

SPECIFICATIONS A FLOATING FOUNTAIN SYSTEM

1.0 GENERAL

1.1 DESCRIPTION

- A. Manufacturer shall furnish a floating fountain system capable of pumping water from below the surface of a body of water.
- B. A submersible motor shall draw water into an impeller chamber where it shall be pumped into the atmosphere in the form of a decorative fountain.
- C. The water droplets shall become oxygen enriched and return to the surface, therefore transferring oxygen from the atmosphere into the body of water.
- D. This repeated action shall effectively mix the body of water and distribute the dissolved oxygen continuously.
- E. Fountain system shall include a motor in a housing combined with a centrifugal type pump housing, attached to a modular floatation system. This assembly shall be connected to an electrical control panel by underwater power cable, all of which as specified in SECTION 1.2.

1.2 AERATOR COMPONENTS DESCRIPTION

- A. **Floats** shall be made of linear low density polyethylene. Float system shall be modular and field adjustable to maintain an even floatation level. Four Series 300 Stainless Steel C-channel rails shall be welded to the fountain framework for float mounting. All optional lights and anchor mounting shall be capable of being installed into fixture mounting areas which are provided on the framework.
(See SECTION 5).
- B. **Impeller** shall be of a closed type, cast Series 300 Stainless Steel and precision balanced. The impeller is housed in a stainless steel, single stage centrifugal type pump housing with vertical discharge. Discharge piping shall not have more than two 90 degree bends to reduce pumping losses.
- C. **Framework** shall be a weldment of rectangular and square stainless steel tubing with a minimum wall thickness of 1/8 inch. Framework shall be equipped with four heavy duty linear low density polyethylene wheels mounted on stainless steel axles for ease of installation and routine maintenance practices. Wheels shall have a diameter of not less than ten inches and a width not less than five inches for ground bearing purposes.
- D. **Motor housing** shall be Series 300 Stainless Steel. The 10-15 HP shall have a permanent Series 300 Stainless Steel electrical hub welded on side of housing to allow electrical cable entry. The 20-25 HP shall have a Series 300 Stainless Steel junction box housing and housing end plate for electrical cable entry secured with Series 300 Stainless Steel bolts and o-ring sealed.

- E. **Motor** shall be of open frame construction with a Series 300 Stainless Steel shaft and with a serviceable heavy duty ball bearing support system. The rotor shall be dynamically balanced. The stator windings shall be double dipped and baked with a Class F insulation, designed for oil immersion operation. The oil shall be of a synthetic food grade quality, meeting FDA regulations. The oil shall provide continuous lubrication of bearings and internal seals and further function as an efficient heat transfer medium, allowing the motor to operate at 3450 RPM, at relatively low temperatures. The motor shall be contained in the motor housing by a Series 300 Stainless Steel top plate.
- F. **Seals** used to protect the motor against water or oil leakage shall be a mechanical rotating type assembly composed of Silicon carbide, Series 300 Stainless Steel and brass positive drive system. The positive drive assembly shall be attached to the motor shaft with two allen head set screws. These set screws should be tightened into pre-drill dimples drilled into the shaft to prevent the seal assembly from slipping at any time the motor shaft is rotating, thus creating a non slip positive drive system. All elastomers shall meet UL 778 requirements. This assembly shall then be encapsulated and protected within a Series 300 Stainless Steel cartridge assembly. This assembly shall be filled with a synthetic food grade oil meeting FDA regulations.
- G. **Underwater power cable** shall be UL Listed and specifically designed for underwater use. The conductors are flexible, stranded copper wire sized for the amp draw and length of run. The conductors shall be resistant to oil, water and cracking. Power cable shall be fitted with a cable strain relief device, located within five feet of motor housing, capable of being attached to the S hooks mounted on the cart framework. This will ensure that no potential damage can occur to any cable connections, due to tension on the cable.
- H. **Underwater power cable disconnect** (10–15 HP) shall be located approximately five feet from the Series 300 Stainless Steel motor housing. It is a two piece molding assembly made of thermoplastic material meeting the UL 778 requirements. The cap half of this disconnect shall be permanently attached to a wire reinforced braided hose assembly. The free end of this hose assembly shall be attached to a Series 300 Stainless Steel hub which is welded to a Series 300 Stainless Steel motor housing. This complete assembly shall be sealed with a flexible potting compound.
- (20-25 HP) shall be located approximately five feet from the Series 300 Stainless Steel motor housing. It is a two piece molded assembly made of thermoplastic material meeting the UL 778 requirements. The cap half of this disconnect shall be permanently attached to a wire reinforced braided hose assembly. The free end of this hose assembly shall be attached to a Series 300 Stainless Steel electrical connection end plate. This complete assembly shall be sealed with a flexible potting compound. The body half of the under water disconnect shall be permanently attached to the underwater power cable by means of a water tight connector and grommet assembly. This assembly shall be sealed with an approved potting compound to prevent water entry if damage would occur to the cable. The disconnect assembly shall be sealed with an internal o-ring and by an external Series 300 Stainless Steel clamp ring, which can be easily opened. This allows removal of the complete fountain assembly without the power cable attached for storage and maintenance.

