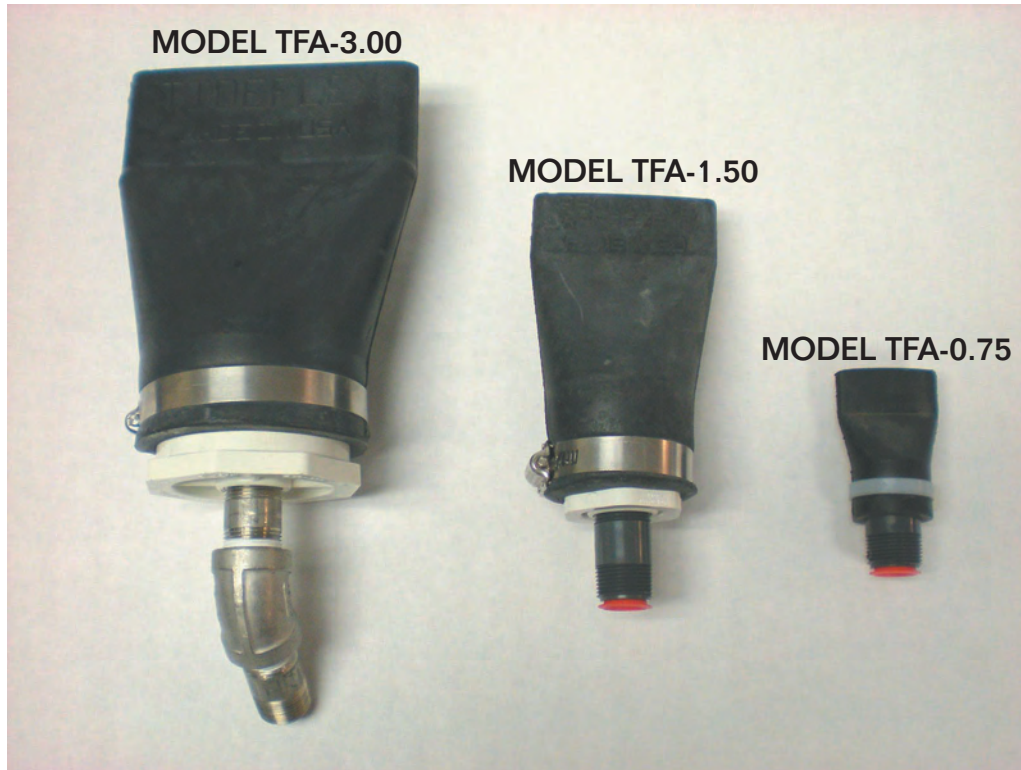


TIDEFLEX[®] AERATION COARSE BUBBLE DIFFUSERS

Installation, Operation, and Maintenance Manual



This manual outlines the installation procedures for individual diffuser units into existing piping systems. For diffuser installation into complete systems provided by Tideflex Technologies[®] refer to the systems Installation, Operation and Maintenance manual provided for the specific system.

IMPORTANT

Please review this manual prior to installation of the diffuser assemblies. The incorrect installation of these units can result in improper performance and reduced product life. Tideflex Technologies[®] can accept NO liability resulting from the improper use or installation of this product. If you have any questions or problems, please call the customer service department at (412) 279-0044. Thank you for using Tideflex Technologies[®] high performance products.

DIFFUSER COMPONENTS

The diffuser assemblies are comprised of five different products:

1. The elastomer duck bill molded body.
2. The internal reducer bushing.
3. The threaded nipple.
4. The connection band.
5. The flow-control orifice plug.

1. THE ELASTOMER BODY

The elastomer portion of the diffuser is a compression molded component and can be fabricated from the following synthetic elastomers: Neoprene, EPDM, Buna-N, Hypalon, PGR. The maximum allowable operating temperature of the elastomer for an air diffusion application is 120 degrees F for either the internal airflow or the external process liquid. Temperatures exceeding this limit can result in distortion, hardening, and reduced life of the elastomer.

2. THE INTERNAL REDUCER BUSHING

This bushing provides support for the elastomer portion and an internal threaded port for receiving the specified nipple connection size. This reducer bushing can be fabricated from either a molded thermoplastic material or tooled stainless steel.

3. THE THREADED NIPPLE

The nipple is typically an NPT thread and can be fabricated from PVC80 thermoplastic, 304SS or 316SS. The diameter and length of the nipple can vary; the standard is 3/4" diameter.

