



MOLEAER[®]
ADVANCING NANOBUBBLE TECHNOLOGY

MOLEAER CLEAR™ 3.0 NANOBUBBLE GENERATOR

Operation and Maintenance Manual

IMPORTANT SAFETY INSTRUCTIONS
READ AND FOLLOW ALL INSTRUCTIONS
SAVE THESE INSTRUCTIONS

CUSTOMER SERVICE / TECHNICAL SUPPORT
**If you have questions or need to order
Moleaer, Inc. replacement parts and products,
please use the following contact information:**

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Safety Instructions

Important Notice



This guide provides operation and maintenance instructions for this product. Consult Moleaer with any questions regarding this equipment.

Attention Installer

This guide contains important information about the operation, maintenance, and safe use of this product. This information should be given to the owner and / or operator of this equipment after installation.

Attention User

This manual contains important information that will help you in operating and maintaining this product. Please retain it for future reference. Warnings and safety instructions for Moleaer Clear Nanobubble Generators and other related products are available at <http://www.moleaer.com> or call U.S. +1 (424) 558-3567 for additional free copies of these instructions.

READ AND FOLLOW ALL INSTRUCTIONS. SAVE THESE INSTRUCTIONS.



This is the safety alert symbol. When you see this symbol, on your system or in this manual, look for one of the following signal words and be alert to the potential for personal injury.



Warns about hazards that can cause death, serious personal injury, or major property damage if ignored.



Warns about hazards that may or can cause minor personal injury or property damage if ignored.

NOTE

Indicates special instructions not related to hazards. Carefully read and follow all safety instructions in this manual and on equipment. Keep safety labels in good condition; replace if missing or damaged.

When installing and using this electrical equipment, basic safety precautions should always be followed, including the following:

Risk of Electrical Shock

Connect only to a branch circuit protected by a ground-fault circuit interrupter (GFCI). Contact a qualified electrician if you cannot verify that the circuit is protected by a GFCI.

This unit must be connected only to a supply circuit that is protected by a ground-fault circuit interrupter (GFCI). Such a GFCI should be provided by the installer and should be tested on a routine basis. To test the GFCI, push the test button. The GFCI should interrupt power. Push the reset button. Power should be restored. If the GFCI fails to operate in this manner, the GFCI is defective. If the GFCI interrupts power to the pump without the test button being pushed, a ground current is flowing, indicating the possibility of an electric shock. Do not use this pump. Disconnect the pump and have the problem corrected by a qualified service representative before using.

General Warnings

Never open the inside of the pump drive motor enclosure. There is a capacitor bank that holds a 230 VAC charge, even when there is no power to the unit.

The Clear pump is capable of flowrates; use caution when installing and programming to limit pump's performance potential with old or questionable equipment.

Code requirements for the electrical connection differ from state to state. Install equipment in accordance with the current National Electric Code and all applicable local codes and ordinances.

Before servicing the pump, switch OFF power to the pump by disconnecting the main circuit to the Clear™.

This equipment is not intended for use by persons (including children) of reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning the use of the appliance by a person responsible for their safety.



FAILURE TO FOLLOW ALL INSTRUCTIONS AND WARNINGS CAN RESULT IN SERIOUS BODILY INJURY OR DEATH. THIS PUMP SHOULD BE INSTALLED AND SERVICED ONLY BY A QUALIFIED SERVICE PROFESSIONAL. INSTALLERS, OPERATORS, AND OWNERS MUST READ THESE WARNINGS AND ALL INSTRUCTIONS IN THE OWNER'S MANUAL BEFORE USING THIS PUMP. THESE WARNINGS AND THE OWNER'S MANUAL MUST BE LEFT WITH THE PRODUCT OWNER.

Suction Entrapment Hazard

Stay off main drain and away from all suction outlets!



This generator produces high levels of suction and creates a strong vacuum at the main drain at the bottom of the body of water. This suction is so strong that it can trap adults or children under water if they come in close proximity to a drain or a loose or broken drain cover or grate.

⚠ DANGER

RISK OF ELECTRICAL SHOCK OR ELECTROCUTION



PUMPS REQUIRE HIGH VOLTAGE WHICH CAN SHOCK, BURN, OR CAUSE DEATH.

BEFORE WORKING ON THE CLEAR PUMP, always disconnect power to the pump at the circuit breaker from the pump before servicing the pump. Failure to do so could result in death or serious injury to service person, system users, or others due to electric shock.

NOTE: All suction plumbing must be installed in accordance with the latest national and local codes, standards, and guidelines.

⚠ WARNING

A clearly labeled emergency shutoff switch for the pump must be in an easily accessible, obvious place. Make sure users know where it is and how to use it in case of emergency. For installation of Electrical Controls at Equipment Pad (ON / OFF switches, timers, and automation load center.)

⚠ CAUTION



Install all electrical equipment, such as ON / OFF switches, timers, and control systems, etc. to allow the operation (startup, shutdown, or servicing) of any pump or filter so the user does not place any portion of his / her body over or near the pump strainer lid, filter lid, or valve closures. This installation should allow the user enough space to stand clear of the filter and pump during system startup, shutdown or servicing of the system filter.

⚠ CAUTION

This generator has been evaluated for use with water only.

⚠ CAUTION

Before operation, be sure to completely rinse the pump volute with water.

⚠ WARNING

RISK OF ELECTRICAL SHOCK

This pump is supplied with a grounding conductor and grounding type attachment plug. To reduce the risk of electric shock, be certain that it is connected only to a properly grounded, grounding type receptacle.

⚠ WARNING

Pumps improperly sized or installed or used in applications other than for which the pump was intended can result in severe personal injury or death. These risks may include, but not limited to, electric shock, fire, flooding, suction entrapment, or severe injury or property damage caused by a structural failure of the pump or other system component.

⚠ WARNING

The pump can produce high levels of suction within the suction side of the plumbing system. These high levels of suction can pose a risk if a person comes within the proximity of the suction openings. A person can be seriously injured by this high level of vacuum or may become trapped and drown. It is absolutely critical that the suction plumbing be installed in accordance with the latest national and local codes.

⚠ DANGER



HAZARDOUS PRESSURE. STAND CLEAR OF PUMP AND FILTER DURING STARTUP. CIRCULATION SYSTEMS OPERATE UNDER PRESSURE. WHEN ANY PART OF THE CIRCULATING SYSTEM (I.E., LOCKING RING, PUMP, FILTER, VALVES, ETC.) IS SERVICED, AIR CAN ENTER THE SYSTEM AND BECOME PRESSURIZED. PRESSURIZED AIR CAN CAUSE THE PUMP HOUSING COVER, FILTER LID, AND VALVES TO VIOLENTLY SEPARATE, WHICH CAN RESULT IN SEVERE PERSONAL INJURY OR DEATH. FILTER TANK LID AND STRAINER COVER MUST BE PROPERLY SECURED TO PREVENT VIOLENT SEPARATION. STAND CLEAR OF ALL CIRCULATION SYSTEM EQUIPMENT WHEN TURNING ON OR STARTING UP PUMP. BEFORE SERVICING EQUIPMENT, MAKE NOTE OF THE FILTER PRESSURE. BE SURE THAT ALL CONTROLS ARE SET TO ENSURE THE SYSTEM CANNOT INADVERTENTLY START DURING SERVICE. TURN OFF ALL POWER TO THE PUMP.

Information About the System

Product Variants

- Standard Models:** Consists of a compressor to pump ambient air into the nanobubble generator.
- Enriched Air Models:** An additional compressor and a nitrogen membrane tank are utilized to increase the oxygen content of the air up to 40% (double the ambient concentration.)

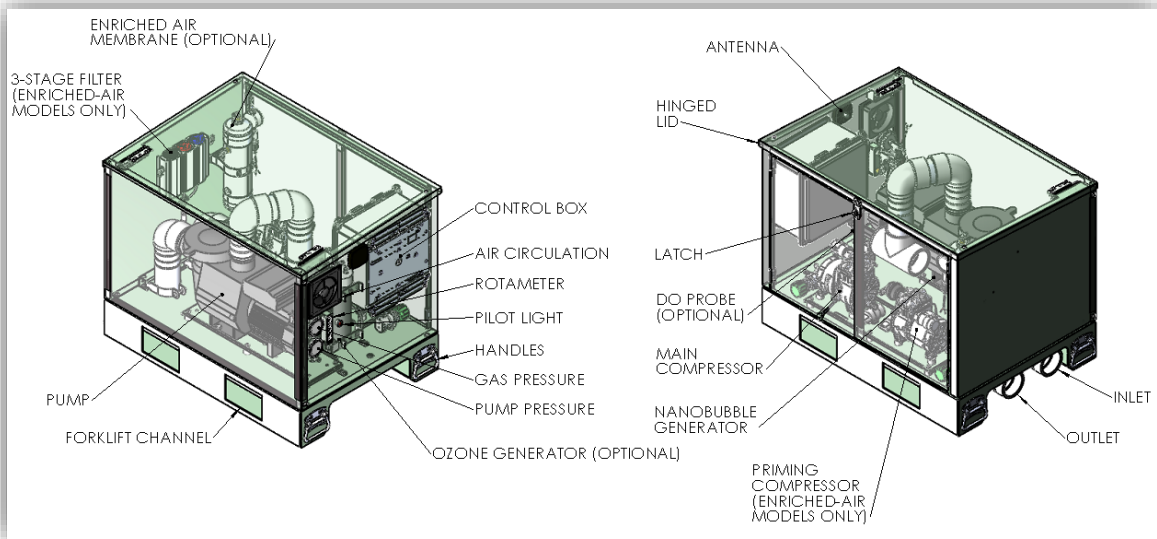
3. **Remote Monitoring:** All Clear models are remote monitoring ready. Fees and subscriptions may apply to activate the capability. The remote monitoring has onboard global GPS and 3G/LTE connectivity.

