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SECTION 1 GENERAL INFORMATION

1.1 DESCRIPTION OF OPERATION

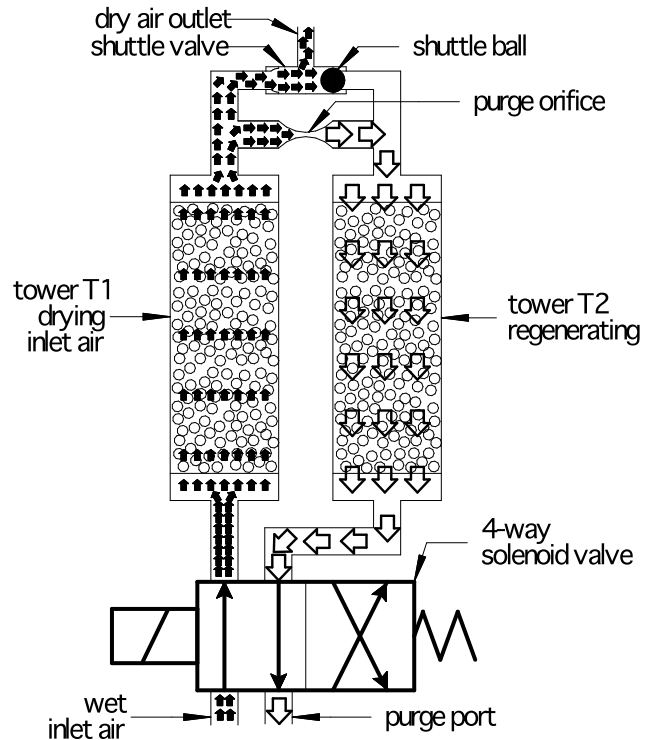
The GTHDD Air Dryers use the pressure swing adsorption method of drying compressed air. This requires two identical towers containing beds of hygroscopic desiccant.

Incoming wet air enters the dryer through the four-way solenoid valve, where it is directed to the bottom of the tower containing dry desiccant (T1). The desiccant in this tower removes 99.7+% of the water vapor from the air when operated at catalog conditions. The dried air leaving the top of the tower (T1) is directed to the outlet through a shuttle valve. The purge orifice allows a portion of the dried air to flow into the other tower (T2) being regenerated. The open purge port and purge orifice reduce the high pressure air down close to atmospheric pressure which expands it and lowers the dew point of the dried air even further. This dry purge air regenerates the desiccant by removing the accumulated water vapor and carrying it out the open purge port.

The 4-way solenoid valve is controlled by a solid state timer. After one minute, the desiccant in tower T2 is regenerated, and the timer de-energizes the solenoid valve causing the process to instantly reverse, with tower T2 drying and tower T1 regenerating. The following flow schematic demonstrates the dryer operation.

TIMING CYCLE

60 seconds energized
 60 seconds de-energized
 2 minutes total cycle time



SECTION 2 SAFETY INSTRUCTIONS

2.1 INSTALLATION SAFETY

Before starting or installing the dryer, be sure that all power to the unit is off, valves are shut, and the air circuit is at atmospheric pressure. DO NOT remove, repair, or replace any component, control filter, or part, while the air circuit is energized or under pressure. Turn off the main to the dryer and de-pressurize the unit before starting installation or maintenance procedures.

MANUFACTURER WILL NOT BE RESPONSIBLE FOR DAMAGE TO EQUIPMENT AS A RESULT OF IMPROPER WIRING OR ELECTRICAL INSTALLATION. IT IS THE CUSTOMERS RESPONSIBILITY TO ENSURE THAT THE ELECTRICAL INSTALLATION IS CORRECT AND UP TO APPLICABLE CODES.

When installing the dryer, ensure that the NEMA rating of the control box is applicable to the installation.

Dryer is rated NEMA 1.

2.2 OPERATION SAFETY

DO NOT OPERATE THE DRYER ABOVE THE STATED WORKING PRESSURE (SEE SPECIFICATION TABLE SECTION 3.1). FAILURE, INJURY AND EQUIPMENT DAMAGE COULD RESULT

CAUTION:

EXCEPT as otherwise specified by the manufacturer, this product is specifically designed for compressed air service and use with any other gas or liquid is a misapplication. Use with or

injection of certain hazardous liquids or gases in the system (i.e., alcohol or liquid petroleum gas) could be harmful to the unit and result in a combustible condition or cause hazardous external leakage.

Manufacturer's warranties are void in the event of a misapplication and manufacturer assumes NO RESPONSIBILITY for any resulting loss.

Before using equipment with fluids or gases other than air, or for non-industrial applications, consult Geotech for written approval.

