3400HCF (240V) Water Circulator Specifications_____

This specification is written and intended to provide bidders the necessary information pertaining to the water circulator (s) for the _____ project.

1. **3400HCF INFORMATION**
    a. The motor shall be ¾ HP, 1750 RPM motor operating at 240 Volts, Single Phase, 60 Hz and drawing 3.4 running amps.
    b. The water circulator shall create minimal surface movement with most water flow directed below the surface.
    c. The unit shall be able to operate in as little as 4' of water.
    d. The unit shall produce 34 lbs. of thrust.
    e. The unit shall include motor, horizontal float with mooring ropes, and underwater rated power cable.
    f. The SJTOW underwater rated power cable shall be _____ feet _____ gauge, 3 conductor cable. (See chart below)

Length	Gauge (AWG)
50 Feet	14/3 AWG
100 Feet	14/3 AWG
150 Feet	12/3 AWG
200 Feet	12/3 AWG
250 Feet	12/3 AWG
300 Feet	12/3 AWG
400 Feet	12/3 AWG

2. **OPTIONAL EQUIPMENT INFORMATION**
    a. The unit shall be available with an optional C-85 240V electrical control panel for timed operation and Class A Human Rated GFCI protection. (Check here if specified _____).

3400HCF (240V) Water Circulator Detailed Specifications

1. OPERATION

1.1. Manufacturer shall furnish a water circulating device that is self contained with integrated horizontal float and capable of pumping water horizontally creating directional flow, water movement, and mixing deep pond water.

1.2. Submersed circulator motor in a horizontal position shall push the water to create directional flow using an open propeller design.

1.3. Moving water shall mix and agitate the water, spreading oxygenated water throughout the body of water, eliminating stagnant areas, and mixing thermally and chemically stratified water. Also can de-ice water during winter months.

1.4. Single open propeller design shall allow for greater water flow with a lower likelihood of clogging and smaller water droplets to increase total surface area for oxygen transfer.

1.5. Coated stainless steel cage/propeller guard shall catch large debris and assist in reducing the likelihood of clogging while allowing for maximum water flow into the unit.

2. WATER CIRCULATOR COMPONENTS

2.1. **Motor**: The motor shall be ¾ (.75) 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 A 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 10 uF (20uf depending on motor brand) 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 flinger disc and internal mechanical seal and O- ring. The external flinger disc shall be water lubricated and protect the internal mechanical seal from grit and debris. The internal mechanical seal shall be a fully unitized, heavy duty mechanical seal, composed of ceramic, carbon, and stainless steel. 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. **Circulator Components**: The unit shall have a 2-blade U.V. resistant engineered thermoplastic propeller with each blade on the same plane. A coated series 300 Austenitic stainless steel cage/propeller guard with 18 vertical bars with 1.5” spacing shall surround the propeller to block incoming large debris, add additional strength to the unit, and act as the mounting mechanism to the float assembly.

2.4. **Float**: The float shall be a U.V. resistant, high density, molded thermoplastic of single piece, rectangular construction. Series 300 stainless steel hardware and brackets shall hold the motor to the float. A Series 300 stainless steel angle plate shall be included with the float hardware to allow for 5 different angling positions; horizontal, two positions above, and two positions below horizontal. The float shall include two 50’ braided nylon mooring/anchoring ropes.

2.5. **Underwater Power Cable**: The power cable shall be type SJTOW UL, CSA, and NEC approved underwater rated, 3 conductor cable with open wires for hardwiring. 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' 14 AWG, 150' 12 AWG, 200' 12 AWG, 250' AWG, 300' 12 AWG, and 400' 12 AWG cord lengths and gauges. An underwater approved, potted, O-ring sealed quick disconnect shall be factory installed on 12 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.

2.6. **Fasteners**: All fasteners shall be Series 300 stainless steel.

3. OPTIONAL EQUIPMENT

3.1. **Optional 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/4x weatherproof, thermoplastic enclosure. The electrical control panel shall be 240V. The electrical control panel shall include a 20 amp, Class A Human Rated GFCI (Ground Fault Circuit Interrupter) Square D® with test and reset buttons. A 24 hour mechanical timer shall operate the fountain 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 second 24 hour timer for the optional lighting kit. The unit and lights shall be hardwired into the terminal block. (Light operation can be ignored for Water Circulator models.)

4. SAFETY INFORMATION

4.1. 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.

4.2. 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).

5. WARRANTY INFORMATION

5.1. The unit shall include a 2 year manufacture's repair warranty on all components. Unauthorized tampering will void the warranty.

6. ACCEPTABLE MANUFACTURER

6.1. The unit shall be a KASCO 3400HCF Model, ¾ horsepower manufactured by Kasco Marine, Inc., 800 Deere Rd., Prescott, WI U.S.A 54021. 715-262-4488. www.KascoMarine.com.

7. INSTALLATION

7.1. **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. 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.

7.2. **Optional Electrical Control Panel:** The optional electrical control panel must be installed per instructions and National Electrical Code if purchased. 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.