- I. **Fasteners and anchor connectors** shall be Series 300 Stainless Steel.
- J. **Electrical control panel** specifications, see SECTION 3.
- K. **Intake screen** shall be made of 18 Gauge, Series 300 Stainless Steel. A stainless steel handle shall be attached to the top end of the screen for easy removal for cleaning as required. The screen shall have a minimum of 58% open area, representing 360 square inches of open intake area.

FLOATING FOUNTAIN SYSTEM DETAIL SPECIFICATIONS

DETAILED INFORMATION

- 2.1 This specification is intended to provide prospective bidders the necessary information pertaining to the fountain aerator(s) specified for the _____ Project.
- 2.2 The MOTOR(S) shall be _____ HP, operating at _____ Volts, 60 Hertz, _____ Phase at 3450 RPM.
- 2.3 The MODEL(S) specified shall be the _____ MODEL NUMBER _____ capable of creating a _____ pattern. It shall come complete with an electrical control panel, protective intake screen and _____ feet of _____ (gauge) 4 conductor underwater power cable.
- 2.4 The fountain aerator shall produce a SPRAY PATTERN _____ feet in diameter and _____ feet in height.

Please refer to TABLES 1, 2 and 3 to assist in the completion of SECTION 2.0

FLOATING FOUNTAIN DETAIL SPECIFICATIONS (cont.)

3.0 ELECTRICAL CONTROL PANEL COMPONENTS DESCRIPTION

- A. **Electrical enclosure** shall be NEMA 3R type, gray in color. Panel shall be both lock and mount capable.
- B. **GFCI breaker** shall provide overload and short circuit protection, combined with Class A ground fault protection.
- C. **Control breaker** shall provide overload protection and be capable of disconnecting all incoming electricity from the control panel.
- D. **Motor contactor** shall provide a means for disconnection of all motor leads. It shall be a magnetic, across the line starter type.
- E. **Overload assembly** shall provide overload protection by means of a bi-metallic overload relay. It is adjustable over the listed full load amperage draw of the motor. It shall have a visual trip indicator, test button and manual/automatic reset modes.
- F. **Timer** shall be a single pole type, rated at 120 Volts, 20 Amps, capable of a timing cycle, in 30 minute increments up to 24 hours.

3.1 SAFETY TESTING CONTROL PANEL

The electrical control panel shall be tested and approved as a complete unit. It is inspected and listed by Underwriters Laboratories, Inc. under Category 508: Industrial Control Panels and Category 778: Submersible Aerators and Aerating Fountain Pump Systems.

3.2 ACCEPTABLE MANUFACTURER

This fountain's electrical control panel, as specified in Section 3.0, shall be manufactured by AQUAMASTER FOUNTAINS AND AERATORS, 16024 CTH X, Kiel, WI 53042, (800) 693-3144 or approved equal.

3.3 INSTALLATION

The electrical control panel must be installed in accordance with the installation instructions, in compliance with all local and National Electrical Code requirements. This should be done by a licensed electrical contractor. Any alterations to or substitution for items in this system, unless allowed by the installation instructions, will void the Underwriters Laboratories Listing and will void the product warranty and may also create a hazardous installation. Read the instructions thoroughly before starting the installation and follow them carefully throughout.

3.4 ELECTRICAL CONTROL PANEL WARRANTY

All electrical panel and on-shore components shall have a 1 year warranty.

FLOATING FOUNTAIN DETAIL SPECIFICATIONS (cont.)

