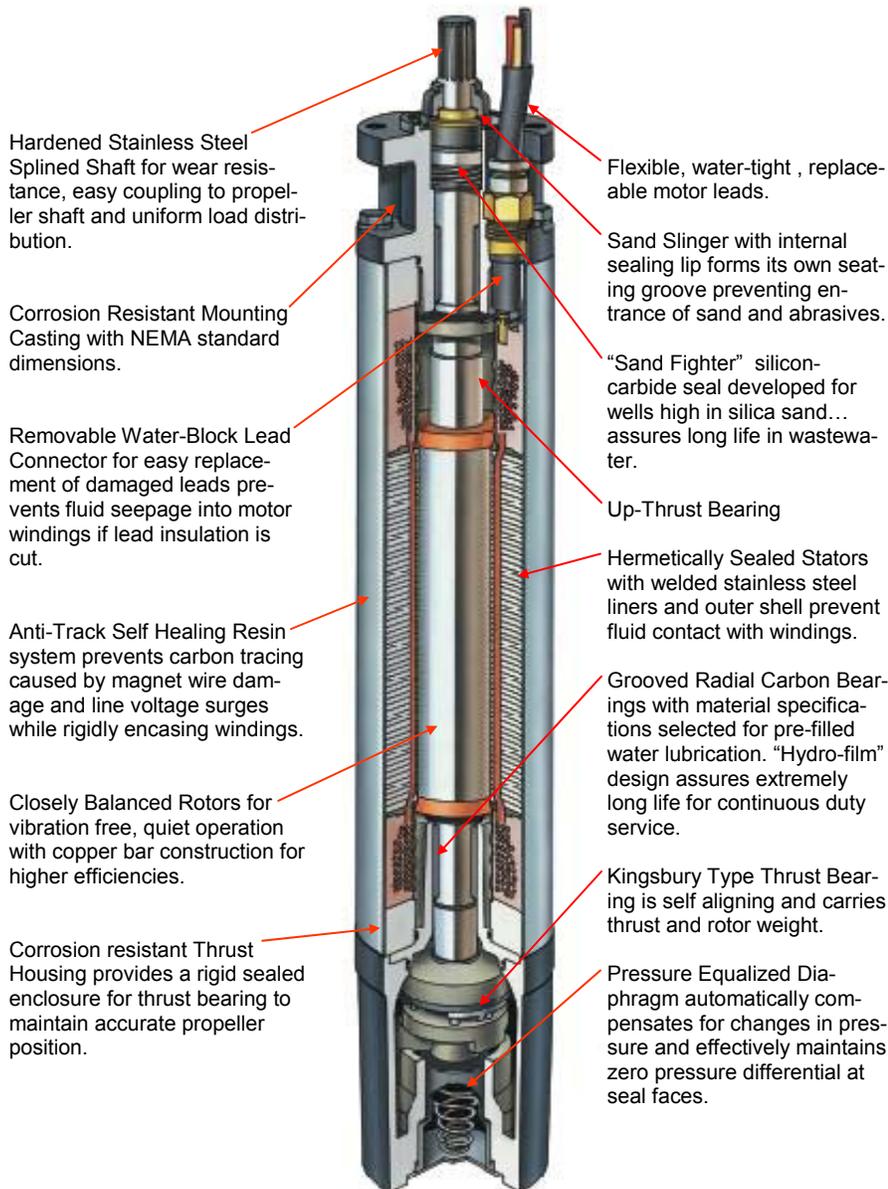


AQUATEC, INC.