SECTION 3 SPECIFICATIONS

3.1 FLOWS, CONNECTIONS, DIMENSIONS, AND WEIGHT

GTHDD MODEL NO.	0.4	0.8	1.1	1.6	2.4	3.2
Flows at 100 PSIG (SCFM)						
Inlet Flow	0.40	0.80	1.10	1.60	2.40	3.20
Purge Flow	0.10	0.20	0.27	0.40	0.60	0.80
Outlet Flow	0.30	0.60	0.83	1.20	1.80	2.40
Flows at 50 PSIG (SCFM)						
Inlet Flow	0.22	0.44	0.62	0.90	1.35	1.80
Purge Flow	0.09	0.18	0.25	0.36	0.54	0.72
Outlet Flow	0.13	0.26	0.37	0.54	0.81	1.08
Connections (NPT)						
Inlet	1/8"	1/8"	1/8"	1/8"	1/4"	1/4"
Outlet	1/8"	1/8"	1/8"	1/8"	1/4"	1/4"
Dimensions (Inches)						
Height	7.0	10.3	8.8	10.1	9.5	11.4
Width	3.5	3.5	4.0	4.0	5.0	5.0
Length	3.3	3.3	3.5	3.5	3.8	3.8
Weight (Pounds)						
	1.4	1.5	1.6	1.9	2.2	3.2

Notes:

1. Maximum operating pressure for all units is 120 PSIG.
2. Inlet flows and outlet flows shown above are maximum capacities and should not be exceeded for best performance.
3. No inlet or outlet flow regulation is installed on the dryer and must be provided by the user.
4. Purge flow is regulated by an integral fixed purge orifice.

SECTION 4 INSTALLATION

4.1 LOCATION

DO NOT INSTALL DRYER IN AN ENVIRONMENT OF CORROSIVE CHEMICALS, EXPLOSIVE GASES, OR AREAS OF HIGH AMBIENT TEMPERATURE CONDITIONS.

Install the dryer indoors. Dryers are not meant to be installed outdoors exposed to the weather. If the dryer must be installed outdoors, it must be in a weatherproof enclosure that provides for proper temperature control.

4.2 ELECTRICAL CONNECTIONS

Before wiring, check the dryer nameplate for electrical characteristics and make sure power supply is appropriate.

IMPORTANT! No overload protection is provided in the dryer and unit should be wired into a protected circuit.

IMPORTANT! When installing electrical service to this machine, comply with the National Electrical Code as well as state and local building codes.

4.3 PIPING AND CONNECTIONS

Inlet and outlet tubing should be appropriate for pressure and temperature of operation. See specification chart for inlet/outlet NPT thread size. Good quality pipe compound or PTFE tape should be used in the makeup of joints to ensure a good, airtight fit of piping components. Check all connections for leakage using soap solution prior to putting dryer into permanent service.

NOTE: If purge air is required to be piped to a remote location, it is necessary to use oversized tubing or piping to prevent back-pressure. Restricting the purge flow can cause the dryer to malfunction.

4.4 REQUIRED FILTERS

Always install a 0.01 micron coalescing filter before dryer to remove entrained particulates, liquid moisture and oil which can cause damage to the desiccant beds. A particulate afterfilter should be installed after the dryer to remove any desiccant dust that may migrate from the desiccant beds.

SECTION 5 START UP

BEFORE STARTING THIS DRYER, FOLLOW THE INSTALLATION INSTRUCTIONS AND PROCEDURES COMPLETELY.

DO NOT REMOVE, REPAIR OR REPLACE ANY ITEM ON THE DRYER WHILE THE DRYER IS UNDER PRESSURE.

5.1 INITIAL START UPS

1. Confirm that all piping and electrical connections are proper.
2. Turn on the electrical power. Dryer should start cycling.

SECTION 6 MAINTENANCE

DO NOT REMOVE, REPAIR, OR REPLACE ANY ITEM ON THE DRYER WHILE THE DRYER IS UNDER PRESSURE.

BEFORE BEGINNING ANY REPAIRS, MAINTENANCE, OR INSTALLATION WORK, VERIFY THAT THE POWER IS OFF AND THE DRYER IS DEPRESSURIZED.

BEFORE WORKING ON THE DRYER OR RELATED EQUIPMENT, ENSURE THAT ALL PERSONNEL HAVE READ AND UNDERSTAND THE SAFETY AND OPERATION INSTRUCTIONS IN THIS MANUAL.

6.1 PREVENTIVE MAINTENANCE

Below is a suggested schedule based on average dryer conditions. As conditions such as dirty environment, humidity conditions, ambient temperature, etc. change, the frequency of the inspections may change.

Daily

1. Inspect the dryer for proper operation.
2. Inspect inlet filters for proper operation.
3. Verify proper inlet and ambient air conditions.

Semi-Annually

1. Inspect entire assembly for loose connections, screws, etc.
2. Perform audible inspection of purge cycling and purge flow.
3. Visual inspection of exhaust area for signs of oil or desiccant attrition.

