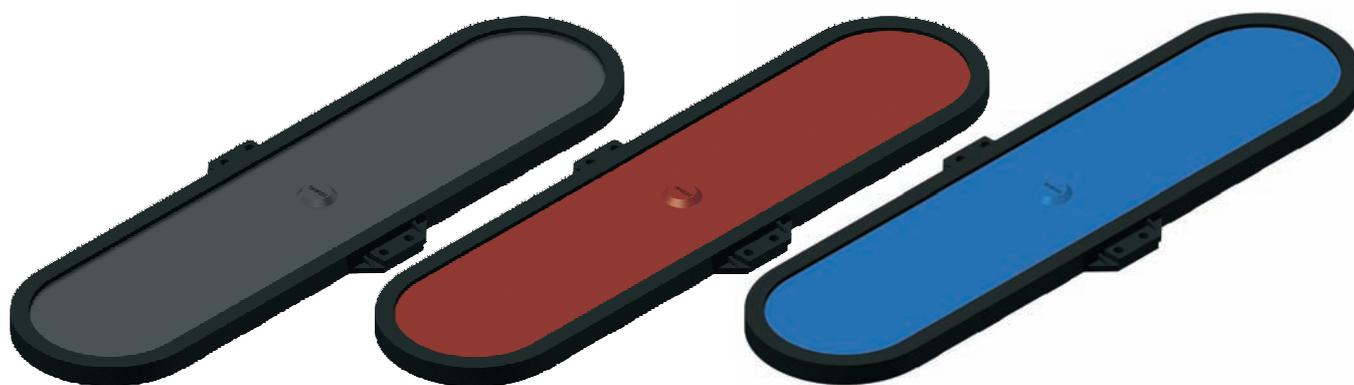


# OXYFLEX<sup>®</sup> - MF 650

## MEMBRANE PLATE DIFFUSER



# Supratec

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Power up your wastewater

## OXYFLEX® - MF650 MEMBRANE PLATE DIFFUSER

The OXYFLEX® - MF650 Membrane Plate Diffuser consists of a flat, heavily ribbed and fibreglass-reinforced polypropylene base plate. The diffuser membrane is secured to the base plate with a two-part frame made of fibreglass-reinforced polypropylene. The high-quality injection-moulded membranes are available in

EPDM  
(ethylene propylene diene rubber)

Silicon

TPU  
(thermoplastic  
polyurethane)



The OXYFLEX® - MF650 Membrane Plate Diffuser has an active flat membrane surface of 0.1 m<sup>2</sup>.

In contrast to the Tube Diffuser, the entire active surface of the Plate Diffuser is at a hydraulic level. Even for different specific air loads, the entire membrane surface always works evenly.

The special design of the OXYFLEX® - MF650 Membrane Plate Diffuser ensures that there is only a small pressure loss, which increases very slightly over the service life of the equipment. As a result, apart from the service life, the efficiency is also significantly increased compared to other diffuser types.

The OXYFLEX® - MF650 Membrane Plate Diffuser is characterised by the following superior features:

- ➔ highly efficient oxygen transfer
- ➔ low and stable pressure loss
- ➔ special diffuser design that is adaptable to all conditions
- ➔ easy cleaning of the membranes resulting in
- ➔ low-maintenance operation

The OXYFLEX® - MF650 Membrane Plate Diffuser is a highly efficient aeration element, which is predominantly used for the oxygen supply of biological waste water treatment plants.

Due to the availability of the diffuser membranes in EPDM, silicon and TPU materials, the OXYFLEX® - MF650 Membrane Plate Diffuser, which has a highly variable design, can also be flexibly used with regard to different water qualities and customer requirements.

