

The logo for LOREN features a stylized blue and yellow swirl above the word "LOREN" in a sans-serif font. Below this, there is a large, light-colored 'C' shape with a small blue bubble and a white dot to its right.

LOREN INDUSTRY CO.,LIMITED

Micro Mano Bubble Generator
Professional Designing &
Fabrication

**Full River&Decrative Waste Water Purifier, and Body Massage
Utilization Expert and Practioners**

Loren—The Most Professional Customized Equipment and Solution Provider

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Definition of Micro Mano Bubble Generator



It is a New Type of High-efficiency Water Aerator and Body Message Device which is consisted of Micro-Nano Bubble generator, Diffusion Device & Control System or Ion Exchange Device



Principals of Micro Nano Bubble Generator

Water And Air Are Highly Compatible And Mixed, Ultrasonic Cavitation Dispersion Releases High-Density, Uniform Micro-Nano Bubbles, And The Air Is Initially Compressed Into a Large Amount Of 0.25 Mm Bubbles, And Then Use The Release System To Highly Disperse The Gas And Liquid Phases In a Semi-Vacuum Condition To Produce Micro-Sized Bubbles And Nano-Sized Bubbles With a Diameter Of Less Than $3\mu\text{m}$, Which Are Released Into The Water Body To Form a Milky White Gas-Liquid Mixture Body, Achieve The Effect Of Rapid Oxygenation. The Technology Has Obtained 35 National Patents, Has Major Innovations, And Has Developed a Series Of Special Equipment For River Treatment. The High-Density Bubbles Released By The Equipment Surround The Pollutants And Eventually Burst Into The Water. The Bubbles Are Completely Dissolved In The Water, Effectively Degrading The Pollutants In The Water. Micro-Nano Bubbles Can Provide Dissolved Oxygen To The Water, Inhibit The Increase In Sediment, Digest The Existing Sludge, And Create a Good Sediment Environment. Spherical Nanobubbles Suspended In Liquid With Diameters Between 200 Nanometers And 3 Microns. The Surface Of The Bubble Is Rigid, Similar To a High-Pressure Balloon, And Is Not Easy To Burst. Play The Role Of High-Efficiency Aeration, Effective Algae Removal, Sediment Digestion, And Circulating Water.



Technique Feature of Micro Mano Bubble Generator

- (1) Generate a large number of strong oxidizing free radicals OH, which can perform high-strength oxidation of organic pollutants to form the final product CO₂, H₂O;
- (2) Degrading pollutants from macromolecular structures (opening loops) to small molecular structures, making it easier for indigenous microorganisms to eat and use, and improve biochemical degradation efficiency;
- (3) High efficiency of phosphorus and ammonia removal, ammonia nitrogen removal rate is 85%, total phosphorus is reduced by 65%;
- (4) Improve dissolved oxygen and transparency, promote autonomous restoration of ecosystems, and improve water self-purification capabilities;