4. Options

a. **Ozone Generator** An additional ozone generator that adds a small dose of ozone into the incoming air to the nanobubble generator. This ozone option can be

purchased with and without the enriched air option.

b. **Dissolved Oxygen (DO with Remote Monitoring):** This option requires purchasing the subscription for the remote monitoring. The DO level is displayed on the remote monitoring online dashboard, accessible via computer or smartphone.



Remote Monitoring

Remote monitoring provides information about the unit's performance and the capability to send critical errors via email or text messages to the registered users and the factory. Furthermore, the performance parameters can be monitored, and the data can be exported to a spreadsheet for analysis.

Operation

Startup

1. On the suction side, ensure there is a screen or trap at the intake to stop large debris from entering the system. Intake screens should be made of PVC or corrosion resistant metals. Contact Moleaer for the intake install kit.
2. To avoid sediment buildup, the intake should be elevated from the lake bottom. To avoid stalling the

pump, the intake should be at least 2 feet below the water's surface.

3. Discharge should be firmly fixed and pointed directly towards the center of the water body to avoid causing erosion. Avoid excessive twists or bends when connecting piping to intake and discharge.
4. Open intake and discharge valves, if any. Prime the pump by removing the strainer lid, filling the strainer basket with water, and replacing the strainer lid before starting.
5. Open the lid and doors of the Clear enclosure to access the controls. Ensure that power is connected and turn the POWER disconnect switch to the ON position. The light on the outside of the enclosure will turn AMBER. Push and hold the START button for 10 seconds, at which time the light will turn GREEN you should hear the pump start and begin self-priming.

6. It may take a few minutes for the pump to self-prime. When the pump has successfully self-primed, the strainer basket will be full, and the pump will produce pressure. Normal operating pressure range is 13 to 25 PSI (.896 BAR to 1.72 BAR). Max pressure limits are 8 to 30 PSI (0.55 to 2.06 BAR). **Do not exceed the maximum pressure.** Once the pump is producing adequate pressure, the compressor(s) and cooling fan will turn on.
7. To stop the unit, turn the red POWER disconnect switch to the OFF position.
8. Close the doors and lock the lid during operation.
9. Gas flow is indicated on the left side of the unit on the Rotameter. The center of the floating ball indicates air flow rate. The gas flow rate is set at the factory and is not field adjustable.

NOTE:

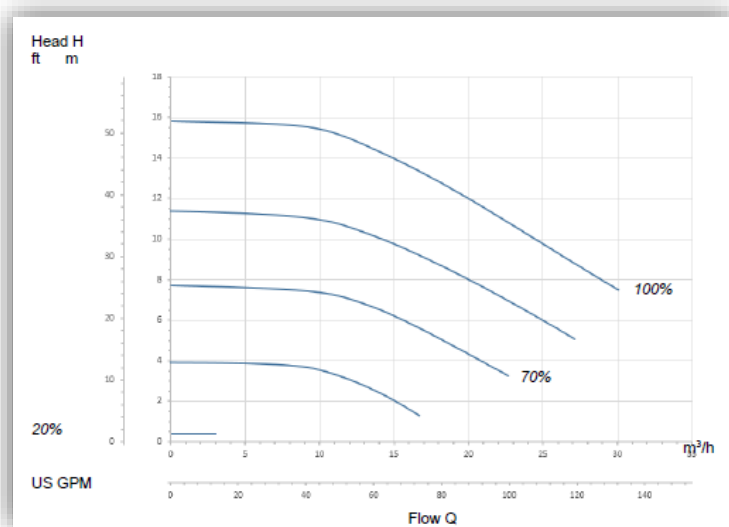
1. *If the pond or lake does not have an existing aeration system, the nanobubble generator should initially be run periodically over the first seven days of treatment to avoid an overabundance of bacteria causing a decline in dissolved oxygen from de-stratifying of the lake.*
2. *Expect to see algae float to the surface within the first few weeks. This is normal. It may foul the intake screen during this period; therefore, periodic inspections are necessary until the algae float has subsided.*
3. *The unit will periodically open a dump valve to drain liquid from the air filter.*
4. *Please contact Moleaer for the complete operating manual for the compressor.*

Pumps Specifications

All pumps are factory set for maximum performance at 100% or Max speed. Information below is for installation and reference purposes. Check your pump model and brand before referring to the specifications. Contact Moleaer if your pump is not listed below.

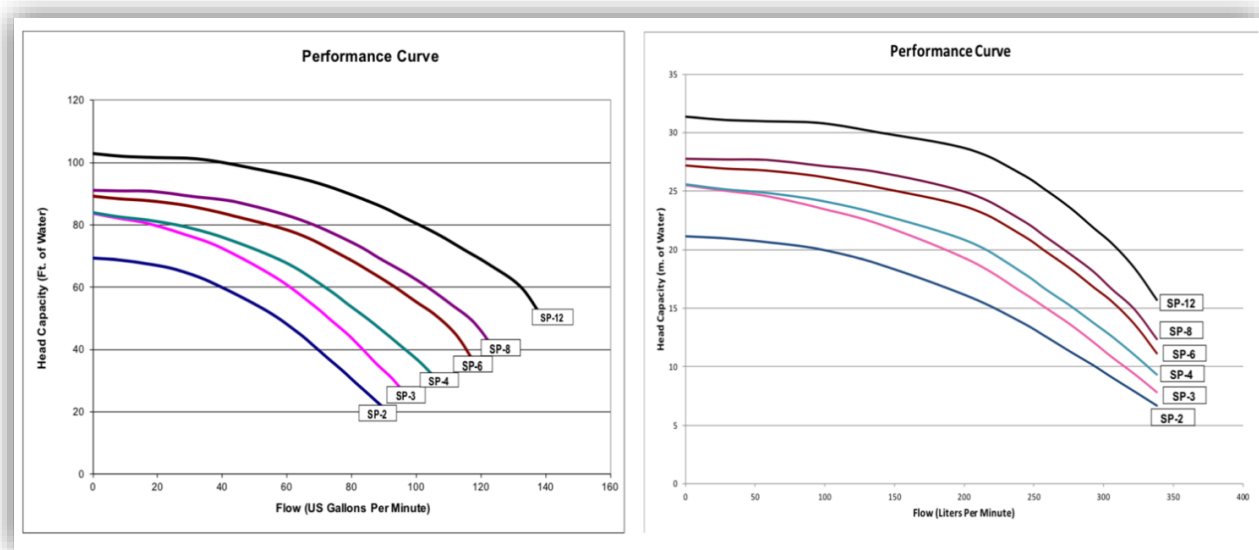
DAB ESWIM 300 Series (EU, 50Hz Models)

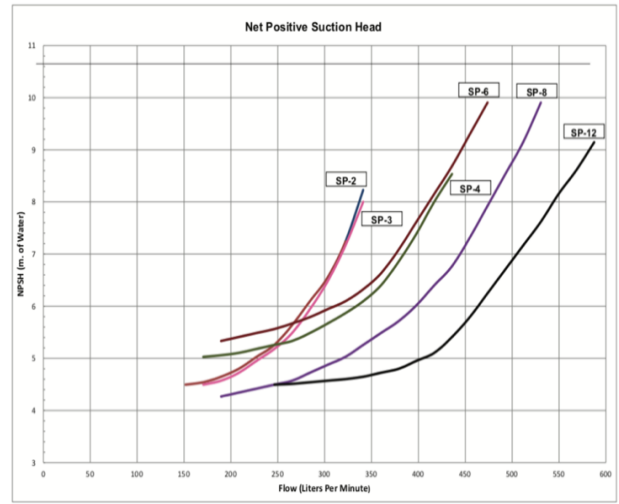
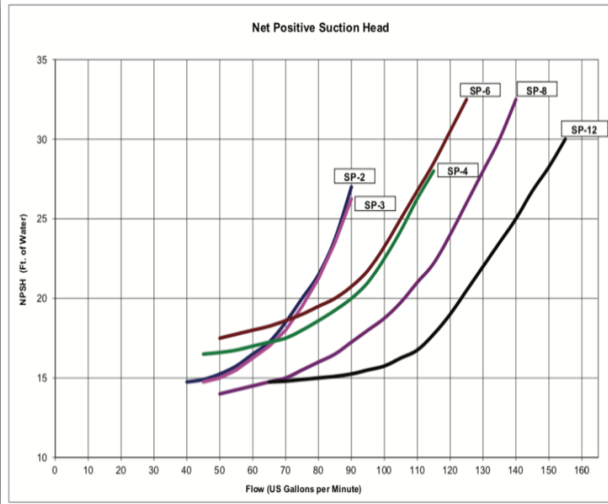
Pump TDH Curves (DAB ESWIM 300), Factory set speeds for Clear 50 and 150.



