

Rapid Recreational Pond Restoration with Agrona Nanobubble Technology

LOCATION

Resort Arcen, The Netherlands

INSTALLATION DATE

June 2025

UNIT TYPE

Agrona Nanobubble
Generator 40 m³/h

APPLICATION

Recreational swimming
pond / natural water body



vakantiepark
Resort Arcen



RESULTS

- ✔ Significantly **clearer** water across the entire pond
- ✔ Strong reduction of algae in **10 days**
- ✔ Reduced organic sludge accumulation
- ✔ Noticeably **less odor**
- ✔ Improved ecological balance and visual **quality**

Resort Arcen, a popular recreational destination in the Netherlands, implemented Agrona's Nanobubble Technology to restore water quality in its swimming pond affected by algae, sludge, and odor. Within just 10 days, the system delivered visible, pond-wide improvements, including clearer water, reduced algae and elimination of odor, all without the use of chemicals or major modifications to the existing infrastructure. This project demonstrates how Nanobubble technology provides a fast, natural, and sustainable solution for recreational water management.

Resort Arcen is a well-known holiday park in North Limburg, featuring a recreational swimming lake with a sandy beach, intensively used during the summer season. Like many closed or low circulation water bodies, the pond is sensitive to algae growth, organic accumulation, and oxygen depletion, making water quality management essential for both visitor experience and environmental health.

Before installation, the pond showed clear signs of ecological imbalance:

- Surface algae formation
- Organic sludge accumulation
- Poor water clarity
- Unpleasant odor caused by anaerobic processes



These conditions negatively impacted both water quality and recreational experience for visitors.

Challenges:

- High organic load and algae presence
- Low oxygen levels in deeper layers
- Anaerobic zones causing odor formation
- Sludge buildup on the pond bottom
- Requirement for a safe, chemical free solution

Solution

In June 2025, Agrona installed a Nanobubble Generator system 40 m3/h, in recirculation mode, positioned on the shore of the pond. The system continuously circulates, oxygenates, and redistributes water, ensuring full pond coverage and eliminating stagnation zones. This enables natural biological processes to restore water quality efficiently and sustainably and improves oxygen distribution throughout the entire water column, including deeper layers.

Product Description

The system generates ultra-fine nanobubbles (~75 nm) that remain suspended in water for extended periods, enabling efficient and long-lasting oxygen transfer.

Key Effects

- Deep water oxygenation
- Activation of beneficial aerobic bacteria
- Reduction of anaerobic zones
- Natural breakdown of organic matter

Operational Integration

Operating continuously (24/7), the system provides:

- Uniform circulation across the pond
- Oxygen penetration into deeper layers
- Gradual biological sludge reduction
- Stabilization of ecosystem processes

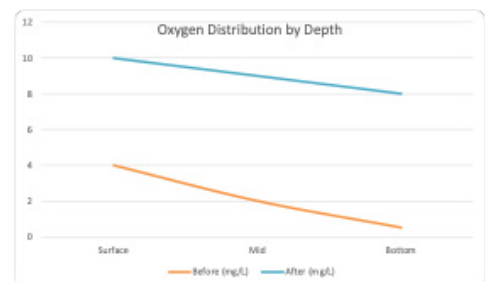
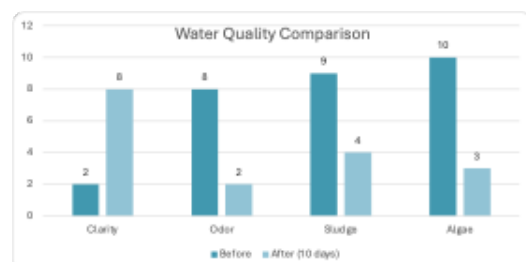


Maintenance

The system requires minimal maintenance, consisting of periodic inspection, basic filter cleaning, and routine annual servicing.

