

Oxygen Concentrator

Installation and Operation Manual

AERQ₂US

RELIABLE ON-SITE OXYGEN

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

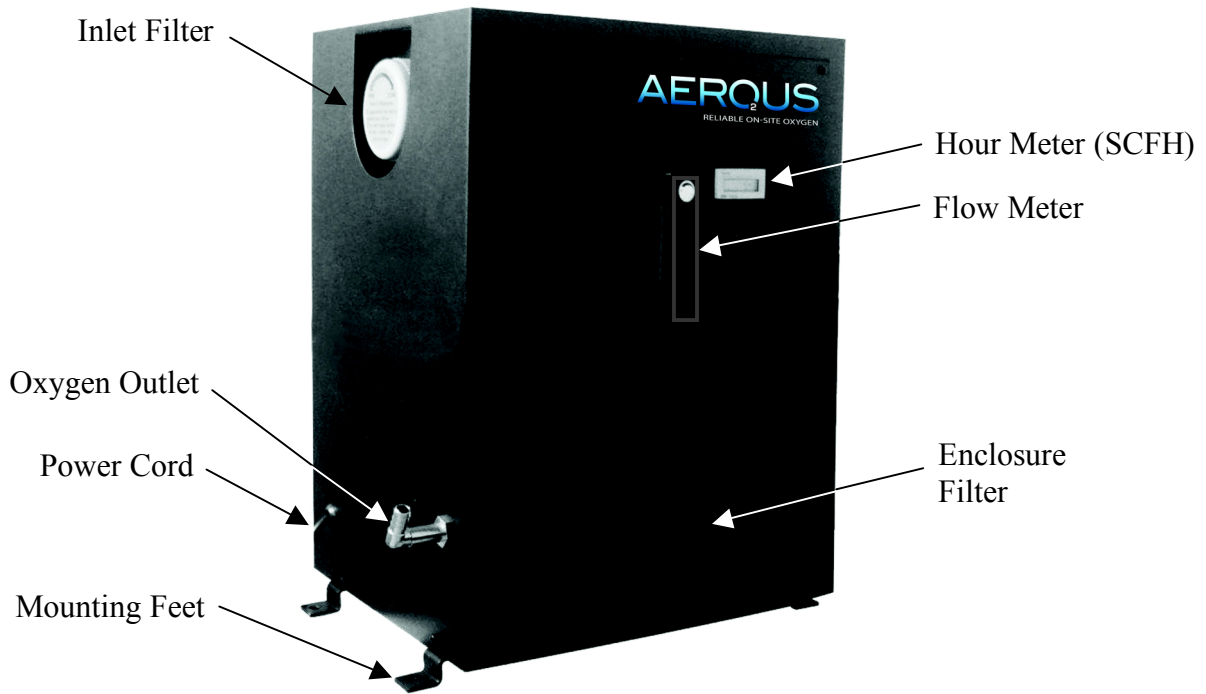
Unit should be installed and operated per the Compressed Gas Association Guide P-8.1, "Safe Installation and Operation of PSA and Membrane Oxygen and Nitrogen Generators."

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 RK2 Systems Inc. Hose can generally be obtained locally. Always replace hoses with equal or better specifications. Please contact RK2 Systems Inc 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.

RK2

SYSTEMS

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PRODUCT WARRANTY TERMS

RK2 Systems, Inc. (The Seller) warrants to the original purchaser, that products of its own manufacture will be free from defects in materials or workmanship, under normal use and service, for a period of one year from the date of purchase (with the exception of a vessel, which is warranted for three years). The Seller's obligations under this Warranty are limited to replacing or repairing or giving credit for, at its option, any of its said products which shall, within one year after purchase, be returned to the Seller's place of origin, transportation charges prepaid, and which are, after products examined, disclosed to the Seller's satisfaction to be thus defective. This Warranty does not apply to defects caused by shipping damages, or to any products manufactured by Seller which have been subject to improper installation, misuse, neglect, accident, ordinary wear and tear, or Buyer's attempts to use any products beyond its mechanical, thermal, or electrical capacity. Notice of a defective product must be given to Seller in writing within 48 hours of discovery and be free, without limitation of labor charges, lost profits, expenses of repair or other costs incidental to replacement. All transportation costs incurred in shipping product to or from Seller's plant shall be at the Buyer's expense. The aforementioned provisions do not extend the original Warranty period of any product which has either been partially repaired or replaced by the Seller.

FOR FURTHER TECHNICAL ASSISTANCE

Contact your RK2 distributor or call:

**RK2 Systems, Inc.
(760) 746-7400**