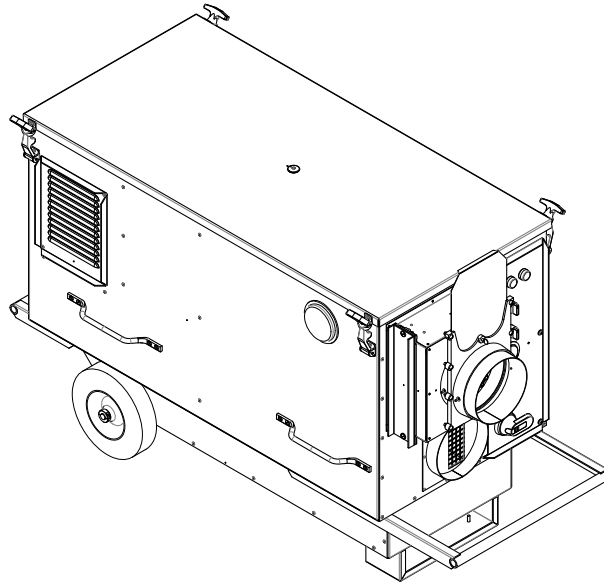


DRY Series 500

Installation, Operation & Maintenance Manual



Model DRY-700-35-E

Desiccant
Dehumidification
Systems



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1.0 GENERAL INFORMATION

1.1 Forward

Congratulations, the *DESICAIR® DRY Series 500* dehumidification system covered by this manual is designed and manufactured by Stulz Air Technology Systems, Inc. Recognized as a world leader, Stulz Air Technology Systems, Inc. (STULZ) provides dehumidification systems manufactured with the highest quality craftsmanship using the finest materials available in the industry. The unit will provide years of trouble free service if it is installed, operated and maintained in accordance with this manual. Damage to the unit from improper installation, operation or maintenance is not covered by the warranty.

STUDY the instructions contained in this manual. They must be followed to avoid difficulties. Spare parts are available from Stulz Air Technology Systems to ensure continuous operation. Using substitute parts or bypassing electrical or refrigeration components in order to continue operation is not recommended and will VOID THE WARRANTY.

1.2 Safety Summary

Read and understand all instructions, recommendations, and guidelines in this manual regarding the installation, maintenance, and operation of this unit prior to installation and start-up. All maintenance and repairs should be conducted by personnel thoroughly trained in the operation and maintenance of this or like equipment.

The input power supply to the equipment must be shut off before beginning work on the equipment. Take extreme care to ensure every capacitor likely to hold electrical charge has been grounded. Always remove all rings, watches, and other jewelry when working on electrical equipment. Some of the equipment used may present the hazard of Electrostatic Discharge (ESD). When working inside the equipment, always ground all parts before touching. When possible, use a wrist grounding strap while working on or near ESD sensitive components.

Never operate the unit with any cover, screen, guard, panel, etc., removed unless the instructions specifically state to do so, and then, do so with extreme caution to avoid personal

injury. Never attempt to lift any component in excess of 35 pounds without additional help.

Placards and/or stickers have been placed in various locations on or in the unit. These placards/stickers are intended to call attention to personal safety and equipment damage hazards.

Certain maintenance and cleaning procedures may either recommend or specify the use of solvents, chemicals, or cleansers. Always refer to the Manufacturers Material Safety Data Sheet (MSDS) prior to the handling of any of these solvents, chemicals, or cleansers.

1.3 Warnings & Cautions

The following is a condensed list of WARNINGS and CAUTIONS that are noted throughout this manual. All personnel who operate, maintain or service this equipment should read and understand these WARNINGS and CAUTIONS. All WARNINGS indicate a potential threat to personnel and all CAUTIONS indicate a potential threat of equipment damage.




WARNING Voltages used with this unit can be deadly. Be careful not to come in contact with high AC input voltage connections when installing or operating this equipment. Use the services of a qualified electrician and/or technician to make the electrical power connections and perform maintenance.





