



AQUA-LATOR[®] SURFACE AERATORS



OVERVIEW

The Aqua-Lator[®] floating mechanical aerator is used in a variety of wastewater treatment applications. Powerful pumping action transfers oxygen by breaking up the wastewater into a spray of particles, creating more surface area for atmospheric pressure to drive oxygen into the wastewater. At the same time, the oxygen enriched water is dispersed and mixed. The result: Effective wastewater treatment.

The Aqua-Lator aerator represents over four decades of accumulated research and field testing in a broad range of municipal and industrial applications throughout the world. No other floating mechanical aerator is as ruggedly built, more efficient, or as versatile. It provides excellent oxygen transfer, low operating costs, trouble-free performance and unequaled resistance to the environmental extremes to which aerators are continually exposed.

The Aqua-Lator aerator was the first floating surface aerator. Introduced in 1963, it created imitators, but none who could ever duplicate its superior performance and reliability. From the beginning, Aqua-Lator aerators have delivered excellent value for thousands of municipal and industrial wastewater operators. Driving this track record has been a consistent product philosophy of providing reliable performance, simplicity of operation and ease of maintenance.





Satisfied customers span the complete range of wastewater treatment operations, from large city municipal treatment plants to the smallest village plant; from pulp and paper mills, food and beverage processors and petrochemical plants to textile manufacturers. Industrial customers range from the top 500 corporations to small companies.

The Aqua-Lator[®] aerator offers exceptional versatility. Units may be easily added, repositioned or upgraded to cope with changing conditions. As additional aeration capacity is required, new equipment can often be placed in operation the same day it is delivered. Because the Aqua-Lator aerator automatically adjusts to varying water levels, it ensures continuous, optimum operating efficiency for the many industrial users who operate waste treatment facilities by the batch method or other systems where the fluid level fluctuates.

Aqua-Lator aerators are used in a wide variety of installations – aerated lagoons, sequencing batch

reactors (SBR), stabilization basins, activated sludge and aerobic digestion systems, as well as for stream aeration, reservoir stagnation prevention and upgrading existing ponds.

With the full resources of Evoqua Water Technologies to support it, we offer the widest range of horsepower, materials of construction, motor options and electrical and mooring accessories.

Our engineers can assist in the selection of the optimal aerator size, placement and mooring.

Whatever your floating aerator requirements, there is an Aqua-Lator[®] aerator to meet your needs. These choices provide the most cost-effective design for municipal, pulp and paper, food processing, or other types of industrial wastewater treatment. You may



AQUA-LATOR[®] SURFACE AERATOR DESIGN FEATURES



1 MOTOR

- Totally enclosed, fan-cooled
- Heavy gauge cast iron fan shield
- Class F insulation
- Service factor of 1.15
- Standard or premium efficient available
- Double-row bearings on drive end
- Heavy-duty L-10, 100,000-hour bearings
- Dynamically balanced and vibration tested
- Designed to meet the most demanding operational requirements



MOTOR JUNCTION BOX

• Opening in motor housing for winding leads is completely potted with epoxy filler

3 MOTOR SHAFT

- One piece continuous from upper bearings to the propeller
- 17-4 PH stainless steel in the 1150°F heat treated condition
- 135,000 PSI minimum yield strength
- Largest diameter shaft
- Threaded and keyed on drive end for simple propeller installation



LABYRINTH SEAL GUARD

 Positioned below the bottom motor bearing to prevent moisture from migrating up the shaft into the lower bearing



DISCHARGE CONE

- Massive monolithic casting, heavier than competition
- Large integral webs for rigid stability and increased lateral strength
- Designed for minimum head loss
- 304 stainless steel, or cast nickel iron, epoxy-coated
- Provides for lowest vibration levels
- Produces maximum diffusion of water particles
- 100% contact with the volute, which distributes both static and dynamic loads

6 FLOAT

- Largest one-piece float available
- Engineered to provide stability and better buoyancy
- Fiberglass reinforced polyester (FRP), or 14-gauge, 304 stainless steel

• Filled with closed-cell polyurethane foam that adds structural stability and prevents the possibility of sinking if damage occurs to the float exterior

DEFLECTOR BEARING

- Shaft runs free under normal operating conditions
- Provides support only when under load



7

DEBRIS DEFLECTOR

- Machined Delrin[®] for smooth fluid passage over the surface
- Attached with two recessed stainless steel set screws
- Double engagement provides an extra measure of preventing water migration up the shaft

9 PROPELLER AND KEY

- Precision investment casting
- 316 stainless steel
- Dynamically balanced
- Keyed to mate to motor shaft in proper position
- Secured to shaft by stainless steel locking nut
- Simple installation or removal
- Anti-fouling, non-cavitating for greater operational efficiency

10 LOCKING NUT

- Stainless steel
- Firmly and securely locks the propeller to the shaft
- Just two tools required to install or remove the propeller

