Providing TOTAL
Water Management
Solutions

Visit our website at www.aqua-aerobic.com to learn more about the Aqua-Jet® Surface Mechanical Aerator and our complete line of products and services:

- Aeration & Mixing
- Biological Processes
- Filtration
- Membrane Systems
- Controls & Monitoring Systems
- Aftermarket Products and Services

Aqua-Jet® Mooring Arrangements
There are four standard mooring arrangements for the Aqua-Jet aerator. The type selected is dependent on the specific application.

- Post/Maintenance Mooring
  A mooring post is installed on shore and the mooring line is attached to an eyebolt in the post. A maintenance loop enables the operator to pull the unit to shore or opposite side of the basin without disconnecting the line. Available for 3 or 4 point-mooring.

- Span Mooring
  Span Mooring is used in larger lagoon applications, allowing more than one (1) aerator to be attached to a single mooring cable across the lagoon. Each aerator is attached to the cable using a 3 point mooring concept and can be removed individually for service (plan view shown to the right).

- Restricted Mooring
  Restricted Mooring is used in applications with varying water levels. The Aqua-Jet mooring frame fits around the mooring posts and allows the aerator to slide up and down the posts as the water level changes.

- Pivotal Mooring
  A Pivotal Mooring arm is used in applications with varying water levels with arm lengths up to 13 meters. The arm fits at the base of the motor allowing the aerator to adjust to varying water levels.

Aqua-Jet® Typical Applications
- Extended aeration
- Aerobic digestion
- Equalization
- Aerated lagoons
- Oxidation ditch
- Sludge holding
- Municipal-industrial combinations
- Batch reactor processes

Industrial Applications
- Pulp and paper
- Refineries/petroleum
- Palm oil
- Food and beverage
- Chemical
- Pharmaceutical
- Textile
- Energy/power

Municipal Application Advantages
- Provides efficient oxygen transfer and complete mixing
- Pivotal Mooring or Restricted Mooring accommodates large changes in water level
- Units can be pulled to the side of the basin for service
- Aerator can be “pivoted” to maintain dissolved oxygen (D.O.) and save energy.

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Fluid Deflector

Includes allowance for anti-vortex cross.

Aqua-Jet® components

- **Diffusion Head**
- **Float**
- **Propeller**
- **Labyrinth Seal Guard**

**Features and Advantages**

- Vibration limiting design, velocity of 7.5 millimeters/second or less
- Proven oxygen and mixing performance
- Easy and flexible installation
- Short lead times

**Aqua-Jet® Operation**

The Aqua-Jet® aerator is a mechanical direct-drive unit designed to provide optimum oxygen transfer in a variety of municipal and industrial wastewater applications. The performance of the Aqua-Jet® aerator also provides the mixing necessary to uniformly disperse oxygen and organic matter within the microbial mass.

### How It Works

1. Basin water is pumped up into the intake cone and through the volute, and is dispersed through the diffusion head in a 360-degree spray pattern. Oxygenation occurs at two critical points: 1) when the water exits the diffusion head and 2) when the spray enters the water surface.

### Typical Aqua-Jet® Operating Depths (50 Hz)

- **Activated Sludge**
- **Unit Size (Kw/Head)**
- **Aerated Lagoons**

### Aqua-Jet® Accessory Options

- **Anti-Erosion Assemblies**
- **Anti-Deflection Inserts**
- **Low Trajectory Diffuser (L.T.D.) Assembly**
- **Draft Tubes**

- **Aqua-Jet® Contained Flow Aerator**

### Aqua-Jet® Unit Sizes and Dimensions

<table>
<thead>
<tr>
<th>Model</th>
<th>SS (stainless steel)</th>
<th>FSS (fiberglass)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diameter (mm)</td>
<td><strong>A</strong></td>
<td><strong>B</strong></td>
</tr>
<tr>
<td>ss</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FSS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** These charts are intended for approximation purposes only. Requirements are dependent upon basin geometry, etc. Consult Aqua-Aerobic Systems for larger kilowatt units or specific applications.

**DIMENSIONS (cm)**

<table>
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<tr>
<th>Model</th>
<th>SS (stainless steel)</th>
<th>FSS (fiberglass)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dia.</strong></td>
<td><strong>A</strong></td>
<td><strong>B</strong></td>
</tr>
<tr>
<td>3000</td>
<td>2.2</td>
<td>152</td>
</tr>
<tr>
<td>3005</td>
<td>37.5</td>
<td>1000</td>
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<tr>
<td>3010</td>
<td>75</td>
<td>1500</td>
</tr>
<tr>
<td>3015</td>
<td>112</td>
<td>2,500</td>
</tr>
</tbody>
</table>

* Includes allowance for anti-vortex cross.

