

### **3.1JF (240V) Aerating Fountain Specifications**

This specification is written and intended to provide bidders the necessary information pertaining to the floating aerating fountain(s) or surface aerator (s) for the \_\_\_\_\_ project.

#### **1. 3.1JF INFORMATION**

- a. The motor shall be 3 HP, 1750 RPM motor operating at 240 Volts, Single Phase, 60 Hz and drawing 13.4 running amps.
- b. The fountain shall include 5 interchangeable deflector nozzles to create 6 fountain patterns; including three geysers, a two-tier, and two “V” shape or funnel patterns ranging from 24’ tall to 48’ wide.
- c. The unit shall be able to operate in as little as 24” of water.
- d. The unit shall include motor, float with protective top and bottom screens and mooring ropes, fountain components, underwater rated power cable, and 240 volt electrical control panel.
- e. The SJTOW underwater rated power cable shall be \_\_\_\_\_ feet \_\_\_\_\_ gauge, 3 conductor cable. (See chart below)

Length	Gauge (AWG)
50 Feet	14 AWG
100 Feet	12 AWG
150 Feet	12 AWG
200 Feet	10 AWG
250 Feet	10 AWG
300 Feet	10 AWG
400 Feet	8 AWG

#### **2. OPTIONAL LIGHTING INFORMATION**

- a. The Optional Lighting Package shall be 12 Volt, Model \_\_\_\_\_ with \_\_\_\_\_ bronze fixtures. Each fixture shall include a 75 Watt MR-16 clear bulb and clear lens. (See Chart 1 below)
- b. Each bronze fixture shall have triple O-ring sealing and automatic reset thermal overload protection.
- c. The lighting package tooled bronze light fixtures approved to UL-676.
- d. The SJTOW underwater rated power cable shall be \_\_\_\_\_ feet 16 gauge, 3 conductor cable. (See Chart 2 below)
- e. The lighting package shall include clear bulbs with an option for colored bulbs in Yellow, Green, Red, and/or Blue. (circle all that apply)

Chart 1

Model	Number of Fixtures	Wattage
LR375	3	75

Chart 2

Length	Gauge (AWG)
50 Feet	16 AWG
100 Feet	16 AWG
150 Feet	16 AWG
200 Feet	16 AWG
250 Feet	16 AWG
300 Feet	16 AWG
400 Feet	16 AWG

### **3.1JF (240V) Aerating Fountain Detailed Specifications**

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#### **1. OPERATION**

- 1.1. Manufacturer shall furnish a surface aeration device that is self contained with integrated float ring and capable of pumping water from below the water surface into the air creating 6 unique fountain displays (all nozzles included) and effectively mixing water throughout the lake or pond.
- 1.2. Submersed fountain motor with top intake shall draw water into the fountain housing and push the water past the deflector nozzle into the air creating the 6 unique fountain displays.
- 1.3. Individual water droplets absorb oxygen from the atmosphere and return to the body of water transferring oxygen from the air and into the water.
- 1.4. Moving water shall mix and agitate the water, spreading oxygenated water throughout the body of water.
- 1.5. Single impeller and deflector nozzle design shall allow for greater water flow with lower likelihood of clogging.
- 1.6. Coated stainless steel bottom screen with 84 vertical bars with less than 1" gaps shall catch large debris and assist in reducing the likelihood of clogging while allowing for maximum water flow into the unit.

