

Self-Regenerating Dehumidification System

Model 5478

Operating Manual

6/30/06



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1.0 GENERAL

Many applications require a small volume enclosure (less than 15 cubic feet), such as a sealed glove box, cabinet, etc. to be at a humidity level that is less than room ambient. The Model 5478 Self-Regenerating Dehumidification System is designed to reduce the relative humidity in a chamber to less than 12% RH. When used with an Automatic Humidity Controller (such as an ETS 500), the humidity inside the chamber can be controlled to within $\pm 0.5\%$ RH of the set-point. Using the ETS Model 5100 or Model 5200 Microprocessor Humidity Controllers, the chamber may be maintained to within $\pm 0.1\%$ RH of the set-point.

2.0 DESCRIPTION

The Model 5478 Self-Regenerating Dehumidification System is assembled in a 6" W x 9.5" L x 3.5" H (15.25 x 24.1 x 8.5 cm) plastic enclosure with vibration isolating feet. The power switch and indicator light are both located on the front panel of the enclosure. When installed in the ETS Model 5532 Chamber, the enclosure is not used and power is controlled by the chamber.

The system consists of a dual tower compressed air dryer (molecular sieve) and a 3-way solenoid valve to direct the dried air and a flow regulator to control the output flow.

The dryer and valve are installed inside the enclosure.

Desiccant is automatically renewed while the System is running. The System never has to be shut down to renew or replace desiccant.

All moisture-laden air is evacuated through a muffler inside of the enclosure.

When energized, the solenoid valve allows dried air to flow to the output.

The power light on the front panel indicates when dried air is flowing to the output.

The Model 5478 is an open-loop system.

UNIT SPECIFICATIONS

1. The average flow rate from the unit is 0.26 cfm (7.3 lpm).
2. The air will be dried to a minimum dewpoint of -40°F with a saturated input at 90°F.
3. Power – 115 VAC/60 Hz @ 4.30Amps or less
230 VAC/50 Hz @ 2.15Amps or less
4. Working Pressure is 50-100 psig. Dryer unit may be used with compressed air systems up to 120 psig.
5. Dual column dryer uses a molecular sieve desiccant.
6. Output fitting is for ¼" OD tubing.

3.0 SET-UP

1. The dry air output is located on the rear, center of the unit (with ¼" Quick Connect fitting and a flow regulator). Attach ¼" OD tubing between this fitting and chamber. See Figure 3.0-1.
2. Power Cords
 - A. **Power cord #1** is on the **left**. Power is supplied to the air dryer through this cord. This power cord should be plugged **directly into an outlet having continuous power**.
 - B. **Power cord #2** is on the **right**. Power is supplied to the 3-way control valve through this cord. This power cord should be plugged into the **DECREASE control outlet of the Humidity Controller**.
3. Connect a Compressed air source to the air input fitting on the top of the enclosure. Regulate compressed air to 100 PSI or less.
4. Turn the Power switch on the front panel to the "ON" position. The dryer will begin operating immediately to produce dry air.

