

# **LPSA Air Dryer**

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## **Installation and Operation Manual**

### **LPSA20 and LPSA60**



**ClearWater Tech, LLC.**

Integrated Ozone Systems

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## **Cautions, Warnings and Hazards**

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

The LPSA Air Dryer 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."

## **Patents, Trademarks, and Copyright**

The LPSA Series Air Dryers are protected by the following US Patents:

4,925,464    5,112,367    5,114,441    5,268,021    5,366,541    5,593,478  
5,370,778    Re. 35,099    Other patents pending.

ATF® is a registered trademark of SeQual Technologies, Inc.

## **Introduction**

The operation of the LPSA Air Dryer is based on the pressure swing adsorption (PSA) cycle using a synthetic zeolite molecular sieve. The LPSA Air Dryer is capable of delivering dry air flows up to 20 standard cubic feet per hour (SCFH) for LPSA20, and 60 SCFH for LPSA60 at -60°F to -90°F dewpoint at rated conditions. The main components of the LPSA Air Dryer are a SeQual ATF LPSA Module and an oil-less air compressor.

## **Installation**

**IMPORTANT:** There are packaging materials that must be removed from under and around the compressor. Do not attempt to operate the LPSA Air Dryer without removing these packaging materials as damage may result.

Ensure that there is sufficient access space around the LPSA Air Dryer 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 LPSA Air Dryer 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 LPSA Air Dryer that does not allow rain or condensation to contact the unit.

### **Dry Air Hook-up**

The dry air connection is a 1/8 inch female National Standard Pipe Thread (NPT) and is located on the front of the LPSA Air Dryer. The hex nut bulkhead fitting should be stabilized with a 7/8 inch wrench to prevent rotation when making your connection to the unit.

### **Cover Removal and Replacement**

If the LPSA Air Dryer is supplied with a cover, remove the screws fastening the cover to the base. Lift the cover straight up off the base until sufficient space is available to reach under and unplug the fan cord from the cooling fan. There is 24 inches of cord length available to lay the cover down without disconnecting the cord, if desired.

When reinstalling the cover, reconnect the fan cord, if required, and set the cover back on the base. Ensure the fan cord does not come in contact with the compressor's aluminum air after-cooling coil. Replace the screws.

### **Operation**

To start the LPSA Air Dryer, 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.

Set the outlet dry air flow to 20 SCFH or less for LPSA20 and 60 SCFH or less for LPSA60. Do not exceed rated capacity.

**IMPORTANT:** The flow meter installed on the LPSA Air Dryer 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:

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

**IMPORTANT:** Ensure that vacuum is not applied to the LPSA Air Dryer if power is off. If vacuum is being created by the venturi injector, the LPSA Air Dryer must be powered or damage will occur to the ATF.

**WINTERIZING:** Disconnect O3 delivery line from venturi injector.

## **Maintenance**

The Compressor Inlet Filter is recommended to be changed every 4,000 hours. Filter change frequency is dependent on environmental conditions and may vary.

Compressors are recommended to be rebuilt after 5,000 to 12,000 hours of operation depending on environmental conditions.

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

## **Specifications**

### **Compressed Air**

Pressure Relief Valve setting: 45 psig  $\pm$ 10%

### **Dry Air Output**

(LPSA20) 20 SCFH at  $-60^{\circ}\text{F}$  to  $-90^{\circ}\text{F}$  dewpoint at 5 psig

(LPSA60) 60 SCFH at  $-60^{\circ}\text{F}$  to  $-90^{\circ}\text{F}$  dewpoint at 5 psig

### **Electrical Input**

	120 VAC, 60 Hz	220 VAC, 50 Hz
LPSA20	4 AMPS	2 AMPS
LPSA60	4 AMPS	2 AMPS

### **Environment**

The LPSA Air Dryer is not weatherproof. It must be installed where rain and condensation are not allowed to contact the unit.