11 VOLUTE

- 304 stainless steel
- All sizes have bottom flange for simple bolt-on attachment of the standard intake cone or optional anti-erosion assembly or draft tube
- Gussets at top and bottom flanges add strength

12 INTAKE CONE

- 304 stainless steel
- Hydraulically designed for proper loading on propeller
- Sufficiently sturdy to support assembled aerator on hard, flat surface
- (Optional) Anti-erosion assembly (see page 13)
- (Optional) Draft Tube



MATERIALS OF CONSTRUCTION

choose one of the standard model series listed below, or another combination of materials that best meet your specific needs. Whichever Aqua-Lator aerator you choose, be assured that you have selected the best aerator in the market. In terms of design, craftsmanship, performance, and versatility, it is the best investment that you can make.

SF SERIES

- Motor Shaft One-piece 17-4 PH stainless steel
- Propeller 316 stainless steel, dynamically balanced
- Discharge Cone 304 stainless steel, monolithic casting
- Volute 304 stainless steel
- Intake Cone 304 stainless steel
- Float 14-gauge, 304 stainless steel shell, filled with closed-cell polyurethane foam

CSF SERIES

- Motor Shaft One-piece 17-4 PH stainless steel
- Propeller 316 stainless steel, dynamically balanced
- Discharge Cone Cast nickel iron, monolithic casting, epoxy coated
- Volute 304 stainless steel
- Intake Cone 304 stainless steel
- Float 14-gauge, 304 stainless steel shell, filled with closed-cell polyurethane foam

SS SERIES

- Motor Shaft One-piece 17-4 PH stainless steel
- Propeller 316 stainless steel, dynamically balanced
- Discharge Cone 304 stainless steel, monolithic

casting

- Volute 304 stainless steel
- Intake Cone 304 stainless steel
- Float Fiberglass-reinforced polyester shell, filled with closed-cell polyurethane foam

CS SERIES

- Motor Shaft One-piece 17-4 PH stainless steel
- Propeller 316 stainless steel, dynamically balanced
- Discharge Cone Cast nickel iron, monolithic casting, epoxy coated
- Volute 304 stainless steel
- Intake Cone 304 stainless steel
- Float Fiberglass-reinforced polyester shell, filled with closed-cell polyurethane foam

SPECIAL MATERIALS

For applications which require special materials such as 304L, 316L, or others, please consult with our sales engineers.