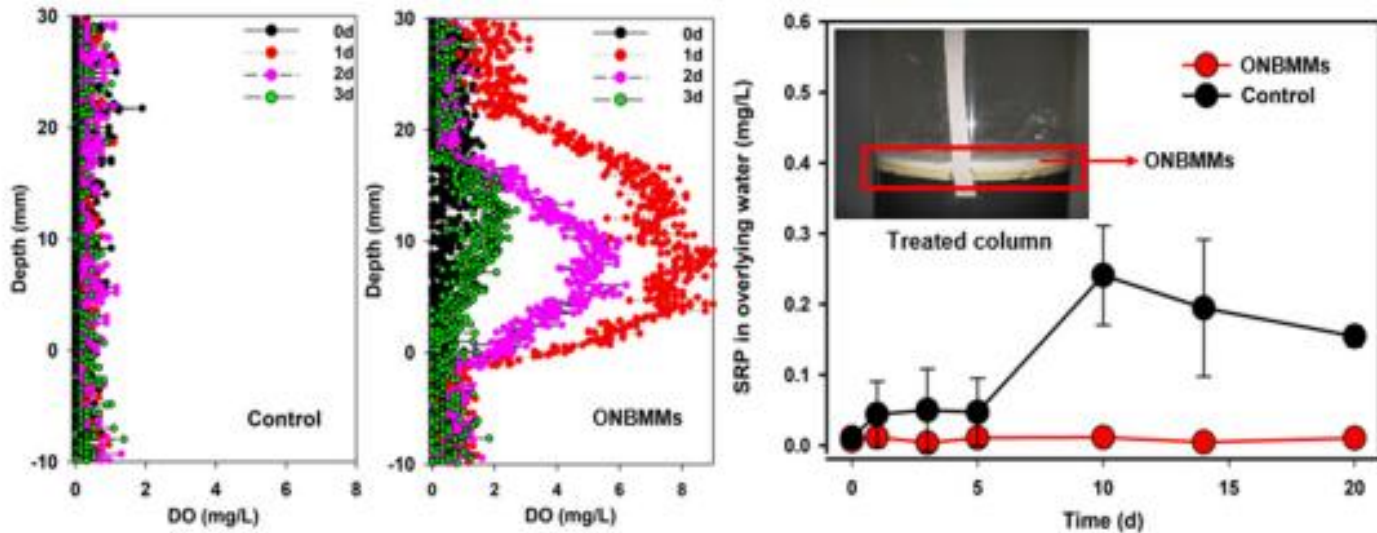


Technique Feature of Micro Mano Bubble Generator

- (5) Reduce water molecular cluster associations and activate water bodies;
- (6) Activate "indigenous microorganisms" to improve biochemical degradation efficiency;
- (7) Quickly kill cyanobacteria and inhibit cyanobacteria by reducing the content of nutrients such as nitrogen and phosphorus;
- (8) Degrade the floating mud layer, promote the mineralization of the surface layer of the bottom mud, and inhibit the release of pollutants from the bottom mud to the water body.

Purification Mechanism of Micro Mano Bubble Generator

1. COD Removal & Purification Mechanism
2. NH₃-N Removal & Purification Mechanism
3. Total Phosphorus Removal & Purification Mechanism
4. Sediment Removal & Reduction Mechanism





Widely Applicant of Micro Mano Bubble Generator

Widely Applicant

- Deep Water Oxygenation
- Farming Industry
- Aquaculture
- Algae Or Weed Treatment
- Black & Smelly River Treatment
- University Teaching Modual Display or Trainning
- Intermediate Test
- Compacted Comprehensive Treatment Unit
- Swimming Pool
- Landscape Water Decoration Or Treatment
- Body Message in Some SPA Place
- Home Water Foot or Body Message
- Femal Beautification
- Other Applicant



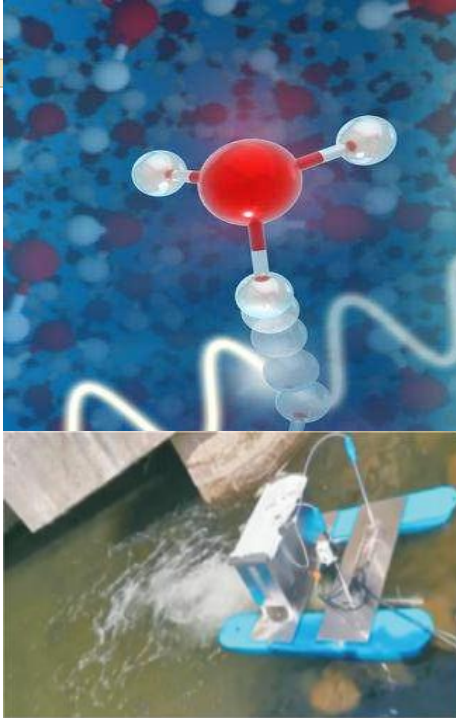
Main Technique Parameter & Model Selection

Main Parameter of The Micro Mano Bubble Generator

Model	Capacity (m3/h)	Power (Kw)	Dimension (mm)	Comment
LNG-0.2	0.22	0.125	300*140*280	Potable Style 220V
LNG-2.0	2.0	0.30	600*300*400	Float Style or Floor Mounted , Can Optional Choose Aerator or Odor
LNG-4.0	4.0	0.55	600*300*600	
LNG-6.0	6.0	0.75	600*500*600	
LNG-10	10	1.1	600*500*800	
LNG-20	20	2.2	980*540*1860	Float Style or Floor Mounted , Can Optional Choose Aerator or Odor or Chemical Dosing
LNG-30	30	3.0	980*540*1860	
LNG-40	40	5.5	1200*600*1400	
LNG-60	60	5.5	1200*600*1500	
LNG-80	80	7.5	1200*600*1650	Floor Mounted , Can Optional Choose Aerator or Odor or Chemical Dosing
LNG-100	100	11	1200*600*1700	
LNG-120	120	15	1800*1000*1800	
LNG-160	160	18	1800*1000*1800	
LNG-200	200	22	1800*1000*1800	

Aerator Main Technique Parameter & Model Selection

Main Parameter of The Maching Aerator System



Model	Capacity (m3/h)	Power (Kw)	Cover Area (m)	Comment
LSA-1.2	30	1.2	40	Surge Aerator
LWA-1.2	30	1.2	40	Water Spray Aerator
LWA-2.2	60	2.2	60	
LIA-1.2	30	1.2	40	Impeller Aerator
LOA-0.75	25	0.75	30	Ordinary SprayFountain
LCA-0.75	30	0.75	30	ColorSprayFountain
LOA-2.2	60	2.2	60	Ordinary SprayFountain
LCA-2.2	60	2.2	60	ColorSprayFountain
LMA-3.0	70	3.0	80	MicroPorous Aeration
LMA-5.5	80	5.5	90	
LTA-1.1	50	1.1	100	Thrust flow Aerator
LTA-1.5	80	1.5	130	
LTA-2.2	150	2.2	160	
LTA-3.0	200	3.0	180	
LTA-4.0	280	4.0	200	
LIE-3.0	100	3.0	70	Oxygen Ion Exchanger