WARNING DISCONNECT THE MAIN POWER TO THE UNIT PRIOR TO PERFORMING ANY MAINTENANCE OR SERVICE. Turning the "On-Off-Auto" mode selector switch to the OFF position **DOES NOT** disconnect power to controls or the unit itself.





WARNING Whenever the nature of the operation permits, keep one hand away from the equipment to reduce the hazard of current flowing through vital organs of the body.


 **WARNING** Never work on electrical equipment unless there is someone nearby who is familiar with the operation and hazards of the equipment and is competent in administering first aid. When operators aid the technician, the technician must warn them about dangerous areas.


 **WARNING** Do not be misled by the term "low voltage" which may appear either within this manual or on enclosed drawings or documents. Electrical voltages as low as 50 volts may cause death under certain conditions.


 **WARNING** DO NOT TOUCH the hot system components. The design reactivation temperature range is 250° F to 300° F. The components of the reactivation system may be extremely hot during operation. Be absolutely certain the unit and/or reactivation components are cool before attempting to work on any components.

 **CAUTION** Air intake and discharge openings must be free of obstructions. Ensure filters are clean and access panels are on and properly secured.

 **CAUTION** Do not operate the unit without filters. It is better to operate the unit with dirty filters than with no filters. Operating the unit with no filters may void the warranty.

 **WARNING** Blower motors may start unexpectedly when the unit is running due to an automatic resetting of the internal overload device.

 **WARNING** Do not allow anyone under the equipment while it's suspended from a lifting device.

 **WARNING** Do not allow the unit to swing while suspended from a lifting device. Failure to observe this warning may result in injury to personnel and damage to the equipment.

1.4 General Theory of Operation

This unit is designed to dehumidify a user-defined space or process to humidity levels that are below those attainable with a refrigeration-based system. Moisture is removed from the air through an adsorption process using a dry desiccant material that is impregnated to the desiccant rotor's fluted surface area. Air to be dehumidified (process air) is filtered, dehumidified, and supplied to the conditioned space at a lower relative humidity and a slightly higher dry bulb temperature than its inlet condition.

Simultaneously a second air stream (reactivation air) is filtered, heated by the reactivation heater system and passed through a separate segment of the rotor. The heated air removes the previously adsorbed moisture from the desiccant in the rotor and exhausts it to an area other than that being conditioned.

During operation, the desiccant rotor continuously rotates at a constant speed through the process and reactivation sections of the dehumidifier. The two air streams are separated by face and peripheral seals, and by the internal fluting of the rotor. Process and reactivation airflows are counterflow to each other to maximize the efficiency of the adsorption process and to help prevent the rotor's flutes from fouling.

The reactivation heater is designed to raise the reactivation air temperature approximately 180° F above ambient. The energy from the heated air is used to desorb the moisture. Reactivation discharge air temperature is approximately 130° F to 150° F and moist. Controls are included in the unit to vary the amount of reactivation heat based upon the amount of moisture adsorbed from the process air stream.