TYPICAL AQUA-LATOR[®] SURFACE AERATOR APPLICATION CHARACTERISTICS

| Model HP RPM IMP DCM DOD Depth 211 2 1800 9 28 95 7 311 3 1800 18 40 145 8 511 5 1800 20 45 150 8 511 5 1800 21 50 160 9 711 7.5 1800 21 50 160 9 711 7.5 1800 23 55 180 10 1011 10 1800 23 55 180 10 1011 10 1800 25 64 214 10 1511 15 1800/1200 42 137 10 1511 15 1800/1200 42 137 10 1511 15 1800/1200 42 137 10 2011 10 1200 28 76 265 <th>1800 RPM</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> | 1800 RPM | | | | | | |
|--|----------|----------|-----------|-----|-----|-----|-------|
| 211 2 1800 9 28 95 7 311 3 1800 18 40 145 8 511 5 1800 20 45 150 8 511 5 1800 21 50 160 9 711 7.5 1800 23 55 180 10 1011 10 1800 23 55 180 10 1011 10 1800 23 55 180 10 1011 10 1800 25 64 214 10 1511 15 1800 25 64 214 10 1510 $15/6.6$ $1800/1200$ 42 137 10 150 $1200/900$ 70 222 10 2011 20 $1200/900$ 75 229 10 | Model | HP | RPM | IMP | DCM | DOD | Depth |
| 311 3 1800 18 40 145 8 511 5 1800 20 45 150 8 511 5 1800/1200 31 103 8 511 7.5 1800/1200 34 111 9 711 7.5 1800/1200 34 111 9 1011 10 1800 23 55 180 10 1011 10 1800 25 64 214 10 1511 15 1800/1200 42 137 10 1511 15/6.6 1800/1200 42 137 10 1511 15/6.6 1800/1200 42 137 10 2011 20 1200 28 76 265 10 2011 20 1200 30 85 295 10 2511 25 1200/900 75 229 10 | 211 | 2 | 1800 | 9 | 28 | 95 | 7 |
| 511 5 1800 20 45 150 8 511 DS 5/2.2 1800/1200 31 103 8 711 7.5 1800/1200 34 111 9 711 DS 7.5/3.3 1800/1200 35 180 10 1011 10 1800 23 55 180 10 1011 DS 10/4.4 1800/1200 35 97 10 1511 15 1800 25 64 214 10 1511 DS 15/6.6 1800/1200 42 137 10 1200 RPM Model HP RPM IMP DCM DOD Depth 2011 20 1200 28 76 265 10 2511 25 1200 30 85 295 10 2511 25 1200 32 93 310 10 3011 30 | 311 | 3 | 1800 | 18 | 40 | 145 | 8 |
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| 1011 DS 10/4.4 1800/1200 35 97 10 1511 15 1800 25 64 214 10 1511 15 1800/1200 42 137 10 Image: Second Sec | 1011 | 10 | 1800 | 23 | 55 | 180 | 10 |
| 1511 15 1800 25 64 214 10 1511 DS 15/6.6 1800/1200 42 137 10 Image: Second Seco | 1011 DS | 10/4.4 | 1800/1200 | | 35 | 97 | 10 |
| 1511 DS 15/6.6 1800/1200 42 137 10 1200 RPM Model HP RPM IMP DCM DOD Depth 2011 20 1200 28 76 265 10 2011 20 1200 28 76 265 10 2011 DS 20/11.2 1200/900 62 201 10 2511 25 1200 30 85 295 10 2511 DS 25/14.0 1200/900 70 222 10 3011 30 1200 32 93 310 10 3011 DS 30/16.8 1200/900 75 229 10 4011 40 1200 33 107 330 11 4011 DS 40/22.5 1200/900 86 275 11 5011 DS 50/28.1 1200/900 89 278 12 6011 60 1200 35 122< | 1511 | 15 | 1800 | 25 | 64 | 214 | 10 |
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| ModelHPRPMIMPDCMDODDepth20112012002876265102011 DS20/11.21200/900622011025112512003085295102511 DS25/14.01200/900702221030113012003293310103011 DS30/16.81200/9007522910401140120033107330114011 DS40/22.51200/9008627511501150120034111360125011 DS50/28.11200/9008927812601160120035122395126011 DS60/33.71200/9009629512751175120036137440127511 DS75/42.21200/90010932212POORPMModelHPRPMIMPDCMDODDepth10011100900401554001510211 DS100/69.4900/75012028515125111259004316045015150111509004516549515 | 1200 RPM | | | | | | |
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| 6011 DS 60/33.7 1200/900 96 295 12 7511 75 1200 36 137 440 12 7511 DS 75/42.2 1200/900 109 322 12 900 RPM Model HP RPM IMP DCM DOD Depth 10011 100 900 40 155 400 15 10011 DS 100/69.4 900/750 120 285 15 12511 125 900 43 160 450 15 15011 150 900 45 165 495 15 | 6011 | 60 | 1200 | 35 | 122 | 395 | 12 |
| 7511 75 1200 36 137 440 12 7511 DS 75/42.2 1200/900 109 322 12 900 RPM Model HP RPM IMP DCM DOD Depth 10011 100 900 40 155 400 15 10011 DS 100/69.4 900/750 120 285 15 12511 125 900 43 160 450 15 15011 150 900 45 165 495 15 | 6011 DS | 60/33.7 | 1200/900 | | 96 | 295 | 12 |
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| Model HP RPM IMP DCM DOD Depth 10011 100 900 40 155 400 15 10011 DS 100/69.4 900/750 120 285 15 12511 125 900 43 160 450 15 15011 150 900 45 165 495 15 | 7511 DS | 75/42.2 | 1200/900 | | 109 | 322 | 12 |
| ModelHPRPMIMPDCMDODDepth10011100900401554001510011 DS100/69.4900/75012028515125111259004316045015150111509004516549515 | 900 RPM | | | | | | |
| 10011100900401554001510011 DS100/69.4900/75012028515125111259004316045015150111509004516549515 | Model | HP | RPM | IMP | DCM | DOD | Depth |
| 10011 DS100/69.4900/75012028515125111259004316045015150111509004516549515 | 10011 | 100 | 900 | 40 | 155 | 400 | 15 |
| 12511 125 900 43 160 450 15 15011 150 900 45 165 495 15 | 10011 DS | 100/69.4 | 900/750 | | 120 | 285 | 15 |
| 15011 150 900 45 165 495 15 | 12511 | 125 | 900 | 43 | 160 | 450 | 15 |
| | 15011 | 150 | 900 | 45 | 165 | 495 | 15 |

Notes

- Highlighted areas indicate dual-speed aerators
- IMP Impingement (white water) diameter in feet
- DCM Diameter of complete mix in feet
- DOD Diameter of complete oxygen dispersion in feet
- DEPTH Nominal operating depth where IMP, DCM, and DOD hold true

