SPECIFICATIONS
MASTERS SERIES® FLOATING FOUNTAIN AERATOR SYSTEM

1.0 GENERAL

1.1 DESCRIPTION

A. Manufacturer shall furnish a floating fountain aerator system capable of pumping water from below the surface of a body of water.

B. A submersible motor shall draw water into an impeller housing where it shall be pumped into the atmosphere in the form of a decorative spray - type 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. Surface area of water body shall also be increased through constant wave action resulting in additional atmospheric oxygen transfer.

D. This repeated action shall effectively mix and de-stratify the body of water and distribute the dissolved oxygen continuously.

E. Fountain aerator system shall include an oil-cooled motor sealed in a stainless steel housing, with shaft mounted impeller, attached to a float. 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. **1 – 5HP Float** shall be made of linear low density polyethylene. Float shall contain a center tube which shall be minimum Schedule 40 PVC and is attached to the impeller housing with four series 300 stainless steel hex head bolts. An o-ring is used to prevent leakage. A protective series 300 stainless steel intake screen shall be mounted around the impeller housing between the float assembly and motor housing. The motor housing shall be attached to the impeller housing with series 300 stainless steel hardware. All optional lights and anchor mounting shall be capable of being installed into fixture mounting areas which are molded into the float design as an integral part of the float. (See SECTION 5).

B. **Impeller** shall be precision cast and balanced using high strength molded composite with brass shaft insert. The impeller is connected to the motor shaft by a series 300 stainless steel bolt and lockwasher.

C. **Impeller Housing** shall be molded from glass reinforced nylon type 6 material. The impeller housing shall be precision molded to accept the float tube and capable of being bolted to the motor housing. The impeller housing shall house the impeller, insert and flow straightener (if applicable).

D. **Flow Straightener (where applicable)** shall be precision machined from acetal material and shall have 20 curved vanes. The vanes shall take the spinning discharge water from the impeller and convert it to a straight, vertical flow. The gap between the vanes shall be at least 3/8” wide and have a total length not less than 2-1/2” long. It shall be factory installed for various optional spray patterns.

E. **Motor Housing** shall be Series 300 Stainless Steel. The housing shall have a permanent Series 300 stainless steel electrical hub welded on the side of the housing to allow electrical cable entry..

F. **Motor** shall contain a Series 316 Stainless Steel shaft incorporating a permanent split phase capacitor run on single phase motors and a polyphase induction on three phase motors. The rotor shall be dynamically balanced and run in a ball bearing supported system. The stator windings shall be single dipped and baked with a Class F insulation, designed for oil immersion operation. The oil shall be a highly refined, mineral oil of food grade quality, specially formulated for lubrication. It shall meet 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.

G. **Seals** used to protect the motor against water or oil leakage shall be a mechanical, rotating type assembly, composed of silicon carbide and series 300 stainless steel. All elastomers shall meet UL 778 requirements. This assembly shall then be encapsulated and protected within a series 300 stainless steel cartridge assembly.

H. **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 latch mounted on the motor housing clamp. This will ensure that no potential damage can occur to any cable connections, due to tension on the cable.

I. **Underwater Power Cable Disconnect** shall be located approximately three feet from the motor housing. It is a two piece molded assembly made of thermoplastics, meeting UL 778 requirements. The cap end shall be permanently connected to the underwater pin and socket connector (see Section 1.2 Item J.). The body end of the disconnect shall be permanently attached to the underwater power cable and sealed with an approved compound. This is intended to prevent water entry if damage should occur to the cable. The disconnect shall be sealed with an internal o-ring and by an external series 300 stainless steel clamp ring, which can be easily opened.

J. **Underwater Pin and Socket Connector** shall consist of a Series 900 IP68 pin and socket connector. It shall be of a 4 pin configuration rated 32 amps at 600 volts AC. The pin end shall be potted into a series 300 stainless steel 90° adapter elbow with an approved ridged epoxy. This assembly shall be permanently attached to the series 300 stainless steel hub that is welded onto the side of the series 300 stainless steel motor housing. The socket end shall be attached to a 36” piece of UL Listed underwater power cable. It shall be permanently secured to the UL Listed power cable by means of an integrated clamp and series 300 stainless steel screws. It shall be completely epoxied to prevent entry of water or any other foreign matter. The other end of this assembly is permanently attached to the cap end of the underwater cable disconnect. It is sealed with a flexible potting compound.

K. **Fasteners and Anchor Connectors** shall be Series 300 Stainless Steel.

L. **Electrical Control Panel** specifications, see SECTION 3.

M. **Intake Screen** shall be made of 20 Gauge, Series 300 Stainless Steel. The screen shall have a minimum of 58% open area, representing 91 square inches of open intake area.

N. **Large Custom Intake Screen** (optional) shall be made of 18 Gauge, Series 300 Stainless Steel. The large custom intake screen shall completely enclose the motor power unit assembly. It shall have a minimum of 58% open area representing 765 square inches of open intake area. Additional depth is required.

O. **Nozzles** (optional) shall be interchangeable without the use of tools, in most cases. Nozzles will be sealed to the float tube utilizing an o-ring and series 300 stainless steel thumb screws to prevent leakage.

P. **Series 316 Stainless Steel Upgrade** (optional) is available for sites with salt or brackish water. This option will upgrade all series 300 stainless steel components to series 316.