4. THE CONNECTION BAND

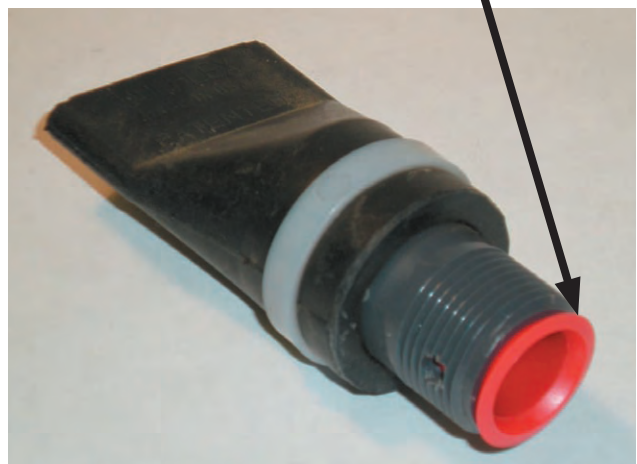
The connection band is fitted around the cuff portion of the elastomer unit and compresses the elastomer around the reducer bushing providing a water-tight seal. The connection band types include; Nylon Lock-Tie type, stainless steel worm gear (hose clamp) type, and stainless steel band-it type. These clamps are installed at the factory at the recommended compression.



5. THE FLOW CONTROL ORIFICE PLUG

The orifice plug provides additional headloss at the diffuser that is required when multiple diffusers are installed along a single air manifold. The internal bore diameter of these plugs can vary depending on the piping application. Standard bore diameters are provided by the factory which are applicable to manifolds up to 40 linear feet where multiple diffusers are installed. For manifold lengths greater than this consult the factory for recommendations on alternate plug sizes required. Model TFA-3.00 units may be provided without plugs as they are not required for these higher flow units. These plugs are fabricated from polyethylene plastic and are colored RED.

DO NOT REMOVE THE RED ORIFICE PLUGS, THEY ARE REQUIRED FOR PROPER OPERATION OF THE DIFFUSER UNITS.



DIFFUSER INSTALLATION

Follow the steps below for installation of the diffuser units:

ASSEMBLY INSPECTION

Check the diffuser bill opening by compressing the end points to observe the interior of the valve. Confirm that there are no restrictions from excess rubber material or foreign debris. Remove any of this material.

Diffusers are provided with a threaded male nipple connection. Check that nipple is securely threaded into bushing located in the inside cuff of the diffuser. For hose clamp type connections, check that the clamp is adequately tightened (if provided on the diffuser) around the PVC bushing.

NOTE: Do not over tighten hose clamp or damage to the rubber diffuser could occur, the maximum compression of the rubber at the clamp should not exceed 1/8" depth.

Check the influent end of the connection nipple to see if an internal orifice plug has been inserted into the nipple (Red Polyethylene Plug with internal bore). If no plug is present then check the shipping packaging for a separate package of these orifice plugs. Manually insert the orifice plugs into the nipple and firmly compress until the plug flange seats against the rim of the nipple. The plug flange will follow the threads of the FIPT receiving port when installing the diffuser locking this plug in place. Model TFA-3.00 diffusers may be provided without the orifice plug as it is not required for the higher airflow rates associated to this model. Models TFA-0.75 and TFA-1.50 should be equipped with orifice plugs.

INSTALLATION PROCEDURES

PVC NIPPLE ASSEMBLIES – Apply either liquid teflon or vegetable oil to the threads and thread into the FIPT socket connection on the manifold. Hand tighten the diffuser to maximum 10 lbs torque and rotate the diffuser slit opening horizontal.

STAINLESS STEEL NIPPLE ASSEMBLIES – Apply Teflon tape to the nipple threads and thread into the FIPT socket connection on the manifold until hand tight. Apply vise grips around the non-threaded center portion of the nipple and continue tightening until the diffuser slit opening is horizontal. Do not exceed 40 lbs torque during installation.

OPERATIONAL CHECK

Confirm all diffusers are installed at the same hydrostatic elevation and all units are oriented the same.

Fill the tank to a liquid level that is approximately 12 inches above the diffusers and apply air to the system at approximately 20% of the design air flowrate. Do not apply higher than the rated airflows for the diffusers. Inspect the diffuser connections for any air leaks at the threaded connections.

Visually observe the airflow distribution along each manifold run and confirm that there is even distribution of air through each diffuser. If excessively uneven airflow distribution is observed, confirm the orifice plugs have been installed in the diffuser nipple connections.

Fill the tank to the normal operational level and apply the design airflow to the system and observe the surface air discharge patterns; uniform distribution should be observed. The system operating airflow rate should not exceed the rated capacity of the diffusers as permanent damage to the elastomer portion can result.

DIFFUSER CAPACITY RATINGS

Model TFA-0.75	6 cfm [10.19 m ³ /hr]
Model TFA-1.50	12 cfm [20.39 m ³ /hr]
Model TFA-3.00	24 cfm [40.79 m ³ /hr]

Tideflex® Technologies Warranty

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