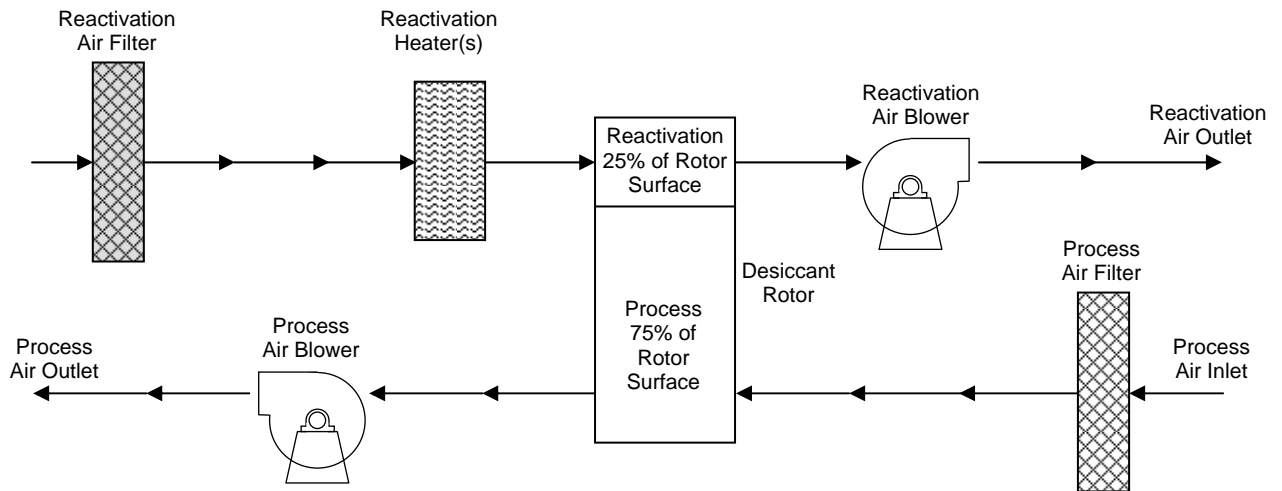


Figure 1 - General Theory of Operation

1.5 Construction

This *DRY Series 500* rotary desiccant dehumidification system has passed extensive Quality Control checks, including a complete functional test. Every effort has been made to ensure the dehumidification system will perform satisfactorily for many years.

1.5.1 Design Features

- Rugged All-Aluminum Cabinet
- Optional Portable Design with Wheels and Lift Handle(s)
- Continuous or Automatic Operation
- 120 Volt Control Circuit
- Inert, Stable Silica Gel Desiccant
- Non-toxic, Non-corrosive Desiccant
- Capable of withstanding 100% RH without adverse affect
- Counterflow Process and Reactivation Air Patterns
- Overheat Safety Protection
- Process and Reactivation Inlet Air Filters
- Two Stage Electric Reactivation Heat
- High/Low Heater Selector Switch
- Easy Access to Internal Components
- Low Operating Cost, Energy Efficient Dehumidification

For a comprehensive list of the features included, refer to the DIN Sheet provided specifically for your unit. The DIN sheet is a listing of all the features that are included (see Section 1.5.4). For particular detail of the features, refer to the drawings provided with this unit.

1.5.2 Cabinet

This unit is self-contained in an aluminum cabinet and is rated for indoor or outdoor use (See unit nameplate). The exterior of the cabinet is finished with a durable, protective finish to protect it against corrosion. A removable access panel is provided on top for easy access to all major components for maintenance and/or service.

The operator controls are conveniently located on the electric box panel at the end of the unit (see the Installation drawing provided). The cabinet houses the desiccant rotor assembly and drive system, process and reactivation air blowers, a reactivation heater system and electrical controls.

1.5.3 Inlets and Outlets

Inlet and outlet openings include round duct connections for flexible or hard duct. The openings are furnished with screens to prevent birds and small animals from nesting in the inlets and outlets. For specific detail, refer to the installation drawing provided with the unit.

The dehumidification system is equipped with manually adjusted process and reactivation dampers for setting airflows to achieve the required pressure drops across the rotor (See 4.1.3 Monitoring Unit Performance).

Filtration is accomplished through the use of 30% pleated filters located in the process and reactivation air inlets, as shown in the installation drawing.

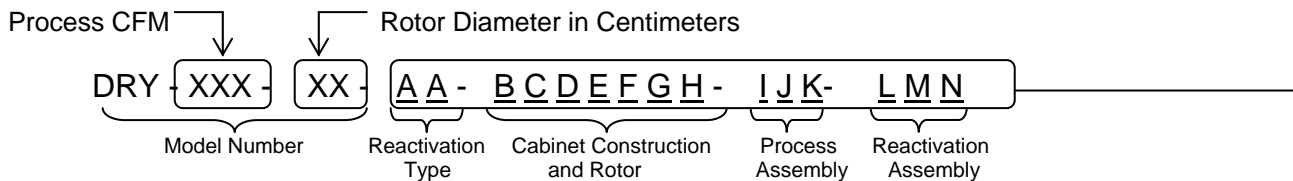
1.5.4 Dehumidifier Identification Number

The Dehumidifier Identification Number (DIN) defines the specific features provided with your unit (see Section 1.5.5). The DIN Sheet for this unit is included for reference in a Technical Data Package. The Technical Data Package also contains a Technical Data Sheet, a Test Report (showing performance information), Drawings and this manual. A manual for the system controller is also provided. These documents should be stored in a safe place on or near the unit for reference.