**E**:

- * Includes allowance for anti-vortex cross.
- Shaft speeds are available upon request.

**Motor**

- Standard 5-year warranty, severe duty, totally enclosed fan-cooled (TEFC), Class F insulation, 1.15 service factor

**Diffusion Head**

- Monolithic casting, 304 stainless steel (ss), limits vibration

**Motor Shaft**

- One-piece, 17-4 precipitation hardened (PH) ss, eliminates couplings

**Float**

- Fiberglass or 304 ss exterior. Interior closed-cell polyurethane foam adds structural stability and prevents sinking.

**Propeller**

- Two-blade design prevents cavitation, 316 ss, non-clog operation

**Intake Condenser/Verticle Cross**

- 304 ss, provides minimum headloss

**Surfacing Mechanical Aerator**

- The Aqua-Jet® aerator is the most durable, highly efficient wastewater aerator on the market today. Since 1969, more than 80,000 Aqua-Jet® aerators have been installed throughout the world, representing 1.1 million kilowatts and over 9 billion hours of runtime.

**The robust design and use of the highest quality materials have also made the Aqua-Jet® the most trusted aerator in the industry,** outlasting other aerators 2 to 1.

### Aqua-Jet® Components

- **Diffusion Head**
- **Float**
- **Propeller**
- **Labyrinth Seal Guard**

**Aqua-Jet® Accessory Options**

- **Anti-Erosion Assemblies**
- **Anti-Deflection Inserts**
- **Low Trajectory Diffuser (L.T.D.) Assembly**
- **Draft Tubes**

- **Aqua-Jet® Contained Flow Aerator**

### Aqua-Jet® Contained Flow Aerator

The Aqua-Jet® Contained Flow Aerator is designed for applications which require continuous operation of aerator equipment during cold-weather months, but are limited because of an inadequate heat sink due to process variation or environmental conditions. This aerator has proven to operate efficiently in a variety of applications, even in sub-zero temperatures. The dome is essentially a spray control shield mounted to the diffusion head of the Aqua-Jet® aerator.
The Aqua-Jet® sorbent is the most durable, efficiently depreciated wastewater sorbest on the market today. Since 1965, more than 60,000 Aqua-Jet® aerators have been installed throughout the world, representing 1.1 million kilowatts and over 9 billion hours of runtime.

The robust design and use of the highest quality materials have also made the Aqua-Jet the most trusted aerator in the industry, outlasting other aerators 2 to 1.

Aqua-Jet® Features and Advantages

- **Vibration limiting design**, velocity of 7.5 millimeters/second or less
- **Proven oxygen and mixing performance**
- **Easy to handle installation**
- **Short lead times**
- **Easily incorporated into existing plants**
- **Units are versatile for easy access**
- **Various mounting arrangements available**
- **Endura™ Series low maintenance motors save energy, reduce O&M costs and increase performance**

How It Works

Basic water is pumped up into the intake cone and through the volute, and is dispersed through the diffusion head in a 360-degree spray pattern. Oxygenation occurs at two critical points:

1. When the water exits the diffusion head and
2. When the spray enters the water surface.

The unit is available in 230 volts and can be used with an ambient temperature thermostat. Operation of the Arctic Pak is controlled by an automatic controls and control panel. Operation of the Arctic Pak is controlled by an ambient temperature thermostat.

**Aqua-Jet® Operation**

The Aqua-Jet® sorbent is a mechanical direct-drive unit designed to provide optimum oxygen transfer in a variety of municipal and industrial wastewater applications. The performance of the Aqua-Jet® sorbent also provides the mixing necessary to uniformly disperse oxygen and organic matter within the microbial population.

**Aqua-Jet® Components**

- **Diffusion Head**
- **Motor** – standard 3-year warranty, severe duty, totally enclosed fan-cooled (TEFC), Class F insulation, 1.15 service factor
- **Motor Shaft** – 1-7/8” precision balanced (P/B), eliminates couplings
- **Float** – fiberglass or 304 ss, exterior: integral cladding polyethylene foam adds structural stability and prevents sinking. Interior: closely spaced, stainless steel (ss) vanes
- **Propeller** – two-blade design prevents clog, 316 ss, non-clog operation
- **Intake Cone**

**Aqua-Jet® Accessories**

- **Anti-Erosion Assemblies**
- **Draft Tubes**
- **Low Trajectory Diffuser (L.T.D.) Assembly**
- **Arctic Pak**

**Aqua-Jet® Contained Flow Aerator**

Aqua-Jet® Contained Flow Aerators are designed for applications which require continuous operation of water treatment during cold-weather months, but are limited because of an inadequate heat sink due to process variation or environmental conditions. This sorbent has proven to operate efficiently in a variety of applications, even in sub-zero temperatures. The dome is essentially a spray control shield mounted to the diffusion head of the Aqua-Jet aerator.

