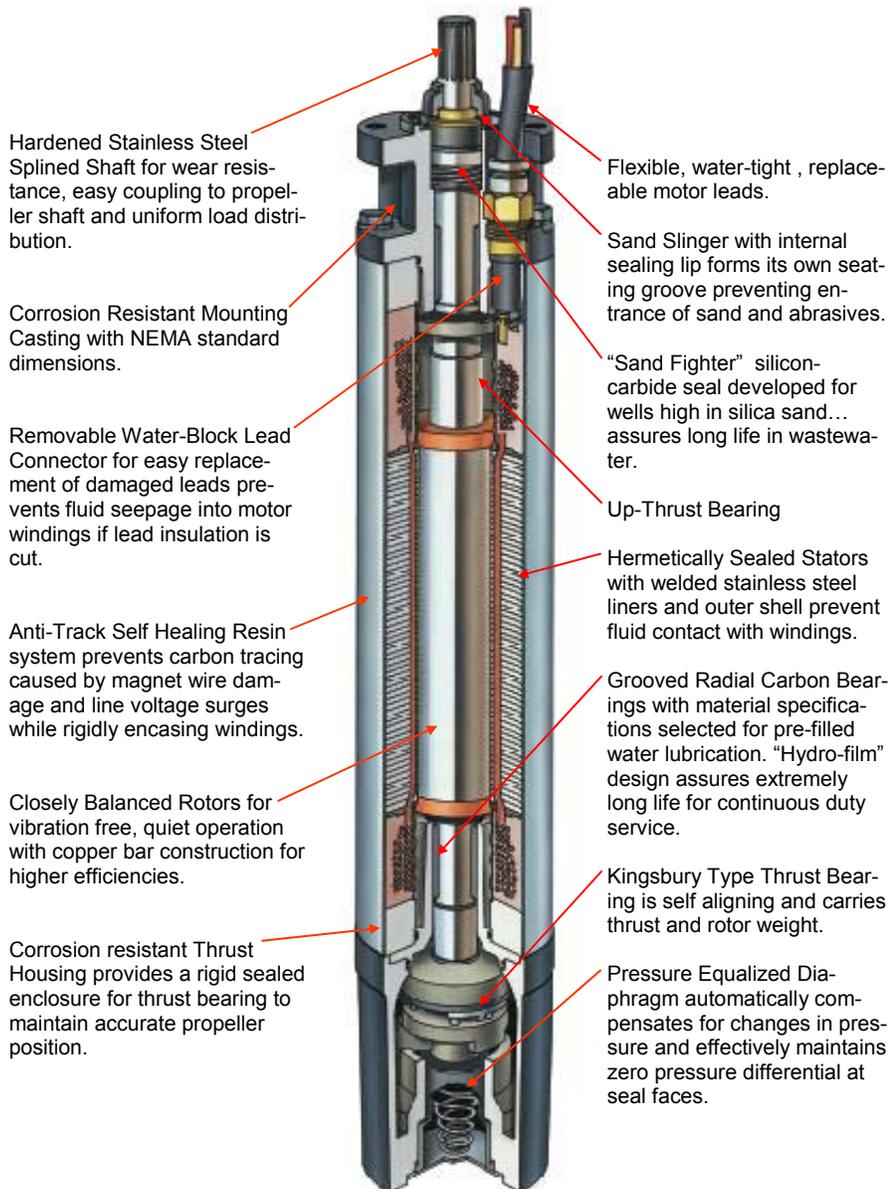


**AQUATEC, INC.**

# The AquaTec AWA Aerator is Best Because it Has the Best Motor



At -18 deg F, the top mount aerator in the background is frozen in until spring. The UNSTOPPABLE AquaTec AWA, (all weather aerator) is the hands-down winner. It is also a more powerful mixer and more efficient oxygen transfer aerator than is any aspirator type aerator. The AquaTec AWA is the most cost effective aerator you can buy. Call today for a quote for your system.



See Back of this page for more details on this equipment and its features.

Contact AquaTec: Mail (1235 Shappert Dr. Rockford, IL 61115) [http:// www.aquatecinc.com](http://www.aquatecinc.com)  
Phone: 815-654-1500 Fax: 815-654-0038



# AQUATEC AWA – ALL WEATHER AERATORS

## Floating, direct drive, mechanical aerators

AquaTec AWA - All Weather Aerators are available through 60 HP. AWA units use off the shelf submersible motors and deliver increased reliability at a reasonable price.

