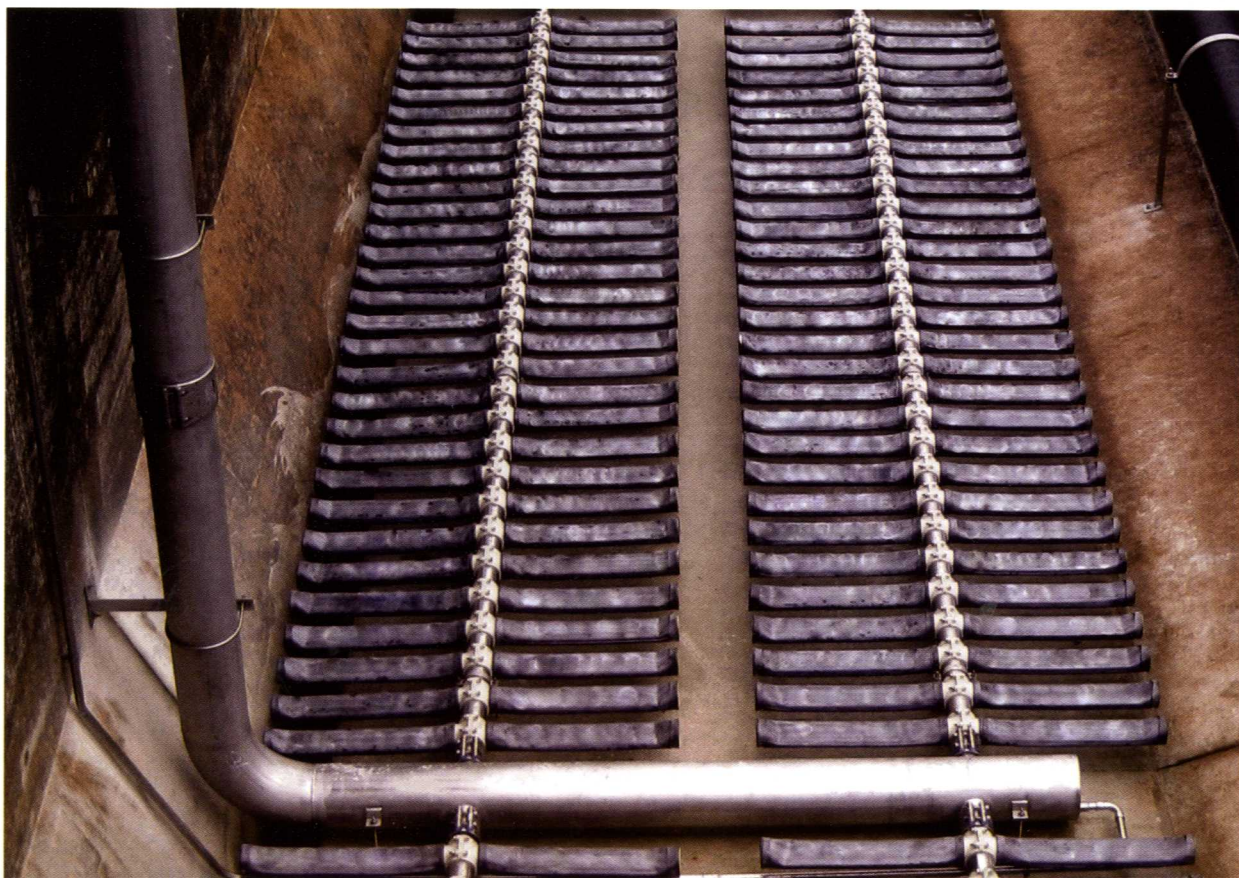


BELÜFTUNGSTECHNIK  
UMWELT- & VERFAHRENSTECHNIK  
SERVICE & WARTUNG

# OXYFLEX<sup>®</sup> - OM

## OVAL-MEMBRANE-TUBE-DIFFUSER

for fine bubble aeration of liquids



# Supratec

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## GENERAL DETAILS

# OXYFLEX<sup>®</sup>-OM

for fine bubble aeration of liquids

### GENERAL INFORMATION

Supratec Gesellschaft für Umwelt- und Verfahrenstechnik mbH produces modern high efficient aeration systems, as they are usually used for oxygen supply of biological waste water treatment. These products could also be used for any kind of gasation of liquids.