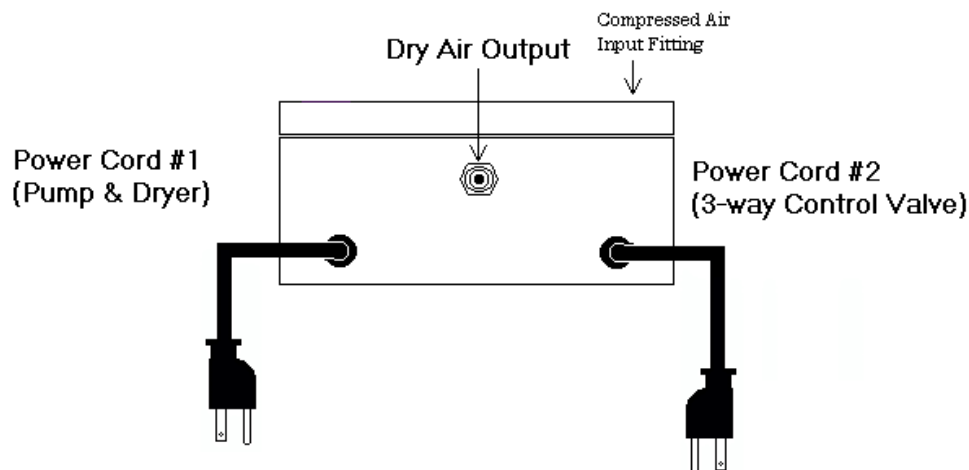


Figure 3.0-1

4.0 OPERATION

1. The Power switch controls power from both power cords. When the unit is turned on, the valve and dryer (inside the box) begin to operate immediately.
2. The Humidity Controller activates the 3-way valve.
 - A. When "OFF", the dry air being produced is vented inside the box.
 - B. When "ON", the dry air is directed to the output on the rear of the unit.
3. The indicator light (on the front of the unit) indicates when the 3-way valve is "ON".
4. The 5478 is a Positive Pressure System. The unit will cause a slight positive pressure in an enclosure if not adequately ventilated.
5. The dryer operates using a house air system. At 100 psi, twice as much dry air is produced, reducing drying time.
6. Air is dried to a -40°F Pressure dewpoint with 85° to 90°F saturated inlet.
7. The Model 5478 can be used to dry any inert gas @ pressure.

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5.0 Warranty

Electro-Tech Systems, Inc. warrants its equipment, accessories and parts of its manufacture to be and remain free from defects in material and workmanship for a period of one (1) year from date of invoice and will, at the discretion of Seller, either replace or repair without charge, F.O.B. Glenside, similar equipment or a similar part to replace any equipment or part of its manufacture which, within the above stated time, is proved to have been defective at the time it was sold. All equipment claimed defective must be returned properly identified to the Seller (or presented to one of its agents for inspection). This warranty only applies to equipment operated in accordance with Seller's operating instructions.

Seller's warranty with respect to those parts of the equipment which are purchased from other manufacturers shall be subject only to that manufacturer's warranty.

The Seller's liability hereunder is expressly limited to repairing or replacing any parts of the equipment manufactured by the manufacturer and found to have been defective. The Seller shall not be liable for damage resulting or claimed to result from any cause whatsoever.

This warranty becomes null and void should the equipment, or any part thereof, be abused or modified by the customer or if used in any application other than that for which it was intended. This warranty to replace or repair is the only warranty, either expressed or implied or provided by law, and is in lieu of all other warranties and the Seller denies any other promise, guarantee, or warranty with respect to the equipment or accessories and, in particular, as to its or their suitability for the purposes of the buyer or its or their performance, either quantitatively or qualitatively or as to the products which it may produce and the buyer is expected to expressly waive rights to any warranty other than that stated herein.

ETS must be notified before any equipment is returned for repair. ETS will issue an RMA (Return Material Authorization) number for return of equipment.

Equipment should be shipped prepaid and insured in the original packaging. If the original packaging is not available, the equipment must be packed in a sufficiently large box (or boxes if applicable) of double wall construction with substantial packing around all sides. The RMA number, description of the problem along with the contact name and telephone number must be included in formal paperwork and enclosed with the instrument. Round trip freight and related charges are the owner's responsibility.

WARNING

WOODEN CRATES MUST NOT BE USED. PACKAGING OF DELICATE INSTRUMENTS IN WOODEN CRATES SUBSTANTIALLY INCREASES THE CONTENT'S SUSCEPTIBILITY TO SHOCK DAMAGE. DO NOT PLACE INSTRUMENTS OR ACCESSORIES INSIDE OTHER INSTRUMENTS OR CHAMBERS. ELECTRO-TECH SYSTEMS, INC. WILL NOT ASSUME RESPONSIBILITY FOR ADDITIONAL COST OF REPAIR DUE TO DAMAGE INCURRED DURING SHIPMENT AS A RESULT OF POOR PACKAGING.