Q. **Horizontal MASTERS SERIES®** (optional) is designed for fountain aerators in shallow applications. Requires a minimum operating depth of 16 inches and the use of a straightened flow pattern. Includes a large custom intake screen and supplemental float.

FOUNTAIN AERATOR DETAIL SPECIFICATIONS

2.0 DETAILED INFORMATION – Refer to TABLES 1, 2 and 3 to complete this section

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 MASTERS SERIES® 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 to be attached to a float assembly 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.

3.0 ELECTRICAL CONTROL PANEL COMPONENTS DESCRIPTION

A. **Electrical Enclosure** shall be NEMA 3R type, galvanized and powder-coat painted gray in color. Panel shall be both lock and mount capable.

B. **Ground Fault Protection**
   1. Single phase applications, a GFCI breaker shall provide overload and short circuit protection, combined with Class A ground fault protection.
   2. Three phase applications, a molded case breaker shall provide overload and short circuit protection, while a residual current device rated at 30 mA shall provide 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 Relay** shall provide overload protection by means of a bi-metallic overload relay. It is adjustable over the full load amperage draw of the motor. It shall have a visual trip indicator, test button and manual/automatic reset modes.

F. **Digital Timer** shall be a single pole type, rated at 120 Volts, 16 Amps, capable of 8 ON / OFF functions per day for 7 days. Digital timer has a lithium battery to retain the programming when power is disconnected.

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 aerator 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. It 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 control panels and their components have a 3 year warranty on parts and labor.

FOUNTAIN AERATOR DETAIL SPEFICATIONS (cont.)

4.0 SAFETY TESTING

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

4.2 INSTALLATION

All AQUAMASTER® FOUNTAIN AERATORS 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. It may also create a hazardous installation. Read the instructions thoroughly before starting the installation and follow them carefully throughout.

4.3 WARRANTY

All 1 – 5HP AQUAMASTER® THE MASTERS SERIES® FOUNTAIN AERATORS 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 5 years on parts and labor. 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.

FOUNTAIN AERATOR LIGHTING SYSTEMS AND OPTIONS SPECIFICATIONS

5.0 **LIGHTING SYSTEM** shall be LED/RGBW _____ Volts/Watts, Model #(s)_____. There are _____ total fixtures, containing _____ (choose color(s): white, warm white, amber, blue, red, or green) color board assemblies.

5.1 A total length of _____ feet of _____ gauge 3(LED) or 5(RGBW) conductor underwater power cable is required. Two runs of cable may be required; reference cable sizing chart.

5.2 **DEEP WATER INTAKE SYSTEM** shall be capable of drawing water from further depths, in three foot increments. This system provides the fountain aerator the capability to de-stratify the pond very efficiently. Total length should reach beyond 50% depth but not to exceed 75%. Total _____ feet.

5.3 **LARGE CUSTOM INTAKE SCREEN** shall provide additional protected intake area if Fountain Aerator(s) will operate in a potentially high debris filled aquatic environment. Yes ____ No _____

5.4 **SERIES 316 STAINLESS STEEL UPGRADE** is available for sites with salt or brackish water. Yes ____ No _____

5.5 **HORIZONTAL MASTERS SERIES®** is designed for 1-5HP fountain aerators in shallow applications. Yes ____ No _____

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

5.6 **WIND CONTROLS** (Single Stage – Off ONLY) are designed for 1-5HP fountain aerators to shutoff unit at wind speed setting. Yes ____ No ____

6.0 DESCRIPTION - LIGHTING

A. **Light Set** shall consist of line voltage (120 VAC) 11W LED, 22W LED, 35W LED, or 40W RGBW LED lighting system with either 2, 3, 4, 6, or 8 lights.

B. **Lights** shall consist of a power supply/driver module with a 11W, 22W, 35W, or 40W RGBW (10W red, 10W green, 10W blue, 10W white) LED light engine.

C. **Light Fixture** 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 mounted with series 300 stainless steel brackets and fasteners.

D. **Light Fixture Assembly** shall consist of a lens made of tempered glass with a clear non-diffusing surface with a minimum of 5/32nd thickness and sealed with "V" shaped lens gasket made of silicon. Clamp ring shall be of series 300 stainless steel. Fasteners and mounting hardware shall be of series 300 stainless steel.

E. **Underwater Pin and Socket Connector** shall consist of a Series 900, IP68 pin and socket connector. It shall be of a 3(LED) or 5(RGBW) pin configuration rated 32 Amps at 600 VAC. The pin and socket ends shall each be attached to a UL Listed underwater power cable rated at 600 Volts. They both shall be permanently secured to their UL Listed power cables by an integrated neoprene grommet and compression nut assembly. These assemblies shall be epoxy filled to prevent entry of water or any other foreign matter. The pin end assembly shall be permanently attached to the light fixture with a nonmetallic connector and potted using a flexible approved potting compound. The socket end assembly shall be permanently attached to the power cable. Both the pin end and socket end assemblies come with protector caps.

F. **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 the first light fixture. This will ensure that no potential damage can occur to any cable connections, due to tension on the cable.

G. **Light Controls** shall consist of a GFCI (Ground Fault Circuit Interrupter), overcurrent protection (fuse), digital timer with battery back-up. The RGBW controller (optional) is pre-programmed with assorted color, shows and holiday themed selectable programs. The controller can also adjust program speed and brightness. The standard controller shall consist of a programmable controller with push button interface.