DIMENSIONS OF STAINLESS STEEL FLOAT SERIES - SF AND CSF

| 1800 RPM ST | AINLESS STE | EL FLOATS | | | | | | |
|-------------|-------------|-----------|--------|------|-------|-------|-------|--------|
| Model | HP | RPM | А | В | С | D | Shaft | Weight |
| 211 | 2 | 1800 | 40.00 | 7.0 | 47.0 | 15.0 | 1.375 | 350 |
| 311 | 3 | 1800 | 44.13 | 11.0 | 60.0 | 15.0 | 1.375 | 550 |
| 511 | 5 | 1800 | 44.13 | 11.0 | 60.0 | 15.0 | 1.375 | 550 |
| 511 DS | 5/2.2 | 1800/1200 | 44.13 | 11.0 | 60.0 | 15.0 | 1.375 | 550 |
| 711 | 7.5 | 1800 | 46.63 | 11.0 | 60.0 | 15.0 | 1.750 | 650 |
| 711 DS | 7.5/3.3 | 1800/1200 | 49.13 | 11.0 | 60.0 | 15.0 | 1.750 | 650 |
| 1011 | 10 | 1800 | 51.69 | 12.0 | 71.0 | 19.0 | 1.750 | 975 |
| 1011 DS | 10/4.4 | 1800/1200 | 55.63 | 12.0 | 71.0 | 19.0 | 1.750 | 975 |
| 1511 | 15 | 1800 | 55.63 | 12.0 | 71.0 | 19.0 | 1.750 | 1,000 |
| 1511 DS | 15/6.6 | 1800/1200 | 59.56 | 12.0 | 71.0 | 19.0 | 1.750 | 1,000 |
| 1200 RPM ST | AINLESS STE | EL FLOATS | | | | | | |
| Model | HP | RPM | А | В | С | D | Shaft | Weight |
| 2011 | 20 | 1200 | 67.94 | 14.0 | 84.0 | 23.00 | 2.125 | 1,350 |
| 2011 DS | 20/11.2 | 1200/900 | 68.82 | 14.0 | 84.0 | 23.00 | 2.125 | 1,350 |
| 2511 | 25 | 1200 | 68.82 | 14.0 | 84.0 | 23.00 | 2.125 | 1,400 |
| 2511 DS | 25/14.0 | 1200/900 | 69.70 | 14.0 | 84.0 | 23.00 | 2.125 | 1,400 |
| 3011 | 30 | 1200 | 86.94 | 16.0 | 96.0 | 27.75 | 2.245 | 1,900 |
| 3011 DS | 30/16.8 | 1200/900 | 90.31 | 16.0 | 96.0 | 27.75 | 2.245 | 1,900 |
| 4011 | 40 | 1200 | 90.31 | 16.0 | 96.0 | 27.75 | 2.900 | 1,975 |
| 4011 DS | 40/22.5 | 1200/900 | 93.70 | 16.0 | 96.0 | 27.75 | 2.900 | 1,975 |
| 5011-1 | 50 | 1200 | 90.31 | 16.0 | 96.0 | 27.75 | 2.900 | 2,050 |
| 5011-1 DS | 50/28.1 | 1200/900 | 93.70 | 16.0 | 96.0 | 27.75 | 2.900 | 2,100 |
| 5011 | 50 | 1200 | 101.06 | 16.0 | 116.0 | 34.25 | 2.900 | 2,900 |
| 5011 DS | 50/28.1 | 1200/900 | 102.81 | 17.0 | 116.0 | 34.25 | 2.900 | 2,975 |
| 6011 | 60 | 1200 | 102.81 | 16.0 | 116.0 | 34.25 | 2.900 | 3,100 |
| 6011 DS | 60/33.7 | 1200/900 | 102.81 | 17.0 | 116.0 | 34.25 | 2.900 | 3,200 |
| 7511 | 75 | 1200 | 102.81 | 16.0 | 116.0 | 34.25 | 2.900 | 3,150 |
| 7511 DS | 75/42.2 | 1200/900 | 104.56 | 17.0 | 116.0 | 34.25 | 2.900 | 3,250 |
| 900 RPM STA | INLESS STEE | L FLOATS | | | | | | |
| Model | HP | RPM | А | В | С | D | Shaft | Weight |
| 10011 | 100 | 900 | 120.0 | 17.0 | 131.0 | 45.0 | 3.930 | 4,700 |
| 10011 DS | 100/69.4 | 900/750 | 124.00 | 19.0 | 131.0 | 45.0 | 3.930 | 4,950 |
| 12511 | 125 | 900 | 126.00 | 19.0 | 131.0 | 45.0 | 3.930 | 5,270 |
| 15011 | 150 | 900 | 128.00 | 19.0 | 131.0 | 45.0 | 3.930 | 5,400 |



Notes

- Highlighted areas indicate dual- speed aerators
- SHAFT Shaft Diameter
- WGHT Approximate shipping weight
- All dimensions are in inches
- Weight is in pounds

