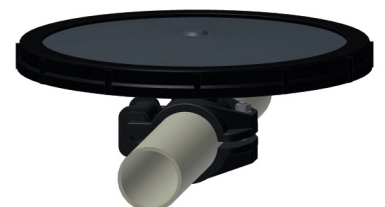
1" (3/4") connector thread
 Outside diameter 280 mm
 Active aeration surface 0.04 m²

Materials

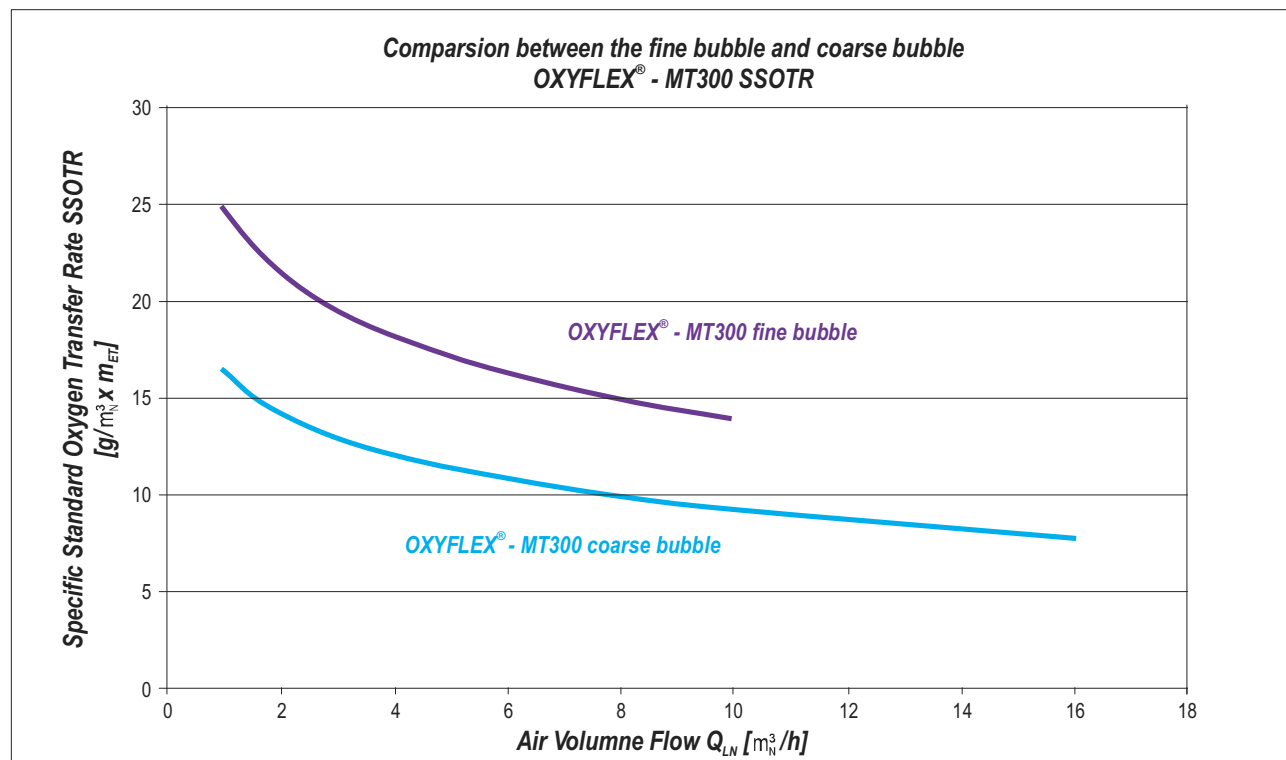
Base plate and support ring: Polypropylene (PP-GF)
 Membrane: EPDM
 Seals: EPDM