Pentair Sparus (US, 60Hz Models)

Pump TDH Curves (Pentair Sparus). Reference SP-12 for Clear 150 and SP-3 for Clear 50.





Maintenance

Intake screens should be cleaned periodically, along with the pump basket. Inspect the intake multiple times per week during the first month of operation and every three weeks thereafter.

A drop in water pressure is most likely the result of a clogged intake or check valve. If a drop in water pressure is observed, inspect the intake and check valve.

Once the initial treatment is completed, which is determined by a reduction in or complete elimination in the presence of algae floating on the surface, Moleaer recommends monthly inspection (see monthly inspection list in the manual) followed by quarterly cleanings of intake screens and piping.

The gas injection zone (nanobubble generator) may require periodic cleaning due to fouling buildup inside the piping. If a reduction in air flow is observed on the rotameter, or the gas pressure gauge increases by greater than 15% from its starting pressure, or if the water pressure decreases by 20% from its initial pressure, a cleaning is necessary.

1. Please refer to Moleaer's Clean-in-Place Service bulletin for more information.

Pump Maintenance

CAUTION

Do NOT open the strainer pot if pump fails to prime, or if pump has been operating without water in the strainer pot. Pumps operated in these circumstances may experience a buildup of vapor pressure and may contain scalding hot water.

WARNING

Opening the pump may cause serious personal injury. To avoid the possibility of personal injury, make sure the suction and discharge valves are open and strainer pot temperature is cool to touch, then open with extreme caution. To prevent damage to the pump and for proper operation of the system, clean pump strainer and system every two weeks.

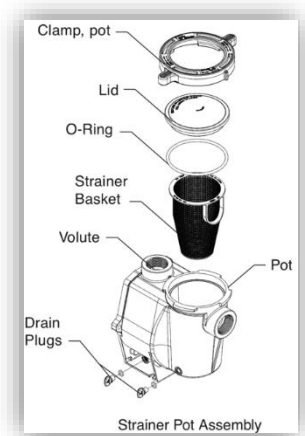
Pump Strainer Basket

The strainer basket (or "strainer pot") is in front of the pump housing. The strainer basket must be kept clean and free of debris. Inspect basket through the lid on the top of the housing.

Be sure to visually inspect the strainer basket four weeks. More frequent inspection may be necessary in the first four weeks of installation. Dirty strainer baskets reduce filter and heater efficiency and put abnormal stress on the pump motor. Bacterial fouling could cause the lid not to be clear.

Cleaning

1. Turn the red POWER disconnect switch to the OFF position.
2. Relieve pressure in the system or allow it to reduce by waiting for at least 15 minutes
3. Turn the lid and clamp counterclockwise and remove from the pump.
4. Remove debris and rinse out the basket. Replace the basket if it is cracked.
5. Put the basket back into the housing. Be sure to align the notch in the bottom of the basket with the rib in the bottom of the volute.
6. Fill the pump pot and volute up to the inlet port with water.
7. Clean the lid and clamp, O-ring, and sealing surface of the pump pot.



NOTE: It is important to keep the lid O-ring clean and well lubricated.

8. Reinstall the lid by placing the clamp and lid on the pot. Be sure the lid O-ring is properly placed. Seat the clamp and lid on the pump, then turn clockwise until the locking ring handles are horizontal.
9. Turn the power ON.
10. Wait until a steady water flow is observable through the pump basketed lid.

WARNING

THIS SYSTEM OPERATES UNDER PRESSURE



When any part of the circulating system (e.g., Lock Ring, Pump, Filter, Valves, etc.) is serviced, air can enter the system and become pressurized. Pressurized air can cause the lid to separate, which can result in serious injury, death, or property damage. To avoid this potential hazard, follow above instructions as described in page 4.

WARNING

Always disconnect power to the Clear generator and / or pump at the circuit breaker before servicing the pump. Failure to do so could result in death or serious injury to service people, users, or others due to electric shock. Read all servicing instructions before working on the pump.

⚠ WARNING

Do NOT open the strainer pot if pump fails to prime or if pump has been operating without water in the strainer pot. Pumps operated in these circumstances may experience a buildup of vapor pressure and may scalding hot water. Opening the pump may cause serious personal injury. In order to avoid the possibility of personal injury, make sure the suction and discharge valves are open and strainer pot temperature is cool to touch, then open with extreme caution.

⚠ CAUTION

Be sure not to scratch or mar the polished shaft seal faces; seal will leak if faces are damaged. The polished and lapped faces of the seal could be damaged if not handled with care.

Motor Care

Protect from Heat.

1. It is recommended to shade the Clear generator from the direct sun.
2. Provide ample cross ventilation to prevent overheating.

Protect Against Dirt.

1. Protect from any foreign matter or splashing water.
2. Do not sure (or spill) chemicals on or near the motor.
3. Avoid sweeping or stirring up dust near the motor while it is operating.
4. If a motor has been damaged by dirt it voids the motor warranty.
5. Clean the lid and clamp, O-ring, and sealing surface of the pump pot.

Protect Against Moisture

1. Protect from splashing or sprayed water.
2. Protect from extreme weather.
3. If a motor has become wet, let it dry before operating. Do not allow the pump to operate if it has been flooded.
4. If a motor has been damaged by water, the motor warranty is voided.

Shaft Seal Replacement

The shaft seal consists primarily of two parts: a spring-loaded member and rotating ceramic seal. The pump requires little or no service other than reasonable care; however, a shaft seal may occasionally become damaged and must be replaced.

NOTE: *The polished and lapped faces of the seal could be damaged if not handled with care.*

Pump Disassembly

Tools Required

1. 3/32" Allen head wrench
2. Two 9/16" open end wrenches
3. #2 or #3 Phillips head screwdrivers
4. Adjustable wrench
5. 1/4" Allen head wrench

To remove and repair the motor subassembly, follow the steps below:

1. Turn off the pump circuit breaker at the main panel.
2. Drain the pump by removing the drain plugs. No tools are required.
3. Use the 9/16" wrenches to remove the six bolts that hold the housing (strainer pot / volute) to the rear subassembly.
4. Gently pull the two pump halves apart, removing the rear subassembly.
5. Use a 3/32" Allen head wrench to loosen the two holding screws located on the diffuser.
6. Hold the impeller securely in place and remove the impeller lock screw by using a Phillips head screwdriver. The screw is a left-handed thread and loosens in a clockwise direction.
7. Use a 1/4" Allen wrench to hold the motor shaft in the rear of the motor. The motor shaft has a slot on the end, which is accessible through the center of the fan cover.
8. To unscrew the impeller from the shaft, twist the impeller counterclockwise.
9. If the seal needs replacing, remove the white colored, rotating portion of the mechanical seal from the impeller.
10. Remove the four bolts from the seal plate to the motor, using a 9/16" wrench.
11. Place the seal plate down on a flat surface and tap out the carbon spring seat.
12. Clean the seal plate, seal bore, and the motor shaft.

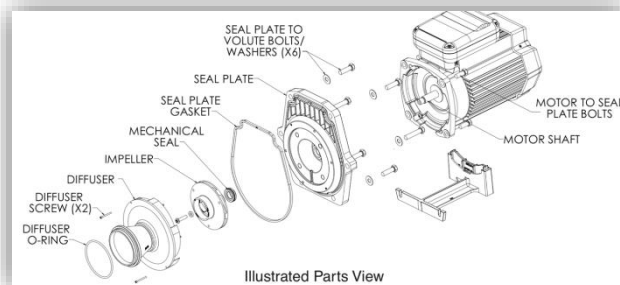
Pump Reassembly

1. When installing the replacement shaft seal, use silicone sealant on the metal portion before pressing into the seal plate, being careful to keep off the seal face. Be sure the seal is full seated and allow 24 hours for sealant to cure.
2. Before installing the rotating portion of the seal into the impeller, be sure the impeller is clean. Use a light density soap and water to lubricate the inside of the seal. Press the seal into the impeller with your thumbs and wipe off the ceramic and carbon faces with a clean cloth.
3. Remount the seal plate to the motor.
4. Grease the motor shaft thread and screw impeller onto the motor shaft.
5. Screw in the impeller lock screw (counterclockwise to tighten.)
6. Remount the diffuser onto the seal plate. Be sure the plastic pins and holding screw inserts are aligned.
7. Grease the diffuser O-ring and seal plate gasket prior to reassembly.
8. Assemble the motor subassembly to the pump housing by using the two through bolts for proper alignment. Do not tighten the through bolts until all six bolts are in place and finger tightened.
9. Fill the pump with water.
10. Reinstall the pump lid and plastic clamp. Refer to "Cleaning the Pump Strainer Basket" section of this manual.
11. Prime the pump. Follow the Restart Instructions in the next section for startup.

3. Reassemble the pump lid and locking ring onto the strainer pot. The pump is now ready to prime.
4. Open the air relief valve on the filter and stand clear of the filter.
5. Turn on the pump.
6. When water comes out of the filter air relief valve, close the valve. The system should now be free of air and recirculating water throughout the system.
7. For variable speed and two speed pumps, pump should run on high speed for priming.



The pump should not run longer than eight minutes if priming is not achieved.