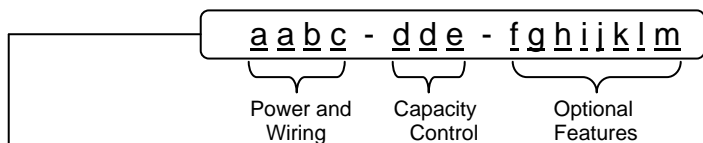
A "Warranty Registration and Start-up Checklist" is also included with the Data Package. This form must be completed during installation and returned to STULZ Product Support to activate your warranty.

1.5.5 Dehumidifier Identification Number (DIN) Sheet

The DIN starts with the model number. The model number includes the process cfm followed by the desiccant rotor diameter combination (ex. DRY-700-35). The first 15 digits after the model number (represented by the uppercase letters A-N below) pertain to the cabinet construction, rotor, and process and reactivation accessories or options.



The last 15 numbers (represented by lowercase letters a-m) pertain to the electrical system, unit controls, the power supply, control scheme, and the control panel.



The following is a sample DIN Sheet for a *DESICAir DRY Series 500* Desiccant Dehumidifier.

<p>activation Heater: B - 2 Cabinet Construction: Electric Portable C - 0 Future Feature: Reserved D - 9 Paint: Blue E - 0 Future Feature: Reserved F - 2 Process & React Filters: 30% pleated G - 1 Gauges: 4" Diameter (Ambient >20 F) H - 0 Rotor: Standard I - 1 Process Inlet: Round flex (std. dia. w/ bead) J - 1 Process Outlet: Round flex (std. dia. w/ bead) K - 1 Process Damper: Standard L - 1 Reactivation Inlet: Round flex (std. dia. w/ bead) M - 1 Reactivation Outlet: Round flex (std. dia. w/ bead) N - 1 Reactivation Damper: Standard</p>		<p>←</p>
<p>Electrical system, power supply, control scheme, and control panel: a - 03 Power Supply: 230/1/60 b - 0 Elect. Encl. & Wiring: STD: Internally mounted and wired c - 1 Disconnect: Rotary, non-fused (Max 80 Amp FLA) d - 01 Capacity Control: D-Stat e - 0 Sensor/Transmitter: By others f - 1 Process Blower Interlock: Yes g - 0 Future Feature: Reserved h - 0 Future Feature: Reserved i - 0 Future Feature: Reserved j - 0 Phase Monitor: No k - 0 Future Feature: Reserved l - 0 Future Feature: Reserved m - 0 Future Feature: Reserved</p>		

2.0 INSTALLATION


2.1 Receipt of the Unit

Upon receiving the *DESICAI*R desiccant dehumidification unit, immediately inspect the unit for damage which may have occurred during shipment. Carefully remove the shipping cover and protective packaging. Remove the top access panel. If any damage is found, report it to the carrier immediately. **Any obvious damage incurred during shipping must be noted on the freight carrier's delivery forms BEFORE signing for the equipment. Freight claims must be done through the freight carrier.** Generally, all equipment ships "F.O.B. Factory". STULZ can assist in the claim filing process with the freight company.

Remove any loose parts, and check the equipment against the packing list to see if the shipment is complete. Report all discrepancies to the appropriate authority.

2.2 System Location and Clearance

The dehumidifier is designed to be operated in a level position. Choose a location convenient to the area to be dehumidified. Allow enough room around the dehumidification system to access controls, gauges, dampers, stowage area, etc. Recommended minimum clearances on all sides of the unit are 1x the full width of the cabinet.

 **WARNING** The reactivation discharge air can be very warm and humid. Keep items that may be damaged by excessive heat and humidity away from the reactivation air outlet.

The "process" and "reactivation" inlet and outlet openings are located on the ends of the unit as shown on the Installation drawing.