Aerator Main Technique Parameter & Model Selection

Main Parameter of Submersible Aerator

Model	Capacity (m ³ /h)	Power (Kw)	Cover Area (m)	Comment
LDA-1.1	10	1.2	40	For Increasing Oxygen
LDA-1.5	15	1.5	60	
LDA-2.2	22	2.2	100	
LDA-3.0	30	3.0	140	
LDA-4.0	40	4.0	180	
LDA-5.0	50	5.0	240	

Solar Streaming Aerator

Model	Capacity (m ³ /h)	Power (Kw)	Cover Area (m)	Comment
LDA-2.2	150	2.2	60	For Increasing Oxygen
LDA-3.0	180	3.0	100	
LDA-4.0	210	4.0	150	

Roots Blower Main Technique Parameter & Model Selection

Main Parameter of High Pressure Root Fan

Model	Capacity (m ³ /h)	Power (Kw)	Cover Area (m)	Comment
LRB-0.30	80	0.3	100	For Increasing Oxygen
LRB-0.50	98	0.5	150	
LRB-0.83	120	0.83	200	
LRB-1.10	130	1.1	300	
LRB-1.50	140	1.5	350	
LRB-2.20	220	2.2	380	
LRB-2.55	275	2.55	400	
LRB-3.00	310	3.0	450	

Reactor Main Technique Parameter & Model Selection

Main Parameter of Integrated Reactor

Model	Capacity (m ³ /d)	Power (Kw)	Dimension (mm)	Comment
LIR-8	50	12	3500*2200*2000	For Increasing Oxygen & Impurities Purification
LIR-20	100	18	3500*2200*2000	
LIR-40	200	25	4000*2200*2000	
LIR-80	1100	45	4000*2200*2000	
LIR-200	1500	70	4500*2200*200	



Reactor Main Technique Parameter & Model Selection

Photo of Integrated Reactor





Some Performance Sites View



Some Performance Sites View



Ningbo Dirty River Before Nano Generator

Cleaned River View After Nano Generator

Nano Generator System Disposal Result Comparison

Item	Standard V	Before	After
Ph	6-9	9	6.8
COD5	40 mg/l	150 mg/l	2 mg/l
Dissolved Oxygen	2 mg/l	0.3 mg/l	8 mg/l
NH3-N	2 mg/l	11 mg/l	1.2 mg/l
Total Phosphorus	0.2 mg/l	7 mg/l	0.2 mg/l



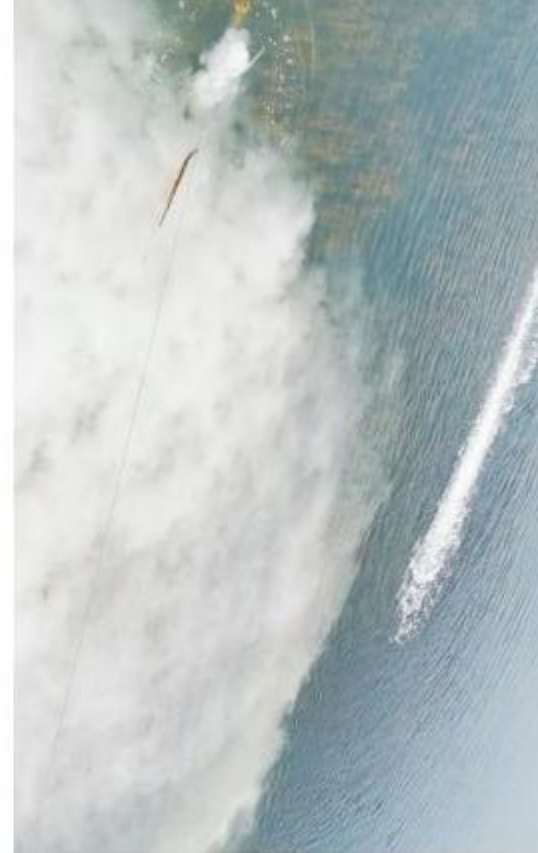
Some Performance Sites View



Ozone Oxygen Enriched Nano Bubble Generator Running Site



Some Performance Sites View



Ozone Oxygen Enriched Nano Bubble Generator Disposal View



Some Performance Sites View



Yangzi River Hubei Stage 50 sets Nano Generators Running Site



Some Performance Sites View



Intelligent Solar Energy Time Fixed Spraying Foutain



Some Performance Sites View



Qingdao Dairy Cow Milk Liquid Site for This Nano Generator System



Some Performance Sites View



Micro-Nano Oxygen-enriched Bubble Conservation Shower



Some Performance Sites View



Micro-Nano Oxygen-enriched Bubble Conservation Shower



Some Performance Sites View



Micro-Nano Oxygen-enriched Bubble Direct Drinking Water Machine



Thanks for your Kind Trust