OXYFLEX<sup>®</sup> is the brand of membrane diffusers (plate, disc and tube) and a Polypropylene (PP) body.

### DESIGN

The Oval Membrane Tube Diffuser - OXYFLEX<sup>®</sup> OM are offered in three sizes:

- OXYFLEX<sup>®</sup> OM 1,0 (diameter x length) 120/50 mm x 540 mm
- OXYFLEX<sup>®</sup> OM 1,5 (diameter x length) 120/50 mm x 790 mm
- OXYFLEX<sup>®</sup> OM 2,0 (diameter x length) 120/50 mm x 1040 mm

The length of the diffuser can be fitted and produced especially to your requirements.

The body is a Polypropylene (PP) reinforced oval tube. A membrane is putted over this body. A non return valve is integrated in the body. Concerning the with of the oval body of the diffuser, and the resulting wide working area there is a high efficiency given. A additional advance of the oval membrane tube diffusers - OXYFLEX<sup>®</sup> OM is the very little pressure loss corresponding to the high efficiency.

### MEMBRANE

Standard membranes are made of EPDM. Membranes made of Silicone are also available.

The membranes have a unique slot-arrangement. The size and arrangement of those slots is optimized to archive maximum oxygen transfer efficiency.

### CHARACTERISTICS

Oval membrane tube diffusers - OXYFLEX<sup>®</sup> OM are highly resistant against soiling.

Oval membrane tube diffusers - OXYFLEX<sup>®</sup> OM produces fine bubbles of a medium diameter < 2mm.

Oval membrane tube diffusers - OXYFLEX<sup>®</sup> OM can be operated intermittently.

Oval membrane tube diffusers - OXYFLEX<sup>®</sup> OM can be installed with Polypropylene pipes and stainless steel pipes, are used for all geometric forms of tanks and fit to nearly every type of pipe.

Oval membrane tube diffusers - OXYFLEX<sup>®</sup> OM are well established and are working to the clients' satisfaction world-wide.

### PERFORMANCE

Oval membrane tube diffusers - OXYFLEX<sup>®</sup> OM have a wide range. Minimum to maximum specific air-flow reaches from 0 - 20 Nm<sup>3</sup>/h per meter.

The design air flow should be approximately  $8 \pm 2$  Nm<sup>3</sup>/mh.

Oval membrane tube diffusers - OXYFLEX<sup>®</sup> OM can reach specific oxygen transfer efficiency up to 28 gO<sub>2</sub>/Nm<sup>3</sup> x mET, if coverage and water depth is favourable.

### VARIATIONS

Oval membrane tube diffusers - OXYFLEX<sup>®</sup> OM are also available as coarse bubble diffusers.

**O P E R A T I O N M A N U A L****OXYFLEX<sup>®</sup> - OM**

for fine bubble aeration of liquids

**F U N C T I O N -  
A N D L E A K A G E  
C H E C K**

After installation of oval membrane tube diffusers - OXYFLEX<sup>®</sup> OM a function and leakage test should be carried out. The tank should be filled with clean water up to maximum 10 cm above diffusers' surface and the diffusers set in operation.

Then function and installation can be checked and confirmed by report.

**F I R S T R U N  
O F D I F F U S E R**

After function and installation has been checked and confirmed, oval membrane tube diffusers - OXYFLEX<sup>®</sup> OM have to be operated at least another 60 hours continuously.

Water level shall be as quickly as possible raised up to minimum 100 cm above diffusers' surface.

Important: Diffusers should not stand still.

**V I S U A L B U B B L E  
C H E C K**

The visual judgement of the bubble distribution should not be taken before the above specified first run of diffusers.

To do the visual check, the diffusers shall operate at maximum capacity and shall be turned down to the minimum.

Test of even aeration (visual bubble check) must take place when the water level is at 60-100 cm above diffusers' surface.