H. **Safety Testing** shall be tested and approved as a complete assembly. This approval must meet Underwriters Laboratories Inc. requirements in compliance with UL category 676: Underwater Luminaires.

I. **Warranty** on all AQUAMASTER LIGHTING SYSTEMS are covered under warranty at 100% replacement cost should it fail due to defects in materials or workmanship for a period of 3 years.

TABLE 1: THE MASTERS SERIES® PERFORMANCE SPECIFICATIONS

TECHNICAL DATA
REFERENCE MATERIAL FOR SECTION 2.0 DETAILED INFORMATION

Model Number	HP	Voltage and Phase	Running Amp Draw	Minimum Operating Depth	Ship Weight LBS.	LAKEWOOD FULL FLOW (no nozzle)	MASTERS NOZZLE SERIES
							Ace
M5410-SC	1	120 - 1PH	19.0	3'	250	7 x 18 GPM 318	Upper 4 x 8 Lower 2 x 22 GPM 305
M5412-SC		208-240 - 1PH	9.6				
M5412-3SC		208-240 - 3PH	5.4				
M5414-3SC		440-480 - 3PH	2.7				
M5422-SC	2	208-240 - 1PH	12.6	3'	250	9 x 24 GPM 344	Upper 6 x 8 Lower 2 x 26 GPM 345
M5422-3SC		208-240 - 3PH	6.3				
M5424-3SC		440-480 - 3PH	3.1				
M5432-SC	3.5	208-240 - 1PH	15.2	3'	250	11 x 30 GPM 415	Upper 8 x 10 Lower 4 x 32 GPM 412
M5432-3SC	3	208-240 - 3PH	10.1				
M5434-3SC		440-480 - 3PH	5.1				
M5452-SC	5	208-240 - 1PH	27.1	3'	300	15 x 36 GPM 535	Upper 9 x 12 Lower 4.5 x 35 GPM 532
M5452-3SC		208-240 - 3PH	18.0				
M5454-3SC		440-480 - 3PH	9.0				

Model Number	HP	Voltage and Phase	Running Amp Draw	MASTERS NOZZLE SERIES			
				Birdie	Biscayne	Crown & Geyser	Crown & Wide Geyser
M5410-SC	1	120 - 1PH	19.0	3 x 5 GPM 336	Upper 11 Lower 7 x 14 GPM 204	Geyser Ht 12 x 2 Crown 5 x 35 GPM 215	Geyser Ht 12 x 4.5 Crown 5 x 35 GPM 215
M5412-SC		208-240 - 1PH	9.6				
M5412-3SC		208-240 - 3PH	5.4				
M5414-3SC		440-480 - 3PH	2.7				
M5422-SC	2	208-240 - 1PH	12.6	3.5 x 5 GPM 361	Upper 14 Lower 10 x 19 GPM 217	Geyser Ht 15 x 2 Crown 6 x 40 GPM 282	Geyser Ht 15 x 4.5 Crown 6 x 40 GPM 282
M5422-3SC		208-240 - 3PH	6.3				
M5424-3SC		440-480 - 3PH	3.1				
M5432-SC	3.5	208-240 - 1PH	15.2	4.5 x 8 GPM 454	Upper 16 Lower 10 x 20 GPM 250	Geyser Ht 20 x 2 Crown 6 x 42 GPM 297	Geyser Ht 20 x 4.5 Crown 6 x 42 GPM 297
M5432-3SC	3	208-240 - 3PH	10.1				
M5434-3SC		440-480 - 3PH	5.1				
M5452-SC	5	208-240 - 1PH	27.1	5 x 12 GPM 546	Upper 20 Lower 13 x 24 GPM 403	Geyser Ht 22 x 2 Crown 7 x 50 GPM 465	Geyser Ht 22 x 4.5 Crown 7 x 50 GPM 465
M5452-3SC		208-240 - 3PH	18.0				
M5454-3SC		440-480 - 3PH	9.0				

TABLE 1: THE MASTERS SERIES® PERFORMANCE SPECIFICATIONS (cont.)

TECHNICAL DATA
REFERENCE MATERIAL FOR SECTION 2.0 DETAILED INFORMATION

Model Number	HP	Voltage and Phase	Running Amp Draw	MASTERS NOZZLE SERIES			
				Crystal Geyser	Eagle	Geyser	Par
M5410-SC	1	120 - 1PH	19.0	15 x 26 GPM 214	11 x 8 GPM 119	18 x 2 GPM 141	Upper 6 Lower 3 x 20 GPM 274
M5412-SC		208-240 - 1PH	9.6				
M5412-3SC		208-240 - 3PH	5.4				
M5414-3SC		440-480 - 3PH	2.7				
M5422-SC	2	208-240 - 1PH	12.6	17 x 30 GPM 241	15 x 9 GPM 136	20 x 2 GPM 205	Upper 8.5 Lower 3.5 x 24 GPM 294
M5422-3SC		208-240 - 3PH	6.3				
M5424-3SC		440-480 - 3PH	3.1				
M5432-SC	3.5	208-240 - 1PH	15.2	19 x 30 GPM 254	17 x 11 GPM 143	24 x 2 GPM 209	Upper 13 Lower 5 x 30 GPM 377
M5432-3SC	3	208-240 - 3PH	10.1				
M5434-3SC		440-480 - 3PH	5.1				
M5452-SC	5	208-240 - 1PH	27.1	22 x 32 GPM 396	20 x 12 GPM 308	28 x 2 GPM 380	Upper 15 Lower 7 x 40 GPM 487
M5452-3SC		208-240 - 3PH	18.0				
M5454-3SC		440-480 - 3PH	9.0				

