

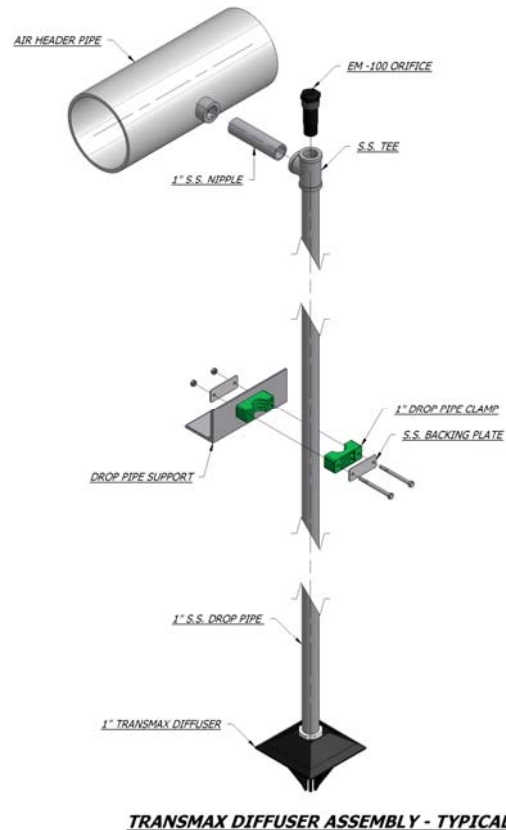
DIFFUSER EQUIPMENT DESCRIPTION

Ovivo's aeration equipment consists of coarse and medium bubble diffusers designed to operate without the need for maintenance. The equipment is especially suited for digesters and sludge holding tanks which typically see a range of materials and may handle thicker solids concentrations.

The TransMAX® diffuser is a single drop diffuser which achieves medium bubble oxygen transfer rates of up to 14%. A figure of this diffuser is shown in Figure 1.

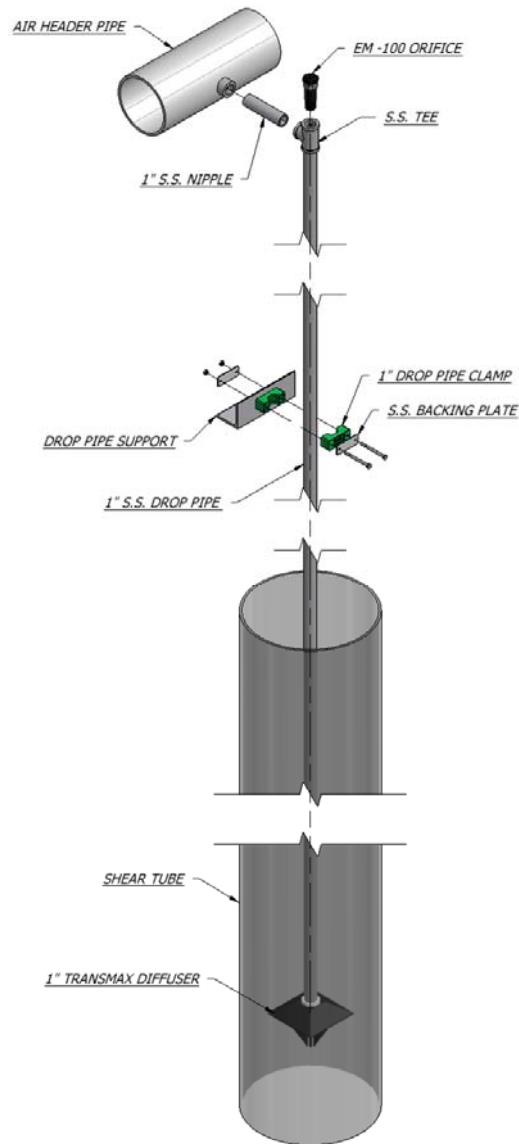
The TransMAX and its larger diameter counterpart, the MS diffuser, offer excellent mixing and aerating abilities by establishing a clear roll pattern within the basins. These diffusers are recognized as being truly non-clog diffusers. The air metering orifices are located above water level and can be accessed without draining the tank if the system is to be cleaned or altered. However, because the orifice is above water, the need for cleaning is eliminated, even if the air is turned off. This is a guarantee no other diffuser can offer.

Figure 1. TransMAX® Diffuser



In addition to the benefits of the diffuser assembly itself, the TransMAX® and MS diffusers can be combined with shear tubes or draft tubes. This is done when the sludge to be aerated is thickened prior to aeration or when the tanks to be aerated are very deep. A shear tube assembly is shown in Figure 2.

Figure 2. Shear Tube Assembly



TRANSMAX DIFFUSER ASSEMBLY - TYPICAL

Shear tubes or a Multi-Eductor Draft Tube (Figure 3) have the advantage of bringing the sludge to a high velocity between 4 to 6 fps within the tube and thereby reducing the viscosity of thickened sludge.

Due to the differential pressure between the bottom of the tube and the highly aerated sludge at the top of the tube, sludge is drawn up inside the tube and discharged out the top. This causes a rolling pattern out from each tube, down the depth of the water, and back up the tube. The pumping action is similar to that of an airlift pump and has been quantified with test data. By bringing the full pumped volume into the confined area of the tube the velocity is maintained between 4 and 6 fps.

In deep tanks, blower horsepower is saved by reducing the submergence and extending the shear tubes. The diffuser heads are mounted only partially down the depth of the tank and thus the system saves blower horsepower compared to aerating a floor mounted system.

Figure 3. Enviroquip Shear Tubes and Multi-Eductor Draft Tube

(Shear tubes shown on left, Multi-Eductor Draft Tube shown on right)



FEATURES AND BENEFITS

1. High oxygen transfer efficiency
2. High mixing capacity and ideal flow patterns for the suspension of solids, even at high (>4%) solids concentrations.
3. No icing, spray, or mixing problems in cold climates.
4. No mechanical device mounted within the biomass in the aeration tanks. Our driving force is an externally mounted blower system.
5. Full access to the orificing system above the tank liquid level.
6. Full capability to change orificing at any time in order to taper or otherwise adjust oxygen introduction into the basin.
7. Ability to adjust orificing and diffuser bubble break-out levels to maximize the turndown efficiency of any system.
8. Minimal maintenance.