Test of even aeration (visual bubble check) at minimum air flow can only take place if the water temperature is above 10°C.

**O X Y G E N - T R A N S F E R -  
E F F I C I E N C Y - T E S T**

Before the stated oxygen transfer efficiency figures of the oval membrane tube diffusers - OXYFLEX<sup>®</sup> OM are proved with an oxygen transfer test the above mentioned steps have to be considered.

The oxygen transfer efficiency test must be done accordingly to accepted rules (e.g.: ATV-M209) in clean or waste water.

Guarantee figures have to be controlled exactly. It is necessary to have a precise air-flow measurement system.

**S T A R T - U P**

After successful oxygen transfer efficiency test, start up of the oval membrane tube diffusers - OXYFLEX<sup>®</sup> OM may follow immediately. If there is a Postponement of the start up, care should be taken that the water level stays at least 100 cm above diffusers' surface to protect oval membrane tube diffusers - OXYFLEX<sup>®</sup> OM from sunlight and / or freezing.

## DRAWING

## OXYFLEX® - OM

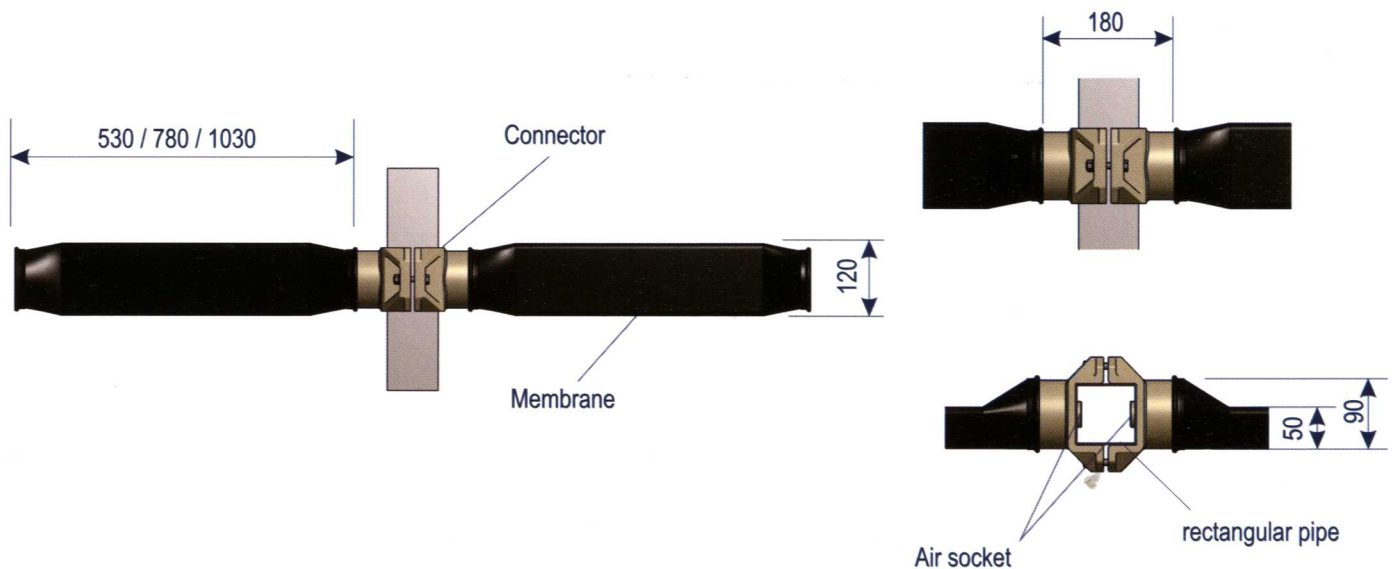
### Oval-Membrane-Tube-Diffuser OXYFLEX® OM

Oval Membrane- Tube-Diffuser OXYFLEX® OM can be mounted on stainless steel rectangular pipe and PP-pipes (connectors for different diameters/size are available).