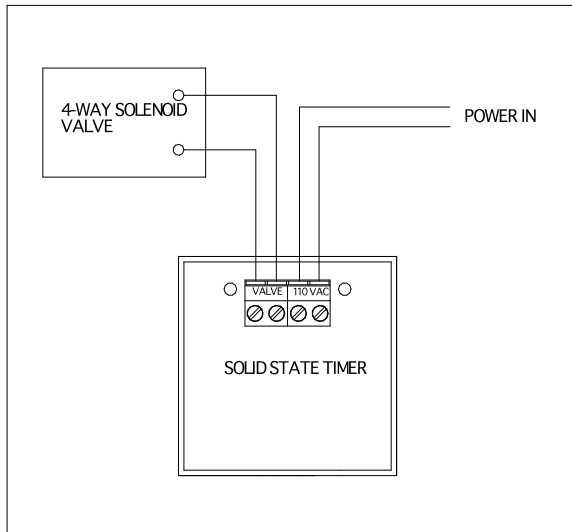
SECTION 7 TROUBLESHOOTING GUIDE

A PROBLEM: AIR DRYER DELIVERS WET AIR			
	POSSIBLE CAUSE	CHECK	CORRECTIVE ACTION
A1	No power to unit.	Power supply.	Correct power problem.
A2	High inlet air temperature.	For standard units, inlet air temperature should not exceed 100°F. For specially sized units, inlet air temperature should not exceed sizing criteria stated at purchase.	Reduce inlet air temperature to proper level. An aftercooler may need to be installed after compressor.
A3	Air flow through dryer in excess of rated capacity.	Make sure inlet flow to dryer (compressor output or if installed at point-of-use, total of air usage downstream of dryer plus purge flow) does not exceed rated flow.	Reduce air usage downstream.
A4	Low inlet pressure.	For standard units, inlet air pressure should be 50 ("L" in 5th digit of model number) or 100 ("H" in 5th digit of model number) psig.	Increase inlet pressure or call factory to resize dryer for actual inlet conditions.
A5	Dirty or obstructed inlet air filter.	Check inlet airline filter elements.	Replace.
A6	Purge orifice plugged.	Check purge air flow with flowmeter.	Replace.
A7	Solenoid coil burned out.	Check coil leads with ohmmeter. Open (burned out) coil will have no reading.	Replace.
A8	Oil contamination of desiccant beds.	Verify particle/coalescing inlet filtration is adequate and functioning properly.	Towers must be replaced if contamination is suspected.
A9	Timer not operating properly.	Verify correct timing cycle by listening to purge or by using voltmeter across coil connections on timer.	Replace timer if defective.
A10	Purge flow restricted.	Check muffler (or purge piping if installed) for excessive back-pressure. Note: unit is originally supplied with "no-clog" muffler.	If purge air is piped away from unit, oversized piping should be used and length of run should be as short as possible.

B PROBLEM: RESTRICTED FLOW THROUGH UNIT			
	POSSIBLE CAUSE	CHECK	CORRECTIVE ACTION
B1	Improper operating conditions.	See A3, A4 above.	
B2	Dirty or obstructed inlet air filter.	See A5 above.	
B3	Plugged air passages.	Check inlet and outlet air passages and piping for blockages.	Clear restrictions.

C PROBLEM: EXCESSIVE PURGE / BLOWDOWN			
	POSSIBLE CAUSE	CHECK	CORRECTIVE ACTION
C1	Inlet valve or outlet shuttle not shifting.	Check for damage or contamination of inlet valve and outlet shuttle valve.	Clean or replace as necessary.
C2	Timer not operating properly.	Incoming power may not be "clean". Fluctuations in voltage can occur in power circuits shared by inductive devices such as electric motors or welders.	Supply line voltage from another source or install power line filter.

SECTION 8 WIRING



WIRING DIAGRAM

SECTION 9 WARRANTY

Geotech air dryers are warranted to be free of defects in materials and workmanship under proper use, installation and application. This limited warranty shall cover parts only, not including contaminated desiccant chambers and solenoid wearing parts for a period of 18 months from date of shipment or 12 months from date of installation, whichever comes first.

ALL FREIGHT DAMAGE CLAIMS ARE NOT THE RESPONSIBILITY OF THE

MANUFACTURER AND ARE NOT COVERED UNDER WARRANTY AS ALL PRODUCTS ARE SHIPPED F.O.B. SHIPPER. PLEASE DIRECT ALL FREIGHT CLAIMS TO THE FREIGHT CARRIER IN QUESTION.

This warranty does not apply to any unit damaged by accident, modification, misuse, negligence, or misapplication.

Any covered Geotech air dryer part or material found defective will be repaired, replaced or refunded, at Geotech, free of charge, provided that Geotech is notified within the above stated warranty period. All returns of defective parts/equipment must have prior written Returned Material Authorization (RMA). RMA may be obtained from our dryer service department. All defective parts/equipment must be returned freight prepaid to the Geotech factory within 30 days of RMA issue date. Any shipment returned to the factory collect will be refused.

If an item is found to be warrantable, the repaired item or replacement will be shipped via standard ground freight prepaid within the continental US and Canada.

Any replacement part or material is warranted only to the extent of the remaining warranty period of the dryer or to the extent as provided by the supplier, whichever is longer.

All freight damage claims should be filed within 15 working days and should be directed to the freight carrier.