Model Number	HP	Voltage And Phase	Running Amp Draw	MASTERS NOZZLE SERIES	NOZZLES REQUIRING FLOW STRAIGHTENERS		
				Wide Geyser	Arabella	Augusta	Bayside
M5410-SC	1	120 - 1PH	19.0	16 x 10 GPM 182	Upper 5.5 x 7 Lower 2 x 24 GPM 268	9 x 20 GPM 236	Upper 9 x 11 Lower 3 x 18 GPM 197
M5412-SC		208-240 - 1PH	9.6				
M5412-3SC		208-240 - 3PH	5.4				
M5414-3SC		440-480 - 3PH	2.7				
M5422-SC	2	208-240 - 1PH	12.6	20 x 10 GPM 203	Upper 7 x 10 Lower 4 x 35 GPM 308	11.5 x 24 GPM 243	Upper 11 x 14 Lower 3 x 22 GPM 209
M5422-3SC		208-240 - 3PH	6.3				
M5424-3SC		440-480 - 3PH	3.1				
M5432-SC	3.5	208-240 - 1PH	15.2	25 x 10 GPM 208	Upper 8.5 x 12 Lower 4 x 38 GPM 337	13 x 30 GPM 269	Upper 13 x 16 Lower 3 x 24 GPM 239
M5432-3SC	3	208-240 - 3PH	10.1				
M5434-3SC		440-480 - 3PH	5.1				
M5452-SC	5	208-240 - 1PH	27.1	28 x 10 GPM 345	Upper 13 x 18 Lower 5 x 55 GPM 482	15.5 x 35 GPM 452	Upper 16 x 20 Lower 4 x 30 GPM 390
M5452-3SC		208-240 - 3PH	18.0				
M5454-3SC		440-480 - 3PH	9.0				

TABLE 1: THE MASTERS SERIES® PERFORMANCE SPECIFICATIONS (cont.)

TECHNICAL DATA
REFERENCE MATERIAL FOR SECTION 2.0 DETAILED INFORMATION

Model Number	HP	Voltage And Phase	Running Amp Draw	NOZZLES REQUIRING FLOW STRAIGHTENERS			
				Baytree	Champion	Colonial	Diamondback
M5410-SC	1	120 - 1PH	19.0	N/A	7 x 20 GPM 157	Upper 17 Lower 8 x 22 GPM 99	5 x 50 GPM 184
M5412-SC		208-240 - 1PH	9.6				
M5412-3SC		208-240 - 3PH	5.4				
M5414-3SC		440-480 - 3PH	2.7				
M5422-SC	2	208-240 - 1PH	12.6	N/A	9 x 24 GPM 168	Upper 19 Lower 10 x 26 GPM 120	5 x 55 GPM 181
M5422-3SC		208-240 - 3PH	6.3				
M5424-3SC		440-480 - 3PH	3.1				
M5432-SC	3.5	208-240 - 1PH	15.2	N/A	10 x 30 GPM 195	Upper 20 Lower 12 x 35 GPM 112	5 x 60 GPM 226
M5432-3SC	3	208-240 - 3PH	10.1				
M5434-3SC		440-480 - 3PH	5.1				
M5452-SC	5	208-240 - 1PH	27.1	Upper 23 Middle 14 x 17 Lower 7 x 25 GPM 279	15 x 37 GPM 414	Upper 30 Lower 22 x 60 GPM 244	5 x 65 GPM 398
M5452-3SC		208-240 - 3PH	18.0				
M5454-3SC		440-480 - 3PH	9.0				
Model Number	**HP**	**Voltage and Phase**	**Running Amp Draw**	NOZZLES REQUIRING FLOW STRAIGHTENERS			
				Doral	**Double Eagle**	**Firestone**	**Half Moon**
M5410-SC	1	120 - 1PH	19.0	Upper 8 x 10 Lower 4 x 8 GPM 196	18 x 5 GPM 109	Upper 11 Middle 5 x 10 Lower 2 x 18 GPM 181	6 x 26 GPM 253
M5412-SC		208-240 - 1PH	9.6				
M5412-3SC		208-240 - 3PH	5.4				
M5414-3SC		440-480 - 3PH	2.7				
M5422-SC	2	208-240 - 1PH	12.6	Upper 10 x 12 Lower 5 x 10 GPM 214	23 x 5 GPM 137	Upper 13 Middle 6 x 12 Lower 3 x 20 GPM 205	8 x 30 GPM 278
M5422-3SC		208-240 - 3PH	6.3				
M5424-3SC		440-480 - 3PH	3.1				
M5432-SC	3.5	208-240 - 1PH	15.2	Upper 11 x 14 Lower 5 x 12 GPM 221	25 x 5 GPM 129	Upper 15 Middle 7.5 x 18 Lower 4 x 24 GPM 251	10 x 34 GPM 315
M5432-3SC	3	208-240 - 3PH	10.1				
M5434-3SC		440-480 - 3PH	5.1				
M5452-SC	5	208-240 - 1PH	27.1	Upper 13 x 18 Lower 7 x 13 GPM 439	35 x 5 GPM 297	Upper 18 Middle 11 x 20 Lower 5.5 x 28 GPM 399	13 x 36 GPM 466
M5452-3SC		208-240 - 3PH	18.0				
M5454-3SC		440-480 - 3PH	9.0				

TABLE 1: THE MASTERS SERIES® PERFORMANCE SPECIFICATIONS (cont.)

