

# AIR FLO 3 DIFFUSED AERATION SYSTEM SPECIFICATIONS

**PURPOSE:** The diffused air, aeration manufacturer shall provide an underwater aeration system designed to aerate, de-stratify, and circulate water without disturbing the natural surroundings of the lake environment.

**SCOPE:** The diffused air, aeration package shall be capable of being installed in lakes deeper than 3ft (1m).

**PACKAGE:** This aeration package shall include the following equipment:

- a. Air compressor cabinet enclosure. To include compressor(s), circuit disconnect, and air flow balancing valve manifolds.  
To be designed to operate on either:
  - i. 60Hz power, 115/208/230 volt, single phase
  - ii. 50Hz power, 220/240 volt, single phase

- b. Air/Oxygen disc diffuser manifolds
- c. Tubing

**CABINET/ENCLOSURE:**

- 1 Compressor
- 2 Compressor

**SPECIFY:** \_\_\_\_\_ Volts \_\_\_\_\_ Hz

**DIFFUSER MANIFOLD(S):** *[Single or Dual Disc]*

Quantity	Type
_____	Single Disc Manifold(s)
_____	Dual Disc Manifold(s)

**TUBING:** *[Available in 100ft (30m) increments]*

Total required tubing for system:

\_\_\_\_\_ feet (\_\_\_\_\_ m) Non-weighted polyvinyl chloride tubing

\_\_\_\_\_ feet (\_\_\_\_\_ m) Weighted polyethylene chloride tubing

Tubing lengths per diffuser manifold:

\_\_\_\_\_  feet ( meters) Non-weighted tubing

\_\_\_\_\_  feet ( meters) Weighted tubing

**PISTON AIR COMPRESSOR:** (for lakes 3ft (1m) deep or larger) The air compressor(s) shall be a 1/2HP rocking piston, dual frequency, permanent split capacitor (psc) electric motor with oilless lubrication, direct drive (no belts or pulleys), designed for field service capability, polyurethane rust protection, and to include the following motor protection: thermal overload protection, and intake air filter. The serviceable parts: piston cups, retainer screws, cylinder o-rings, head o-rings, valve and valve retainers; should last two years in continuous operation. These maintenance parts shall be replaceable with common tools. Please consult your local distributor if you require assistant in choosing sizes, accessories, or applications.

**AIR COMPRESSOR CABINET ENCLOSURE:**

- a. Cabinet body and cover construction shall be 18 gauge (0.048in/0.122cm) 304 stainless steel, and include EPDM edge-grip seal
- b. Cabinet cooling system to consist of two (2) axial exhaust fans and vented intake louvers on the bottom of the cabinet to provide an air exchange rate of 410-490 CFM
- c. Compressor-intake air to be quick change cartridge type filters
- d. Cabinet enclosure secured by stainless steel latch to accomodate locking mechanism



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**AIR/OXYGEN DIFFUSER MANIFOLDS:** The air/oxygen disc diffusers shall include, but not be limited to, the following materials of construction:

- a. Disc type 12in (350mm) membrane diffusers allow for maximum 12CFM and are resistant to Ozone and UV
- b. Membrane material to be premium quality compression molded EPDM with an oil content of less than 12%
- c. Diffuser membranes should have a minimum of 10,155 slit perforations and be at least 70% hydrophilic, with tensile strength at 2000 psi
- d. Diffuser to consist of membrane with integral gasket, base, retaining ring, and air flow control orifice
- e. Membrane shall collapse and seal when aeration system air is turned off
- f. Sealing method of retaining device shall generate a minimum of 50 pounds per inch/58 Kg/cm of circumference of the sealing gasket to provide a long term positive seal and to prevent air escape
- g. Diffuser base and retaining ring to be constructed of polypropylene with organic UV stabilizers and a tensile strength of 5000 psi
- h. Diffuser to have one 3/4in (2.5cm) connection method to manifold
- i. Each diffuser shall include a manifold that will connect up to two (2) air-discs to the air supply tubing
- j. Manifold base shall be constructed of high-density polyethylene plastic and incorporate ballast channels for level sinking of pads during installation

**WEIGHTED POLYVINYL CHLORIDE TUBING:** Tubing shall be constructed of heavy, negative buoyancy, polyvinyl chloride (PVC) material. The PVC tubing shall be 1/2" (1 cm) with a minimum wall thickness of 1/4" (.64 cm). Pressure rating shall be 225 psi at 70o F (21o C). Coil lengths shall be 100' (30 m), with a weight per 100' (30 m) of 43lbs (20 kg). Tubing shall be self-sinking, lead free, and contain carbon black for UV protection. Please consult your local distributor for additional information.

**NON-WEIGHTED POLYETHYLENE TUBING:** The polyethylene tubing shall be 1/2in (1cm) with a minimum wall thickness of .06in (1.5mm). Pressure rating shall be 100 psi at 73 F (22 C). Coil lengths shall be 100' (30 m), with a weight per 100ft (30m) of 11 lbs (5 kg). Tubing shall contain 2% carbon black for long term UV protection. Please consult your local distributor for additional information.

**INSERT FITTINGS:** Insert fittings are used to repair, adapt, or connect with the polyethylene tubing. Fittings available shall include line size couplings, male adapters, and elbows.

**TESTING:** A. Safety - The aerator system shall be tested and approved as a unit. Separate component testing not allowed. Unit must be tested by ETL, ETL-C, CE, UL or other accredited testing facilities. B. Performance - Unit must have independent performance testing provided by GSEE.

**MANUFACTURER:** The diffused air, aeration system shall be Air Flo 3 System# \_\_\_\_\_ as manufactured by Otterbine Barebo, Inc., 3840 MAIN ROAD EAST, Emmaus, PA 18049, U.S.A. PH. (610) 965-6018, or approved equal. For approved equal status, supplier shall provide the following information to the project designer, within 10 days of the bid opening date, for written approval.

**WARRANTY:** The aeration system shall include a 3 year warranty on the air compressor(s), 5 years on air diffusers and cabinet, and 15 years on underwater tubing.

MODEL: AIR FLO 3 DIFFUSED AIR SYSTEM					
SYSTEM	# of Compressor(s)	Diffuser Pad(s)	# Discs per Pad	# Disc per System	Volt/Amp/Hz
AF3-121	1	2	1	2	115/4.7/60 230/2.5/60 220/2.8/50
AF3-131		3		3	
AF3-141		4		4	
AF3-112		1	2	2	
AF3-122		2		4	
AF3-241	2	4	1	4	115/8.9/60 230/4.7/60 220/5.6/50
AF3-261		6		6	
AF3-281		8		8	
AF3-222		2	2	4	
AF3-232		3		6	
AF3-242		4		8	
AF3-262		6		12	