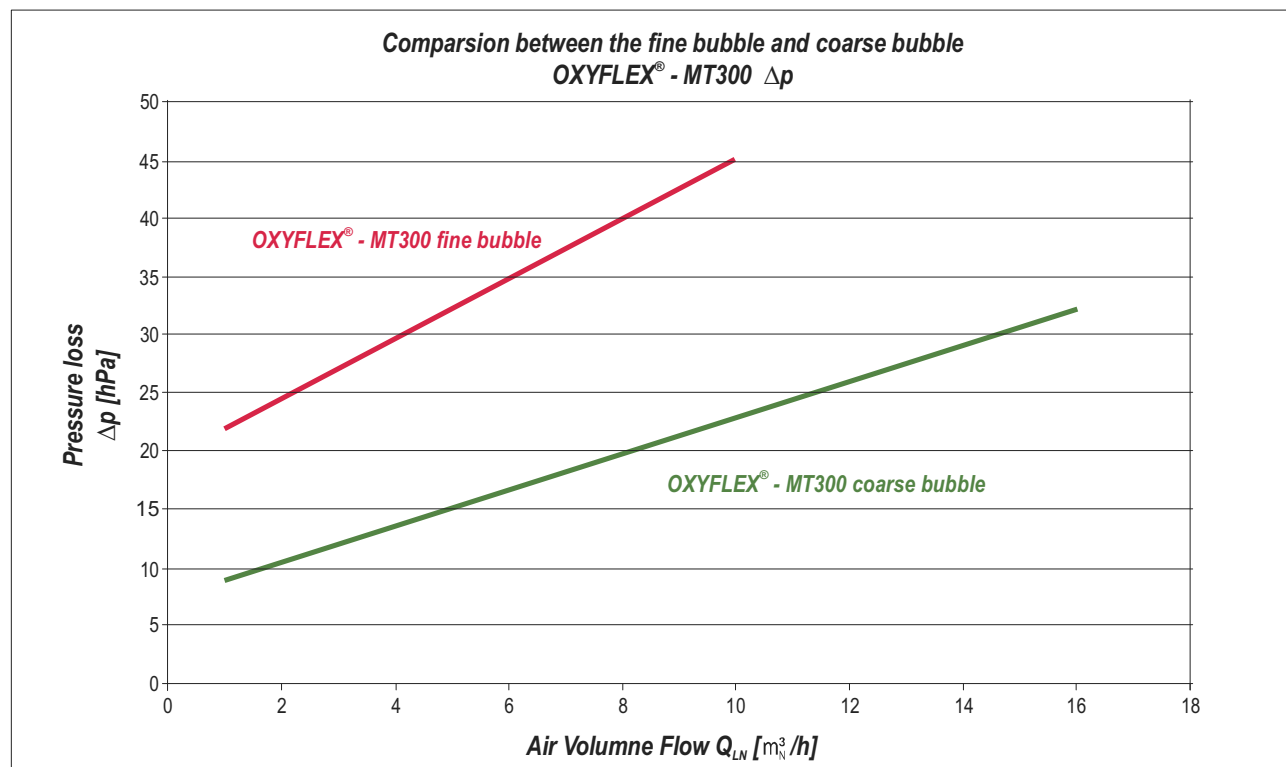
The recommended minimum distance between the bores in the pipe is 295 mm.