Do NOT run the pump dry. If the pump is run dry, the mechanical seal will be damaged and the pump will start leaking. If this occurs, the damaged seal must be replaced. ALWAYS maintain proper water level. If the water level falls below the suction port, the pump will draw air through the suction part, losing the prime and causing the pump to run dry, resulting in a damaged seal. Continued operation in this manner could cause a loss of pressure, resulting in damage to the pump case, impeller and seal, and may cause property damage and personal injury and manufacturer warranties will be void.

Restart Instructions

If pump is installed below the water level, close the return and suction lines prior to opening the strainer pot on the pump. Be sure to reopen valves prior to operating.

Priming the Pump

The pump strainer pot must be filled with water before the pump is initially started. Follow the steps below to prime the pump:

1. Remove the pump lid plastic clamp. Remove the pump lid.
2. Fill the pump strainer pot with water.

Compressor Maintenance

Startup

Do not start against a vacuum or pressure load. Do not remove relief valve head while unit is operating. If motor fails to start or slows down significantly under load, shut off and disconnect from power supply. Check that voltage is correct for motor and that motor is turning in the proper direction. If the motor runs in the wrong direction, it will overheat.

WARNING

Product surfaces become very hot during operation, allow product surfaces to cool before handling. Air stream from product may contain solid or liquid material that can result in eye or skin damage, wear proper eye protection. Failure to follow these instructions can result in burns, eye injury or other serious injury.

Maintenance Tips

1. Regularly inspect and make necessary repairs to product to maintain proper operation.
2. Make sure that pressure and vacuum is released from product before starting maintenance.
3. If unit is operated at maximum duties in a clean, 65°F to 75°F (18°C to 24°C) ambient environment with 35% relative humidity, complete first inspection and maintenance after 4,000 hours of operation. Earlier maintenance may be required depending upon the environment.

Compressor Air Filter Replacement

Refer to preventative maintenance schedule for the replacement intervals.

1. Turn the unit off by turning the POWER disconnect to OFF position.
2. Take the existing filter out.
3. Cover the threaded portion of a new filter with 2 tight layers of Teflon tape counterclockwise.
4. Install the new filter.
5. Turn system on (Follow unit startup procedure if necessary)

NOTE: Air filter is critical to optimal operation of the product. Do not clean and reuse an old air filter. Do not run the compressors without air filter. In dry and dusty sites, more frequent replacements may be necessary.



Compressor Independent Shutdown

If working on the Compressor independently from the Clear, proper shutdown procedures must be followed to prevent pump damage. Failure to do so may result in premature pump failure. Gast Manufacturing Oil-Less Piston Vacuum Pumps and Compressors are constructed of ferrous metals or aluminum which are subject to rust and corrosion when pumping condensable vapors such as water. Follow the steps below to assure correct storage and shutdown between operating periods.

1. Disconnect inlet and outlet air tubing.
2. Operate product for five minutes without the tubing.
3. Run at maximum vacuum for 10 to 15 minutes.
4. Repeat Step 2.
5. Turn the unit off by switching the POWER disconnect to OFF position.
6. Plug open ports to prevent dirt or other contaminants from entering product.

Compressor Service Kit Installations



Disconnect electrical power supply cord before installing Service Kit. If product is hard wired into system, disconnect electrical power at the circuit breaker or fuse box before installing Service Kit. Vent all air lines to release pressure or vacuum. Failure to follow these instructions can result in death, fire or electrical shock.

1. Disconnect electrical power to pump.
2. Disconnect air supply and vent all air lines to release pressure or vacuum.
3. Remove shroud, cylinder head and valve components.
4. Remove cylinder and rings.
5. Clean all parts with water or non-petroleum-based solvent such as Gast AH255B Solvent. Do NOT use kerosene or ANY other combustible solvents.
6. Install piston seals, piston rings and rider rings on piston. Locate ring joints approximately opposite each other.
7. Use cylinder screws with washers to attach cylinder to bracket. Tighten screws only until they are finger tight.
8. Move pistons to top dead center position. Adjust each cylinder flush with top of piston.
9. Torque cylinder screws to 150" to 160" pounds.
10. Replace valve components in original order.
11. Install cylinder head and head screws. The exhaust ports have been marked on the cylinder heads by omitting the ends of two of the fins. Do not tighten screws.
12. Install manifold nuts and seals on manifold. Insert into cylinder head and manifold.
13. Torque head screws to 150" to 160" pounds.
14. Turn fan by hand to check that rod assembly is not hitting head. If rod hits head, loosen cylinders, and adjust.
15. Install manifold and tighten manifold nut one-quarter to one-half turn beyond finger tight.
16. Operate unit for ten minutes. Tighten screws again.
17. Install fan shroud.

18. Check that all external accessories such as relief valves and gauges are attached to cover and are not damaged before reoperating product.

If pump still does not produce proper vacuum or pressure, contact Moleaer for assistance.

Capacitors Replacement

Follow preventative maintenance schedule for capacitor(s) replacement intervals. In standard units, there is one capacitor for the main compressor. In Enriched Air units, there is an additional capacitor for the enriched air compressor. Before replacing a capacitor, make sure the new capacitor has the same rating.

NOTE: Capacitors for the main and enriched air compressors are not interchangeable.

Compressor Troubleshooting

Each unit is equipped with a main compressor that injects air into the nanobubble generator. Enriched air models have an additional compressor called Enriched Air Compressor. Both compressors designs and operation principles are the same. Troubleshooting guide below applies to both compressors.

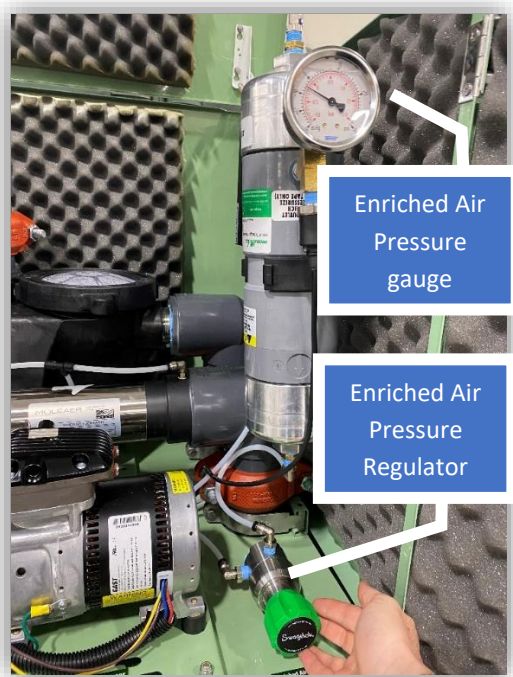
Problem	Corrective Action
Motor Will Not Start	<ul style="list-style-type: none"> • Turn the system off. • Check that plugs are fully inserted into the outlet inside the Clear. • Check that the tube connection from the piping to the water pressure gauge. The compressors will not start if there is inadequate water pressure or if the tube connection is loose. • Check that voltage from power source matches that listed on nameplate. • Check wiring connections against diagram on nameplate. Single voltage motors will operate only at designated voltage. • Reconnect electrical supply to unit. Check that power is on. If extension cord is used, check that it is the correct size and length to adequately supply power to the unit. • If unit will still not operate, contact your Gast Distribution / Representative or a Gast Authorized Service Facility.
Motor Starts at 0 PSI but Will Not Start Under Pressure	<ul style="list-style-type: none"> • Replace the check valve. • Wait for the thermal overload switch to reset before attempting to operate. • If unit will not restart, the thermal overload switch may need to be replaced. If there is no thermal overload switch, the motor may be damaged and requires service.
Motor Starts Intermittently	<ul style="list-style-type: none"> • Disconnect electrical power supply from unit. • Check that the tube connection from the piping to the water pressure gauge. The compressors will not start if there is inadequate water pressure or if the tube connection is loose. • Check points in the pressure or vacuum switch for wear or dirt. • Check for dirt buildup or uneven wear. • Replace parts as required.
A Leak is Located at the Unit	<ul style="list-style-type: none"> • Vent all pressure from inside the air receiver until gauge reads 0 PSI. • Inspect check valve for dirt buildup, wear, and proper operation. • Replace check valve, if necessary.

Enriched Air System (Optional)

Operation

Units equipment with the Enriched Air system are capable of increasing oxygen content of the air injected in to the nanobubble generator up to 40% (double the ambient content). The percentage varies by elevation and ambient temperature.

Occasional adjustment of the enriched air pressure is required to optimize the oxygen content of the enriched air. Often, the adjustment is required when the ambient temperature significantly changes. The adjustment is not



Nitrogen Membrane

The Enriched air system separate nitrogen from the air. The membrane tank (Prism) accumulates nitrogen content of the compressed air and exhausts it through the enriched air back pressure regulator. The nitrogen filtered or “enriched” air leaves the tank via a separate port, and is used as the feed air to the main compressor. There is a pressure gauge on the tank to monitor the enriched air pressure. Pressure ranges are as followed.

Enriched Air Pressure Ranges	
Optimal Range*	0 to 10 Psi
Maximum Range**	-5 to 20 Psi

**Adjust the pressure by turning the enriched air pressure regulator knob.*

***Exceeding this range may damage the enriched air compressor or significantly reduce the enriched air oxygen content.*

NOTE: Moleaer’s remote monitoring system monitors the enriched air pressure and sends alerts when the pressure is out of the maximum range.