DIMENSIONS OF FIBERGLASS FLOAT SERIES - SS AND CS

| 1800 RPM FIE | BERGLASS FL | OATS | | | | | | |
|--------------|----------------------|-----------|--------|------|-------|-------|-------|--------|
| Model | HP | RPM | А | В | С | D | Shaft | Weight |
| 211 | 2 | 1800 | 40.00 | 7.0 | 47.0 | 15.0 | 1.375 | 350 |
| 311 | 3 | 1800 | 44.13 | 11.0 | 64.5 | 15.0 | 1.375 | 550 |
| 511 | 5 | 1800 | 44.13 | 11.0 | 64.5 | 15.0 | 1.375 | 550 |
| 511 DS | 5/2.2 | 1800/1200 | 44.13 | 11.0 | 64.5 | 15.0 | 1.375 | 550 |
| 711 | 7.5 | 1800 | 46.63 | 11.0 | 64.5 | 15.0 | 1.750 | 650 |
| 711 DS | 7.5/3.3 | 1800/1200 | 49.13 | 11.0 | 64.5 | 15.0 | 1.750 | 650 |
| 1011 | 10 | 1800 | 51.69 | 12.0 | 71.5 | 19.0 | 1.750 | 925 |
| 1011 DS | 10/4.4 | 1800/1200 | 55.63 | 12.0 | 71.5 | 19.0 | 1.750 | 925 |
| 1511 | 15 | 1800 | 55.63 | 12.0 | 71.5 | 19.0 | 1.750 | 950 |
| 1511 DS | 15/6.6 | 1800/1200 | 59.56 | 12.0 | 71.5 | 19.0 | 1.750 | 950 |
| | | OATS | | | | | | |
| Model | | DDM | ٨ | D | C | | Shaft | Maight |
| 2011 | 20 | 1200 | 6704 | 14.0 | 01 E | 22.00 | 2 125 | 1150 |
| 2011 | 20 | 1200 | 60.94 | 14.0 | 04.5 | 23.00 | 2.125 | 1,150 |
| 2011 D3 | 20/11.2 | 1200/ 900 | 60.02 | 14.0 | 04.5 | 23.00 | 2.125 | 1,130 |
| 2511 DS | 25/14.0 | 1200 | 69.70 | 14.0 | 84.5 | 23.00 | 2.125 | 1,200 |
| 2011 | 23/ 14.0 | 1200/ 900 | 96.04 | 14.0 | 04.5 | 23.00 | 2.125 | 1,200 |
| 3011 | 30/16.8 | 1200 | 00.94 | 16.5 | 90.0 | 27.75 | 2.245 | 1,900 |
| 4011 | | 1200/ 900 | 90.31 | 16.5 | 90.0 | 27.75 | 2.245 | 1,900 |
| 4011 | 40 | 1200 | 90.31 | 16.5 | 90.0 | 27.75 | 2.900 | 1,950 |
| 5011-1 | <u>+0/22.5</u> 50 | 1200/ 900 | 90.31 | 16.5 | 96.0 | 27.75 | 2.000 | 2,000 |
| 5011-1 DS | 50/281 | 1200 | 03.70 | 16.5 | 96.0 | 27.75 | 2.000 | 2,000 |
| 5011 | 50 | 1200/ 900 | 101.06 | 16.5 | 116.0 | 3/ 25 | 2.000 | 2,000 |
| 5011 DS | 50/281 | 1200 | 107.00 | 16.5 | 116.0 | 34.25 | 2.000 | 2,400 |
| 6011 | 50/28.1 | 1200/900 | 102.01 | 16.5 | 116.0 | 34.25 | 2.900 | 2,300 |
| 6011 DS | 60/33.7 | 1200 | 102.01 | 16.5 | 116.0 | 34.25 | 2.200 | 2,000 |
| 7511 | 75 | 1200/ 900 | 102.01 | 16.5 | 116.0 | 34.25 | 2.200 | 2,200 |
| 7511 DS | 75 // 2 2 | 1200 | 102.01 | 16.5 | 116.0 | 34.25 | 2.900 | 2,850 |
| /51105 | / J/ 42.2 | 1200/ 900 | 104.50 | 10.5 | 110.0 | 54.25 | 2.700 | 2,750 |

900 RPM FIBERGLASS FLOATS

| Model | HP | RPM | А | В | С | D | Shaft | Weight |
|----------|----------|---------|--------|------|-------|------|-------|--------|
| 10011 | 100 | 900 | 120.0 | 20.0 | 116.0 | 45.0 | 3.930 | 4,450 |
| 10011 DS | 100/69.4 | 900/750 | 124.00 | 23.0 | 116.0 | 45.0 | 3.930 | 4,650 |

- Highlighted areas indicate dual-speed aerators
- SHAFT Shaft Diameter
- WGHT Approximate shipping weight
- All dimensions are in inches
- Weight is in pounds



AQUA-LATOR® ES SERIES AERATORS

When it comes to investments, you look for the most efficient use of your money. When you invest in the Aqua-Lator[®] ES "Energy Saver" aerator, you get it. Even though the Aqua-Lator ES aerators cost more, the initial purchase price premium can be justified based on energy cost savings. With the cost of electricity escalating, your investment can be recovered in a surprisingly short period, and continues to pay a return thereafter. Once the initial price premium has been recovered, all savings translate directly into profit.