Oxygen Transfer Rate*

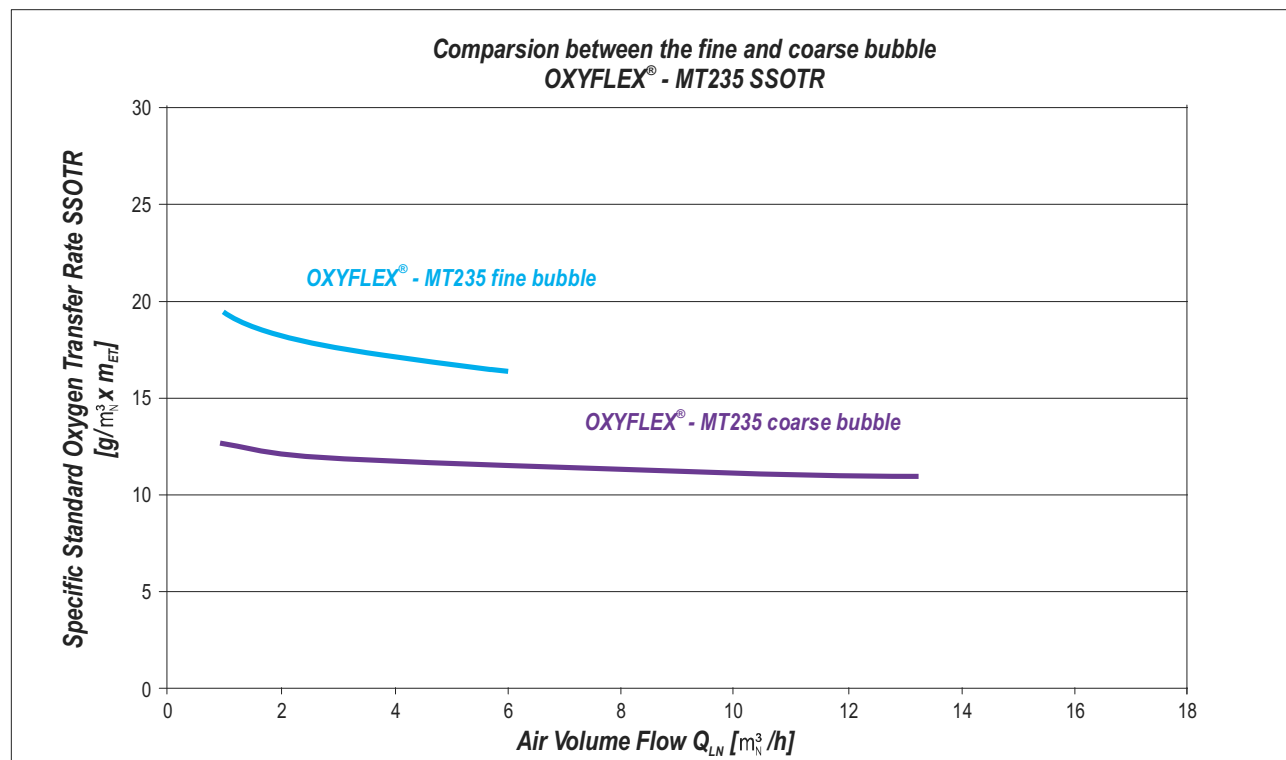


Pressure loss*

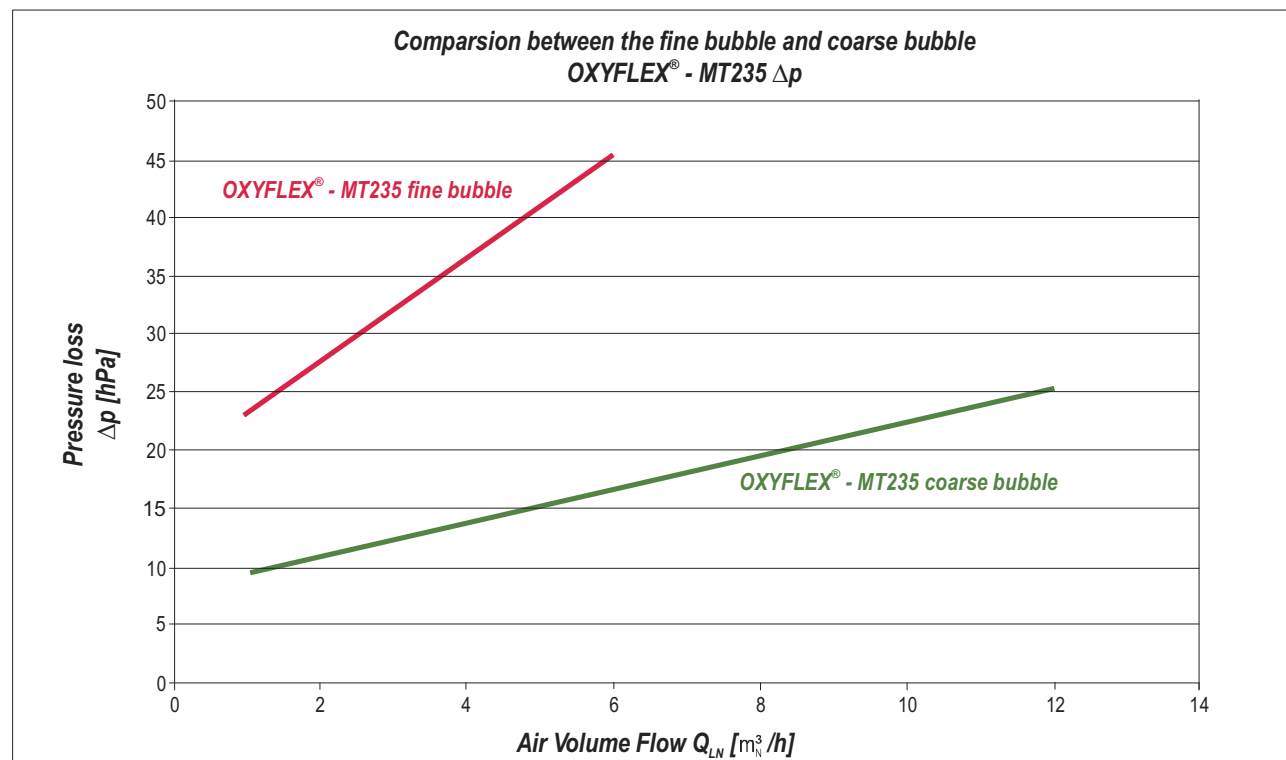


* The oxygen transfer values were determined for common installation situations and vary depending on the plant. The characteristics, which are shown here, do not entitle the user to warranty claims. We will be pleased to prepare plant-specific characteristic curves for you on request.