Maintenance

3-Stage Filter (For Enriched unit only)

3-stage filters must be cleaned every 6 months and replaced annually. Refer to the preventative maintenance schedule.

Follow steps below to remove the filters. Reverse the steps to reinstall the filters.

Step 1) Use an Allen wrench to loosen the cap.

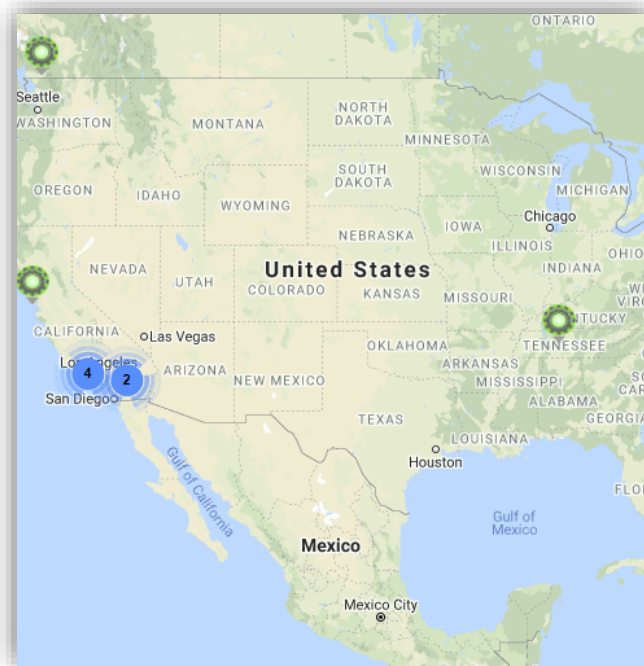


Step 2) Use an adjustable wrench to completely unscrew the cap.



Locating units

Each unit can be located by either a physical address, by name on the left side menu or visually on the map. Steps below are for finding a unit on the map.



Remote Monitoring

Moleaer's remote monitoring system provides valuable information about the performance of the unit, sends error notifications alerts and saves historical performance data. If the optional Dissolved Oxygen (DO) sensor is purchased, the values are capture on the remote monitoring dashboard.

Access to remote monitoring website


Use the link below to access the website or browse Moleaer's homepage tabs.

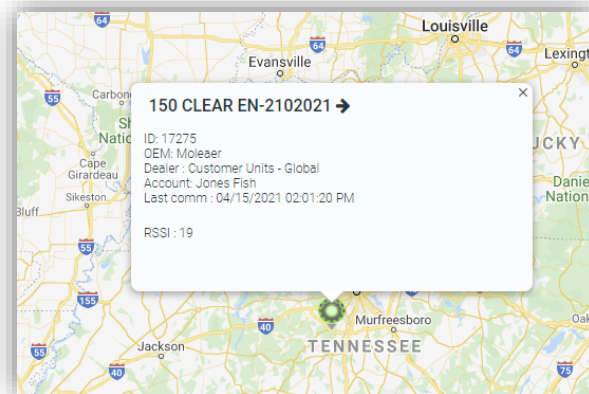
<https://www.monitoring-moleaer.com/login.aspx>

Login information

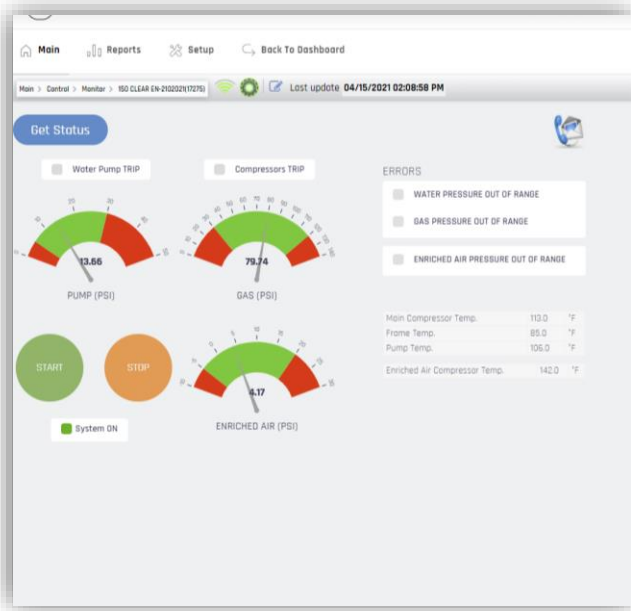
Contact Moleaer to create a user account. Each unit can have multiple user account. Each user account request must include full name, phone number and a valid email address.

An account activation email will be sent to the new users to setup the account and password.

Zoom in or click on the green symbol  to see more information about the unit.



Click on the unit name to access the unit's dashboard.

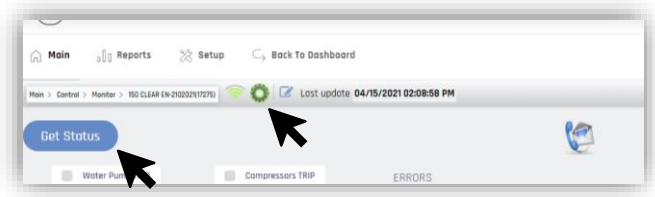


System Status

Cellular Connectivity Status

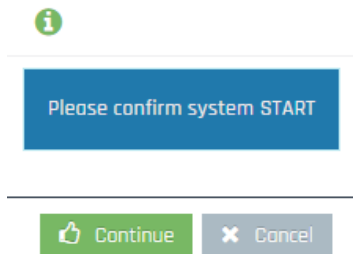
Unit's cellular connectivity status and last reading are shown on top of the page. If the unit is shutdown or not receiving any cellular connection, the green light will turn grey, and the last reading reflect the last time the unit had cellular connection.

To get the most recent data point, click on "Get Status" button and wait for the page to refresh.



Remote Start/Stop

Start and stop buttons are available on the dashboard. When either button is pressed, a message will appear to confirm the selection.

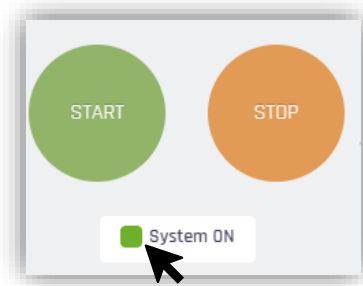


If the system is "On" after pressing the remote START button but there is no change in pressure, the system may have lost prime. If pump and gas pressure does not increase after 3 minutes, press the STOP button and inspect the unit in-person.

Status LEDs

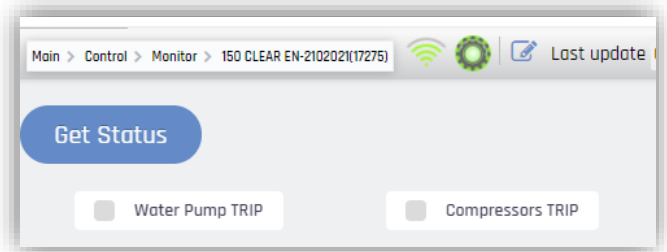
System on

If the light is green, the system is powered and running.



Water Pump Trip and Compressor trip light:

If the light is red, the corresponding component has had an electrical problem and has been shut down. If a trip has occurred, inspect the unit in-person.

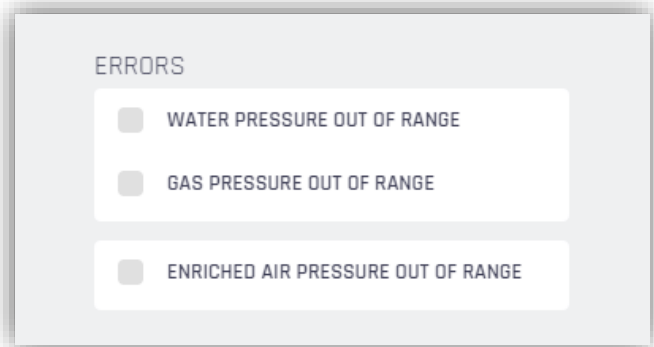


Measurements Units

The dashboard readings are available in metric and imperial systems. Contact Moleaer to switch the systems.

Errors

There are three errors for enriched air systems and two errors for standard system. If an error occurs, the Error light turns red.



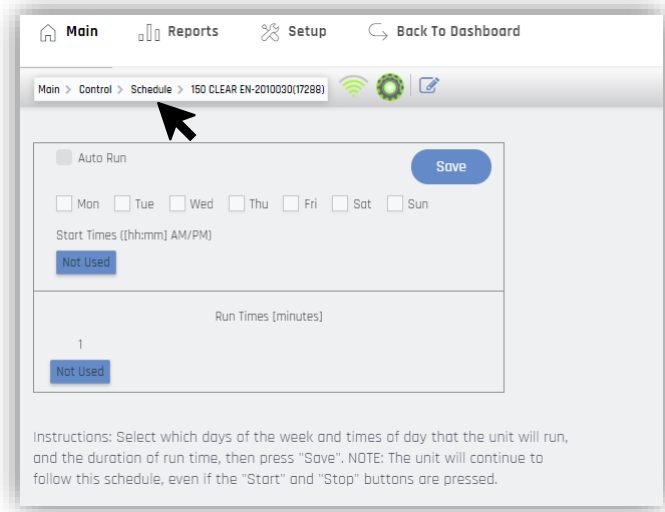
Temperatures

Temperature readings of main internal components are displayed.

