

Oxygen Concentrator

Installation and Operation Manual

AERQ₂US

RELIABLE ON-SITE OXYGEN

ClearWater Tech, LLC.

Integrated Ozone Systems

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Cautions, Warnings, and Hazards

Oxygen is a powerful oxidizing agent. It can cause fires or explosions. Observe strict cleanliness procedures when fabricating and connecting the oxygen piping. ***It is imperative that oxygen systems be properly cleaned and inspected to insure that no combustible materials remain in the connecting piping and fittings.***

Ensure that the Oxygen Concentrator is in a well-ventilated area. If the space is occupied, sufficient ventilation must be provided to prevent the accumulation of low oxygen concentration waste gas in the space. Approximately 6 air changes per hour are necessary.

Do not allow rain or condensation to contact the Oxygen Concentrator. The Oxygen Concentrator is not weatherproof. It must be operated indoors or in an enclosure in a non-condensing environment.

The Oxygen Concentrator should be installed and operated per the Compressed Gas Association Guide P-8.1, "Safe Installation and Operation of PSA and Membrane Oxygen and Nitrogen Generators."

Introduction

The operation of the Oxygen Concentrator is based on the pressure swing adsorption (PSA) cycle using a molecular sieve. The Oxygen Concentrator is capable of delivering oxygen flows up to 8 standard cubic feet per hour (SCFH) (4 LPM) for AEROUS-8 and 15 SCFH (7LPM) for AEROUS-15 at 90% by volume oxygen concentration at rated conditions. The main components of the Oxygen Concentrator are, Oxygen Concentrator sieve beds, an oil-less air compressor, solenoid valve assembly and control board.

Installation

IMPORTANT: Ensure that there is sufficient access space around the Oxygen Concentrator so that normal maintenance and service can be performed. Also ensure that there will be a free flow of cooling air around the compressor. Connect the unit to a grounded power source rated for the voltage and current requirements stated on the label on the unit.

IMPORTANT: The location of the Oxygen Concentrator must be well ventilated. Refer to the recommendations in the Compressed Gas Association Guide P-8.1, "Safe Installation and Operation of PSA and Membrane Oxygen and Nitrogen Generators." Contact ClearWater Tech if further assistance is needed.

IMPORTANT: Choose a location for the Oxygen Concentrator that does not allow rain or condensation to contact the unit.

Oxygen Hook-up

The oxygen connection is 3/8 inch Barb and is located on the side of the Oxygen Concentrator.

IMPORTANT: Oxygen is a powerful oxidizing agent. It can cause fires or explosions. Observe strict cleanliness procedures when fabricating and connecting the oxygen piping. ***It is imperative that oxygen systems be properly cleaned and inspected to insure that no combustible materials remain in the connecting pipe and fittings.*** If you are not familiar with oxygen cleaning procedures, refer to the Compressed Gas Association documents G-4.1, "Cleaning Equipment for Oxygen Service" and G-4.4, "Industrial Practices for Gaseous Oxygen Transmission and Distribution Piping Systems."

Operation

To start the Oxygen Concentrator, connect the unit to a grounded power source rated for the voltage and current requirements stated on the label of the unit. **Note:** 220VAC and 240VAC units may be provided with a standard NEMA rated cord. The plug on this cord must be cut off and the unit hard-wired to main power. Color codes: Black = Line or L1, White = Neutral or L2, Green = Ground or Earth.

IMPORTANT: Ensure that the Oxygen Concentrator is in a well-ventilated area. If the space is occupied, sufficient ventilation must be provided to prevent the accumulation of low oxygen concentration waste gas in the space. Approximately 6 air changes per hour are necessary.

Do not exceed rated capacity.

Set the outlet oxygen flow to 8 SCFH (4 LPM) or less for AEROUS-8 and 15 SCFH (7 LPM) or less for AEROUS-15.

IMPORTANT: The flow meter installed on the Oxygen Concentrator is set to read accurately when the discharge is set to atmospheric pressure. If the actual discharge pressure is substantially above atmospheric pressure, the reading can be adjusted to determine the precise flow rate according to the following formula:

$$(adjusted\ flow) = (measured\ flow) \times \frac{\sqrt{oxygen\ pressure + 14.7}}{14.7}$$

IMPORTANT: Ensure that vacuum is not applied to the oxygen concentrator if power is off. If vacuum is being created by a venturi injector, the oxygen concentrator must be powered or damage will occur to the Oxygen Sieve Beds.

Maintenance

- The Inlet Filter is recommended to be changed every 6 months. Filter change frequency is dependent on environmental conditions and may vary.
- Enclosure filter is to be cleaned monthly. Filter cleaning frequency is dependent on environmental conditions and may vary.
- Compressors are recommended to be replaced after 17,000 hours of operation, depending on environmental conditions.