The basis for this justification depends on the user's situation. Factors such as running hours, cost of electricity, payback period, tax rate, cost of capital, and service life, affect the premium price justification, and vary with the individual user. A very simple energy savings calculation can be made to estimate the yearly savings with an Aqua-Lator ES aerator.

Simple Energy Savings Calculation

This simple payback method gives the number of years required to recover the differential investment for higher efficiency motors. To determine the payback period, the premium for the higher efficiency aerator is divided by the annual savings. First the annual savings must be determined using the formula below.

In the example below, the yearly savings is \$1,470.58. In other words, if you wanted a two-year payback on your investment, you could afford to spend \$2,941.16 more for the Aqua-Lator ES series than the standard efficient aerator. Remember, once the initial price premium has been recovered, all savings translate directly into profit.

For a more detailed evaluation of energy cost savings, including present value analysis, please contact one of our sales engineers.

| E | NERG | Y S/ | AVINGS FORMULA | E | ENERGY SAVINGS EXAMPLE |
|--|------|---|---|---|--|
| Yearly Savings = | | | | Assume a 75 HP Aqua- | |
| HP x .746 x L x C x N x $\begin{bmatrix} 1 & -1 \\ STD & ES \end{bmatrix}$ | | $x C \times N \times \left[\frac{1}{STD} - \frac{1}{ES} \right]$ | Lator [®] aerator is going to operate at full load, 7 days | | |
| Where: | ΗP | = | Horsepower | a week for 48 weeks, or | Yearly Savings = |
| | L | = | Percentage of full load operation | a total of 8064 hours per year. Also, assume the | HP x .746 x L x C x N x $\begin{bmatrix} 1 \\ STD \end{bmatrix} - \begin{bmatrix} 1 \\ ES \end{bmatrix}$ |
| | С | = | energy cost in dollars per kilowatt hour | cost of electricity is \$.086 per kilowatt hour. The | 75 x .746 x 100% x \$.086 x 8064 x [<u>1</u> .917 - <u>1</u> .950] |
| | Ν | = | Annual hours of operation | savings, using the Aqua- Lator ES aerator with a | = \$1,470.58 |
| | STD | = | Standard motor efficiency | motor efficiency of 95%, compared to the industry | |
| | ES | = | Aqua-Lator ES efficiency | standard of 91.7%, is calculated as follows | |

ELECTRICAL POWER CABLE SELECTION

| 230 VOLTS | | AWG CABLE SIZE | | | | | | | | |
|------------------|------|----------------|------|------|------|------|------|------|------|-------|
| HP | AMPS | 12-4 | 10-4 | 8-4 | 6-4 | 4-4 | 2-4 | 0-4 | 00-4 | 000-4 |
| 2 | 6.8 | 520 | 910 | 1400 | | | | | | |
| 3 | 9.2 | 290 | 630 | 990 | 1540 | | | | | |
| 5 | 15 | 200 | 380 | 600 | 930 | 1420 | | | | |
| 7.5 | 22 | | 255 | 405 | 630 | 965 | 1525 | | | |
| 10 | 28 | | | 320 | 500 | 780 | 1240 | | | |
| 15 | 40 | | | | 345 | 525 | 835 | 1265 | | |
| 20 | 52 | | | | | 405 | 645 | 975 | 1195 | |
| 25 | 64 | | | | | | 520 | 785 | 970 | |
| 30 | 76 | | | | | | 445 | 655 | 805 | 980 |
| 40 | 100 | | | | | | | 500 | 610 | 740 |
| 50 | 122 | | | | | | | | 520 | 620 |

| 460 VOLTS | | AWG CABLE SIZE | | | | | | | | |
|------------------|------|----------------|------|------|------|------|------|------|------|-------|
| HP | AMPS | 12-4 | 10-4 | 8-4 | 6-4 | 4-4 | 2-4 | 0-4 | 00-4 | 000-4 |
| 2 | 3.4 | 2090 | | | | | | | | |
| 3 | 4.6 | 1600 | | | | | | | | |
| 5 | 7.5 | 975 | 1540 | | | | | | | |
| 7.5 | 11 | 660 | 1040 | 1630 | | | | | | |
| 10 | 14 | 510 | 810 | 1270 | 1990 | | | | | |
| 15 | 20 | | 570 | 895 | 1395 | 2110 | | | | |
| 20 | 26 | | | 680 | 1060 | 1630 | | | | |
| 25 | 32 | | | 550 | 870 | 1320 | 2240 | | | |
| 30 | 38 | | | | 720 | 1095 | 1865 | 2620 | | |
| 40 | 50 | | | | | 820 | 1395 | 2000 | | |
| 50 | 62 | | | | | | 1155 | 1620 | 1990 | |
| 60 | 76 | | | | | | 960 | 1350 | 1655 | 1995 |
| 75 | 90 | | | | | | | 1100 | 1350 | 1620 |
| 100 | 127 | | | | | | | 790 | 985 | 1260 |