To judge the clearance requirements, consider that all the components are housed inside the *DESICAI*R dehumidifier cabinet. The rotor is typically the largest of the components that may need removal. Blower assemblies, while somewhat smaller, also require sufficient clearance for removal.

Position the unit in the desired location. Make sure the mounting surface is able to support the weight of the equipment and keep it level. The following general requirements should also be considered:

- 1) The power source should be located as near as possible to the installed location of the equipment.
- 2) The power source wiring should include a main power disconnect switch. If the unit is purchased from STULZ without an optional power disconnect switch, one should be provided by the installer. Provisions should be made to ensure power is not accidentally disconnected during normal operation and the main disconnect switch is not used instead of the mode selector switch to turn the system off for normal shut-down.
- 3) If possible, avoid locations where the air intakes will be laden with dust, dirt, soot, smoke, or other debris.
- 4) DO NOT operate the unit in or near flammable or corrosive environments or allow flammable or corrosive air into the unit.
- 5) Refer to the wiring diagram provided with your unit for the proper electrical connections.

2.3 Connecting Ductwork

Ducting should be sized for the appropriate air quantity and pressure drop. The clearance required for the duct connections depends on whether the unit is to be ducted for process air, reactivation air, or both.

When installing a unit outside the conditioned space, the process inlet and outlet must be ducted to and from the conditioned space to prevent humid air from entering the process air stream.

The reactivation air temperature at the outlet will be warm (approximately 130° F) and humid.

When installing a unit in the conditioned space, the reactivation inlet and outlet must be ducted to and from another area to prevent the warm, moist air from being returned to the conditioned space. If duct work is connected to the reactivation outlet, it should be insulated and sloped down and away from the unit. This will prevent condensed moisture from accumulating at the reactivation outlet.

Refer to the Installation drawing provided with your unit for the duct connection sizes and locations.


All ducting must be air-tight or the dehumidification system will not perform to its maximum capability. Even small leaks can have a dramatic effect on system performance.

Flow regulation dampers are provided with this unit. After ductwork is installed, refer to Section 4.1.3, Monitoring Unit Performance for information concerning setting the correct airflows. If air volumes are not set correctly, the unit's performance may be affected.

Ensure the inlets and outlets are free of obstructions and the filters are kept clean.

2.4 Utility Connections

2.4.1 Power Hookup

 **WARNING HIGH VOLTAGE IS USED IN THE OPERATION OF THIS UNIT.** Use the services of a **QUALIFIED ELECTRICIAN ONLY** to make the electrical power connections.

1. Refer to the electrical drawing for the main power connections and see the unit nameplate for the minimum circuit ampacity (MCA) and maximum fuse size (MFS).
2. If your unit was purchased with the optional portable design features (Section 4.2.1), a 15 foot power cable is stowed in the lower storage compartment. The cable is pre-terminated in the dehumidifier control box. Extend the cable from the storage compartment and connect it to the power source. A power plug may be customer supplied if needed. Ensure it is appropriate for the power requirements of the dehumidifier per the unit nameplate.
3. If your unit was not purchased with a power cable, connect power to TB1 or to the optional main disconnect switch per the electrical drawing provided with the unit.
4. Branch circuit protection is required by National Electric Codes.

2.5 Installing a Humidistat or Control Sensor

A terminal block is provided for the connection of a humidistat or On/Off control sensor. Interconnecting field wiring must be installed in accordance with NFPA 70 of the National Electrical Code (N.E.C.).

Wire the humidistat or control sensor per the electrical drawing. Wall-mounted control sensors should typically be mounted 4-5 feet up from the floor in the conditioned space (see the diagram below).

Locate the sensor according to the application. To control the conditions in a space, a wall mounted sensor may be used in the space or a duct mounted sensor may be located in the return air inlet duct if the air is recirculated. To control the air supplying a process, a duct mounted sensor may be located in the supply air duct near the process. Duct mounted sensors cannot be used for D-Stat control but can be used if the unit is configured for control schemes where the process blower runs continuously such as D-Stat II (See Section 3.4 Automated Capacity Control).

