

## SPECIFICATIONS A DIFFUSED AIR AERATION SYSTEM

### 1.0 GENERAL

#### 1.1 DESCRIPTION

- A. Manufacturer shall furnish a diffused air aeration system capable of inducing a synergistic air/water lift from the bottom of a body of water.
- B. An on-shore compressor, powered by an electric motor, shall pump air through individual air supply tubes to bottom-mounted dual membrane diffusers located throughout the body of water.
- C. The air shall be dispersed through a diffuser assembly that is then transferred vertically with entrained water to the surface of the water body, utilizing micro-bubble technology.
- D. This continuous action shall effectively mix, de-stratify, and transfer atmospheric oxygen throughout the body of water.

#### 1.2 AERATOR COMPONENTS DESCRIPTION

- A. **Compressor** – 1HP, 1 phase, rotary carbon vane type built for continuous operation and equipped with thermal overload protection. Unit shall be oil-free and require no scheduled maintenance other than periodic replacement of air filter and suggested replacement of carbon vanes. Compressor vanes shall be carbon type for automatic adjustment during operation to maintain optimum compressor efficiency. Unit equipped with muffler for quiet operation, liquid-filled pressure gauge, (5) or (6) brass outlet valves for regulation of airflow and brass pressure relief valve to prevent excessive wear on the compressor. Compressor shall produce 10.1CFM @ 10PSI and operate at approximately 13.3 running amps @ 120 volts, 6.6 running amps @ 240 volts.
- B. **Compressor Cabinet** - Enclosure shall be cylindrical in design and be constructed of minimum 16-gauge stainless steel. Enclosure shall be fully gasketed and equipped with padlock for security, ventilation to provide forced air circulation and an integral cooling fan with thermal protection, producing 220 CFM to guard against excessive compressor operating temperatures.
- C. **Diffuser Assemblies** – **I. Single Membrane** – consists of (1) 12" diameter, self-cleaning, flexible, fluoroelastomer layered, fine bubble, EPDM membrane. It shall provide superior resistance to fouling, calcium scaling, chemicals, fats, oils, grease, hydrocarbons, fuels and solvents.  
**II. Dual Membrane** – consist of (2) self-cleaning, 9" diameter, flexible membrane diffusers of EPDM compound with 100% rebound memory, each producing millions of fine bubbles.  
**III. AquaRings** – consists of 2 concentric rings of tubular porous membranes manufactured of 100% recycled material. Outer ring shall be approximately 14" diameter. Inner ring shall be approximately 8" diameter producing millions of fine bubbles.  
Both diffusers shall be mounted on a round, hollow chamber base design, constructed of linear low density polyethylene material for the addition of pea gravel for self-weighting. Both diffusers shall be designed with adjustable diffuser riser to accommodate any site requirements.

- D. **Weighted Air Supply Tubing** - Self-weighted, direct burial submersible tubing for connection from compressor to diffuser assembly. Tubing shall be of flexible PVC composite construction for use with standard PVC solvent weld cement and 0.5" insert fittings. 1/2" tubing shall have 0.52" ID X 1.06" OD, 5/8" tubing shall have a 0.63" ID X 1.15" OD and both have a 0.27" wall thickness for long term durability and protection against punctures. It shall remain flexible in cold temperatures.

## **DIFFUSED AIR AERATION DETAIL SPECIFICATIONS**

### **2.0 DETAILED INFORMATION**

- 2.1 This specification is intended to provide prospective bidders the necessary information pertaining to the diffused air aeration system specified for the \_\_\_\_\_ Project.
- 2.2 The compressor shall be 1HP, operating at \_\_\_\_\_ Volts (120 or 240), 60 Hertz, 1 Phase.
- 2.3 The MODEL specified shall be MODEL NUMBER 9450 (120V) or 9452 (240V) AquaAir 5 or 9460 (120V) or 9462(240V) AquaAir 6 (circle choice). It shall come complete with cabinet, compressor, 5 or 6 (circle one) Single Membrane, Dual Membrane or AquaRings diffusers (circle one) and a total of \_\_\_\_\_ feet of weighted air supply tubing. Tubing lengths are as follows: Diffuser A \_\_\_\_\_ feet, Diffuser B \_\_\_\_\_ feet, Diffuser C \_\_\_\_\_ feet, Diffuser D \_\_\_\_\_ feet, Diffuser E \_\_\_\_\_ feet, and Diffuser F \_\_\_\_\_ feet (if AquaAir 6).

### **3.0 INSTALLATION**

The cabinet and compressor must be installed in accordance with the installation instructions, in compliance with all local and National Electrical Code requirements. This should be done by a licensed electrical contractor. Any alterations to or substitution for items in this system, unless allowed by the installation instructions, will void the manufacturer's warranty. It may also create a hazardous installation. Read the instructions thoroughly before starting the installation and follow them carefully throughout.

### **4.0 SAFETY TESTING**

The diffused air aeration system shall be tested and approved as a complete unit. This approval must meet Underwriters Laboratories Inc. requirements in compliance with Category 1450: Motor Operated Air Compressors.

### **5.0 ACCEPTABLE MANUFACTURER**

This diffused air aeration system, as specified in Section 2, shall be manufactured by AQUAMASTER FOUNTAINS AND AERATORS, 16024 CTH X, Kiel, WI 53042, (800) 693-3144, or approved equal.

### **6.0 WARRANTY**

All AquaMaster AquaAir Diffused Air Aeration Systems are covered under warranty at 100% replacement costs should it fail due to defects in materials or workmanship for a period of 5 years, with the exception of the compressor and cooling fan, which will be covered under warranty for a period of 1 year. Warranty is in effect from the date of shipment, when given normal and proper usage as determined by the seller upon examination, and when owned by the original user.