### The AquaTec AWA uses a submerged motor to eliminate several major problems.

- **Overturning** due to wind, ice, or towing to position is eliminated. There is no exposed motor for vandals to shoot or lightning to hit. Cold weather operation does not require anti-ice equipment which can reduce performance efficiencies. The subsurface center of gravity permits using smaller diameter floats for easier handling and reduced weight.
- **Bearing damage** from vibration due to cavitation, or a large prop slightly out of balance at the end of a long shaft is eliminated. The AWA's precision cast, stainless steel prop mounts on the short, spurred motor shaft; and operates with under 1.0 mil of vibration. It produces high volume flow through the float volute without needing an inlet cone or anti vortex vanes.
- **Lubrication is *NEVER* required.** The carbon sleeve bearings and Kingsbury thrust bearings are rated for at least 5 times the thrust potential of the props. These extremely reliable, fluid filled motors have run in excess of twenty years in millions of pump well applications without so much as an inspection.
- **Condensation problems** found in top mounted motor aerators can never exist in AquaTec AWA fluid filled motors. The stainless steel motor jacket eliminates corrosion problems.
- **Microprocessor based motor protection** controls are provided to prevent electrical damage and permit offering a *100% three year warranty* at no additional cost – the Subtrol unit. The control attaches to the motor starter coil circuit and protects against overload, primary or secondary single phasing, under / over voltage, phase reversal or imbalance, over temperature, and indirect lightning hits. After a fault, the control will automatically attempt to restart the motor several times at timed intervals. If the motor fails to start, it will alarm and switch to a manual start mode.
- **Replacement motors are available from AquaTec or at hundreds of service outlets nationwide.** It usually costs less to replace an AquaTec AWA submersible motor than to rewind and rebalance top mounted aerator motors - and you get a new motor warranty.
- **All stainless steel and fiberglass construction eliminates corrosion.** Simplified construction without heavy motor support castings or intake cones, and double-nutted fasteners eliminate mechanical problems. Stainless steel floats are also available.
- **The spray pattern can be easily altered** to reduce aerosols or ice buildup on adjacent equipment, or to accommodate other requirements such as excessive winter cooling.
- **Accurate clean water oxygen transfer ratings** permit sizing aerators normally - with the assurance that adequate oxygen will be available when plant capacity is reached.

**AquaTec AWA aerators survive floods, hurricanes, power problems, and severe winter weather.**

### THE BOTTOM LINE

**AquaTec AWA units cost less to own.**

- Lower installed initial cost
  - Lower long-term maintenance cost per HP
  - Lower long term cost per pound of BOD removed

# LONG TERM EXPERIENCES WITH FRANKLIN ELECTRIC SUBMERSIBLE MOTORS & AERATOR OPERATION IN COLD WEATHER

Guess Farm Equipment in St. Matthews, S.C. installs about ten irrigation wells per year using Franklin Electric submersible motors. The only motor problem they have is lightning - which AquaTec protects against in their control package. Some wells have been operating for over fifteen years with no problems. They praise the reliability of these motors, and realistically expect them to run for twenty years or more in well pump applications.

Aerator duty is easier than well pump duty. Startups are shorter and usually less frequent, and there is less grit. A major difference between aerator and well applications is that in aerator applications the motor thrust bearings are rated for at least five times the available thrust from the props. Some of the thrust bearings are rated in excess of fifteen times the available thrust.

Another difference is an imbalance factor caused by the prop. A well balanced prop mounted near the radially loaded top bearing permits extremely long bearing life. Conversely, a poorly balanced prop causes premature top bearing failure. AquaTec props are dynamically balanced to under 1.0 mil for that reason. This is a standard *no one else* in the aerator business meets.

In the eighties AquaTec represented a manufacturer of an aerator similar to the AquaTec AWA unit which used Franklin Electric submersible motors. AquaTec later severed their relationship after the vendor began producing units which were neither corrosion resistant nor reliable - due to inappropriate materials; and poor quality, unbalanced props. Had they continued to deliver viable aerators, AquaTec would have had no reason to produce their AWA units.

AquaTec installed many of the vendor's early units with Franklin Electric submersible motors. They have operated successfully for years in applications where top mounted motor aerators would ice up and flip over, or would require anti-ice equipment which reduces operating efficiency. One example involves the Del Monte plant in Leseur, Minnesota. They had a unit which had some ice build-up and sank 6" to 8" its temperatures of -30°F to -50°F. Water flowing through the aerator prevented the surface from freezing; melted the ice and the float; and after being submerged for about an hour or so, it popped up to the surface and resumed operation. This happened regularly, with no detrimental effect on the aerator.

To use AWA units in cold climates, or to reduce aerosols, simply add a top plate. This produces a low trajectory which reduces aerosols, excessive cooling, and ice buildup on the floats, adjacent walkways, or equipment. Unlike top mounted motor aerators, this can be easily done on site using ordinary hand tools.

Franklin Electric found that 80% of submersible motor failures are stator winding failures due to power problems and overloads. Recognizing this, AquaTec supplies a protection package to prevent most power related failures - except those caused by direct lightning hits. The controls monitor a temperature transmitter and current in two motor leads to provide protection from overload, underload, overheating, rapid cycling, primary or secondary single phasing, voltage imbalance, undervoltage, overvoltage, phase reversal, and indirect lightning hits. Upon a fault, the control stops the motor and alarms. It will attempt to restart the motor several times at timed intervals. If the motor fails to start, it is switched to a manual restart mode.

I contacted several users who have had aerators with Franklin Electric submersible motors in operation for about 15 years with good results in cold climates. Here's what I found.

Clermont, IA

5 ea. 5 HP

1985

1 unit failed to date - failure mode unknown