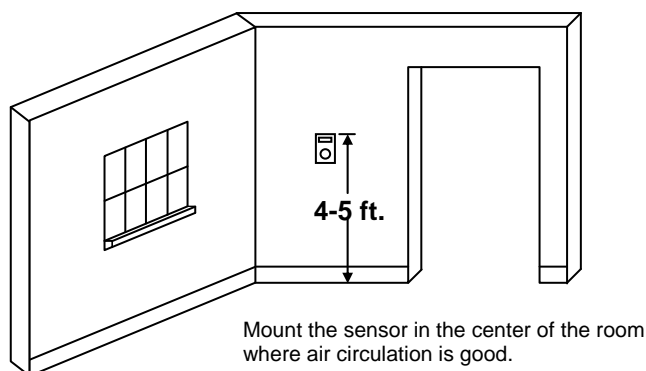


Figure 2 - Locating Wall-Mounted Humidistat/Control Sensor


3.0 OPERATION

The following information provides an overview of the operating procedures and sequences. Before operating the unit, go through the checklist below to ensure all electrical and utility connections are correct and the unit is ready for operation.

NOTE: A Warranty Registration and Start-Up Checklist is provided in the data package supplied with your unit. It should be completed during installation and a copy should be sent to STULZ Product Support. It will assist if service or troubleshooting support is needed.

3.1 Installation Checks

Recommended tools for performing the pre-operation checkout include a voltage meter with temperature probe, a flashlight, a Phillips and flathead screwdriver, and a digital amp meter.

1. Verify the main power per the unit nameplate. **ONLY USE POWER THAT'S RATED FOR THIS UNIT PER THE NAMEPLATE. INCORRECT POWER MAY DAMAGE THE UNIT AND CAUSE DAMAGE TO PROPERTY OR INJURY OR DEATH TO PERSONNEL.**
 2. With the mode selector switch (S15) and the optional disconnect switch (S16) in the OFF position, recheck that all utility connections have been properly made.
-  **WARNING** If the unit is not equipped with a disconnect switch (optional), the unit will have power when the electrical connections to TB1 are made. Use caution when servicing the unit. Refer to the electrical drawing when performing service.
3. Check the wiring to any remote sensors, humidistats, start/stops, etc. Refer to the electrical drawing for specific wiring connections.
 4. Check all electrical connections for tightness.
 5. Be sure there are no loose parts or spare parts (such as extra filters, etc.) located inside the unit.
 6. Be sure the access panel on top is closed tightly. Small air leaks can significantly reduce unit performance.

3.2 Start-Up

1. Apply power to the unit. The white "Power On" light (DS1) should illuminate.
2. Turn the mode selector switch to "ON". Ensure the rotation of all motors, (process, reactivation, and rotor drive motor), are as indicated by the arrow labels.
3. Set the airflows to the required rotor pressure drop versus the airflow required for this application. Airflow is indicated by rotor pressure drop values as viewed on the differential pressure gauges mounted on the unit. The Technical Data Sheet shows the optimum "Reactivation Side" and "Process Side" pressure drops (*Rot. Press. Drop, in. w.c.*). Process and reactivation airflows are set using airflow dampers located on the air inlets. For a detailed description of setting and monitoring airflows, refer to Section 4.1.3, Monitoring Unit Performance.
4. Verify that amp draws of each component are within $\pm 10\%$ of the ratings shown on the unit nameplate.
5. Verify the operation of all switches and safeties.
6. The green "Unit On" and red "Fault Indication" lights are equipped with "press-to-test" capability. This feature can be used to test operation of the lamp element when main power is on. If a "press-to-test" light does not illuminate when pressed, it may be burned out or the electrical connections may be faulty.
7. Set the humidity to the desired setting.
8. Verify the grain depression across the system (in the process air stream) is correct per the Technical Data Sheet.

NOTE: During basic unit operation, process air will enter one side of the unit cool and humid and leave the other side of the unit warm and dry. Reactivation air will enter one side of the unit cool and will leave the other side very warm and moist.

