

**SPECIFICATIONS**  
**AQUAAIR® ULTRA 3 DIFFUSED AIR AERATION SYSTEM**  
**ROTARY VANE APPLICATION**

**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 AERATION SYSTEM COMPONENTS DESCRIPTION**

- A. **Compressor** – 3/4HP, 220V 50HZ 1 phase, rotary carbon vane type built for continuous operation and equipped with thermal overload protection. It shall be oil-free and require periodic preventative maintenance after every 18 months of run time which consists of a vane replacement kit and air filter. 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, (3) brass outlet valves for regulation of airflow and brass pressure relief valve to prevent excessive wear on the compressor. Compressor shall produce 7.3CFM (0.21CMM) @ 10PSI (68.95KPa) and operate at approximately 4.6 running amps.
- B. **Compressor Cabinet** – Enclosure shall be rectangular 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 115CFM (3.25CMM) to guard against excessive compressor operating temperatures.
- C. **Diffuser Assemblies** shall be mounted on a round, hollow chamber base constructed of linear low density polyethylene material. Base shall be capable of being filled with pea gravel for weighting. Base shall be designed with a back-flow check valve and adjustable diffuser riser capability to accommodate site requirements.
  - I. **Single Membrane (SM)** – consists of (1) 12" (30cm) diameter, self-cleaning, flexible, fluoroelastomer layered, fine bubble, EPDM membrane diffuser with 100% rebound memory. It shall provide superior resistance to fouling, calcium scaling, chemicals, fats, oils, grease, hydrocarbons, fuels and solvents. It shall produce millions of fine bubbles.
  - II. **Dual Membrane (DM)** – consists of (2) 12" (30cm) diameter diffusers referenced above.

**III. Quad Membrane (QM)** – consists of (4) 12" (30cm) diameter diffusers referenced above.

- 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"(1.3cm) insert fittings. 1/2" tubing shall have 0.52"(1.3cm) ID X 1.06"(2.7cm) OD, 5/8" tubing shall have 0.63"(1.6cm) ID X 1.15"(2.9cm) OD and both have a 0.27"(0.7cm) wall thickness for long term durability and protection against punctures. It shall remain flexible in cold temperatures.
- E. Remote Manifold with Valve Box** (optional) – eliminates the need for multiple air line runs in the ground when the cabinet is located away from the pond's edge.

### **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 3/4HP, operating at 220 Volts, 50 Hertz, 1 Phase.
- 2.3 The MODEL specified shall be AquaAir® 3 Ultra Rotary Vane MODEL NUMBER F-94203-RV (220V). It shall come complete with cabinet, compressor, Three Single Membrane (SM), Dual Membrane (DM), or Quad Membrane (QM) diffuser assemblies (circle one) and a total of \_\_\_\_\_ meters/feet of weighted air supply tubing. Tubing length (s) is as follows: Diffuser A \_\_\_\_\_ meters/feet, Diffuser B \_\_\_\_\_ meters/feet, Diffuser C \_\_\_\_\_ meters/feet.
- 2.4 MODEL NUMBER specified in 2.3 shall be base mounted. Base color will be black.
- 2.5 Remote Manifold with Valve Box Option: Yes \_\_\_\_\_ No \_\_\_\_\_  
If yes, specify the type and size of the air line from the cabinet to the remote manifold  
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#### **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 and 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, (920)693-3121, or approved equal.

**6.0 WARRANTY**

All AquaMaster® AquaAir® Diffused Air Aeration Systems have a Limited Lifetime Warranty on the cabinet, 5 year on the tubing and diffuser assemblies, and all other components including compressor and cooling fan have a 2 year warranty. 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.