TECHNICAL DATA
REFERENCE MATERIAL FOR SECTION 2.0 DETAILED INFORMATION

Model Number	HP	Voltage and Phase	Running Amp Draw	NOZZLES REQUIRING FLOW STRAIGHTENERS			
				Imperial	**Medinah**	**Monterey**	**Prestwick**
M5410-SC	1	120 - 1PH	19.0	Upper 9 Middle 6 x 16 Lower 1 x 25 GPM 195	9 x 14 GPM 218	Upper 8 Middle 5 x 9 Lower 3 x 13 GPM 169	Upper 9 x 10 Lower 5 x 30 GPM 188
M5412-SC		208-240 - 1PH	9.6				
M5412-3SC		208-240 - 3PH	5.4				
M5414-3SC		440-480 - 3PH	2.7				
M5422-SC	2	208-240 - 1PH	12.6	Upper 11 Middle 6.5 x 18 Lower 1.5 x 28 GPM 217	12 x 18 GPM 253	Upper 10 Middle 7 x 10 Lower 4 x 17 GPM 176	Upper 10 x 12 Lower 5 x 32 GPM 237
M5422-3SC		208-240 - 3PH	6.3				
M5424-3SC		440-480 - 3PH	3.1				
M5432-SC	3.5	208-240 - 1PH	15.2	Upper 13 Middle 7 x 23 Lower 2.5 x 28 GPM 230	14 x 20 GPM 275	Upper 13 Middle 11 x 13 Lower 7 x 23 GPM 177	Upper 12 x 14 Lower 5 x 35 GPM 255
M5432-3SC	3	208-240 - 3PH	10.1				
M5434-3SC		440-480 - 3PH	5.1				
M5452-SC	5	208-240 - 1PH	27.1	Upper 15 Middle 13 x 30 Lower 5 x 36 GPM 421	18 x 24 GPM 410	Upper 19 Middle 13 x 15 Lower 8 x 27 GPM 351	Upper 13 x 18 Lower 6 x 40 GPM 452
M5452-3SC		208-240 - 3PH	18.0				
M5454-3SC		440-480 - 3PH	9.0				

Model Number	HP	Voltage and Phase	Running Amp Draw	NOZZLES REQUIRING FLOW STRAIGHTENERS			
				Riviera	**Royal**	**Somerset**	**Turnberry**
M5410-SC	1	120 - 1PH	19.0	Upper 15 Middle 9 x 12 Lower 3 x 10 GPM 79	Upper 6 x 24 Lower 3 x 30 GPM 204	Upper 12 Lower 6.5 x 16 GPM N/A	5.5 x 15 GPM 226
M5412-SC		208-240 - 1PH	9.6				
M5412-3SC		208-240 - 3PH	5.4				
M5414-3SC		440-480 - 3PH	2.7				
M5422-SC	2	208-240 - 1PH	12.6	Upper 20 Middle 11 x 12 Lower 4 x 10 GPM 91	Upper 6.5 x 24 Lower 3.5 x 32 GPM 242	Upper 14 Lower 7.5 x 18 GPM N/A	7 x 18 GPM 278
M5422-3SC		208-240 - 3PH	6.3				
M5424-3SC		440-480 - 3PH	3.1				
M5432-SC	3.5	208-240 - 1PH	15.2	Upper 21 Middle 12 x 14 Lower 4 x 12 GPM 86	Upper 7.5 x 38 Lower 4 x 38 GPM 251	Upper 17 Lower 9 x 22 GPM N/A	8 x 20 GPM 300
M5432-3SC	3	208-240 - 3PH	10.1				
M5434-3SC		440-480 - 3PH	5.1				
M5452-SC	5	208-240 - 1PH	27.1	Upper 30 Middle 18 x 16 Lower 9 x 20 GPM 126	Upper 8.5 x 38 Lower 4 x 42 GPM 465	Upper 20 Lower 11.5 x 25 GPM N/A	10 x 23 GPM 391
M5452-3SC		208-240 - 3PH	18.0				
M5454-3SC		440-480 - 3PH	9.0				

TABLE 1: THE MASTERS SERIES® PERFORMANCE SPECIFICATIONS (cont.)