3.3 Controller

This unit is equipped with a solid state microprocessor based controller mounted inside the cabinet. Generally, this device is used to control the reactivation heater to maintain a reactivation discharge air temperature setpoint. The controller is shipped from the factory pre-programmed. The source manufacturer's operating manual for the controller is provided under separate cover. Refer to the source manufacturer's instructions for detailed information on operating the controller and adjusting parameters.

3.4 Automated Capacity Control

3.4.1 D-Stat I

What it Does:

This control method cycles the dehumidifier on and off to maintain the relative humidity setting.

Requires:

A wall-mounted humidistat or dry contact to enable remote start/stop.

How it Works:

The dehumidifier responds to a control signal from a humidistat or a customer supplied dry contact, which cycles the unit on and off to maintain the relative humidity setting. The unit mode selector switch (S15) must be set to AUTO.

Conditions:

Sensor control range: 15 to 90% RH
 Ambient range: 40 to 125° F
 Space control accuracy: +/-7% RH

3.4.2 D-Stat II

How it Works:

This control method functions similar to D-Stat I except the process blower runs continually. The reactivation heater and blower cycle on and off in response to a humidistat (optionally provided by STULZ) or a customer-supplied dry contact. As an option, the process blower may cycle on and off based upon a separate, customer-supplied Remote Start/Stop contact.

Sensor control range: 15 to 90% RH
 Ambient range: 40 to 125° F
 Space control accuracy: +/-7% RH

NOTE: D-Stat I and D-Stat II will not work without a humidistat or a customer supplied dry contact closure.

3.5 Reactivation

Electric heat is generated by an SSR (solid state relay) controlled heater. The SSR cycles the heater on and off based upon a signal from the system controller to maintain the reactivation discharge air temperature setpoint.

The temperature of the reactivation air entering the rotor is about 180° F above ambient (depending upon the moisture load in the reactivation air, and/or the flow of the reactivation air). Refer to the electrical drawing for more detail on the heater circuit.

3.6 Control Panel



Figure 3 - Control Panel

3.6.1 Mode Selector Switch


The *DRY Series 500* unit is equipped with a three (3) position mode selector switch (On/Off/Auto) located on the control panel. Refer to the table below for the basic modes of operation:

Mode	Status of Unit
OFF	Unit is off, power is still live if main disconnect switch is ON; white "Power On" indicator light is illuminated.
ON	Unit is on and runs continuously; green "Unit On" indicator light is illuminated
AUTO	Unit cycles on and off in response to a humidistat or Remote Start/Stop contact; green "Unit On" indicator light is illuminated when unit is running

NOTE: The unit will not operate in the AUTO mode unless a humidistat is installed (and the contact is open) or the appropriate jumper connection is not made on the unit terminal block to enable Remote Start/Stop control of the dehumidifier. Refer to the electrical diagram for specific wiring connections.

3.6.2 Control Panel Lights

Each unit is equipped with visual indication lights to notify the operator of the current status of the unit. The green "Unit On" and red fault indicator lights are equipped with "Press to Test" capability. This should be used to test operation of the lamp element. If a light does not illuminate when pressed, it may be burned out or the electrical connections may be faulty. Certain status indicator lights may operate together with optional customer interface terminals (See Optional Features). For specific information regarding troubleshooting fault lights, refer to the Troubleshooting section of this manual.

The "light"  next to the following indicator light name specifies its color.

- W = White
- R = Red
- G = Green

Standard Indication Lights

 **POWER ON**

This illuminates white when main power is supplied to the unit.

 **UNIT ON**

This illuminates green when main power is supplied to the unit and the unit is running.

 **HIGH REACTIVATION TEMPERATURE**

This illuminates red and the heater shuts off when:

- a. The reactivation air entering the rotor is above the high temperature setpoint of 340° F. A manual reset of Overheat Safety Switch (S4-2) is necessary
- b. The air leaving the rotor is above 175° F. A manual reset of Overheat Safety Switch (S4-1) is necessary.
- c. There is insufficient reactivation airflow across the air proving switch (S14).
- d. A fusible link (FL1-1 or FL1-2) opened. This requires replacement.