See the Service Parts section for information on replacement air inlet filters and compressor kits.

Specifications

Oxygen Output

(AEROUS-8) 8 SCFH (4 LMP) at 90% +3%/-5% oxygen by volume at 10 psig

(AEROUS-15) 15 SCFH (7 LMP) at 90% +3%/-5% oxygen by volume at 10 psig

Electrical Input

	120 VAC, 60 Hz	220 VAC, 50 Hz	240 VAC, 60 Hz	PHASE
AEROUS-8	3.0 AMPS	1.6 AMPS	1.5 AMPS	Single
AEROUS-15	3.8 AMPS	2.1 AMPS	1.9 AMPS	Single

Environment

The Oxygen Concentrator is not weatherproof. It must be installed where rain and condensation are not allowed to contact the unit. If the space is occupied, sufficient ventilation must be provided to prevent the accumulation of low oxygen concentration waste gas in the space.

Operating temperature: 41°F to 104°F (5°C - 40°C)

Storage temperature: 0°F to 140°F

Humidity: 0 to 95% RH

Barometric Pressure Range: 28 to 31 inches of Hg

Ambient Oxygen Concentration: 20% minimum

Operation

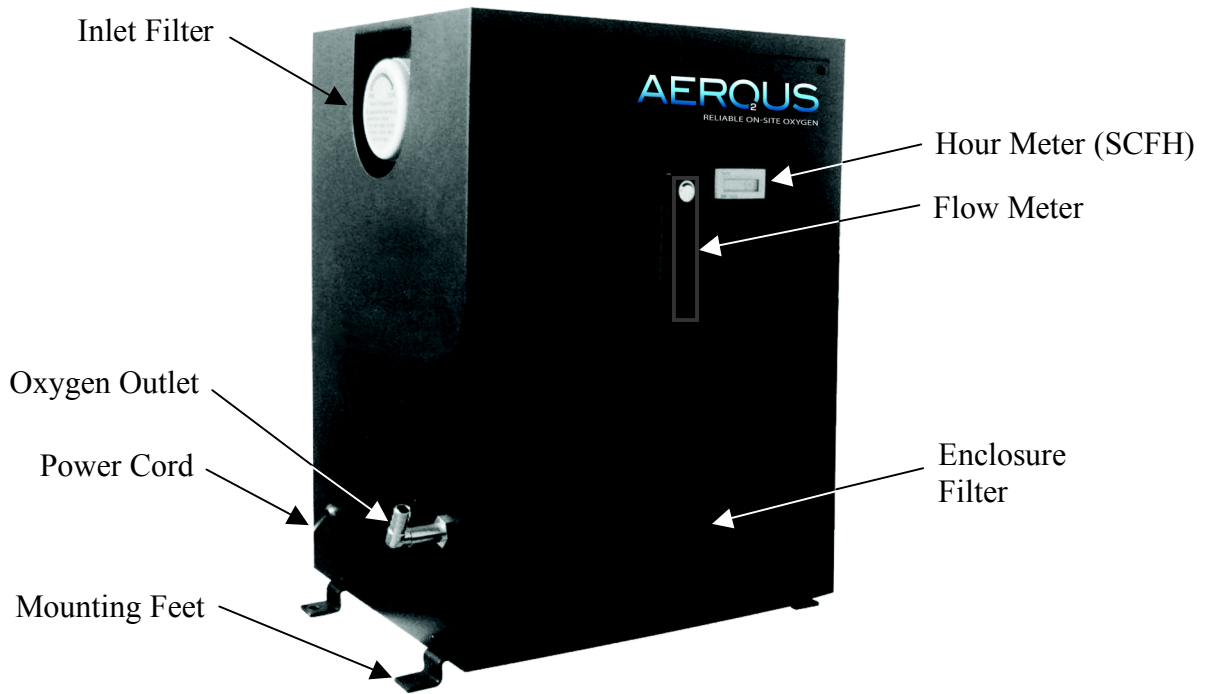
Unit should be installed and operated per the Compressed Gas Association Guide P-8.1, "Safe Installation and Operation of PSA and Membrane Oxygen and Nitrogen Generators."

Mechanical

Maximum Dimensions:

AEROUS-8 - 19.75" H x 11.89" W x 13.75" D (501mm H x 302mm W x 350mm D), weight: 68lbs (31kg)

AEROUS-15 - 20.50" H x 12.64" W x 15.10" D, (521mm H x 321mm W x 384mm D), 75lbs (34kg)



Service Parts

Service parts listed below can be obtained directly from ClearWater Tech. Hose can generally be obtained locally. Always replace hoses with equal or better specifications. Please contact ClearWater Tech directly for further information on other parts.