#### **2. AERATING FOUNTAIN COMPONENTS**

- 2.1. **Motor:** The motor shall be 3 (3.0) HP, 1750 RPM, 240 volt, single phase, 60 Hz, oil-cooled, continuous duty rated, submersible motor. The rotor shall have a shaft of Series 300 stainless steel, be supported by top and bottom ball bearings, dynamically balanced, and have a sacrificial zinc anode installed for corrosion protection and salt water compatibility. The stator windings shall be dipped and baked with a Class B insulation designed for complete immersion in oil and built-in automatic reset thermal overload protection. The Permanent Split Capacitor (PSC) shall be bolted to the motor bottom end bell with stainless steel hardware and have a 35 uF rating for proper motor start up. The assembled motor unit (rotor, stator, and PSC) shall be completely submersed in a no detergent, low weight, turbine oil for continuous lubrication of internal seals and ball bearings and for efficient transfer of heat to and through the stainless steel unit housing wall. The motor unit shall be sealed with an external lip seal and internal mechanical seal and O- ring. The external lip seal shall be water lubricated and protect the internal mechanical seal from grit and debris. The internal mechanical seal shall be a silicon carbide, fully unitized, heavy duty Elastomer bellows mechanical seal. The O-ring shall be molded rubber composite which expands in the presence of oil to create a water tight seal. Motor shall be attached to a thermoplastic motor top and inside a Series 300 stainless steel housing. No air or water lubricated motors are acceptable. Motor shall be serviceable.
- 2.2. **Motor Housing:** The motor housing shall be a canister formed deep drawn and annealed Series 300 austenitic stainless steel. The motor top shall be engineering grade thermoplastic with brass inserts for motor mounting bolts, and molded, threaded power cable connection with brass pins molded into the thermoplastic. The motor top shall fit into the motor housing canister with a molded rubber composite O-ring creating a water tight seal.
- 2.3. **Fountain Components:** The aerating fountain shall have a single U.V. resistant engineered thermoplastic impeller, U.V. resistant thermoplastic fountain housing and base plate, and include 5 U.V. resistant thermoplastic deflector nozzles to create 6 unique fountain pattern designs. The fountain nozzle shall attach to the fountain housing with an 300 Series stainless steel bolt. The impeller shall be threaded onto the motor shaft on top of the fountain base plate which is attached to the stainless steel protective motor cage with 300 Series stainless steel hardware. The fountain housing shall attach to the base plate with three fillister head screws. A coated series 300 austenitic stainless steel cage/impeller guard shall be attached around the impeller and fountain components for added strength and protection.

- 2.4. **Fountain Nozzles/Patterns**: The aerating fountain shall include 5 interchangeable deflector nozzles creating 6 unique patterns including two “V” or Funnel patterns, one Two-Tier pattern, and three Geyser patterns. The Willow (13’ Tall x 35’ Wide) and the Juniper (9’ Tall x 48’ Wide) are of a Funnel or “V” shape. The Linden (19’ Tall x 4.5’ Wide inner tier; 8’ Tall x 35’ Wide outer tier) is of a Two-Tier shape. The Redwood (24’ Tall x 8’ Wide), Spruce (21’ Tall x 13’ Wide), and the Birch (14.5’ Tall x 10’ Wide operating without a nozzle) are the Geyser shape patterns.
- 2.5. **Float**: The float shall be a U.V. resistant, high density, molded thermoplastic, and of three piece construction with protective coated 300 Series stainless steel hardware and brackets. The protective motor cage shall attach to the coated stainless steel brackets with 300 Series stainless steel hardware. The float shall include a protective coated, stainless steel top and bottom screens to protect the unit and keep debris out. The float brackets shall have light mounting placements. The float shall include three 50’ braided nylon mooring/anchoring ropes.
- 2.6. **Protective Screen**: A protective screen shall be included and be a protective coated, stainless steel bottom screen with 84 vertical screening bars with gaps tapered from .875” to .188” to protect the unit and keep debris out.
- 2.7. **Underwater Power Cable**: The power cable shall be type SJTOW UL, CSA, and NEC approved underwater rated, 3 conductor cable with a molded NEMA 6-20P plug end. The power cable shall have 6’ of protective flex sleeving at the unit for rodent protection. The power cable shall be available in 50’ 14 AWG, 100’ 12 AWG, 150’ 12 AWG, 200’ 10 AWG, 250’ 10 AWG, 300’ 10 AWG, 400’ 8 AWG cord lengths and gauges. An underwater approved, potted, O-ring sealed quick disconnect shall be factory installed on 12, 10, & 8 AWG power cables approximately 30” from the motor housing. A Series 300 stainless steel clamp on strain relief with stainless steel chain and connector shall be installed on the power source side of the quick disconnect and attached to the float upon installation for protection of the quick disconnect.
- 2.8. **Electrical Control Panel**: The electrical control panel shall be UL listed per National Electric Code (N.E.C) and be enclosed in a NEMA Type 3R weatherproof, coated steel enclosure. The electrical control panel shall be 240V. The electrical control panel shall include a 20 amp, double pole Class A Human Rated GFCI (Ground Fault Circuit Interrupter) Square D<sup>®</sup> with test and reset buttons. A 24 hour mechanical timer with two ON and two OFF trippers and 15 minute intervals shall operate the control panel and have a built in manual override switch. A surge protector shall be included in the circuit to protect against power surges. The electrical control panel shall include a 15 amp lighting breaker, relay, photo eye for secondary operation of the optional lighting package, and GFI protected 120V receptacle for the optional lighting package. The unit shall be plugged into the 6-20R receptacle or hardwired into the control panel and the optional low voltage lighting shall be plugged into the control panel.
- 2.9. **Fasteners**: All fasteners shall be Series 300 stainless steel.