Oxygen Transfer Rate*



Pressure loss*



* The oxygen transfer values were determined for common installation situations and vary depending on the plant. The characteristics, which are shown here, do not entitle the user to warranty claims. We will be pleased to prepare plant-specific characteristic curves for you on request.

INSTALLATION INSTRUCTIONS

PREPARATION

Before the installation of the OXYFLEX® - MT Membrane Disc Diffusers you must check that the pipes are clean. All drilling chippings, dirt, etc. must be removed when the fans are switched on, otherwise they get carried into the diffusers. Here they can cause significant impairment or even damage to the diffusers.

LEVELLING

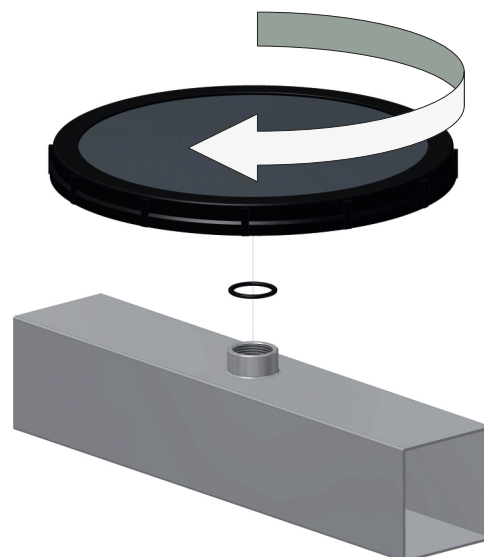
OXYFLEX® - MT Membrane Disc Diffusers are assembled to round and square pipes. The pipe system must be levelled to a maximum of ± 10 mm.

INSTALLATION

The OXYFLEX® - MT Membrane Disc Diffuser is to be assembled on a distribution pipe. The assembly can be carried out using an integrated thread socket or a clamp saddle.

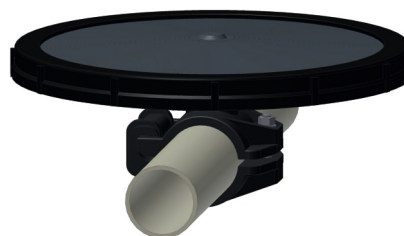
THREAD SOCKET FIXING TYPE

The distribution pipe must be fitted with suitable connectors (the standard is the 1" socket). The OXYFLEX® - MT Membrane Disc Diffuser is fixed by screwing the thread connector of the base plate and a socket or similar part to a distribution pipe. Always make sure that the diffuser is firmly and horizontally assembled. A flat EPDM seal is inserted between the diffuser and socket. Make sure that the surfaces are clean and undamaged.



CLAMP SADDLE FIXING TYPE

Optionally, our OXYFLEX® - MT diffusers can be assembled easily using our patented hinged clamp saddle.



The clamp has a hinge so that it can be swung open. The clamp is inserted into the existing 20-mm diameter bore with the supply air connector (16 mm diameter) from above.

Now the clamp is closed and screwed using an M8 x 65 mm hexagonal screw (10 Nm) and a self-locking nut.

Possible dimensions of the round distribution pipe:

Special steel design: DN 50 / 60.3 mm, DN 65 / 76.1 mm, DN 80 / 88.9 mm

Plastic design: OD 63 mm, OD 75 mm / OD 90 mm / OD 110 mm

(Further sizes are available on request.)

FUNCTIONAL CHECK AND LEAKAGE CHECK

After the OXYFLEX® - MT Membrane Disc Diffusers have been installed, their functioning and leak-tightness must be checked. For this purpose, the tank is filled with clean water to a maximum 10 cm above the diffuser top edge and the recommended air volume is applied to the diffusers according to tables I + II. Make sure that you start with the maximum specific load and move across the control range **down to the minimum specific load**. Then check and document the leak-tightness and function of the diffusers.

DIFFUSER RUN-IN

After the functional check and leakage check have been completed, we recommend that the OXYFLEX® - MT Membrane Disc Diffusers are operated continuously with the recommended specific load according to tables I + II for at least another 60 hours.

You need to increase the water level to at least 100 cm above the diffuser top edge as quickly as possible.

IMPORTANT:

The diffusers must not be shut down during this process. The maximum specific load of the respective model variants according to tables I + II (product data sheet) must not be exceeded during this process.