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



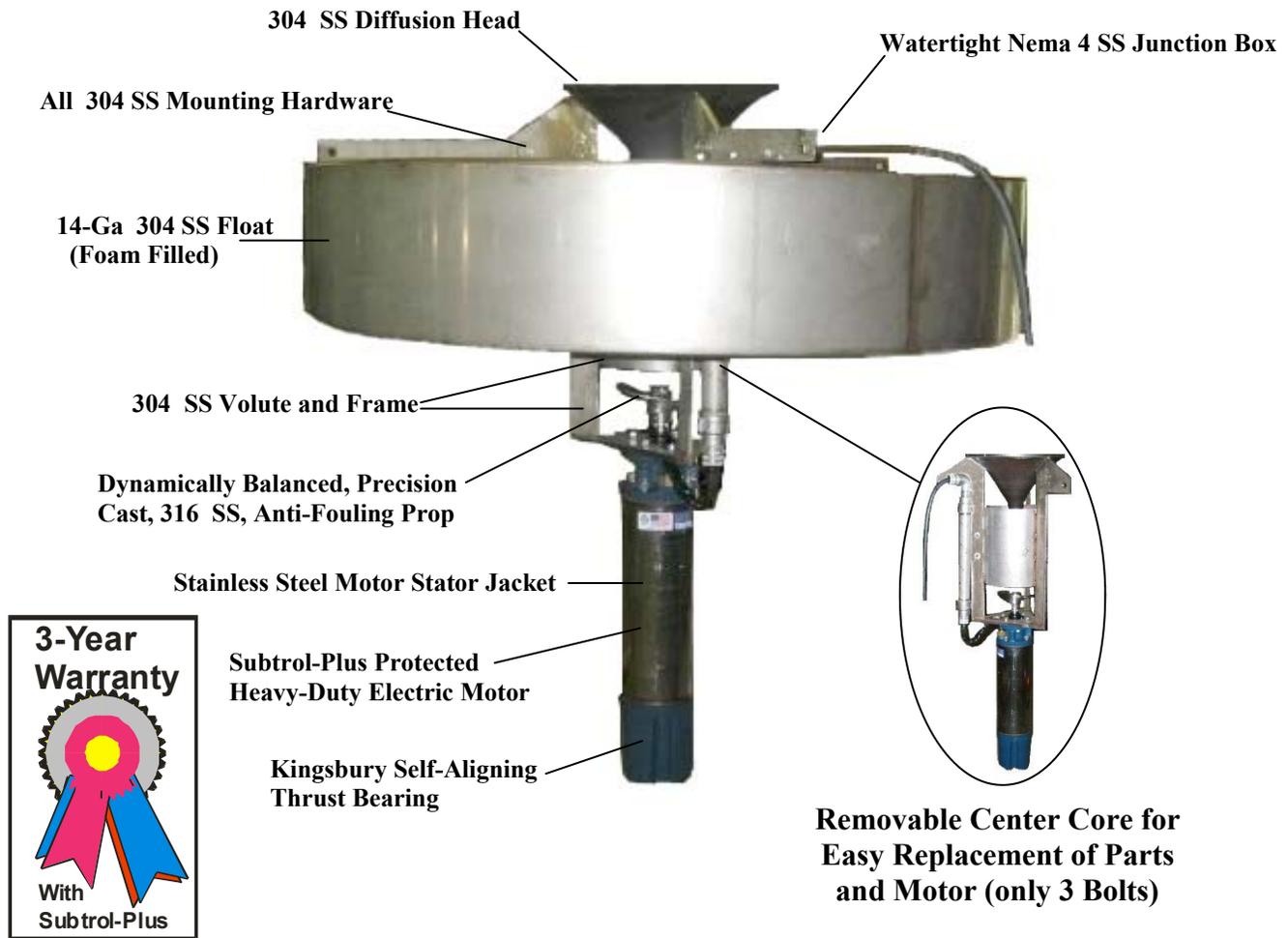
At -18 deg F, the top mount aerator in the background is frozen in until spring. The UNSTOPPABLE AquaTec AWA, (all weather aerator) is the hands-down winner. It is also a more powerful mixer and more efficient oxygen transfer aerator than is any aspirator type aerator. The AquaTec AWA is the most cost 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 Aerator Design Features



Important Design Points

- Long life Submersible motor
- Low, underwater center of gravity
- No (zero) scheduled maintenance
- No couplings or gear-boxes
- No “proprietary” motor required
- Stainless Steel aerator frame parts
- Designed by experienced engineers
- Maximized propeller performance

Your Benefits

- = Less motor repair cost
- = No “overturn” problems from ice
- = Less trouble, and less cost to own
- = No adjustments, repair or service
- = New motors available worldwide
- = Lasts lifetime of the aerator
- = You get more value with less risk
- = Better mixing and oxygen transfer

THE SUBTROL-PLUS ADVANTAGE

The AquaTec AWA aerator comes with the “Subtrol-Plus” control to give you a 3-year warranty. This unique control protects your equipment and even restarts the unit if a fault causes the motor to “trip” out. There is “zero” scheduled maintenance and it is less costly to replace the AWA motor than rebuild most top mount aerator motors. The Franklin motor used on AWA aerators is world-wide famous as the best deep well motor anywhere, and some have been in uninterrupted service for over 30 years.... Call AquaTec for a quote for your aeration needs.

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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

Eureka, MO 6 ea. 7.5 HP Late seventies
These devices originally had cutless bearings which caused multiple failures. After switching to props mounted directly on the motor shaft they operated for years without any problems. Recently, they began having motor problems due to overloading caused by excessive sludge in the lagoon cells as evidenced by excessive amp draw. This would be problematic with all types of aerators. (The motor protector supplied with AWA units prevents this type of failure.) The one unit not subjected to excessive loading due to sludge build-up has operated for over 18 years without any motor problems.

Oak Grove, MO 7 ea. 5 HP 1989
No motor failures. Replaced 1 power cable.

Poplar Grove, IL Oak Lawn Motor Home Park 3 ea. 3 HP 1985
No motor failures. They have replaced electrical junction boxes which corroded.

Green, IA 9 ea. 5 HP 1985
1 failure due to a broken prop. Two others had failed bearings due to vibration. Other units are still running. A unit on an elapsed time meter had 43,000 hours (5 years) of intermittent service since 1985. According to Mr. O'Brien, Guttenberg, IA has a similar experience with 20+ years of service, and New Hartford, IA has had good experience since they replaced the original motors with Franklin motors.

Mr. O'Brien says that winter temperatures get to -20°F in northern Iowa. He has had no problems with sinking floats. Some units actually get ice domes over them so that you cannot see the aerator, but continue to work with no problems. He says that aerators on timers will get these domes more quickly as their run times get shorter.

When you couple the above information with the benefits described on the attachments, it is readily apparent why you can select the AquaTec AWA units with confidence.

- The Franklin submersible motor has a long, proven history of success in aerator applications.
- AquaTec builds AWA units with the best materials and construction practices; the units are balanced to less than 1.0 mil - the toughest standard in the aerator industry.
- AWA units have excellent motor protection which others cannot offer, or only offer as optional equipment.
- AWA units eliminate much of the hardware, and solve several major problems associated with top mounted motor units. See the attached sheet.
- AWA units survive floods, hurricanes, power problems, and severe winter weather.

They are truly what their name says - ALL WEATHER AERATORS