Methodology and Data

Condition	Before Installation	After 10 Days
Water Clarity	Poor	Clear
Algae	Dense surface layer	Strongly reduced
Sludge	Visible accumulation	Reduced
Odor	Strong	Minimal
Oxygen Distribution	Low, uneven	Balanced



All observations were recorded under comparable environmental conditions during the same operational period.

RESULTS

- ✓ **Water Quality Improvement**
 - Rapid improvement in clarity
 - Reduction of suspended organic matter
- ✓ **Algae Reduction**
 - Significant decrease in surface algae within 10 days
 - Prevention of new algae growth through oxygen stabilization
- ✓ **Sludge Breakdown**
 - Accelerated biological breakdown of organic sludge via aerobic bacteria
- ✓ **Odor Elimination**
 - Removal of foul smells by stopping anaerobic decomposition
- ✓ **Ecosystem Stability**
 - Stabilized oxygen levels throughout the pond
 - Improved aquatic and recreational conditions

Qualified Results

- Fast, visible improvement within 10 days
- Natural algae control without chemicals
- Reduced sludge and overall organic load
- Stabilized oxygen levels across full depth
- Improved visual quality and visitor experience

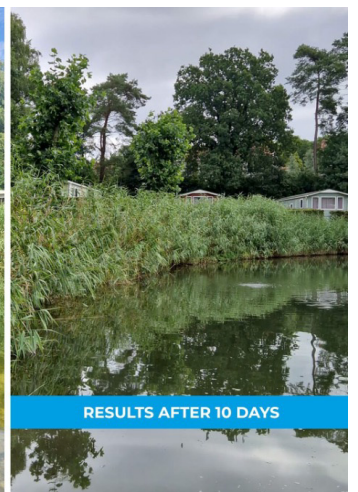
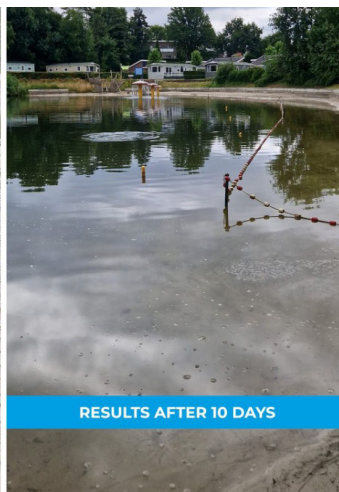
Grower's Perspective:

"Within just 10 days, we already saw clearer water, less algae, and a noticeable reduction in odor. The transformation is visible and immediate, exactly what we were looking for in a sustainable solution."

*Resort Arcen Team,
The Netherlands*



Visual Results



Real on-site results from Resort Arcen showing visible water clarity improvement and algae reduction after only 10 days of nanobubble operation.

Key Advantages of Agrona Nanobubbles

- No chemicals required
- No major installation or infrastructure modifications
- Plug and play system for fast deployment
- Rapid visible results (within days)
- Low maintenance and operational simplicity
- Safe for swimmers, fish, and natural ecosystems

Why Nanobubbles Work for Recreational Lakes

- Oxygen reaches even the deepest layers
- Reduces excess nutrients (N & P)
- Prevents anaerobic conditions and odor formation
- Enhances natural microbial activity
- Breaks down sludge biologically
- 100% safe for recreation



Conclusion

The Resort Arcen project demonstrates how Agrona Nanobubble Technology delivers rapid and sustainable restoration of recreational water bodies. By enhancing oxygen availability and supporting natural biological processes, the system restores ecological balance, resulting in clearer water, reduced algae, elimination of odor, and a significantly improved visitor experience.

Restore Your Lake or Pond Naturally with Agrona Nanobubbles

Contact us today for a trial installation or join our Nanobubble Rental Program to see real results before purchase.

Experience measurable improvement within the first growth cycle with no operational downtime.

- ✓ Free on-site water analysis and consultation
- ✓ Trial systems for short-term validation
- ✓ Flexible Rental Program for seasonal or pilot use



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