### **3. SAFETY INFORMATION**

- 3.1. The unit shall be total component tested and approved as a complete assembly. Individual component testing is not allowed. The aerating fountain must be tested by ETL, ETL-C, CE, UL, or other accredited testing facility.
- 3.2. The unit shall be tested as a complete unit and must meet UL (Underwriters Laboratories, Inc.) requirements in compliance with Category 778 for Motor-Operated Water Pumps and compliance with Category 50 for the Electrical Equipment (control panel). Lights must be in compliance with Category 676 Underwater Luminaries and Submersible Junction Box for use on Floating Fountains.

### **4. WARRANTY INFORMATION**

- 4.1. The unit shall include a 3 year manufacture’s repair warranty on all components, including electrical control panel. Unauthorized tampering will void the warranty.

## 5. ACCEPTABLE MANUFACTURER

5.1. The unit shall be a KASCO 3.1JF Model, 3 horsepower manufactured by Kasco Marine, Inc., 800 Deere Rd., Prescott, WI U.S.A 54021. 715-262-4488. [www.KascoMarine.com](http://www.KascoMarine.com).

## 6. INSTALLATION

- 6.1. **Unit:** The unit shall be installed per instructions included in the Owner's Manual with each unit. The unit may be anchored or moored in place. The unit is designed as a complete package and to be used with the included electrical control panel. Any alterations or substitutions, unless allowed by the instructions in the Owner's Manual will void the ETL Listing, void the manufacturer's warranty, and may cause a dangerous situation. Read the Owner's Manual thoroughly before starting the installation process and follow them carefully.
- 6.2. **Electrical Control Panel:** The electrical control panel must be installed per instructions and National Electrical Code. Any alterations or substitutions, unless allowed by the instructions in the Owner's Manual will void the ETL Listing, void the manufacturer's warranty, and may cause a dangerous situation. Read the Owner's Manual thoroughly before starting the installation process and follow them carefully.

## 7. OPTIONAL LIGHTING PACKAGES

- 7.1. **Fixtures:** Each lighting fixture shall be machined bronze with built-in automatic reset thermal overload protection, 3 internal O-ring seals, and clear tempered glass windows. Each fixture shall have 6' of STOW 3 conductor wires connected with a Heyco (or approved equivalent) waterproof connector and covered with protective flex sleeving. A thermoplastic mounting bracket shall be attached to each fixture with brass screws and flat washers for mounting to the float. Each fixture shall include 300 Series stainless steel hardware to connect the mounting bracket to the float. When installed, the light fixture lens or window shall be above the water level for greater light penetration.
- 7.2. **Junction Box:** A molded thermoplastic junction box shall connect the 6' STOW cables from each fixture to a single length of SJTOW power cable that travels back to the power source. Three individual, low voltage, remote transformers shall be built into the junction box. The junction box shall be sealed and potted for leak protection. Power cords shall be connected with waterproof Heyco (or approved equivalent) connectors.
- 7.3. **Underwater Power Cable:** The power cable shall be type SJTOW UL, CSA, and NEC approved underwater rated, 3 conductor cable with a molded NEMA 5-15P plug end. The power cable shall have 6' of protective flex sleeving at the junction box for rodent protection. The power cable shall be available in 50', 100', 150', 200', 250', 300', & 400' cord lengths of 16 gauge.

### 7.4. Light Package Options

- 7.4.1. **LR375:** The LR375 consists of three bronze fixtures as described above, each containing clear 75 watt MR-16 Halogen bulbs. To be used as an optional lighting package on the 3.1JF aerating fountain.
- 7.4.2. **Optional Colored Bulbs:** Optional colored bulbs are available in 50 watt MR-16 Halogen bulbs in Yellow, Green, Blue, and Red options. Can be used in LR375.
- 7.4.3. **Optional Brackets:** Optional float brackets are available to add two LR375 light packages to the 3.1JF unit for a total of 6 light fixtures.