| 575 VOLTS | | AWG CABLE SIZE | | | | | | | | |
|-----------|------|----------------|------|------|------|------|------|------|------|-------|
| HP | AMPS | 12-4 | 10-4 | 8-4 | 6-4 | 4-4 | 2-4 | 0-4 | 00-4 | 000-4 |
| 2 | 2.7 | 2760 | | | | | | | | |
| 3 | 4 | 2325 | | | | | | | | |
| 5 | 6 | 1530 | 2430 | | | | | | | |
| 7.5 | 9 | 1025 | 1625 | 2545 | | | | | | |
| 10 | 11 | 830 | 1320 | 2070 | | | | | | |
| 15 | 16 | | 965 | 1425 | 2225 | · | | · | | |
| 20 | 21 | | 690 | 1080 | 1690 | | | | | |
| 25 | 26 | | | 870 | 1360 | 2070 | | | | |
| 30 | 30 | | | 745 | 1155 | 1745 | | | | |
| 40 | 40 | | | • | 875 | 1325 | 2100 | | | |
| 50 | 49 | | | | 715 | 1085 | 1725 | | | |
| 60 | 61 | | | | | 895 | 1425 | · | | |
| 75 | 71 | | | | | 810 | 1260 | | | |
| 100 | 101 | | | | | | | 1230 | 1540 | 1970 |

Notes

- AMPS Full load AMPS
- Maximum cable length in feet, based on 5% voltage drop and a .90 power factor

MOORING ACCESSORIES



MOORING CABLE

Mooring cables are designated by the number of strands in the cable and the number of wires in each strand. In the cable that we specify, 7x19 means 7 strands of 19 wires each. All mooring cable is manufactured of 7x19 strand, 304 stainless steel.

| НР | DIA | WGHT | STGH |
|-------|------|------|--------|
| 2-30 | 3/16 | 65 | 3,700 |
| 40-75 | 1/4 | 110 | 6,400 |
| 100 | 3/8 | 243 | 12,000 |

HP - Aerator horsepower

DIA - Cable diameter in inches

WGHT - Approximate weight per 100 feet in pounds.

THIMBLE

Heavy-duty thimbles, manufactured of 316

stainless steel, are available

in 3/16", 1/4", and 3/8" for

use with the corresponding

diameter mooring cable.

STGH - Nominal breaking strength in pounds.



WIRE ROPE CLIP

Heavy-duty U-bolt clips, manufactured of 316 stainless steel, are available in 3/16", 1/4", and 3/8" for use with the corresponding diameter mooring cable.



SHACKLE



Heavy-duty shackles, manufactured of 304 stainless steel, are available in 3/16", 1/4", and 3/8" for use with the corresponding diameter mooring cable. The shackle is attached to the thimble. This allows for easy

detachment of the aerator from the mooring line.



SNAP HOOK

Heavy-duty snap hooks, manufactured of 304 stainless steel, are available in 3/16", 1/4", and 3/8"

for use with the corresponding diameter mooring cable. The snap hook is attached to the thimble. This allows for simple detachment of the aerator from the mooring line for scheduled maintenance or other services.

MOORING RING

Mooring rings, manufactured of 304 stainless steel, are used to connect aerators together when the aerators are not moored to shore, posts, or concrete blocks.



EXTENSION SPRING

In applications where there are small amounts of variation



in the water level, stainless steel extension springs are used. The springs are installed at the mooring points to allow approximately 10 inches of expansion for each spring

3/16" - 1/4" MOORING HARDWARE ARRANGEMENT



For up to 30 HP, mooring consists of 1 thimble and 1 clip on each end of the mooring line. Above 30 HP, use 1 thimble and 2 clips on each end.

3/8" AND LARGER MOORING HARDWARE ARRANGEMENT



Mooring consists of 1 thimble and 2 wire rope clips on each end of the mooring line. Install the U-bolt section of the wire rope clips on the "dead" or short end of the cable, and the saddle on the "live" or long end of the cable. Apply the second clip as near the thimble as possible.

AERATOR ACCESSORIES



MIST ELIMINATOR™ SPRAY CONTAINMENT DOME

Used to control and contain the mist and spray generated by the pumping action of the aerator. The spray dome controls the water discharge and directs the water back into the bulk liquid, minimizing mist and retaining heat.