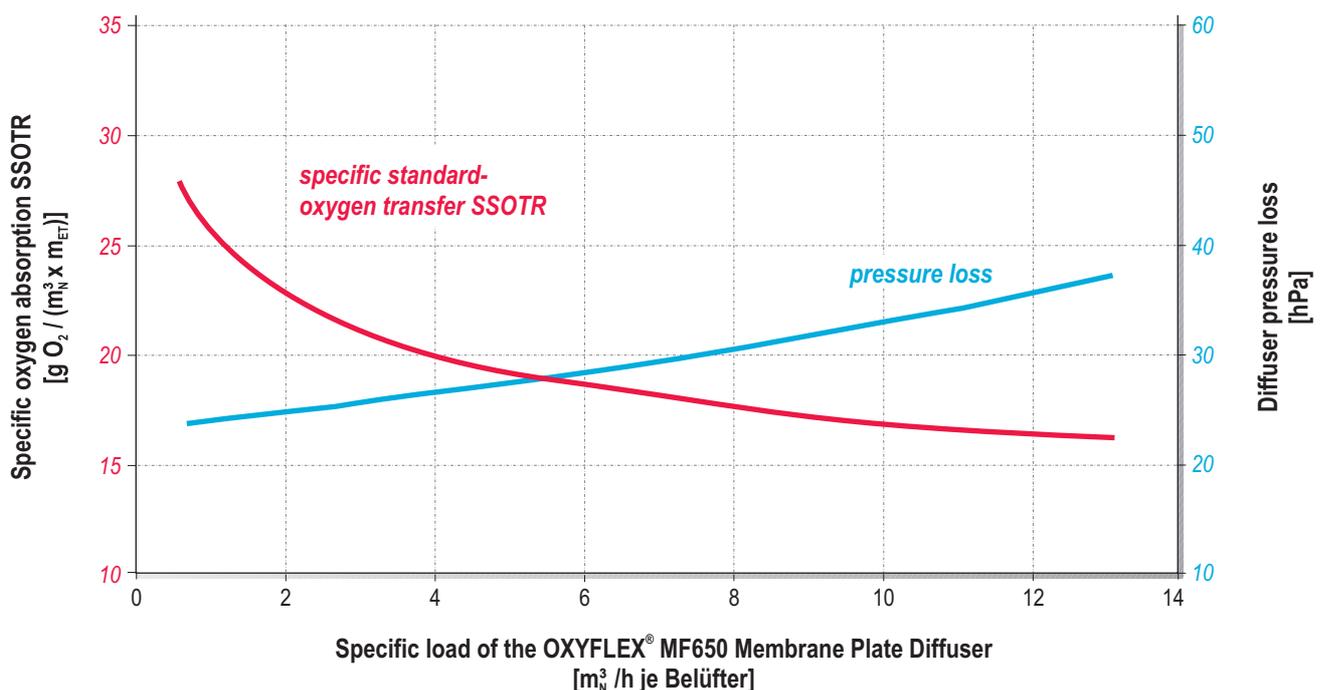
Of course, the OXYFLEX® - MF650 Membrane Plate Diffuser can also be operated in intermittent mode.

The membranes are perforated individually and specifically for each project in order to achieve the perfect oxygen transfer for all requirements. The OXYFLEX® - MF650 Membrane Plate Diffuser is able to cover a very broad operating range of up to 12 m<sup>3</sup>/h for each diffuser (≙ 120m<sup>3</sup>/h per m<sup>2</sup> of membrane surface). With the fine-bubble design, specific oxygen transfer rates in pure water of more than 25 g O<sub>2</sub>/(m<sup>3</sup> x m<sub>ET</sub>) can be achieved for the flat layout and correct water depths.

As an option to fine-bubble aeration, the membrane can also be manufactured for a coarse-bubble version.

The following diagram shows the example of a result of an oxygen transfer test. The values were measured in a rectangular tank with a water depth of 4.0 m, a diffuser blow-in depth of 3.8 m and a coverage of 12%.

**Specific standard oxygen transfer SSOTR and pressure loss of the OXYFLEX® -MF650 Membrane Plate Diffuser <sup>1</sup>**



The values cannot be transferred to other plants. The results that are shown here depend on several influencing factors, such as the tank shape, blow-in depth, coverage or a separate recirculation due to additional mixers.