TECHNICAL DATA
REFERENCE MATERIAL FOR SECTION 2.0 DETAILED INFORMATION

Model Number	HP	Voltage and Phase	Running Amp Draw	NOZZLES REQUIRING FLOW STRAIGHTENERS	ADJUSTABLE NOZZLES W/FLOW STRAIGHTENERS		SPECIALTY NOZZLES W/FLOW STRAIGHTENERS
				Valhalla	**Reflection**	**Sanibel**	**Captiva**
M5410-SC	1	120 - 1PH	19.0	Upper 13 Middle 7 x 10 Lower 4 x 20 GPM 222	Upper 7 x 16 Lower 3 x 22 GPM 273	11 x 14 GPM 172	9 x 4 GPM 141
M5412-SC		208-240 - 1PH	9.6				
M5412-3SC		208-240 - 3PH	5.4				
M5414-3SC		440-480 - 3PH	2.7				
M5422-SC	2	208-240 - 1PH	12.6	Upper 14.5 Middle 8.5 x 18 Lower 6 x 35 GPM 251	Upper 8 x 22 Lower 3 x 30 GPM 307	14 x 17 GPM 186	12 x 4 GPM 177
M5422-3SC		208-240 - 3PH	6.3				
M5424-3SC		440-480 - 3PH	3.1				
M5432-SC	3.5	208-240 - 1PH	15.2	Upper 18 Middle 11 x 24 Lower 7.5 x 55 GPM 269	Upper 12 x 26 Lower 3 x 30 GPM 354	16 x 18 GPM 199	15 x 5 GPM 223
M5432-3SC	3	208-240 - 3PH	10.1				
M5434-3SC		440-480 - 3PH	5.1				
M5452-SC	5	208-240 - 1PH	27.1	Upper 19.5 Middle 14 x 30 Lower 7.55 x 60 GPM 414	Upper 13 x 16 Lower 4 x 37 GPM 485	19 x 20 GPM 406	19 x 7 GPM 290
M5452-3SC		208-240 - 3PH	18.0				
M5454-3SC		440-480 - 3PH	9.0				

*All performance data (heights and diameters), have been tested at 240 volt single phase electrical.
Your overall performance may vary due to actual voltage, intake restrictions and cable lengths.

TABLE 2: CABLE SIZING CHARTS

Maximum recommended length (in feet) from fountain aerator to control panel

AquaMaster® recommends consulting a Licensed Electrician to properly size any underground cable from the main power source to our control panel. Cable runs to the panel located away from main power source requires recalculating voltage drop to insure proper cable sizing. Please contact AquaMaster® if assistance is required.

4 conductor: Required on all 1 - 10HP Single Phase & Three Phase Aerators									
Single Phase 4 conductor			4 conductor Copper Wire Gauge Size						
Unit	Volts	Approx Amps	#14	#12	#10	#8	#6	#4	#2
1HP	120	19.0	--	--	100	200	300	500	750
1HP	208-240	9.6	--	250	450	650	1100	1750	2700
2HP	208-240	12.6	--	200	300	500	800	1300	2050
3.5HP	208-240	15.2	--	--	250	400	700	1100	1700
5HP	208-240	27.1	--	--	--	250	350	600	950

Three Phase 4 conductor			4 conductor Copper Wire Gauge Size						
Unit	Volts	Approx Amps	#14	#12	#10	#8	#6	#4	#2
1HP	208-240	5.4	--	550	900	1400	2250	3550	5550
1HP	440-480	2.7	--	2350	3900	6000	9600	15150	23500
2HP	208-240	6.3	--	450	750	1200	1900	3050	4750
2HP	440-480	3.1	--	2050	3400	5250	8350	13200	20450
3HP	208-240	10.1	--	300	450	750	1200	1900	2950
3HP	440-480	5.1	--	1200	2050	3150	5050	8000	12450
5HP	208-240	18.0	--	--	250	400	650	1050	1650
5HP	440-480	9.0	--	700	1150	1800	2850	4550	7050

Actual voltage to motor will affect your fountain's performance.

TABLE 3: FOUNTAIN AERATOR SPRAY PATTERN DESCRIPTIONS

1. **Masters Series® ACE - Basic Flow Pattern (BFP)**
   Full circle, two-tiered pattern with multi-point center formation.
   SPECIFICATION DESCRIPTION: POINTED FAN SHAPE

2. **Masters Series® ARABELLA – Straightened Flow Pattern (SFP)**
   Sparkling, two-tiered pattern consisting of an upper multi-stream and a lower full conical spray design.
   SPECIFICATION DESCRIPTION: COMBINED FAN AND STREAMS

3. **Masters Series® AUGUSTA – Straightened Flow Pattern (SFP)**
   Beautiful multi-tiered streamed pattern with a center geyser to add height.
   SPECIFICATION DESCRIPTION: FAN SHAPE INDIVIDUAL STREAMS WITH CENTER GEYSER

4. **Masters Series® BAYSIDE – Straightened Flow Pattern (SFP)**
   Narrower version of Red Tail, excellent in smaller contained areas.
   SPECIFICATION DESCRIPTION: COMBINED FAN AND STREAMS

5. **Masters Series® BAYTREE – Straightened Flow Pattern (SFP)**
   Frothy tri-tiered pattern providing aeration benefits beautifully.
   SPECIFICATION DESCRIPTION: TRI-TIER FROTHY SPRAY

6. **Masters Series® BIRDIE - Basic Flow Pattern (BFP)**
   Creates a dense, round ball of water, perfect for smaller containments of water.
   SPECIFICATION DESCRIPTION: ROUND

7. **Masters Series® BISCAYNE - Basic Flow Pattern (BFP)**
   Variation of classic two-tier with taller, narrower lower spray.
   SPECIFICATION DESCRIPTION: UPRIGHT FAN & COLUMN