Main Compressor Temp.	113.0	°F
Frame Temp.	85.0	°F
Pump Temp.	106.0	°F
Enriched Air Compressor Temp.	142.0	°F

Schedule

The scheduling tool turns the system on and off based on the schedule page settings. The schedule page access is via the “Main” tab menu.

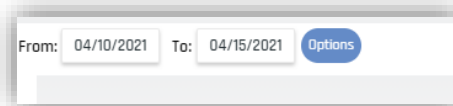


To enter in a schedule, select the days of the week, the start time, and the duration of operation, and then hit save. The unit will turn on automatically during the designated operating window.

Trending

Trending displays historical values of all the sensors. The graphs are updated continuously every 10 minutes. To pull a new data point, click on refresh button.

The graphs show the data from the past 7 days. The time window can be adjusted by changing the dates on each graph.



Once the desired dates are selected, click on the “Refresh” button to update the graph.



NOTE: Clear units are equipped with a dump valve. This valve exhausts the air inside the system every 24 hours after the last time the unit was powered on. A dump event takes about 10 seconds. The sudden pressure drops on the gas graphs represent a dump event and is normal.

Notifications

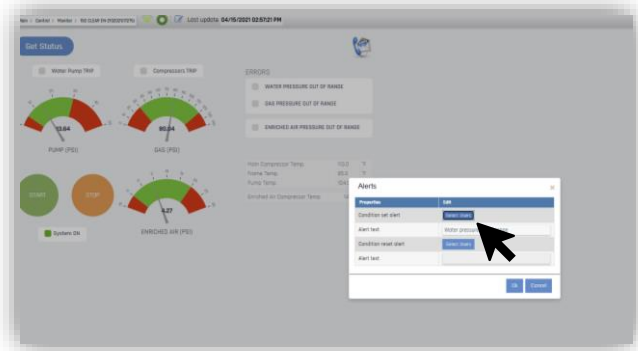
The remote monitoring system is capable of sending SMS (text) message and emails if an error in the system occurs.

Each user must choose the desired error notification on the dashboard to receive notifications.

Notifications are sent to users who completed notification setup on the dashboard.

Error Notifications

1. Click on the Error LED.
2. On the “Alerts” window, click on the condition set and condition reset alerts and check the type of communication, i.e., email, SMS.

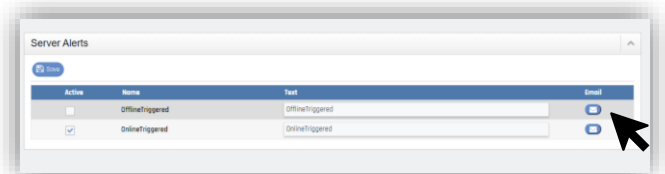


To turn off the alerts, follow steps above. Once on the “Alerts” menu, uncheck the communication boxes.

Online / Offline Trigger Notifications

To receive the online and offline status notifications, follow the steps below.

1. On “Setup” tab click on “Ver&Comm”. Check the desired option on the page.



2. Click on the email button and choose the desired email address.

NOTE: Online and Offline notifications are via email only.

NOTE: Follow the steps above to turn the notifications off by unchecking the undesired notification.

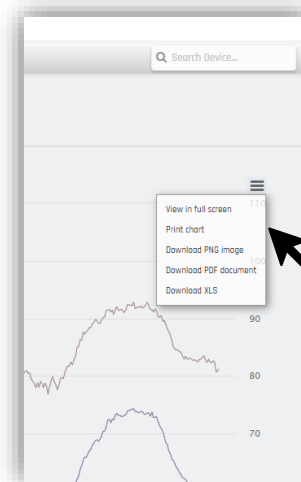
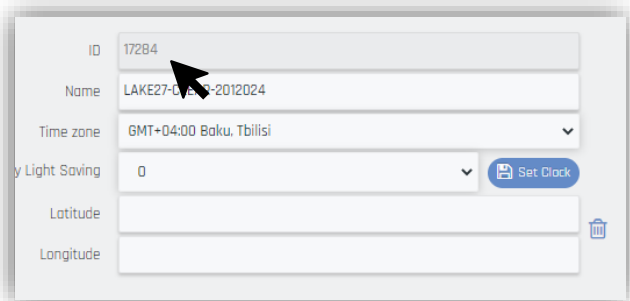
NOTE: By default, all users receive the online trigger notification.

Remote monitoring serial number

Remote monitoring ID is a 5-digit number assigned to each unit. This number is different than unit’s serial number and can only be found on the remote monitoring dashboard or by opening the electrical panel and reading off the sticker on the hardware.


Follow steps below to find the serial number.

1. On the “Setup” tab, click on “General”
2. Find the ID on the first box.

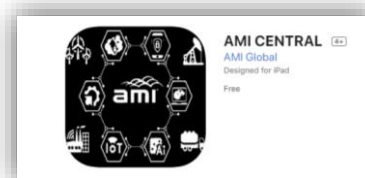


Data Export

Follow steps below to download sensors data.

1. On the “Reports” tab click on “Graphs”
2. Choose the desired start and end dates above the graphs.
3. Choose graph types
4. Choose graphing value from the dropdown menu
5. Click on “Generate” Button and wait for the page to refresh.
6. Click on the upper right corner of the graphs pane. 
7. Choose the desired format from the dropdown menu.
8. File will be automatically downloaded.

Phone Apps



iOS

Follow the link below or search for “AMI Central” app.

<https://apps.apple.com/us/app/ami-central/id1345929596>

Android

Follow the link below or search for “AMI Central” app.

https://play.google.com/store/apps/details?id=com.aquam.anagement.amicentral&hl=en_US&gl=US

Winterizing

1. In mild climate areas, when temporary freezing conditions may occur, run your filtering equipment all night to prevent freezing.
2. End-user is responsible for determining when freezing conditions may occur. If freezing conditions are expected, take the following steps to reduce the risk of freeze damage. Freeze damage is not covered under warranty.

To prevent freeze damage, follow the procedures below:

1. Shut off electrical power for the pump at the circuit breaker.
2. Drain the water out of the pump housing by removing the two thumb-twist drain plugs from the housing. Store the plugs in the pump basket.
3. Cover the motor to protect it from severe rain, snow, and ice.

NOTE: Do not wrap motor with plastic or other airtight materials during winter storage. The motor may be covered during a storm, winter storage, etc., but never when operating or expecting operation.

Cleaning and Sanitizing

The cleaning circuit is an important part of Nanobubble Generator (NBG) operation. NBGs can become contaminated after they have been used for some time. Pollutants such as colloids, biofilms, mineral scale, and biological matter build up over time. Contaminants can be absorbed by the diffuser surface and the pipes in the system, resulting in decreased performance and possibly even serious damage. Periodic cleaning is thus very important and essential to optimal system performance.

Cleaning of an NBG system is usually indicated by the following operating conditions:

1. The system is unable to reach 80% of specified nominal gas flow with gas flow valve wide open (see data sheet for each NBG to identify nominal gas flow for each system).
2. The normal increase in dissolved oxygen in one pass has decreased by 25%.
3. The pressure of the gas injection required to maintain gas flow exceeds supply gas pressure.

If cleaning is delayed too long, complete recovery of the unit may not be possible.

Safety Precautions

1. When using any chemical indicated here or in subsequent sections, follow accepted safety practices. Consult the chemical manufacturer for detailed information about safety, handling and disposal.
2. When preparing cleaning solutions, ensure that all chemicals are dissolved and well mixed before circulating the solutions through the system.

3. It is recommended that the system be flushed with good-quality water (20°C minimum temperature) after cleaning. City or well water of drinking water quality is recommended. Care should be taken to operate initially at reduced flow and pressure to flush the bulk of the cleaning solution from the system before resuming normal operating pressures and flows. Despite this precaution, cleaning chemicals will be present on the treated water side following cleaning. Therefore, the treated water should be diverted to a drain for at least 30 minutes or until the water is clear when starting up after cleaning.
4. During recirculation of cleaning solutions, the maximum temperature must not be exceeded. The maximum allowed temperature is dependent on pH and material type. (See datasheet or consult Moleaer Sales or Tech Service for guidance.)
5. Ensure the system power is disconnected during cleaning procedures to avoid accidental startup of the pump or gas production system.
6. Closing main valves and starting main pump system may result in either piping failures or pump seal failure.

NOTE: The maximum temperature limit during cleaning is 45°C (113°F) for all PVC systems.

NOTE: The minimum and maximum pH limits for all PVC systems are 1 and 13, respectively.

The cleaning procedure of an NBG system consists of the following process steps:

1. **Production of the Cleaning Fluid:** The fluids used for the cleaning process need to be of a certain pH, and all chemicals must be dissolved and mixed before the cleaning fluid is added in the NBG.
2. **Removal of Feed Water from Piping that Will be Treated with the Cleaning Fluid:** This includes closing the main isolation valves for process flow.
3. **Low-Flow Recirculation Through the System via the Clean-in-Place (CIP) Valves:** The cleaning fluid is now in the system, and the feed water has been forced out of the system.
4. **Soaking in the Cleaning Fluid:** The pump is shutoff, and the cleaning fluid will soak into the NBG.
5. **Drainage of the Cleaned Piping:** The applied cleaning fluid is pumped out of the system. By sampling the cleaning fluid and analyzing the

samples, one can determine the amount of contamination.