Supratec will be pleased to prepare a technical data sheet for each individual application for you on request.

<sup>1</sup> The diagram cannot be used in order to derive warranty claims of any kind.

### **AIR-PULSING: mixing without a mixer**

The option of the intermittent operating mode means that, in a combined tank with alternating nitrification and denitrification phases and for a sufficient coverage by OXYFLEX<sup>®</sup> Membrane Plate Diffusers, the use of a mixer will not be necessary ("Air-Pulsing" process).

Any sedimentation of the activated sludge during the denitrification phase is prevented by short-term aeration intervals. The required aeration intervals are individually adapted to the respective plant with regard to its specific conditions such as the sludge index of the waste water and the process is repeated approximately every 10 to 20 minutes depending on the plant type.

### **CLEANING**

The OXYFLEX<sup>®</sup> - MF650 Membrane Plate Diffuser is a low-maintenance system and is partially self-cleaning due to the different specific air loads during the normal operating cycle. Any deposits are removed by short-term load-dependent changes of the membrane extension. This also prevents any accumulation of biological growth. If the normal operating regime is insufficient for cleaning, we recommend that an additional maintenance cycle is introduced at regular intervals. This maintenance cycle depends on the project and can either include a short-term maintenance load or short-term pressure relief with subsequent quick restart up to full-load operation.

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

### **ACID DOSING**

For plants, for which limescale deposits are to be expected, we recommend that these plants are cleaned with diluted acid (85% formic acid for EPDM and silicon membranes or 30% acetic acid for TPU membranes) at regular intervals. The diluted acid is dosed into the compressed air if required. Our experience shows that these activities will reduce the membranes' pressure loss and extend their service life. For this purpose, we offer a dosing station for perfectly dosed cleaning.

Please contact Supratec for further information about acid dosing.

## INSTALLATION OPTIONS

The OXYFLEX® - MF650 Membrane Plate Diffuser is suitable for installation on stainless steel pipes and plastic pipes and can therefore be used easily for all existing and new plants.

Due to the large variety of installation options for round and square pipes, the OXYFLEX® - MF650 Membrane Plate Diffuser also allows the easy upgrading and efficiency increase of existing aeration systems while maintaining existing pipelines and minimising costs.

The optional side brackets allow an area-wide coverage irrespective of the installation type (round or square distribution pipe) near the mixer.



Detail



The OXYFLEX® - MF650 Membrane Plate Diffuser has been used successfully in Germany and worldwide in communal and industrial waste water treatment plants for many years. It is also suitable for aerating liquids of all kinds.

We will be pleased to send you our current list of references on request.

## ILLUSTRATION

### Materials:

Membrane:	EPDM (ethylene propylene diene rubber)
	TPU (thermoplastic polyurethane)
	Silicon
Base plate:	Polypropylene (PP-GF)
Frame:	Polypropylene (PP-GF)
Seals:	EPDM



Membrane surface: 0,1 m<sup>2</sup>

### "AS" TYPE FOR INSTALLATION ON ROUND PIPES

The OXYFLEX® - MF650 "AS" Membrane Plate Diffuser is fixed to round pipes using a clamp saddle that is welded in the factory.

The integrated installation aid and non-twist angle of the clamp saddle allow an easy installation. The clamp saddle is closed by a joint lock and hexagonal head screw.



### Available sizes:

for stainless steel pipes: DN 50/60,3 mm, DN 65/76,1 mm, DN 80/88,9 mm

for plastic pipes (outside Ø): 63 mm, 75 mm, 90 mm, 110 mm

(Further sizes are available on request.)

## **"B" TYPE FOR INSTALLATION ON SQUARE PIPES**

The OXYFLEX® - MF650 "B" Membrane Plate Diffuser is installed on square pipes using thread bolts.

The 4 welded thread bolts ensure a permanent and stable position of the OXYFLEX® - MF650 Membrane Plate Diffuser.

