

2.3VFX (208/240V 3 Phase) 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. 2.3VFX INFORMATION

- a. The motor shall be 2 HP, 1750 RPM motor operating at 208/240 Volts, 3 Phase, 60 Hz and drawing 7.5 running amps.
- b. The fountain display shall be a “V” shape or funnel 8’ tall by 32’ wide.
- c. The unit shall be able to operate in as little as 20” of water.
- d. The unit shall include motor, float with protective bottom screen and mooring ropes, fountain components, underwater rated power cable, and 240 volt electrical control panel.
- e. The SOOW underwater rated power cable shall be _____ feet _____ gauge, 4 conductor cable. (See chart below)

Length	Gauge (AWG)
50 Feet	14/4 AWG
100 Feet	14/4 AWG
150 Feet	14/4 AWG
200 Feet	14/4 AWG
250 Feet	12/4 AWG
300 Feet	12/4 AWG
400 Feet	10/4 AWG

2. OPTIONAL LIGHTING INFORMATION

- a. The Optional Lighting Package shall be 12 Volt, Model(s) _____ 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 shall include 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 WG

3. OPTIONAL LED LIGHTING PACKAGE

- a. The LED Lighting shall be 12V (120V supply), Model _____ with _____ sealed, thermoplastic fixtures. Each fixture shall be 9 watts and have a clear lens.(See Chart 1 below)
- b. Each fixture shall be permanently sealed with thermal protection.
- c. The SJTOW underwater rated power cable shall be _____ feet 16 gauge, 3 conductor cable. (See Chart 2 below)
- d. The lighting package shall include caps and lenses in Red, Green, Amber, Blue, and Pink standard.

Chart 1

Model	Number of Fixtures	Wattage
LED3125	3	9 each
LED6125	6	9 each

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

2.3VFX (208/240V 3 Phase) Aerating Fountain Detailed Specifications

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 a “V” shape or funnel fountain display 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 disc into the air creating the “V” shape or funnel fountain display.
- 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 propeller and deflector disc 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 2 (2.0) HP, 1750 RPM, 208/240 volt, 3 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. The assembled motor unit (rotor and stator) 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 internal mechanical seal and O- ring. The internal mechanical seal shall be a silicon carbide, fully unitized, heavy duty 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 3-blade U.V. resistant engineered thermoplastic propeller with all blades on the same plane and U.V. resistant thermoplastic fountain disc with raised vanes on the bottom for extra flow and display size. The fountain disc shall attach to the propeller with an 300 Series stainless steel bolt and 300 Series stainless steel flat washer. The propeller and fountain disc shall be surrounded by U.V. resistant, 4 legged, thermoplastic fountain draft tube. The thermoplastic fountain draft tube shall attach to the motor top and housing using thermoplastic clips with 300 Series stainless steel screws and washers.
- 2.4. **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.
- 2.5. **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. An additional 3/4" mesh screen shall also be included.
- 2.6. **Underwater Power Cable:** The power cable shall be type SOOW UL, CSA, and NEC approved underwater rated, 4 conductor cable. The power cable shall have 6' of protective flex sleeving at the unit for rodent protection. The power cable shall be available in 50' 14/4 AWG, 100' 14/4 AWG, 150' 14/4 AWG, 200' 14/4 AWG, 250' 12/4 AWG, 300' 12/4 AWG, & 400' 10/4 AWG cord lengths and gauges. An underwater approved, potted, O-ring sealed quick disconnect shall be factory installed on 12 AWG and larger 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.
- 2.7. **Electrical Control Panel:** The electrical control panel shall be UL listed industrial control panel per National Electric Code (N.E.C) and be enclosed in a NEMA Type 4x/3r weatherproof, non-metallic enclosure. The electrical control panel shall be 208/240V. The electrical control panel shall include 3 phase approved, 5ma Personnel Rated GFI protection. Two 24 hour mechanical timers shall be included in the control panel to operate the fountain and the optional lights. A surge protector shall be included in the circuit to protect against power surges. The control panel shall include a motor starter with adjustable overload and phase monitor. A Hand-Off-Auto switch shall be included on the side of the panel. The internal terminal block shall be angled for ease of use with an input terminal for field installed interlock. Controller shall include field terminal diagram, electrical schematic, and startup procedure on inside door panel.
- 2.8. **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 2.3VFX Model, 2 horsepower manufactured by Kasco Marine, Inc., 800 Deere Rd., Prescott, WI U.S.A 54021. 715-262-4488. 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 BRONZE 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 2.3VFX 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 2.3VFX unit for a total of 6 light fixtures.

8. **OPTIONAL LED LIGHTING PACKAGES**

- 8.1. **Fixtures:** Each lighting fixture shall be permanently sealed thermoplastic with built-in LED driver with overload and thermal protection and clear windows. Each fixture shall have 3' of SJTW power cord, IP68 rated waterproof connector, and covered with protective flex sleeving. A coated, stainless mounting bracket shall be attached to each fixture with brass thumb screws 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 and only partial submersion of the light is required.
- 8.2. **Splitter:** A molded, waterproof IP68 rated 3 way splitter shall be installed and allow for easy attachment of each fixture to the splitter and a single power cable run back to shore.
- 8.3. **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 3' of protective flex sleeving at the splitter for rodent protection. The power cable shall be available in 50', 100', 150', 200', 250', 300', & 400' cord lengths of 16 gauge.
- 8.4. **Colored Lenses:** Each LED package shall include a rubber lens cap for each fixture. It shall also include colored lenses (Red, Green, Amber, Blue, and Pink) for each fixture.
- 8.5. Light Package Options**
- 8.5.1. **LED3125:** The LED3125 consists of three fixtures as described above, each using 9 watts of power. To be used as an optional lighting package on the 2.3VFX aerating fountain.
- 8.5.2. **LED6125:** The LED6125 consists of two sets of the LED3125 as described above, each using 9 watts of power. Additional bracketing included for installation on the 2.3VFX aerating fountain.