



BLCOM Nanobubble Generator



TYPICAL APPLICATIONS

- Deep Water Culture
- Shallow Water Culture
- NFT
- Drip Irrigation
- Inline Aeration
- Water Tank Aeration
- Reservoir Aeration
- Algae Control
- Biofilm Control

The patent-pending Moleaer Bloom is a highly efficient gas-injection technology that converts bulk oxygen into nanobubbles and supersaturates irrigation water with high levels of dissolved oxygen (DO). Negatively charged, neutrally buoyant nanobubbles can remain suspended in water for long periods of time, acting like an oxygen battery that delivers oxygen to the entire body of water. As oxygen is consumed, the nanobubbles continue to diffuse more oxygen into solution, sustaining supersaturated levels of DO, even in warm water. Moleaer's Bloom is an economical and highly effective tool to improve water quality, increase plant growth, and suppress root disease and environmental stress.

The Bloom comes with a self-priming, enclosed impeller pump for maximum flow and energy efficiency. The system is whisper-quiet and corrosion-resistant. The Bloom can be upgraded with a smart controller and integrated DO sensor to allow real time monitoring and system control. Available in 25, 50 and 150 gpm flow rates, the Bloom was designed for durable operation, easy installation, and simple control.

FEATURES & BENEFITS

- 90% standard oxygen transfer efficiency
- Supersaturated irrigation water
- Improved water quality
- 100 nm-sized bubbles produced in excess of 1 billion nanobubbles / ml
- Oxygenation of any tank and any depth of water
- Increased nutrient absorption
- Promotion of beneficial bacteria, suppression of pathogens
- Easy integration with fertigation and climate control systems
- Auto gas shut off if loss of prime feed
- Low feed gas pressure sensor
- Optional: DO monitoring



www.moleaer.com

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Tuinbouwtechniek & -benodigdheden

Tulpenmarkt 4 - 1681 PK Zwaagdijk T 0228 - 56 31 35 E info@karobv.nl W www.karobv.nl



Bloom Nanobubble Generator

Nanobubbles are extremely small gas bubbles that have several unique physical properties that make them very different from normal bubbles. These properties make nanobubbles a superior aeration method for a number of applications by rapidly elevating and maintaining supersaturated dissolved oxygen (DO) levels.







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MODELS	Bloom 25	Bloom 50 E	Bloom 150
LIQUID FLOW CAPACITY			
Flow Rate, GPM (m ³ /hr)	25 (5,7)	50 (11,4)	150 (34,1)
Indicated Gas Flow Range Maximum, CFH (m ³ /hr)	2.5 (0.07)	5 (0.14)	10 (0.3)
Indicated Gas Flow Range Recommended, CFH (m ³ /hr)	0.25 (0.01)	0.5 (0.02)	1.5 (0.04)
OPERATING PARAMETERS			
Temperature Tolerance, PVC, °F (°C)		41 - 140 (5 - 60)	
Standard Oxygen Transfer Efficiency		> 90%	
Solids, inches (mm)		Up to 3/8 (10)	
GAS FEED ¹			
Feed Gas Pressure Range Minimum, PSIG (bar)		100 (6.9)	
Feed Gas Pressure Range Maximum, PSIG (bar)		140 (9.7)	
PUMP			
Pump Model		Pentair Sparus 160	
Wetted Parts Materials		Polypropylene/316 SS/Buna	
Pump Motor, hp (kW)	0.5 (0.4)	0.75 (0.6)	3 (2.2)
Voltage	115	115/208-230	208-230
FLA	8.8 / 4.5-4.4	11.2 / 6.0-5.6	15 - 13.6
Phase	1	1	1
Frequency, Hz	2	50/60	
CONTROLS	1		
NEMA 12R Smart Controller		Timed Start / Stop	
		20 Times / Day	
Voltage		24V DC	
Power (Light)		On/Off DP	
Motor Starter		20 Amp W OL (120V)	
Start Switch		Latching (24V DC)	
Gas Pressure Alarm with Light		On/Off (24V DC)	
Pressure Gauges		Wika 2.5" (60/160)	
Rotameter, CFH	0 - 0.07	0 - 0.14	0 - 0.41
Dissolved Oxygen (DO) Sensor ²		Optical, 0 - 50 ppm (+/- 1.5 ppm), 30 Second Response Time	
CONNECTIONS - FNTP			
Inlet, inches	2	2	2
Discharge, inches	1	1.5	2.5
Air Fitting for External Compressor, inches		CGA 022 fitting 1/4" MNPT x 9/16"-18 Regulating Valve	
DIMENSIONS & WEIGHT			
Height, inches (cm)		34 (86)	
Width, Inches (cm)		20 (51)	
Length, inches (cm)		36 (91)	
Weight, Ib (kg)	100 (45.3)	110 (48)	120(54)

General Note

3" inlet and outlet piping is recommended for the Clear 150 and Clear 150 Enriched

Note 1: When using oxygen, Moleaer recommends CGA inlet 540, outlet 9/16" - 18RH pressure regulator with delivery range of 5-150 PSI (0.34-10.3 bar). Note 2: Bloom IQ Option Integrated Dissolved Oxygen Optical Sensor Probe





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Horticulture

Optimize Plant Growth with Nanobubbles

Nanobubbles in Horticulture

Moleaer's nanobubble generators rapidly increase and maintain supersaturated dissolved oxygen (DO) levels in irrigation water with maximum efficiency. Oxygen nanobubbles improve the quality of water and deliver higher levels of oxygen directly to the root surface more effectively that traditional methods of aeration. An oxygen enriched root zone improves root mass, increases uptake of key nutrients like calcium and potassium and helps suppress pathogenic growth.

Improved Nutrient Buffering & Uptake

Oxygen nanobubble enrichment increases the metabolic rate and energy production of plants which helps facilitate better nutrient transport from the roots to the shoots. Stable, negatively charged nanobubbles also improve the cationic exchange capacity of substrate media and provide more nutrient buffering capacity.

Enhanced Growth & Less Plant Stress

Healthy, well oxygenated roots absorb nutrients more efficiently to better support the photosynthesis process leading to faster and more uniform plant development. Shorter growing cycles enables more crop rotations per year. Oxygen helps promote plant turgidity, improving environmental stress tolerance.

Healthier Roots & Disease Suppression

Increasing the oxygen availability in wetted substrate prevents root asphyxiation and promotes new root development. Maintaining a stable aerobic environment stimulates beneficial bacteria growth that helps to suppress pathogenic organisms like Pythium from proliferating.

Water Quality Improvement & Biofilm Control

Supersaturation with oxygen nanobubbles suppresses water-borne pathogens by competitive exclusion instead of relying on stronger oxidants that can damage plant roots. Nanobubbles are an effective treatment for controlling algae and biofilm that can cause irrigation line blockages.

Proven Results

Moleaer's nanobubble technology has proven its effectiveness in over 200 installations in 18 different countries in a wide range of cultivation methods and crops.

Revol Greens (Deep Water Culture)



Rebel Farms (Nutrient Film Technique)

- 300% Dissolved Oxygen Increase
- 22% Increased Yield
- 16-Month Payback Period
- Reduced Cultivation Time 20%