4.0 SAFETY TESTING

The floating fountain system shall be tested and approved as a complete unit. This approval must meet Underwriters Laboratories Inc. requirements in compliance with Category 508: Industrial Control Panels and Category 778: Submersible Aerators and Aerating Fountain Pump Systems. Individual component testing and wet niche environment equipment approval are not acceptable.

4.1 ACCEPTABLE MANUFACTURER

This floating fountain, as specified in Sections 2.2, 2.3 and 2.4, shall be a CELESTIAL FOUNTAIN[®] as manufactured by AQUAMASTER FOUNTAINS AND AERATORS, 16024 CTH X, Kiel, WI 53042, (800) 693-3144, or approved equal.

4.2 INSTALLATION

All AQUAMASTER FLOATING FOUNTAIN are designed and built to be installed with an AQUAMASTER UL Listed control panel and to be operated as a complete system. Any alterations to or substitution for items in this system, unless allowed by the installation instructions, will void the UL Listing and will void the product warranty and may also create a **hazardous installation**. Read the instructions thoroughly before starting the installation and follow them carefully throughout.

4.3 WARRANTY

All 10 – 25 HP AQUAMASTER CELESTIAL FOUNTAINS[®] motor, seal assembly, float and underwater power cable (referred to as in-water components) are covered under warranty at 100% replacement cost should it fail due to defects in materials or workmanship for a period of 3 years. This is in effect from the date of shipment, when given normal and proper usage as determined by The Seller upon examination, and when owned by the original user.

FLOATING FOUNTAIN LIGHTING SYSTEMS AND OPTIONS SPECIFICATIONS

- 5.0 LIGHTING SYSTEM shall be _____ Volts, Model #_____.
There are _____ total fixtures, containing _____
(clear or choose color(s): amber, blue, red, green or turquoise) lenses.
- 5.1 A total length of _____ feet of _____(gauge) 3 conductor underwater power cable is required.
- 5.2 MULTI-PURPOSE ELECTRONIC LIGHT SYSTEM SEQUENCER shall be capable of cycling light fixtures off and on, with multiple programs. Yes ____ No ____
- 5.3 A total length of _____feet of 4 conductor underwater power cable is required for sequencer. A lighting system with a sequencer requires 2 runs of underwater power cable. Please consult Factory as required.

Please refer to TABLE 4 to assist in the completion of SECTION 5.

6.0 DESCRIPTION

- A. **Lamp housings** shall be of Series 300 Stainless Steel construction. They shall have a permanent Series 300 Stainless Steel electrical hub welded on the bottom of the housing to allow electrical cable entry and be trunnion mounted to cart framework for ease of light fixture adjustment.
- B. **Construction** shall consist of nonmetallic Cord Connectors to prevent water from entering the lamp housing. Lamp holders shall be double contact base constructed of stainless steel with wires rated for a minimum of 105 degrees Celsius. Reflectors shall be metal spun with Alzak finish for high reflectivity. Lamps shall be high intensity, quartz halogen flood, double contact bayonet base rated at 130VAC, mounted vertically.
- C. **Light fixture assembly** shall consist of "V" shaped Lamp gaskets made of silicon construction. Lens shall be of tempered glass with a clear non-diffusing surface with a minimum of 5/32nd thickness. Clamp ring shall be of Series 300 Stainless Steel. Fasteners and mounting hardware shall be of Series 300 stainless steel.
- D. **Underwater power cable disconnect** shall be provided. One end of this disconnect is permanently attached to the stainless steel lamp housing by means of a electrical cable, sealed with a flexible potting compound. The other end is permanently attached to the underwater power cable and sealed with an approved compound to prevent water entry if damage would occur to the cable. This disconnect is sealed with an internal o-ring and by an external Series 300 Stainless Steel clamp ring, which can be easily opened. This allows removal of the light housing without the power cable attached for storage or maintenance. A Stainless Steel cable support grip shall be supplied for cable strain relief.

