

**Aeration
Industries®**

TRI-OVAL® System

Oxidation Oval Process Utilizing AIRE-O2 Triton® Technology

The Tri-Oval® System provides unsurpassed control of the activated sludge process matched with the cost saving benefits of simplified design, installation, and operation. What makes this possible is our unique, patented AIRE-O2 TRITON® process aerator/mixer that drives fine bubble aeration and complete mixing as deep as 33 feet (10 meters). This means we can build a deeper oval with a much smaller footprint and still treat the same volume of wastewater.

Using AIRE-O2 TRITON® technology, aeration and mixing horsepower are divided between multiple process units providing for inherent equipment redundancy and power distribution around the ditch. This greatly simplifies operations and maximizes treatment efficiency and process control capabilities.

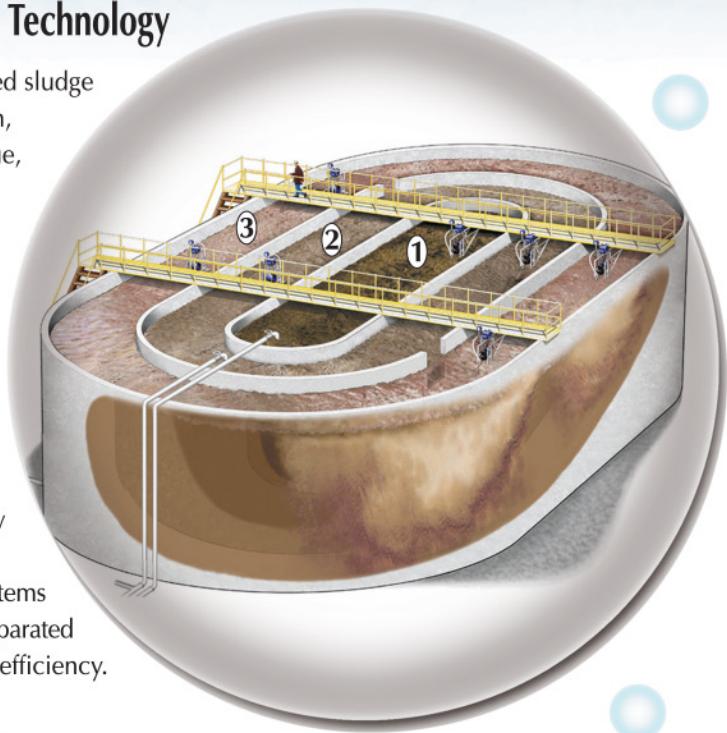
The Tri-Oval System can be sized for average design flow rates of 75,000 gallons per day and higher. A variety of design arrangements are available consisting of 1, 2, or 3 ring Tri-Oval Systems depending on the treatment requirements. The Tri-Oval System is separated into distinct zones of treatment for enhanced control and process efficiency.

The 3 ring Tri-Oval system (shown at right) is arranged as follows:

1. Anaerobic Zone → Biological selector for Phosphorus release (1st step in EBNR treatment) or Aerobic Zone → Integrated Sludge Digester.
2. Anoxic Zone → BNR treatment for Nitrogen and Phosphorus removal.
3. Aerobic Zone → BOD/TSS, Ammonia, and Phosphorus removal.

TRI-OVAL® Benefits:

- Designs from 10 to 33 feet (3-10 m) deep results in a more compact treatment plant footprint.
- 1, 2, and 3 ring systems allow for a variety of design options to customize the system to the treatment needs.
- AIRE-O2 TRITON® process aerator/mixer simplifies design and O&M, increases treatment efficiency, and maximizes process control capabilities.
- Complete mixing throughout water column eliminates solids deposition.
- Costly concrete elements are eliminated (aerator structural supports, splash walls, turning baffles, fillets, covers, etc.).
- Easy to automate process control using DO and/or ORP feedback.
- Quiet operating (<65 db)/community friendly equipment.
- Sub-surface aeration and mixing means improved winter performance and no aerosoling/misting.
- Retrofits into existing ditches to replace or supplement equipment are quick and easy with virtually no down-time.
- Process guarantees are available.



The Aire-O2 Triton® aerator/mixer, the heart of the Tri-Oval® System, integrates fine bubble aeration with a low speed mixer capable of providing complete mixing to 33 feet (10m) deep.

TRI-oval® System

Utilizing AIRE-O₂ TRITON® Technology

AIRE-O₂ TRITON® Process Aerator/Mixer... the Heart of the Tri-Oval® System.

Biological nutrient removal (BNR) processes are now easier to regulate and more cost effective to operate by combining mixing and aeration in a single compact unit with independent aeration control. The patented AIRE-O₂ TRITON® process aerator/mixer maximizes fine bubble oxygen dispersion and mixing for greater oxygen transfer efficiencies. Together with our AIRE-O₂ aerator, more than 55,000 units have been delivered since 1974 throughout the U.S.A. and in more than 85 countries around the world.



Tri-Oval® Oxidation Oval System Outperforms Conventional Ditch Systems...

TRI-oval®

CONVENTIONAL DITCH

(ie: brush/disc. rotors and low speed aerators)

Footprint	Capable of maintaining solids in suspension in tanks with depths to 33 ft. (10m). Deeper tanks allow for reduced land requirements.	Limited depths result in a larger footprint.
Turn-Down Capability	Can turn off entire AIRE-O ₂ TRITON units (mixing and aeration) or aeration only to match BOD demand and flow fluctuations which improves process operation and minimizes operating costs	Typically use large Hp aerators in ovals that result in limited turn-down capability and process problems if an aerator fails.
Dual-function Aerator	Aeration can be turned on and off independent of mixing using the AIRE-O ₂ TRITON units	N/A
Process Control	On demand aeration allows for complete D.O. control from anaerobic to anoxic to oxic conditions while maintaining mixing.	Not capable / Additional equipment required.
Mounting Options	AIRE-O ₂ TRITON can be mounted via: <ul style="list-style-type: none">• Bridge• Wall• Float (light weight and easy to move)	Limited to fixed concrete structures.
Aerator Maintenance	1. Few wear components. 2. Up to 5 year warranty, depending on application. 3. Routine maintenance quick and easily performed in field. 4. Slow speed mixer (900 rpm-60 HZ; 750 rpm-50 HZ) = longer equipment life and less regular maintenance.	1. Complex gear box requires a lot of maintenance. 2. Complicated maintenance, sometimes requiring partial ditch draining.
Winter Performance	Subsurface aeration. No aerosol or odors. No icing means a safer environment. Quiet operation.	Splashing, aerosols can create odors and icing in winters, as well as releases harmful pathogens into the environment.
Energy Efficiency	1. Turn down capability allows reduced energy consumption. 2. Can result in up to 50% energy savings over previous systems.	N/A



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