6. **Rinsing Out the System:** For the rinsing process, either clean or good quality water is used.
7. **Starting Up the Cleaned System:** The installation is started up according to the usual process parameters. When cleaning fluid is still present in the piping, the system needs to be rinsed until water quality is satisfactory.

Recommended Cleaning Solutions for NBG Generators

Foulant / Cleaner	0.1% (W) NaOH and 1.0% (W) Na ₄ EDTA, pH 12, 35°C Max.	0.1% (W) NaOH and 0.025% (W) Na-DSS, pH 12, 35°C Max.	0.2% (W) HCl, 25°C and pH 1 - 2	1.0% (W) Na ₂ S ₂ O ₄ , 25°C and pH 5	0.5% (W) H ₃ PO ₄ , 25°C and pH 1 - 2	1.0% (W) NH ₂ SO ₃ H, 25°C and pH 3 - 4
Inorganic Sales(i.e., CaCO ₃)			Preferred	Alternative	Alternative	
Sulfate Scales (CaSO ₄ , BaSO ₄)	OK					
Metal Oxides (i.e., iron)				Preferred	Alternative	Alternative
Inorganic Colloids (silt)		Preferred				
Silica	Alternative	Preferred				
Biofilms	Alternative	Preferred				
Organic	Alternative	Preferred				

Safety Precautions

1. **Maximum Temperature:** 100°C (212°F.)
2. **pH Tolerance Range:** 2 to 14.
3. Each cleaning situation is different; therefore, specific cleaning recommendations are dependent on the type of foulant. Consult the general cleaning instructions for information that is common to all types of cleaning, such as suggested equipment, pH and temperature limits and recommended flow rates; then apply the specific recommendation as needed.
4. When using any chemical indicated here or in subsequent sections, follow accepted safety practices. Consult the chemical manufacturer for detailed information about safety, handling, and disposal.
5. When preparing cleaning solutions, ensure that all chemicals are dissolved and well mixed before circulating the solutions through the elements.

Troubleshooting Guide

Problem	Possible Cause	Corrective Action
Pump Will Not Prime	<ul style="list-style-type: none"> • Air being drawn into pump suction. • Gas valve open when pump not running. • Faulty check valve. • Air pocket in suction line. 	<ul style="list-style-type: none"> • Check suction piping and valve on any suction gate valves. • Secure lid on pump strainer pot and be sure lid gasket is in place. Check water level to make sure suction port is not drawing air. • Be sure suction lines, pump strainer, and pump volute are full of water. Be sure valve on suction line is working and open (some systems do not have valves). • Ensure that suction piping is on a continuously rising slope with the pump inlet as the highest point.
Pump Motor Not Running	<ul style="list-style-type: none"> • Motor thermal protector tripped. • Open circuit breaker or blown fuse. • Impeller binding. • Motor improperly wired. • Defective motor. 	<ul style="list-style-type: none"> • Check thermal protector. • Check circuit breaker. • Check impeller. • Check motor wiring. • If all above are in good condition, the motor is defective and must be repaired by an authorized technician.
Pump Gasket Defective	<ul style="list-style-type: none"> • Defective gasket. 	<ul style="list-style-type: none"> • Replace gasket. Contact Moleaer for spare parts.
Reduced Capacity and / or Head	<ul style="list-style-type: none"> • Air pockets or leaks in suction line. • Pump will not prime – too much air. 	<ul style="list-style-type: none"> • Check suction piping and valve on any valve suction gate valves. • Secure lid on pump strainer pot and make sure lid gasket is in place. Check water level to make sure suction port is not drawing air. • Clean pump strainer pot. • Check to see if impeller or diffuser are clogged.

Problem	Possible Cause	Corrective Action
Clogged Impeller	<ul style="list-style-type: none"> • Debris in impeller. 	<ul style="list-style-type: none"> • Switch OFF electrical power at the circuit breakers to the pump. Remove the nuts that secure the volute to the seal plate. • Slide the motor and seal plate away from the volute. Clean debris from impeller. • If debris cannot be removed, complete the following steps: <ul style="list-style-type: none"> ○ Remove impeller, reverse screw, and O-ring. ○ Remove, clean, and reinstall impeller. ○ Reinstall anti-spin bolt. ○ Reinstall diffuser and O-ring. ○ Reinstall motor and seal plate into volute. ○ Reinstall hardware around seal plate and volute and tighten securely.
Pump Strainer Clogged	<ul style="list-style-type: none"> • Debris in pump strainer basket. 	<ul style="list-style-type: none"> • Clean suction trap.
Insufficient Dissolved Oxygen Saturation	<ul style="list-style-type: none"> • Vacuum leaks in suction line. • Leaks in air tubing. • Gas flow too low. 	<ul style="list-style-type: none"> • Check plumbing connections and suction piping. • Check air tubing connections. • Check to be sure suction port is not drawing air into the system. • Increase gas flow. • Increase system run time.
Excessive Power Consumption	<ul style="list-style-type: none"> • Impeller binding. • NPSH too low – excessive suction lift or losses. • Discharge head too low – excessive flow rate. 	<ul style="list-style-type: none"> • Check impeller. • Check suction lift and loss. Maximum suction lift is 6' (3 meters). • Check discharge head and flow rate. Flow rate is 50gpm for Clear 50 and 150gpm for Clear 50 at 50' (15.2 meters).
Pump Flow Too Low	<ul style="list-style-type: none"> • Voltage too low. • NPSH too low – excessive suction lift or losses. • Pump back pressure too high. 	<ul style="list-style-type: none"> • Check voltage. • Check suction lift and loss. Maximum suction lift is 6' (3 meters). • Check suction basket and intake screen for obstructions.

Problem	Possible Cause	Corrective Action
Pump Back Pressure Too High	<ul style="list-style-type: none"> Discharge nozzle or piping obstructed. Discharge valve engaged too much, if installed externally. 	<ul style="list-style-type: none"> Check discharge nozzle and piping. Check discharge valve if any (must be field installed).
Low Gas Pressure on System Gauge	<ul style="list-style-type: none"> Feed gas pressure too low. Internal fouling. 	<ul style="list-style-type: none"> Check gas pressure must be between 40 PSI to 100 PSI. Follows specified “clean-in-process” procedures to internal cleaning.
Gas Flow Meter Not Working	<ul style="list-style-type: none"> Moisture in the Rotameter. 	<ul style="list-style-type: none"> Clean Rotameter.
Too Many large Bubbles	<ul style="list-style-type: none"> Gas flow too high. 	<ul style="list-style-type: none"> Reduced gas flow.
Insufficient Gas Transfer	<ul style="list-style-type: none"> Feed gas pressure too low. Delta gas pressure out of range. Excessive moisture and / or contaminant in the gas line. Internal system fouling. 	<ul style="list-style-type: none"> Increase feed gas pressure at the gas regulator. Clean Rotameter, gas lines, and fittings. Follow specified “clean-in-place” procedures for internal cleaning.
Excessive Noise and Vibration	<ul style="list-style-type: none"> Impeller binding. Pump is not primed fully – air or gases in pumpage. NPSH too low – excessive suction lift or losses. Incorrect rotation (3 phase only). Defective motor. Discharge, suction plugged, or valve closed. Impeller worn or plugged. 	<ul style="list-style-type: none"> Replace impeller if damaged. Completely flood intake piping to prime fully. Repair or replace motor if damaged. Open discharge valve or reduce restriction.

Problem	Possible Cause	Corrective Action
Remote Monitoring Warning: Pump Pressure Out of Range	<ul style="list-style-type: none"> Pump is powered off or pressure out of range. 	<ul style="list-style-type: none"> Login into the remote monitoring website. Locate your unit on the side bar or the map (see instructions in this document). Click on “Check Status” button and wait for the page to refresh. If the pump trigger LED is on, the pump motor is not powered. Check the pump and overload protection in the control panel. If the pump pressure is high, refer to “pump back pressure is too high” section of this troubleshooting guide. If the pump pressure is low, check the pump basket and field piping for any leaks and assure the inlet piping screen or the check valve are not clogged.
Remote Monitoring Warning: Gas Pressure Out of Range	<ul style="list-style-type: none"> Gas pressure is above or below the recommended values. 	<ul style="list-style-type: none"> Login into the remote monitoring website. Locate your unit on the side bar or the map (see instructions in this document). Click on “Check Status” button and wait for the page to refresh Get the latest gas pressure and the compressor status. If the compressor trip light is on, the compressor is off. Check the compressor and overload protection in the control panel. If the compressor pressure is higher than the recommended range, there might be a clog in the tubing downstream of the compressor. Contact Moleaer for further troubleshooting. If the compressor pressure is too low, refer to “low gas pressure on the system gauge” in this troubleshooting guide.