TECHNICAL DATA

REFERENCE MATERIAL FOR SECTION 2.0 DETAILED INFORMATION

TABLE 1: CELESTIAL FOUNTAINS® Performance Specifications

Model Number	HP	Voltage	Running Amp Draw	Spray Pattern Specifications: Height x Diameter			
				Gemini	Aquarius	Pisces	Libra
84102	10 - 1PH	208-240	55	50 x 2	Upper 32 x 1 Lower 10 x 40	28 x 10	26 x 10
84102-3	10	208-240	33.5				
84104-3		440-480	16.7				
84152-3	15	208-240	46	68 x 2	Upper 42 x 1 Lower 14 x 44	36 x 10	36 x 10
84154-3		440-480	23				
84202-3	20	208-240	58	80 x 2	Upper 48 x 1 Lower 16 x 52	44 x 12	42 x 10
84204-3		440-480	29				
84252-3	25	208-240	72	96 x 2	Upper 56 x 1 Lower 18 x 58	50 x 16	48 x 10
84254-3		440-480	36				

Model Number	HP	Voltage	Running Amp Draw	Spray Pattern Specifications: Height x Diameter			
				Taurus	Leo	Aries	Virgo
84102	10 - 1PH	208-240	55	Upper 30 x 1 Middle 20 x 40 Lower 10 x 45	35 x 10	Upper 30 x 1 Lower 16 x 35	Upper 30 x 1 Lower 10 x 40
84102-3	10	208-240	33.5				
84104-3		440-480	16.7				
84152-3	15	208-240	46	Upper 40 x 1 Middle 25 x 40 Lower 10 x 50	40 x 10	Upper 40 x 1 Lower 18 x 40	Upper 40 x 1 Lower 10 x 50
84154-3		440-480	23				
84202-3	20	208-240	58	Upper 50 x 1 Middle 25 x 45 Lower 12 x 60	50 X 10	Upper 50 x 1 Lower 20 x 45	Upper 50 x 1 Lower 10 x 50
84204-3		440-480	29				
84252-3	25	208-240	72	Upper 55 x 1 Middle 25 x 50 Lower 15 x 70	58 X 10	Upper 60 x 1 Lower 22 x 50	Upper 60 x 1 Lower 10 x 50
84254-3		440-480	36				

Model Number	HP	Voltage	Approx. Running Amps	Minimum Operating Depth	Ship Weight LBS.
84102	10 - 1PH	208-240	55	4'	650
84102-3	10	208-240	33.5		
84104-3		440-480	16.7		
84152-3	15	208-240	46	4'	650
84154-3		440-480	23		
84202-3	20	208-240	58	4'	650
84204-3		440-480	29		
84252-3	25	208-240	72	4'	650
84254-3		440-480	36		

All performance data (heights & diameters) have been tested at 230 volts 3PH, except for 10HP 1PH which was tested at 240 volts 1PH. Your overall performance may vary due to actual voltage, intake restrictions, relative humidity and cable lengths.

TABLE 2: CABLE SIZING CHART

MAXIMUM RECOMMENDED LENGTH FROM FOUNTAIN TO CONTROL PANEL

Single Phase 4 Conductor			Copper Wire Gauge Size				
Unit	Volts	Approx Amps	#10	#8	#6	#4	#2
10HP	208-240	55.0	----	100	190	300	450
Three Phase 4 conductor			Copper Wire Gauge Size				
Unit	Volts	Approx Amps	#10	#8	#6	#4	#2
10 HP	208-240	33.5	100	200	300	500	700
10 HP	440-480	16.7	450	700	1100	1800	2800
15 HP	208-240	46.0	----	150	225	375	600
15 HP	440-480	23.0	350	600	950	1500	2400
20 HP	208-240	58.0	----	100	175	275	400
20 HP	440-480	29.0	275	400	700	1100	1700
25 HP	208-240	72.0	----	---	150	225	350
25 HP	440-480	36.0	200	375	600	950	1500

TABLE 3: FLOATING FOUNTAIN SPRAY PATTERN DESCRIPTIONS

1. **GEMINI**
Dramatic geyser reaching amazing heights in a massive column of water.
SPECIFICATION DESCRIPTION: SOLID VERTICAL COLUMN
2. **AQUARIUS**
Magnificent two-tiered fountain combining a Gemini geyser rising through a perfect, lower circle.
SPECIFICATION DESCRIPTION: COMBINED FAN & COLUMN
3. **PISCES**
Narrower, frothy version of the Aquarius producing a multi-tiered fountain.
SPECIFICATION DESCRIPTION: FROTHY SPRAY
4. **LIBRA**
Modification of the Gemini, it creates a wider, feathered geyser effect.
SPECIFICATION DESCRIPTION: WIDE VERTICAL COLUMN
5. **TAURUS**
Stunning tri-tier reaching amazing heights with a massive column of water.
SPECIFICATION DESCRIPTION: TRI-TIER SPRAY
6. **LEO**
Dramatic geyser creates a full profile in a massive column of water.
SPECIFICATION DESCRIPTION: FROTHY VERTICAL COLUMN
7. **ARIES**
Narrower, two-tiered pattern reaching fantastic heights.
SPECIFICATION DESCRIPTION: TWO-TIERED MULTI-STREAMS & COLUMNS
8. **VIRGO**
Thick center jet of water surrounded by a frothy, lower tier.
SPECIFICATION DESCRIPTION: COMBINED FAN & COLUMN

