

**RECOMMENDED**  
**EPIC INTERNATIONAL Stainless Steel**  
**High Speed Floating Aerator Specifications**

**1. GENERAL**

1.1 The following specifications cover the performance, design, construction and installation of the floating aeration equipment.

1.2 The contractor shall furnish and install \_\_\_\_\_ EPIC floating aerators, complete and operable under normal conditions and in accordance with the plans and specification.

EPIC Model No. \_\_\_\_\_ Horsepower \_\_\_\_\_ RPM \_\_\_\_\_ GPM \_\_\_\_\_

**2. PERFORMANCE:** Each aerator shall be capable of transferring a minimum of \_\_\_\_\_ lbs. of oxygen per name plate horsepower per hour under standard conditions of zero dissolved oxygen at sea level; 20<sup>0</sup>C; alpha and beta = 1.0.

**3. DESIGN**

**3.1 Motor:** The motor shall be designed for aerator service and shall have the following features:

- 3.1.1 Minimum service factor of 1.15 over the motor name plate at 40<sup>0</sup>C ambient
- 3.1.2 TEFC construction, vertical "P" base, severe duty rating
- 3.1.3 Non-hygroscopic windings with class "F" insulation
- 3.1.4 One-way condensate drain
- 3.1.5 A labyrinth seal shall be provided below the lower bearing to prevent water migration up the motor shaft
- 3.1.6 The lower bearing shall be designed for a minimum life of 5 years at the rated thrust of the unit
- 3.1.7 A stainless steel name plate showing the voltage, amperage, service factor, insulation, type, speed, phase and serial number
- 3.1.8 The motor shaft shall be one piece, 17-4 PH stainless in the 1150 HT condition
- 3.1.9 The motor terminal box shall be water tight and shall withstand the pull of the power cable of at least 100 lb.

**3.2 Floatation:** The float shall be unitized construction of minimum 12 gauge type T-304 stainless steel and shall have a minimum of three (3) internal bulkheads. All welding shall be performed by certified welders in accordance with QW-484 of Section IX, ASME Boiler and Pressure Vessel Code. All 12 gauge welds shall be against internal structural chain plate back-ups. Mooring eyes shall be purpose made double shank, marine grade stainless steel and shall be attached to structural members only. Welding to the outer float skin only will not be allowed. Floatation service factor shall be 1.7 x unit weight.

- 3.3 Volute and intake cone:** The volute and intake cone shall be constructed integrally with the float and shall be of the same material and standard as the float, but shall be a minimum  $3/16$ " T-304 stainless steel plate, precision rolled with no members which could cause obstruction or clogging of the unit. The volute and intake cone shall be properly reinforced with external gussets to support the weight of the complete aerator during shipment and handling.
- 3.4 Diffuser/motor mounting:** The diffuser motor mounting shall be a machined stainless steel, raised segmented flange to receive the " P" base of the motor flange, a cast stainless diffuser cone and shaft shroud with a non-contact lower Derlin guide bearing. A machined Delrin trash slinger-impeller shall be attached to the motor shaft extension and direct any stringy material away from the motor shaft and shroud. Motor mounting bases that do not provide support for the extended motor shaft will not be allowed. The torque developed by the motor shall be transmitted through the diffuser/motor mounting assembly to the float via stainless steel beams welded to the volute inner ring, the outer float perimeter and the float surface. No point loading will be permitted.
- 3.5 Propeller:** The propeller shall have be two blade, anti-fouling type, precision cast of \_\_\_\_\_ and dynamically balanced to 2 mil peak when attached to the motor shaft and assembled to the diffuser/motor mount and operated at the intended motor speed as measured by Balance Technology Vibropac #1 vibration recorder.
- 3.6 Stability:** The float diameter shall exceed the total aerator height by a factor of 1.38 or more to assure stability under all operating conditions.
- 3.7 Vibration:** Each aerator shall be tested for vibration after assembly with an allowable maximum not to exceed 2 mils to peak measured at the motor bearings and at a frequency equal to the motor speed times the number of blades on the propeller.

#### 4. LOCATION AND MOORING

- 4.1 Each aerator shall be located as shown on the plans.
- 4.1.1 The aerators shall be moored with \_\_\_\_\_ diameter mooring line.
- 4.1.2 The aerators shall be provided with \_\_\_\_\_ mooring eyes.
- 4.1.3 Mooring hardware shall be stainless steel of sufficient size to accommodate the cable diameter specified.
- 4.1.4 Each mooring line shall be tightened such that the aerator is free from lateral movement but can move vertically \_\_\_\_\_ feet.

**5. POWER CABLE:** The power cable shall be type SEOW and AWG # \_\_\_\_\_ for the drive motor windings and AWG # 12/2 if recommended motor space heaters are specified.

**6. POWER CABLE FLOATS:** Power cable floats shall be provided every \_\_\_\_\_ feet and shall be of such size as to prevent strain on the motor terminal or the electrical connection at the basin wall.

**7. MANUFACTURER:** The aerators, mooring system, hardware, power cable floats shall be as manufactured EPIC INTERNATIONAL, INC. with general offices in Ashland, Virginia, U.S.A.