The bolt installation can be used for existing square pipes (with a minimum width of 60 mm) and adapted to a wide range of very different situations.



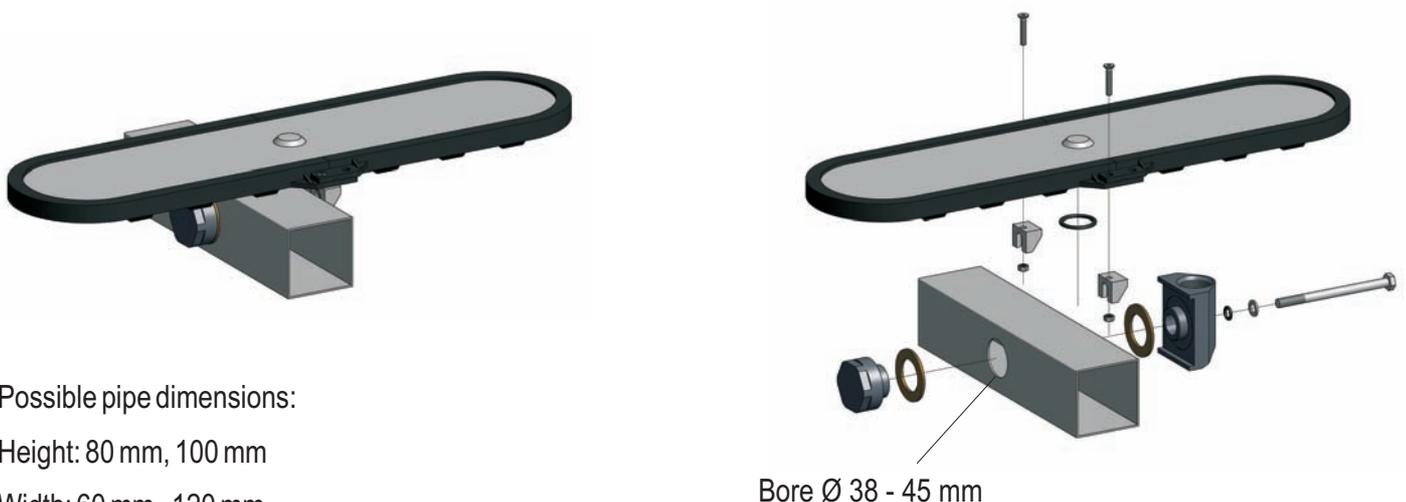
Minimum width of the square pipe: 60 mm

## **"SA" TYPE FOR INSTALLATION ON SQUARE PIPES WITH SIDE BORES**

The OXYFLEX® - MF650 "SA" Membrane Plate Diffuser is used for the easy replacement of tube diffusers using the existing square pipes.

The side adapter is used if side bores exist in order to allow the cost-effective upgrading by installing the OXYFLEX® - MF650 Membrane Plate Diffuser.

Variations of the side adapter allow the adaptation of this installation type to different conditions and situations.



Possible pipe dimensions:

Height: 80 mm, 100 mm

Width: 60 mm - 120 mm

(Further sizes are available on request.)

## GENERAL INFORMATION

Supratec Gesellschaft für Umwelt- und Verfahrenstechnik mbH has more than 30 years of experience with aeration technology and manufactures state-of-the-art aeration systems. These products are predominantly used for providing the oxygen supply for biological waste water treatment processes but can also be used for the aeration of liquids of all kinds.

Possible areas of application for Supratec diffusers are:

- ➔ Communal waste water treatment plants
- ➔ Industrial waste water treatment plants
- ➔ Special technical processes such as the "stripping" of gases, etc.

We have the competence and wealth of experience in order to consult and support you with the planning, implementation and operation of your projects.



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



Our QMS is certified in compliance with  
DIN EN Norm ISO 9001

For further notes and special information please see the installation, operating and maintenance instructions.

(We reserve the right to make technical changes.)