Service Parts

Service Part	Quantity	AEROUS-8 Part Number	AEROUS-15 Part Number
Control PCB 120 VAC 60Hz	1	OXU372	OXU377
Control PCB 220/240 VAC 50/60Hz	1	OXU386	OXU378
Solenoid Valve Assembly	1	OXU379	OXU379
Compressor 120VAC 60Hz	1	OXU373	OXU340
Compressor 220/240VAC 50/60Hz	1	OXU374	OXU345
Enclosure Filter	1	OXU350	OXU351
Inlet Filter Package	SET(3pcs)	OXU371	OXU371
Maintenance Kit	1	ASP70A	ASP75A
Rebuild Kit	1	ASP71A	APS76A

The maintenance kits include the inlet filter package (OXU371) and the appropriate enclosure filter (OXU350 or OXU351).

Rebuild kits include the filters of the maintenance kit in addition to a solenoid valve assembly (OXU379) and two sieve beds.

The OXU371 inlet filter package contains the same two felt filters and foam spacer included with the original purchase of the AEROUS oxygen concentrator.

ClearWater Tech, LLC. Limited One-Year Warranty

Summary of the Warranty

ClearWater Tech, LLC ("CWT") makes every effort to assure that its products meet high quality and durability standards and warrants the products it manufactures against defects in materials and workmanship for a period of one (1) year, commencing on the date of original shipment from CWT, with the following exceptions: 1) The warranty period shall begin on the installation date if the installation is performed within 90 days of the original shipment from CWT; 2) The warranty period shall begin on the date of the bill of sale to the end user if the installation date is more 90 days after the original shipment date. To validate the warranty, a warranty card, accompanied by a copy of the bill of sale, must be returned to CWT and must include the following information:

- End user name
- Complete address, including telephone number
- Date installed
- Complete model and serial number information
- Name of company from which the unit was purchased

Repairs and replacement parts provided under this warranty shall carry only the unexpired portion of this warranty or 90 days, whichever is longer.

Items Excluded from the Warranty

This warranty does not extend to any product and/or part from which the factory assigned serial number has been removed or which has been damaged or rendered defective as a result of:

- An accident, misuse, alteration or abuse
- An act of God such as flood, earthquake, hurricane, lightning or other disaster resulting only from the forces of nature
- Normal wear and tear
- Operation outside the usage parameters stated in the product user's manual
- Use of parts not sold by CWT
- Service or unit modification not authorized by CWT
- Check valve/solenoid valve failure
- Damage which may occur during shipping
- Failure to meet service requirements as outlined in the I & O manual

Obtaining Service Under the Warranty

Any product and/or part not performing satisfactorily may be returned to CWT for evaluation. A Return Goods Authorization (RGA) number must first be obtained by either calling or writing your local authorized dealer, distributor or CWT direct, prior to shipping the product. The problem experienced with the product and/or part must be clearly described. The RGA number must appear prominently on the exterior of the shipped box(es). The product and/or part must be packaged either in its original packing material or in comparable and suitable packing material, if the original is not available. You are responsible for paying shipping charges to CWT and for any damages to the product and/or part that may occur during shipment. It is recommended that you insure the shipment for the amount you originally paid for the product and/or part.

If, after the product and/or part is returned prepaid and evaluated by CWT, it proves to be defective while under warranty, CWT will, at its election, either repair or replace the defective product and/or part and will return ship at lowest cost transportation prepaid to you **except for shipments going outside the 50 states of the United States of America**. If upon inspection, it is determined that there is no defect or that the damage to the product and/or part resulted from causes not within the scope of this limited warranty, then you must bear the cost of repair or replacement of damaged product and/or part and all return freight charges. Any unauthorized attempt by the end user to repair CWT manufactured products without prior permission shall void any and all warranties. For service, contact your authorized dealer or distributor or CWT direct at (805) 549-9724.

Exclusive Warranty

There is no other expressed warranty on CWT products and/or parts. Neither this warranty, nor any other warranty, expressed or implied, including any implied warranties or merchantability of fitness, shall extend beyond the warranty period. Some states do not allow limitation on how long an implied warranty lasts, so that the above limitation or exclusion may not apply to you.

Disclaimer of Incidental and Consequential Damages

No responsibility is assumed for any incidental or consequential damages; this includes any damage to another product or products resulting from such a defect. Some states do not allow the exclusion or limitation of incidental or consequential damages, so that above limitation or exclusion may not apply to you.

Legal Remedies of Purchaser

This warranty gives you specific legal rights and you may also have other rights, which vary from state to state.

THIS STATEMENT OF WARRANTY SUPERSEDES ALL OTHERS PROVIDED TO YOU AT ANY PRIOR TIME.