ANTI-EROSION ASSEMBLY

The anti-erosion assembly consists of a standard intake cone with an integral plate, attached to the bottom. The anti-erosion assembly causes water to be drawn from the sides, rather than from

directly below the aerator, thus helping to prevent bottom erosion that can sometimes occur in earthen basins. These assemblies are also used to prevent disturbance of the sludge blanket in facultative lagoon systems.

LOW TRAJECTORY DIFFUSER

The low trajectory diffuser (LTD) ring is bolted to the

top of the discharge cone to lower the aerator spray pattern. The LTD assembly reduces windblown spray and misting and reduces icing in colder climates.



TYPICAL MOORING ARRANGEMENTS



Shore Mooring

Most common mooring arrangement. Shore end connection is made to eyebolt or embedded anchor.



Restrained Mooring

For applications with large variations in water level. The restrained mooring frame fits around the mooring posts and allows the aerator to slide up and down the posts with changes in water level.

Pivotal Mooring Arm



Pivotal mooring arms allow the aerator or mixer to move vertically with any change in the water level, and allows the aerators to be pulled to the side of the tank for maintenance.

ELECTRICAL ACCESSORIES



POWER CABLE

Electrical power cable consists of flexible stranded copper conductors with light weight, high dielectric strength insulation. Rated at 105 degrees centigrade, it has superb flexibility, superior abrasion resistance, ozone, chemical, oil and water-resistance. The power cable is manufactured with non-wicking polypropylene fillers and is stamped "water-resistant."



COMPRESSION FITTING

Compression fittings are used to seal the power cable into the motor junction box. They are available in sizes to match the specific cable used.

QUICK DISCONNECT PLUG

Fully insulated and abuse-resistant, heavyduty housings. A series of neoprene glands are supplied with the plugs and connectors to



ensure a reliable seal at the point of cable entry. Gasketed locking rings and covers prevent contamination by dust, water, etc.

QUICK DISCONNECT RECEPTACLE

Fully insulated and abuse-resistant, heavy-duty nylon housings. All metal parts are made of corrosion-resistant materials, color coded by voltage, in accordance with I.E.C. standards. This makes identification of matching devices quick and easy. The selfclosing cover is keyed to normally seat



in a position that provides a weatherproof seal, and simply locking the cover makes it watertight.

POWER CABLE SUPPORT BRACKET



These cable support brackets are attached to the mooring ear on fiberglass floats. For stainless steel floats, a bracket is welded to the float. The power cable is clamped to these brackets to protect the cable from abrasion.

POWER CABLE FLOAT



These power cable floats will hold the power cable at the water surface to

avoid the possibility of cable dragging on the bottom and getting injested into the aerator.

ELECTRICAL CABLE TIE

These cable ties are manufactured of heavyduty weather-resistant nylon. They are available in a variety of sizes to



accommodate the cable sizes used on the aerator. The minimum loop tensile strength is 120 pounds in accordance with paragraph 3.5.1 of MIL-S-23190E.



Aqua-Lator[®] Surface Aerator installed with E-Ball[®] Floating Cover System

STRAIN RELIEF GRIP

Strain relief grips are designed to prevent tension from being transmitted to joints



and terminals on the power cable, which could result in pullout. In most applications, a strain relief is stronger than the cable itself and gives much greater security than the use of a compression fitting alone. Strain relief grips are available in sizes to match the specific cable used.

MOTOR OPTIONS



In addition to all the standard features on the Aqua-Lator[®] aerator motors, the following additional features are available:

- Premium efficient
- Space Heaters
- Dual speed
- Thermal overload protection
- Explosion-proof

CONTROL PANEL

Control panels, with NEMA® compliant enclosures are available for manual, semi-automatic, or completely

automatic operation. A standard control panel consists of across-theline starters, pushbutton start-stop switches, and a main disconnect safety lever switch. Other special enclosures which require such items as timers, pilot lights, alarm horns, or elapsed time meters, are available upon request.



SPECIAL NOTES

Specifications And Dimensions

The specifications and dimensions in this catalog are intended to be representative and illustrative, of the size, function and appearance of our products. The descriptions, data, and charts are not intended to be engineering specifications universally applicable to specific design problems. Since particular designs, installations, and plants call for specific requirements, we recommend that customers consult Evoqua for exact data and recommendations that may be required for special applications.

The Best Choice

Since establishing a leadership position in the high speed floating mechanical aerator market in 1963, the Aqua-Lator aerator has delivered excellent value to thousands of wastewater treatment operators. Going forward, the

Aqua-Lator aerator will continue to deliver reliable performance, simplicity of operation and ease of maintenance. Its exceptional versatility and usage in a wide range of wastewater applications deserves consideration from every wastewater professional. Aqua-Lator Aerators, the best choice.

The same commitments to reliable performance, product quality, and customer responsiveness support all Aqua-Lator products.

- Aqua-Lator Direct Drive Mixers
- Aqua-Lator Floating Spray Coolers
- E-Ball[®] Floating Cover Systems





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