TABLE 4: FLOATING FOUNTAIN LIGHTING SYSTEMS

AQUAMASTER CELESTIAL FOUNTAINS® are even more dramatic at night, with the addition of a UL and cUL Listed NIGHT GLOW LIGHTING SYSTEM.

Any lighting system choice includes stainless steel lamp housings, sealed with clear tempered glass lenses in a stainless steel clamp ring. All lights remain water-cooled and out of sight below the surface.

All necessary electrical controls, including timer, are pre-wired into the fountain’s existing UL Listed control panel. Optional glass colored lenses (amber, blue, red, green or turquoise), with or without an optional sequencer complete your dramatic aquatic display.

For uniformity of spray pattern coverage, 6 lights minimum is recommended.

LINE VOLTAGE: 120 Volt Lighting Systems

150 Watt Fixtures	<p>Each system includes:</p> <ul style="list-style-type: none"> • 150, 250 or 500 Watt quartz halogen flood lamps • 100’ of underwater cable • GFCI Protection • Timer • Clear lenses • UL and cUL Listing
4 light system: Model # 890134	
6 light system: Model # 890136	
8 light system: Model # 890138	
250 Watt Fixtures	
4 light system: Model # 890144	
6 light system: Model # 890146	
8 light system: Model # 890148	
500 Watt Fixtures	
4 light system: Model # 890154	
6 light system: Model # 890156	
8 light system: Model # 890158	

TABLE 4: FLOATING FOUNTAIN LIGHTING SYSTEMS (cont.)

CABLE SIZING CHART FOR LIGHTS

MAXIMUM RECOMMENDED LENGTH FROM FOUNTAIN LIGHTS TO CONTROL PANEL

3 Conductor				Copper Wire Gauge Size						
Watts Per Fixture	# of Fixtures	Volts	Approx Amps	#14	#12	#10	#8	#6	#4	#2
150	4	120	5	190	300	500	775	1200	1950	3000
150	6	120	7.5	125	200	325	500	800	1300	2000
150	8	120	10	--	150	250	380	600	975	1500
250	4	120	8.5	100	175	290	450	725	1125	1775
250	6	120	12.5	--	120	200	300	490	775	1200
250 *	8	120	17	Requires 2 runs of cable						
		2 runs at:		100	200	300	500	750	1250	2000
500 *	4	120	17	Requires 2 runs of cable						
		2 runs at:		100	200	300	500	750	1250	2000
500 *	6	120	25	Requires 2 runs of cable						
		2 runs at:		--	125	200	325	500	800	1300
500 *	8	120	34	Requires 2 runs of cable						
		2 runs at:		--	100	150	250	400	625	1000

* 2 runs of cable required

CABLE SIZING CHART FOR LIGHTS WHEN ORDERED WITH A SEQUENCER

MAXIMUM RECOMMENDED LENGTH FROM FOUNTAIN LIGHTS TO CONTROL PANEL

3 & 4 Conductor see notes below			Copper Wire Gauge Size						
Watts Per Fixture	# of Fixtures	Volts	#14	#12	#10	#8	#6	#4	#2
150	4	120	400	600	1000	1600	2500	4300	-
150	6 (3 colors)	120	200	300	500	800	1250	2150	-
150	8 (4 colors)	120	200	300	500	800	1250	2150	-
250	4	120	250	400	650	1000	1600	2600	-
250	6 (3 colors)	120	125	200	325	500	800	1300	-
250	8 (4 colors)	120	125	200	325	500	800	1300	
500	4 (4 colors)	120	--	200	325	500	800	1300	2000
500	6 (3 colors)	120	--	100	175	250	400	650	1000
500	8 (4 colors)	120	--	100	175	250	400	650	1000

Lighting sequencer requires 2 runs of cable:

- 1) Sequencer with 3 colors require (1) run of 3 conductor cable and (1) run of 4 conductor cable
- 2) Sequencer with 4 colors require (2) runs of 4 conductor cable