NanoE Nanobubble Generator

Technical Brief

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Technology Summary

The NanoE series is an advanced ozone + oxygen nanobubble generator for disinfection, sterilization, and effluent treatment. By infusing ozone into water as ~80 nm nanobubbles, it provides powerful, long-lasting oxidative capacity to kill pathogens, break down pollutants, and sterilize surfaces—without leaving chemical residues.

Background

Disinfection and water purification in aquaculture, effluents, and food industries often rely on chlorine and other chemicals, which cause harmful by-products and increase costs. NanoE offers a sustainable alternative, using ozone nanobubbles for contactless sterilization and pathogen control, making it ideal for biosecure environments.

Technology Description

NanoE integrates a high-capacity ozone generator (10–80 g/hr) and oxygen concentrator (5–20 LPM) with centrifugal pumps. It delivers >1×10^8 nanobubbles/ml at flow rates of 15–100 m³/hr. Ozone nanobubbles persist longer in water, providing extended disinfection while reducing odor and breaking down organic contaminants.

Market Potential / Proposed Deployment

- Global demand rising for chemical-free disinfection technologies.
- Strong fit for wastewater reuse, aquaculture biosecurity, and food industry sterilization.
- Aligns with sustainability and regulatory compliance goals.

Applications

- Aquaculture & RAS Systems: Reduces fish disease and mortality.
- Effluent & Greywater Treatment: Enables safer reuse or discharge.
- Urban Lakes & Ponds: Controls algae and improves water clarity.
- Biosecure Cleaning: Equipment and surface sterilization in farming/industry.

Value Proposition

- Combines oxygenation with powerful ozone-based sterilization.
- Reduces dependency on chlorine or harsh chemicals.
- Enhances water quality and safety for reuse.
- Compact, energy-efficient, and eco-friendly operation.

Technology Status

- TRL 8–9: Commercially deployed in aquaculture, effluent treatment, and biosecure cleaning projects.
- Field results confirm strong disinfection and pathogen suppression.