Problem	Possible Cause	Corrective Action
<p>Remote Monitoring Warning: Enriched Air Pressure out of range (Enriched units only)</p>	<ul style="list-style-type: none"> Gas pressure is below or above recommended values. 	<ul style="list-style-type: none"> Login into the remote monitoring website. Locate your unit on the side bar or the map (see instructions in this document). Click on “Check Status” button and wait for the page to refresh If the compressor trip light is on, the compressor is off. Check the compressor and overload protection in the control panel. If the system is on and operating normally (check water, gas, and system on LED), the Enriched Air Pressure regulator must be adjusted. See instructions in this manual. Allow the system to run for 10 minutes to see if further adjustment is necessary or not

Monthly Inspection Checklist

Model	Component	Instructions
All	Power light	Check the light. Green: Running; Yellow: Powered but not running, No light: No power
All	Gas Leakage	Use soap water to check the gas leakage on the joints and fittings. Check for signs of cracking on the tubes
All	Water Pressure	Check water pressure gauge (8-30 Psi). Compare value with the historical values on the remote monitoring dashboard (requires subscription)
All	Gas Pressure	Check gas pressure gauge (30-110 Psi). Compare value with the historical values on the remote monitoring dashboard (requires subscription)
All	Fan	Make sure fan is clean and running continuously.
All	Pump basket	Stop the unit. Take the pump lid out. Inspect and clean the basket.
All	Intake screen	Visually inspect the intake screen and check valve. Shut down the unit and clean if necessary.
All	Compressor(s)	Compressors must run continuously without strong vibration. Housing must be very hot during operation.
All	Pump Visual inspection	Inspect the pump body. Look for signs of leakage, water, or heat marks on the junction box
All	Temperature sensors	Make sure all temperature sensors are securely attached.
All	External inspection	Make sure air intakes under the pump and the compressors are not blocked.
All	Rotameter	Check rotameter value and compare with previous readings. Approximate values: 5 CFH for Clear50 and 15 CFH for Clear150
All	Air suction	Detach the suction tube on the compressors. Check the suction by putting a piece of paper on the tube to block the air flow.
All	Main compressor air pressure	Detach tube from the back of the rotameter and check the air flow.
All	Visual inspection	Check gas tubing and look for spots with condensation, and heat marks. Detached tubes to drain water inside tubes.
All	Main pressure regulator	Check the outlet of pressure regulator. Combination of high gas pressure (above 90SPi) and constant outgoing flow can be a sign of diffuser fouling or gas blockage inside the nanobubble generator
All	Power interruption test	Shut down the unit and power back on after 30 second. Monitor the unit until it goes back to normal operation

Enriched	Enriched air pressure regulator	The outlet of the regulator is located outside the unit right under the regulator. Air must constantly flow out of the outlet
Enriched	Enriched air pressure	Enriched air pressure must be about -2 to 5 Psi. Adjust the pressure by turning the enriched air back pressure regulator while the unit is running
Enriched	Primary compressor air pressure	Detach the tube between primary compressor and prism. Check the air flow.

Preventative Maintenance

Preventative Maintenance Schedule

Schedule	Description
Week 1	Perform monthly inspection
Week 2	Perform monthly inspection
6 months	Perform monthly inspection
	Perform inspection per inspection checklist
	Replace main compressor air filter
	Clean 3-stage air filter (Enriched units only)
1 year	Perform monthly inspection
	Replace fan
	Replace 3-stage filters (Enriched units only)
	Perform CIP
	Replace compressor(s) capacitor(s)
	Replace compressor air filter
	Replace or reseal air compressors
	Wipe-clean the enclosure. Clean the air intake in the bottom of the unit
18 months	6 months maintenance items
2 years	1 year maintenance items

	Optional: Replace DO sensor
2.5 years	6 months maintenance items
3 years	1 year maintenance items
3.5 years	6 months maintenance items
4 years	1 year maintenance items
	Replace dump valve
	Replace compressors (main and enriched)
	Reseal back pressure regulators (Main & enriched)
	Optional: Reseal pump
	Optional: Replace DO sensor
	Optional: Replace Prism membrane tank (Enriched units only)

Preventative Maintenance Kits

150 Clear with Enriched Air Preventative Maintenance Kits		
Schedule	Part Number	Description
6 months	99E0-120	Compressor Air filter
1-year	15A0-321	Maintenance kit, 1 year, Clear 3 Enriched
18 months	99E0-120	Compressor Air filter
2 years	15A0-321	Maintenance kit, 1 year, Clear 3 Enriched
2.5 years	99E0-120	Compressor Air filter
3 years	15A0-321	Maintenance kit, 1 year, Clear 3 Enriched
3.5 years	99E0-120	Compressor Air filter

4 years	15A0-322	Maintenance kit ,4 years, Clear 3 Enriched
	Varies	Pump maintenance kit. To order, provide Moleaer product serial no, Pump model or a picture of pump nameplate

150 Clear with Enriched Air <u>Optional</u> Preventative Maintenance Parts		
Schedule	Part Number	Description
2 years	99J0-145	DO Probe, 0-5V DC out, 24VDC In
4 years	99B0-110	Enriched Air Prism membrane tank

Clear 150 & 50 Preventative Maintenance Kits		
Schedule	Part Number	Description
6 months	99E0-120	Compressor Air filter
1-year	15A0-323	Maintenance Kit, 1 year, Clear Standard
18 months	99E0-120	Compressor Air filter
2 years	15A0-323	Maintenance Kit, 1 year, Clear Standard
2.5 years	99E0-120	Compressor Air filter
3 years	15A0-323	Maintenance Kit, 1 year, Clear Standard
3.5 years	99E0-120	Compressor Air filter
4 years	15A0-324	Maintenance kit 4 years, Clear Standard
	Varies	Pump maintenance kit. To order, provide Moleaer product serial no, Pump model or a picture of pump nameplate

Clear 150 & 50 Optional Preventative Maintenance Parts

Schedule	Part Number	Description
2 years	99J0-145	DO Probe, 0-5V DC out, 24VDC In

Emergency Spare Parts

Emergency Spare Parts List, Clear 50 & 150 Standard

Part Number	Description	Quantity
99K0-026	Compressor reseal kit, Gast, 1/4 & 1/8 hp	1
99E0-120	Compressor Air filter	1
10J0-003	Rotameter, 20SCFH & 9.45 SLPM, 316L, 1/4" NPT F, NO VLV	1
15E0-012	Fan	1
99E0-161	Main Compressor Capacitor	1
99V0-073	Check valve, brass piston, 1/4 NPT male x NPT male	1

Additional emergency Spare Parts List for Clear 150 Enriched

Part Number	Description	Quantity
99K0-026	Compressor reseal kit, Gast, 1/4 & 1/8 hp	1
99E0-162	Enriched Air Compressor Capacitor	1

Limited Warranty

Warranty

Moleaer warrants that the Goods will be free from defects in material and workmanship for a period of twelve months from delivery. Moleaer shall in no event be liable for defects or damage attributable to modifications performed or repair work done other than by Moleaer personnel or to abuse, accident, catastrophe, force majeure event, shipment, improper use including but not limited to circumstances where pumps and / or compressors included in the Goods are not operated in accordance with the original pump or compressor manufacturer's specifications, maintenance, storage or application or any other external cause.

EXCEPT FOR ANY WRITTEN PERFORMANCE WARRANTY THAT MOLEAER HAS EXPRESSLY INCORPORATED IN THIS CONTRACT, MOLEAER DISCLAIMS ALL OTHER WARRANTIES, WHETHER EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT.

Claims; Exclusive Remedy

Any warranty claim must be made to Moleaer in writing within ten days of discovery of the alleged defect. After obtaining prior written authorization from Moleaer, Buyer shall return all allegedly defective Goods, freight pre-paid, for examination by Moleaer. If Moleaer finds that the Goods are defective and covered by the warranty, Moleaer's sole obligation shall be, at Moleaer's option, to repair or replace the Goods, or to refund the purchase price therefor, and to reimburse Buyer's reasonable shipping costs. Buyer shall be responsible for all charges for handling of returned items not found defective. The remedy set forth in this Paragraph 4 is Buyer's sole and exclusive remedy for any breach of warranty or claim related to the Goods other than pursuant to any written performance warranty that Moleaer has expressly incorporated in this Contract.

Limited Warranty

MOLEAER SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT, CONSEQUENTIAL, OR INCIDENTAL DAMAGES, INCLUDING DAMAGES FOR LOST OR PROSPECTIVE PROFITS OR OTHER ECONOMIC DAMAGES, ARISING OUT OF OR RELATED TO THIS CONTRACT OR THE GOODS. MOLEAER'S TOTAL LIABILITY, WHETHER IN CONTRACT OR TORT OR OTHERWISE, SHALL NOT EXCEED THE PORTION OF THE PRICE PAID BY BUYER ALLOCABLE TO THE GOODS GIVING RISE TO THE LIABILITY. THE LIMITATIONS IN THIS PARAGRAPH WILL APPLY NOTWITHSTANDING THE FAILURE OF ESSENTIAL PURPOSE OF ANY LIMITED REMEDY.

This limitation shall not apply to claims for personal injury directly caused by Moleaer's willful or reckless acts.

PLEASE CONTACT MOLEAER AT 424-558-3567 IF YOU HAVE ANY QUESTIONS, OR TO ASSIST WITH ANY TROUBLESHOOTING AND FIELD INSTALLATION QUESTIONS.



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Document Revision History

Revision	Description	ECO No.	Assignee	Date Finished
A	Initial release.	-	PM	12/18/2020
B	Added additional maintenance items. Added spare parts, enriched operation, remote monitoring section, and PM Schedule.	1201	PM	4/13/2021