8. **Masters Series® CAPTIVA – Specialty Pattern**
   Heavy-water vertical frothy column, excellent in open areas.
   SPECIFICATION DESCRIPTION: DENSE FROTHY COLUMN

9. **Masters Series® CHAMPION – Straightened Flow Pattern (SFP)**
   Multi-stream pattern with specific points resulting in a dramatic surface effect.
   SPECIFICATION DESCRIPTION: INDIVIDUAL STREAMS FAN SHAPE

10. **Masters Series® COLONIAL – Straightened Flow Pattern (SFP)**
    Two tier pattern that has a narrow center geyser, surrounded by a multi-streamed lower tier.
    SPECIFICATION DESCRIPTION: FAN SHAPED INDIVIDUAL STREAMS WITH CENTER GYESER

TABLE 3: FOUNTAIN AERATOR SPRAY PATTERN DESCRIPTIONS (cont.)

11. **Masters Series® CROWN & GEYSER - Basic Flow Pattern (BFP)**
A beautiful, dramatic pattern still achieves aeration results. This nozzle combines the Lakewood Full Flow with the vertical Geyser column of water through its center.
SPECIFICATION DESCRIPTION: COMBINED FAN & COLUMN

12. **Masters Series® CROWN & WIDE GEYSER - Basic Flow Pattern (BFP)**
A variation on our CROWN & GEYSER pattern. This nozzle produces a wider, less dense geyser column with a Lakewood Full Flow.
SPECIFICATION DESCRIPTION: COMBINED FAN & COLUMN

13. **Masters Series® CRYSTAL GEYSER- Basic Flow Pattern (BFP)**
This nozzle produces a very decorative crystalline spray pattern in an abstract, multi-tiered formation.
SPECIFICATION DESCRIPTION: FROTHY SPRAY

14. **Masters Series® DIAMONDBACK – Straightened Flow Pattern (SFP)**
Low height pattern sending streams of water in tremendous diameter.
SPECIFICATION DESCRIPTION: WIDEST LOW FAN SHAPE

15. **Masters Series® DORAL – Straightened Flow Pattern (SFP)**
A two-tiered multi-streamed arch pattern.
SPECIFICATION DESCRIPTION: TWO TIERED FAN SHAPED INDIVIDUAL STREAMS

16. **Masters Series® DOUBLE EAGLE – Straightened Flow Pattern (SFP)**
Statuesque, frothy vertical pattern creates a stunning full profile.
SPECIFICATION DESCRIPTION: SOLID VERTICAL COLUMN

17. **Masters Series® EAGLE - Basic Flow Pattern (BFP)**
Elongated, frothy vertical pattern creates a beautiful, full profile.
SPECIFICATION DESCRIPTION: FROTHY VERTICAL COLUMN

18. **Masters Series® FIRESTONE – Straightened Flow Pattern (SFP)**
Beautiful tri-tier, perfect for smaller area applications.
SPECIFICATION DESCRIPTION: TRI-TIER MULTIPLE STREAMS

19. **Masters Series® GEYSER - Basic Flow Pattern (BFP)**
A multi-port nozzle achieves a dramatic vertical pattern in a solid column of water, fanning slightly at the top.
SPECIFICATION DESCRIPTION: SOLID VERTICAL COLUMN

20. **Masters Series® HALF MOON – Straightened Flow Pattern (SFP)**
Gorgeous multi-stream pattern results in a full floral effect.
SPECIFICATION DESCRIPTION: SCALLOPED FAN SHAPE

TABLE 3: FOUNTAIN AERATOR SPRAY PATTERN DESCRIPTIONS (cont.)

21. **Masters Series® IMPERIAL – Straightened Flow Pattern (SFP)**
Spectacular tri-tier, multiple-point rotating formation creating a dramatic effect.
SPECIFICATION DESCRIPTION: ROTATING COMBINED FAN AND STREAMS WITH CENTER GEYSER

22. **LAKEWOOD - Basic Flow Pattern (BFP)**
Internal impeller technology creates this full, more upright cone pattern, **without a nozzle**. This is the base model for The Masters Series®.
SPECIFICATION DESCRIPTION: FAN SHAPE

23. **Masters Series® MEDINAH – Straightened Flow Pattern (SFP)**
Taller, narrower version of the Turnberry.
SPECIFICATION DESCRIPTION: NARROW FAN SHAPE

24. **Masters Series® MONTEREY – Straightened Flow Pattern (SFP)**
Frothy tri-tiered pattern combines both aesthetics and aeration.
SPECIFICATION DESCRIPTION: TRI-TIER FROTHY SPRAY

25. **Masters Series® PAR - Basic Flow Pattern (BFP)**
Heavy-water version of the Crown & Geyser, excellent choice in open areas.
SPECIFICATION DESCRIPTION: DENSE COMBINED FAN & COLUMN

26. **Masters Series® PRESTWICK – Straightened Flow Pattern (SFP)**
Dramatic multi-streamed two-tiered pattern.
SPECIFICATION DESCRIPTION: TWO-TIERED MULTIPLE STREAMS

27. **Masters Series® REFLECTION – Adjustable Straightened Flow Pattern (ASFP)**
Dazzling, full circle, two-tiered pattern with multiple-point formation.
SPECIFICATION DESCRIPTION: ADJUSTABLE COMBINED FAN AND STREAMS