**Aqua-Jet® Accessory Options**

- **Anti-Erosion Assemblies**: consist of a stainless steel plate attached to the bottom of the Aqua-Jet sorbent intake cone via an anti-vortex cross. The assembly causes water to be drawn from the sides of the intake cone, rather than from directly below it, and prevents damage to the basin liner or erosion of the bottom. Anti-Erosion Assemblies are available for all kilowatt Aqua-Jet aerators. Consult the factory for dimensions.

**Draft Tubes**

The Draft Tube accessory provides an extension of this intake cone and permits a deeper intake of water. Available in lengths of 0.91 and 1.30 meters.

**Low Trajectory Diffuser (L.T.D.) Assembly**

The Low Trajectory Diffuser (L.T.D.) Assembly is a high density polyethylene ring that is attached to the top of the diffusion head. This assembly lowers the spray of the Aqua-Jet sorbent reducing windblown spray and mixing. Low Trajectory Diffusers are used in colder climates, and where a smaller, lower spray pattern is desired.

**Arctic Pak**

The Arctic Pak contains thermostatic reheating elements which maintain the intake of clogging or exposed surfaces of the Aqua-Jet aerator, such as the draft diffuser head. The Arctic Pak is complete with its own junction box (which mounts on the motor fan cover), automatic controls and control panel. Operation of the Arctic Pak is controlled by an ambient temperature thermostat.

The unit is available in 230 volts and can be used on finding Aqua-Jet aerators. Drawings and wiring diagrams are available on request.

**Aqua-Jet® Unit Sizes and Dimensions**

<table>
<thead>
<tr>
<th>Unit Size (Kwkw)</th>
<th>Operating Depth (Meters)</th>
<th>Diameter (cm)</th>
<th>Shaft Dia (mm)</th>
<th>W/L</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>Wt (kg)</th>
<th>RPM</th>
<th>kW</th>
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</thead>
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<td>137</td>
<td>1000</td>
<td>1500</td>
<td>740</td>
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<td>20 kg</td>
<td>3050</td>
<td>1.5</td>
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<td>740</td>
<td>330</td>
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**Typical Aqua-Jet® Operating Depths (50 Hz)**

- **Activated Sludge**
- **Aerated Lagoons**

**Table Notes**

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**Diagram 1**

- **Typical Aqua-Jet® sorbent operation**
- **May vary slightly depending on site conditions.**

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**Diagram 2**

- **Activated Sludge**
- **Aerated Lagoons**

**Diagram Notes**

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- Span Mooring
  - Span Mooring is used in larger lagoon applications, allowing more than one (1) aerator to be attached to a single mooring cable across the lagoon. Each aerator is attached to the cable using a 3 point mooring concept and can be removed individually for service (plan view shown to the right).

- Restrained Mooring
  - Restrained Mooring is used in applications with varying water levels. The Aqua-Jet mooring frame fills around the mooring posts and allows the aerator to slide up and down the posts as the water level changes.

- Pivotal Mooring
  - A Pivotal Mooring arm is used in applications with varying water levels with arm lengths up to 13 meters. The arm fits at the base of the motor allowing the aerator to adjust to varying water levels.

Aqua-Jet® Typical Applications

- Extended aeration
- Aerobic digestion
- Equalization
- Aeration lagoons
- Oxidation ditches
- Sludge holding
- Municipal-industrial combinations
- Batch reactor processes

Industrial Applications

- pulp and paper
- Refineries/petroleum
- Palm oil
- Food and beverage
- Chemical
- Pharmaceutical
- Textile
- Energy/power

Municipal Application Advantages

- Provides efficient oxygen transfer and complete mixing
- Pivotal Mooring on Restrained Mooring accommodates large change in water level
- Units can be pulled to the side of the basin for service
- Noise/reducing
- Aerators can be set up to control dissolved oxygen (DO) and save energy

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Municipal Application Advantages
- Provides efficient oxygen transfer and complete mixing
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