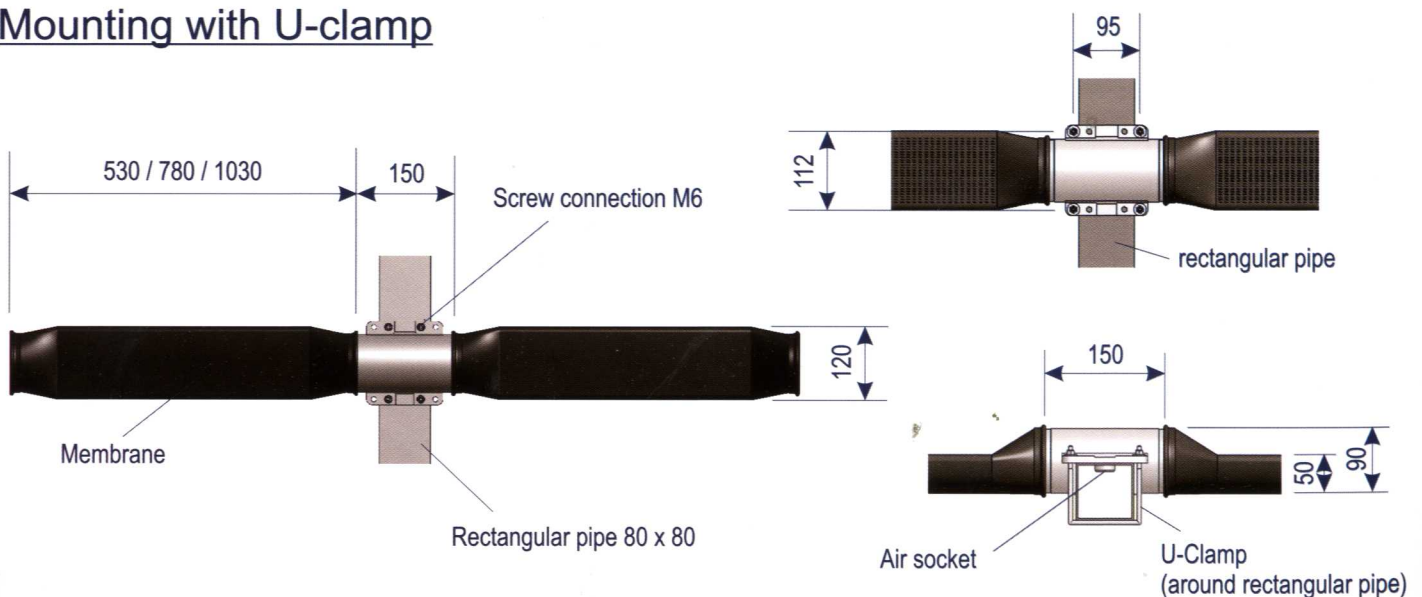
#### Werkstoffe / Materialien:

Body: Polypropylen (PP-GF)  
Gasket: EPDM  
Membrane: EPDM  
Inner diameter of  
the Membrane: 90mm