CHECKING THE BUBBLE IMAGE

The bubble image should be assessed at the earliest after the run-in of the diffusers has been completed. For this purpose, operate the diffusers from the maximum specific load down to the minimum specific load and check the following items, in particular:

Evenness of the aeration (bubble image test) for a tank filling up to at least 60-100 cm of water above the diffuser top edge and a specific load according to tables I + II. The evenness of the aeration for minimum specific loads can only be achieved at a water temperature of above 10 °C.

OXYGEN TRANSFER TEST

Prior to carrying out an oxygen transfer test as proof of efficiency of the OXYFLEX® - MT Membrane Disc Diffuser, the above steps must have been completed. The oxygen transfer test can be carried out according to acknowledged regulations (e.g. ATV guideline) subject to the clean water method or waste water method. The warranty values must be specifically operated and tested. A calibrated and exact measurement of the air volume is required.

COMMISSIONING

The diffuser can be commissioned after a successful oxygen transfer test has been completed. If commissioning is delayed, make sure that the diffusers are sufficiently covered by water (at least 100 cm) so that the OXYFLEX® - MT Membrane Disc Diffusers are protected against strong sunlight and/or frost.

Table I	MT300 fine bubble	MT300-CB coarse bubble
<i>Operation range</i>	0 - 10	0 - 16
<i>Function- and Leakage check</i>	6	6
<i>Run-in</i>	5	8
<i>Bubble Image</i>	4	8
<i>Maintenance admission flow</i>	6	12

Table II	MT235 fine bubble	MT235-CB coarse bubble
<i>Operation range</i>	0 - 6	0 - 12
<i>Function- and Leakage check</i>	3	3
<i>Run-in</i>	2	4
<i>Bubble image</i>	2	4
<i>Maintenance admission flow</i>	3	6

MAINTENANCE INSTRUCTIONS

MAINTENANCE

The OXYFLEX® - MT Membrane Disc Diffusers are low-maintenance units and are partly self-cleaning due to different specific air loads during the normal operating cycle.

However, we recommend that you only operate the diffusers during regular full-load operation for a maximum of 15 minutes (see tables I + II).

In order to do this it might be sufficient to slide-clean individual strings.

This is also used for removing deposits after longer periods of inactivity and long-term operation with low specific loads.

MONITORING

Before every emptying of the tanks, the diffusers must be visually inspected to check that they are in good condition. During this inspection you should pay special attention to possible deposits. If deposits are present, these must be carefully removed. The bubble image must be checked and documented daily and the pressure loss monthly. Any obvious changes of the bubble image and/or pressure loss must be reported immediately to SUPRATEC Gesellschaft für Umwelt- und Verfahrenstechnik mbH.

For plants with an intermittent operating mode, in particular, damaged OXYFLEX® - MT Membrane Disc Diffusers bear the risk that live sludge ingresses into the entire pipework system. As a result, the functioning and service life of all OXYFLEX® - MT Membrane Disc Diffusers will be impaired.

CLEANING

In general, dirt and contamination (deposits, sludge, plaque, etc.) on the membranes can easily be removed. Depending on the type and composition of the dirt, one of the following methods or a combination of several methods may be required: These solvents must always be tested for compatibility and successful results for the individual membranes.

Manually: Cleaning with water and a soft brush

Alkaline solutions: In general, alkaline cleaning agents can be used in a diluted form. The compatibility must always be checked first, otherwise contact Supratec GmbH.

Acids: In some cases, it might be necessary to add weak acids to the compressed air (see below) or to clean the membranes with diluted acids. Please contact SUPRATEC for further information.

Oil-containing solvents and other solvents: None of the membrane types are resistant against a wide range of oil-containing solvents and other solvents.

If you are unsure how to proceed, please do not hesitate to contact us. We are always here to help you.

ACID DOSING

The compressed air can be dosed with diluted acid if required. This acid dosing may extend the cleaning intervals and reduce the pressure loss of the membranes, which is particularly useful for waste water types that precipitate lime.

Please contact SUPRATEC for detailed information about acid dosing and ask for our dosing station product.

STORAGE

Always store the diffusers in their packaging in a dry and ventilated room. DIN 7716 provisions must be observed.

GENERAL

Supratec Gesellschaft für Umwelt- und Verfahrenstechnik mbH manufactures state-of-the-art and highly efficient aeration systems, which are predominantly used for supplying biological waste water treatment processes with oxygen. However, the products can equally be used for the aeration of liquids of all kinds.

Membrane diffusers (plate, tube and disc diffusers) with a plastic body are marketed under the OXYFLEX® brand.

The special characteristics of the OXYFLEX® - MT Membrane Disc Diffusers are due to their shape and choice of materials.

We will also carry out the installation of our products for you if required.

We reserve the right to make technical changes.

For current version please check our website www.oxyflex.de.