Operating temperature:  $40^{\circ}\text{F}$  to  $95^{\circ}\text{F}$

Storage temperature:  $0^{\circ}\text{F}$  to  $140^{\circ}\text{F}$

Humidity: 0 to 95% RH

Barometric Pressure Range: 28 to 31 inches of Hg

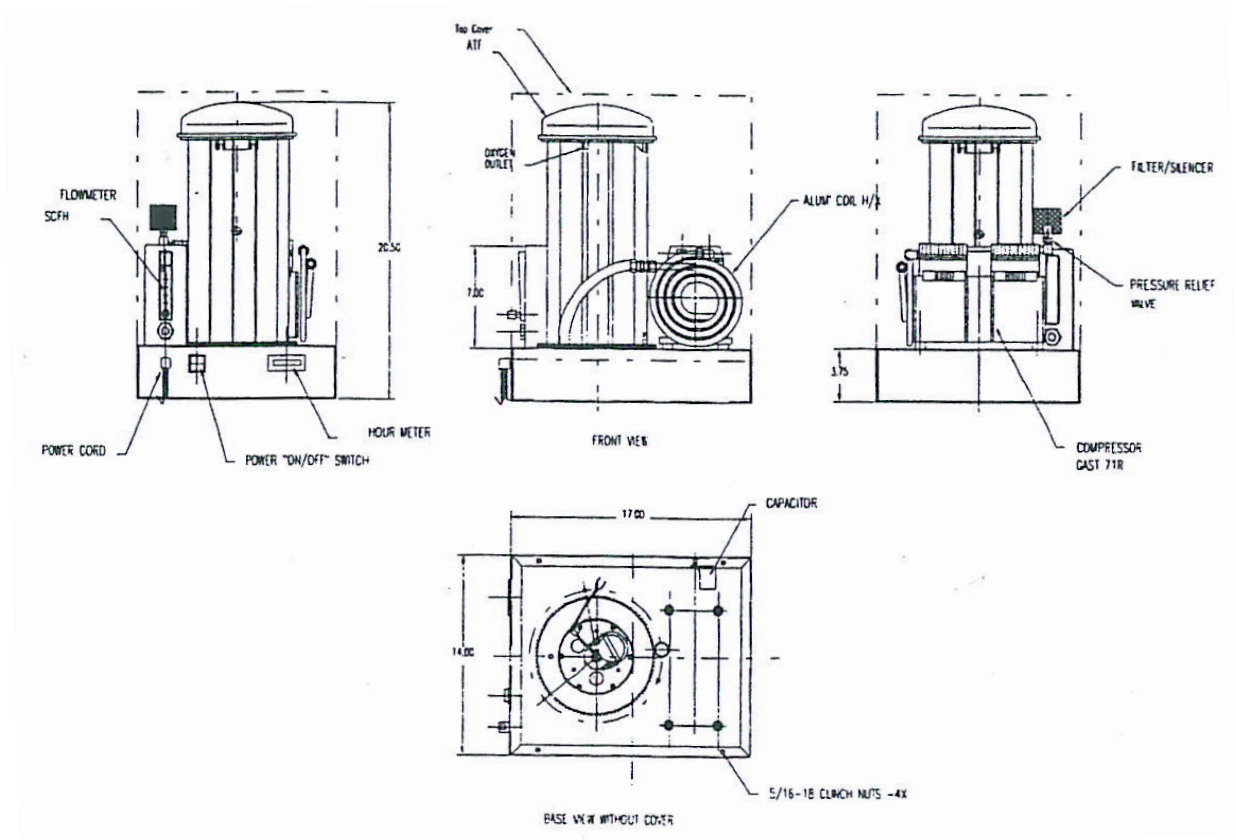
### **Operation**

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: (LPSA20) 14"H (LPSA60) 21"H x 14"W x 17"D

Maximum Weight: 52 lbs



**LPSA60 Shown**

## Service Parts

Service parts listed below can be obtained from your distributor or directly from ClearWater. Other parts are not considered regular service items. Please contact ClearWater directly for further information on other parts.

### Service Parts

Service Part	Quantity	LPSA20 Part No.	LPSA60 Part No
ATF Module 120/220VAC 50/60Hz	1	PDATF20	PDATF60
Compressor 120VAC 60Hz	1	AC80	AC81
Compressor 220VAC 50Hz	1	AC85	AC86
Compressor Inlet Filter	1	OXS350	OXS350
Compressor Rebuild Kit	1	OXS356	OXS356
Compressor Relief Valve	1	OXS362	OXS362
Exterior Filter	1	OXS370	OXS370

# 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.**