### Mounting with connector



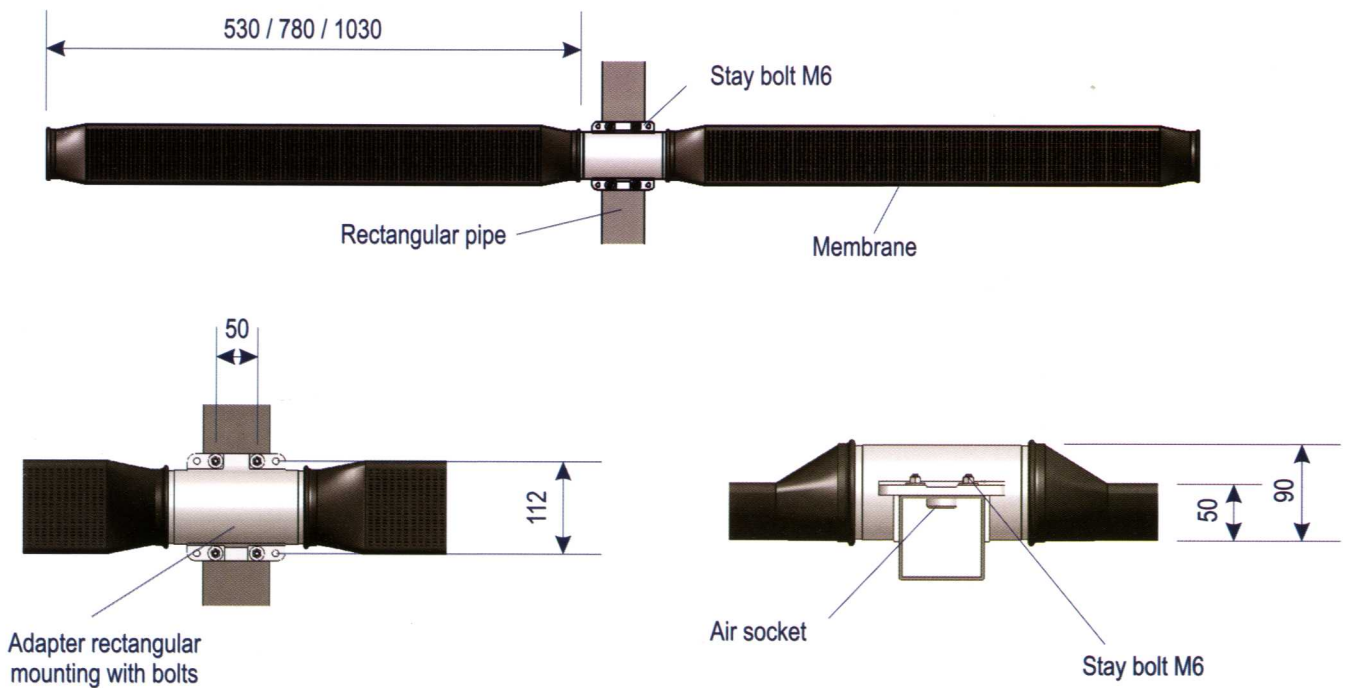
### Mounting with U-clamp



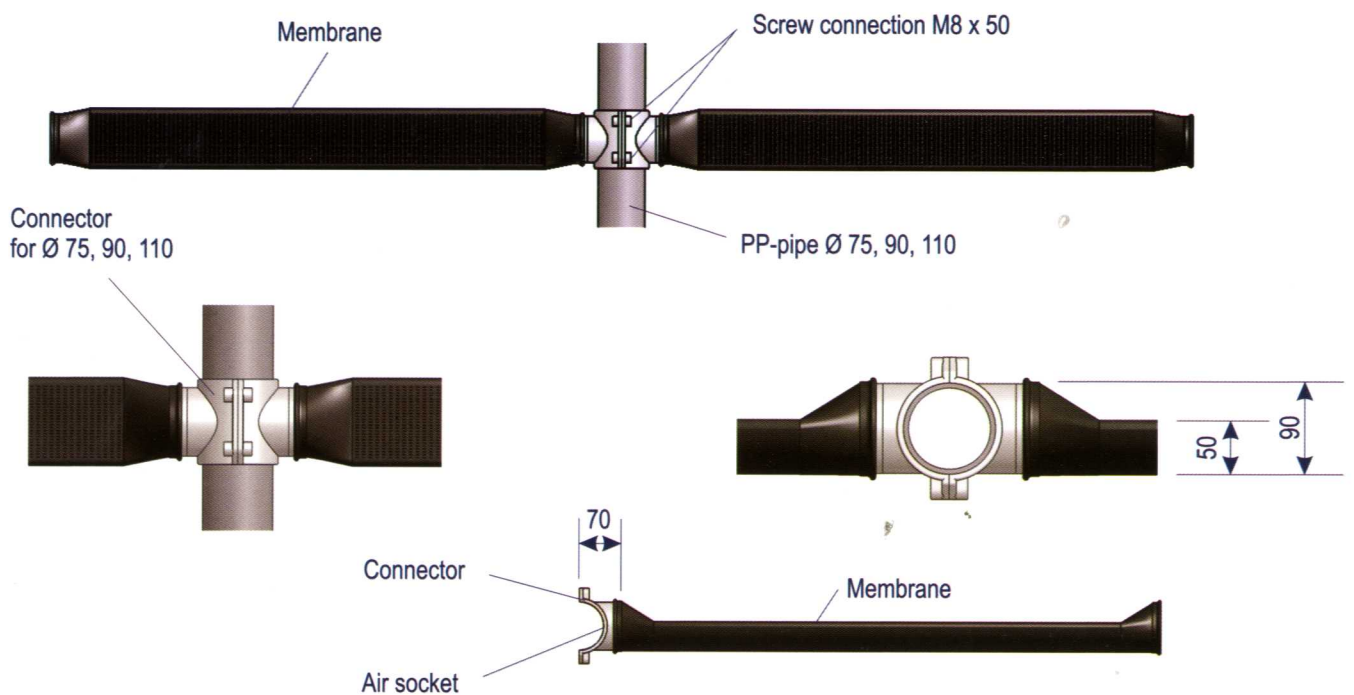
## DRAWING

## OXYFLEX®-OM

### Mounting with stay bolts



### Mounting with connector



## CURVES PRESSURE - OXYGEN

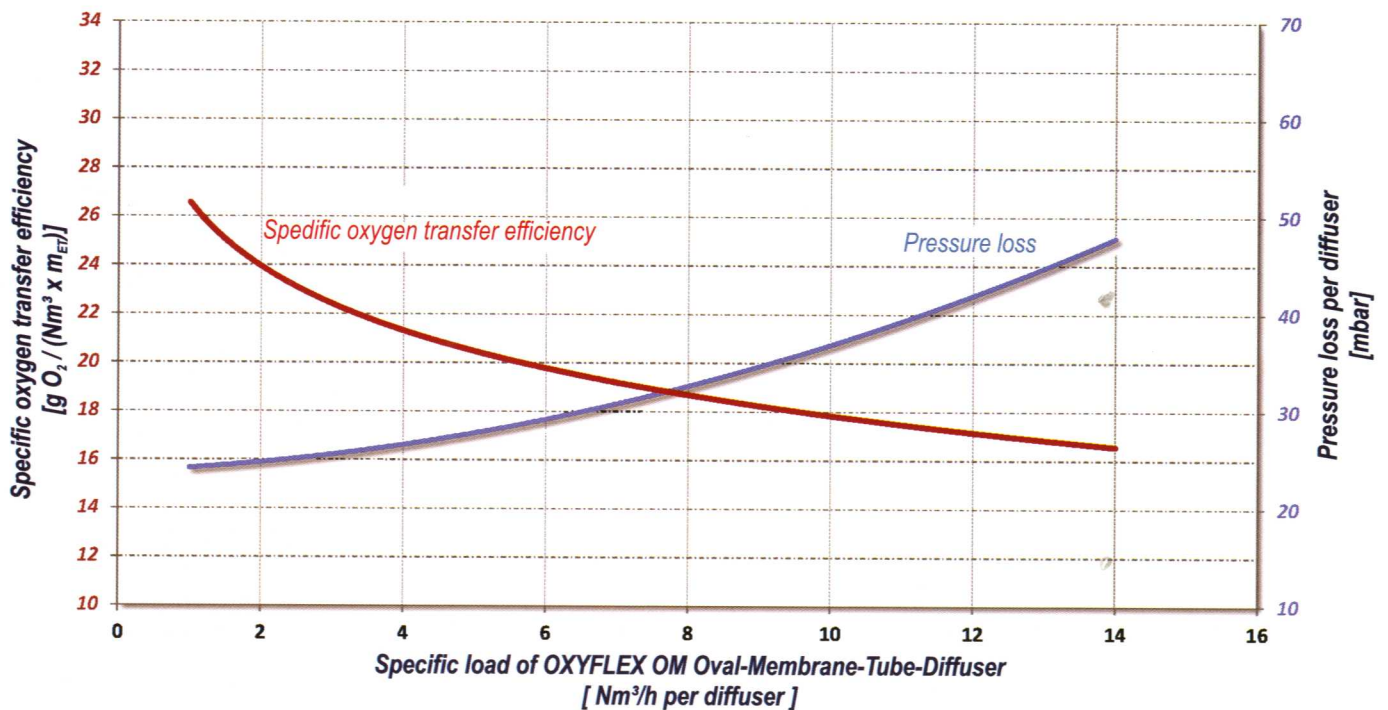
# OXYFLEX<sup>®</sup> - OM

for fine bubble aeration of liquids

Values in the example shown below are determined in water-depth of 4m / 3,8 m<sub>ET</sub> and with planar arrangement of the diffusers.  
The values are not transferable