28. **Masters Series® RIVIERA – Straightened Flow Pattern (SFP)**
Dazzling, three tier display that combines a narrow multi-streamed geyser with two surrounding conical shaped tiers. Great for applications that require a tiered, narrower pattern.
SPECIFICATION DESCRIPTIION: TWO TIERED FAN SHAPED INDIVIDUAL STREAMS WITH CENTER GEYSER

29. **Masters Series® ROYAL – Straightened Flow Pattern (SFP)**
Spectacular two-tier, multiple-point rotating formation creating a dramatic effect.
SPECIFICATION DESCRIPTION: ROTATING COMBINED FAN AND STREAMS

30. **Masters Series® SANIBEL – Adjustable Straightened Flow Pattern (ASFP)**
Taller and frothier version of Medina.
SPECIFICATION DESCRIPTION: NARROW FAN SHAPED

TABLE 3: FOUNTAIN AERATOR SPRAY PATTERN DESCRIPTIONS (cont.)

31. **Masters Series® SOMERSET – Straightened Flow Pattern (SFP)**
Heavy upright multi-stream fan shape with a geyser creates a stunning full profile pattern.
SPECIFICATION DESCRIPTION: HEAVY INDIVIDUAL STREAM FAN SHAPE WITH CENTER GEYSER

32. **Masters Series® TURNBERRY – Straightened Flow Pattern (SFP)**
Upright funnel shape creates a stunning full profile pattern.
SPECIFICATION DESCRIPTION: HEAVY FAN SHAPE

33. **Masters Series® VALHALLA – Straightened Flow Pattern (SFP)**
Stunning tri-tier resulting in both excellent height and diameter.
SPECIFICATION DESCRIPTION: TRI-TIER SPRAY

34. **Masters Series® WIDE GEYSER - Basic Flow Pattern (BFP)**
A modification of the Geyser nozzle produces a less dense, more decorative version.
SPECIFICATION DESCRIPTION: WIDE VERTICAL COLUMN

TABLE 4: FOUNTAIN AERATOR LIGHTING SYSTEMS

AQUAMASTER® FOUNTAIN AERATORS 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.

All necessary electrical controls, including timer, are pre-wired into the fountain's existing UL Listed control panel. Color board assemblies (White, Warm White, Red, Green, Blue, or Amber) must be selected for each light.
For uniformity of spray pattern coverage, 4 lights minimum is recommended.

LINE VOLTAGE: 120 Volt LED Lighting Systems

11 Watt Fixtures	**Each system includes:**
4 light system: Model #870747	• 11, 22, or 35 Watt LED light engine • GFCI Protection • Digital Timer • Clear lenses • UL and cUL Listing • Choice of White, Warm White, Red, Green, Blue, or Amber Light Engine (11 and 35 Watt LED) • 22 Watt LED Light Engine Available in White Only
22 Watt Fixtures	
2 light system: Model # 870607	
3 light system: Model # 870608	
4 light system: Model # 870595	
6 light system: Model #870609	
8 light system: Model #870610	
35 Watt Fixtures	
2 light system: Model # 870792	
3 light system: Model # 870793	
4 light system: Model # 870794	
6 light system: Model # 870795	
8 light system: Model # 870796	

LINE VOLTAGE: 120 Volt RGBW LED Lighting Systems

40 Watt Fixtures	**Each system includes:**
2 light system: Model # 870677	• 40 Watt RGBW LED light engine • GFCI Protection • Digital Timer • Clear lenses • UL and cUL Listing
3 light system: Model # 870678	
4 light system: Model # 870679	
6 light system: Model # 870680	
8 light system: Model # 870681	

TABLE 4: FOUNTAIN AERATOR LIGHTING SYSTEMS (cont.)

CABLE SIZING CHART FOR LED LIGHTS

Maximum recommended length (in feet) from fountain lights to control panel.
AquaMaster® recommends consulting a Licensed Electrician to properly size any underground cable from the main power source to our control panel. Cable runs to the panel located away from main power source requires recalculating voltage drop to insure proper cable sizing. Please contact AquaMaster® if assistance is required.

3 Conductor				Copper Wire Gauge Size		
Watts Per Fixture	**# of Fixtures**	**Volts**	**Approx Amps**	**#14**	**#12**	**#10**
11	4	120	0.367	2600	4050	6800
22	2	120	0.283	3400	5250	8800
22	3	120	0.425	2250	3500	5850
22	4	120	0.567	1700	2600	4400
22	6	120	0.850	1100	1750	2900
22	8	120	1.133	850	1300	2200
35	2	120	0.583	1650	2550	4250
35	3	120	0.875	1100	1700	2850
35	4	120	1.167	800	1250	2100
35	6	120	1.750	550	850	1400
35	8	120	2.333	400	600	1050

CABLE SIZING CHART FOR RGBW LED LIGHTS

5 Conductor				Copper Wire Gauge Size	
Watts Per Fixture	**# of Fixtures**	**Volts**	**Approx Amps**	**#14**	**#10**
40	2	120	0.667	1450	3750
40	3	120	1.000	950	2500
40	4	120	1.333	700	1850
40	6	120	2.000	450	1250
40	8	120	2.667	350	900