>> No guarantee-claims can be derived from the diagram! <<

Specific oxygen transfer efficiency and pressure loss of the  
OXYFLEX<sup>®</sup> - OM Oval-Membrane Tube-Diffuser



## INSTALLATION

## MANUAL

# OXYFLEX<sup>®</sup>-OM

for fine bubble aeration of liquids

### DESCRIPTION

Oval membrane tube diffuser - OXYFLEX<sup>®</sup> OM has a solid, strong body made of Polypropylene (PP) and a slipped over membrane (e.g.: EPDM).

The membrane is fixed by two SS ring-clamps.

The body is to be out around the ends shaped, and has an integrated non return valve.

### STORAGE

The diffusers should be stored in their packing inside a dry and aerated building. DIN 7716 has to be considered.

### PREPERATION

Before installation of the oval membrane tube diffusers - OXYFLEX<sup>®</sup> OM it has to be checked that the piping system is clean.

Drilling chips, dirt etc. have to be removed, as those will be transported into the diffusers as soon as blowers are set into operation causing serious damage to the diffuser membranes.

### LEVELLING

Oval membrane tube diffusers - OXYFLEX<sup>®</sup> OM are installed on various pipes. The piping system has to be levelled to maximum  $\pm 10$  mm.

### INSTALLATION

#### Installation on rectangular pipe:

##### Rectangular adapter:

The pair of diffusers with the adapter will be putted on the rectangular pipe from ahead. They will bolt together with welded bolts directly on the rectangular pipe or with U-Bolts who surrounds the rectangular pipe. All is shown in the drawings attached.

##### Connector:

The connector will be screwed in the body of the diffuser with the short thread first. Now mounting the second body an screw it into the other side of the connector. With the jaw spanner SW 77 mm you tighten up the bodies with a torque of 45Nm. All is shown in the drawings attached.

##### Connector clamp:

The half parings of the rectangular pipe connector clamp will be hooked up each other and closed around the rectangular pipe. On the opposite the clamp will be fixed with a screw. All is shown in the drawings attached.

#### Installation on round pipe:

##### Half parings:

The half parings of the diffusers encompass the round pipe and will be fixed with a screw M8x50, washers and nuts on the opposite half paring. All is shown in the drawings attached.

**All fittings have to be tighten stepwise, to exclude canting!**

**OXYFLEX®-OM**

for fine bubble aeration of liquids

**M A I N T E N A N C E**

Oval membrane tube diffuser OXYFLEX® OM does not need a lot of maintenance. Usually it is enough to have one run of 10 to 15 minutes operation at maximum air flow per day, where the Oval membrane tube diffuser OXYFLEX® OM shall operate at least 10 Nm<sup>3</sup>/h and m per unit.

To do so, it may help to shut down the system partially, by closing the corresponding valves.

This also removes layers of sludge after longer time not having operated the system or longer terms of low specific air flow.

At least once per year Oval membrane tube diffuser OXYFLEX® OM shall be checked visually. Here especially shall be checked whether there are layers of sludge or similar. If so, those layers shall be removed carefully.

**A separate maintenance contract can be completed.**

**S U P E R V I S I O N**

A visual bubble check has to be done daily. The pressure loss of the system has to be controlled and reported monthly.

Showy changes the bubbles distribution and/or of the pressure loss are prompt to be report at SUPRATEC. Especially the installations with intermittent operation exists the risk, that activated sludge penetrates the entire piping, by damaged Oval membrane tube diffuser OXYFLEX® OM. Hereby, all oval membrane tube diffuser OXYFLEX® OM are affected in function and lifetime.