3.6.3 High/Low Power Selector Switch

A two-(2) position selector switch, located on the control panel, may be used to select the power consumption of the reactivation heater. The normal switch position is "High", which allows the reactivation heater to operate at its full rated 9 KW output. When the switch is set to "Low", the reactivation heater output is reduced to 3 KW and drying capacity is significantly reduced.

3.6.4 Hour Meter

An hour meter, located on the control panel, gives the elapsed run time for purposes of scheduling maintenance.

3.6.5 Sample Nameplate

For information about operating voltage for this unit, refer to the nameplate located near the electrical control box. A sample nameplate is shown in Figure 4. The unit nameplate provides technical operating information along with the model number, serial number and specific Stulz Air Technology Systems job number. This information will be required if it is necessary to contact STULZ for additional information, warranty information, or spare parts.

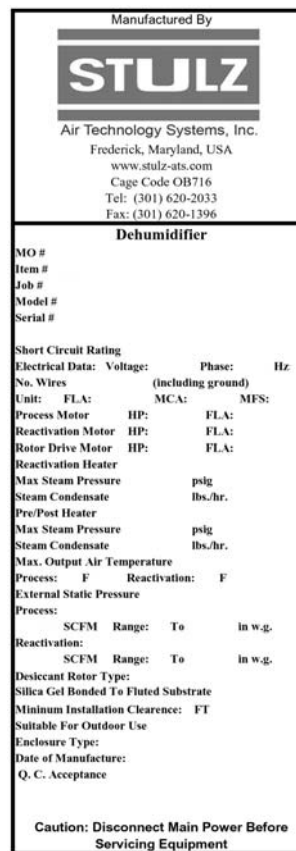


Figure 4 - Sample Nameplate

4.0 UNIT FEATURES

4.1 Standard Features

4.1.1 Control Sensor Terminals

This unit is equipped with terminal positions for the connection of a customer installed control device, such as a humidistat, for operating the capacity control scheme (see Section 3.4, Automated Capacity Control).

In general, the control device provides an on/off switching signal, turning the dehumidification unit on and off to maintain space relative humidity to the setting on the device. The control scheme manages the reactivation heater. Refer to the electrical drawing for details on interfacing the control sensor with the equipment.

4.1.2 Dampers

This unit is equipped with manually adjustable air dampers for the process air stream and reactivation air stream. The dampers are slide/locking style, and are located in the duct connections. The dampers are used to adjust the process and reactivation air flows to meet design conditions for optimal unit performance. The dampers are to be readjusted after installation of the ductwork is complete. Refer to 4.1.3, Monitoring Unit Performance.

4.1.3 Monitoring Unit Performance

Two (2) differential pressure gauges are provided to indicate the pressure drops across the rotor (see Figure 5). Rotor pressure drop (static pressure) correlates directly to airflow. In order to maintain optimum performance, process and reactivation airflows should be set to the recommended rotor pressure drops. Refer to the Technical Data Sheet included with the unit to determine the appropriate values for the rotor pressure drops (inches w.c.).

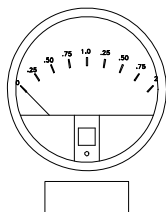


Figure 5 - Differential Pressure Gauges

After all ductwork is installed during initial installation, the airflows may need to be adjusted to re-establish rotor pressure drops to the values indicated on the unit Technical Data Sheet.

Set the airflows by adjusting the process and reactivation air dampers while the unit is still cold. The air dampers are generally located in the process and reactivation air inlets.

Afterward, if the differential pressure gauges show readings that are significantly lower than the initial factory settings, there may be an obstruction or the filters may need to be changed. Operating the unit with dirty filters will reduce unit performance. Never operate the unit without filters as this may damage the desiccant rotor.

4.2 Optional Features

This unit may be equipped with one or more of the following optional features. For a detailed list of the features purchased with this unit, refer to the Dehumidifier Identification Number (DIN) sheet provided with the unit. The DIN number for this unit can be found on the DIN sheet.

4.2.1 Portable Construction

The dehumidifier may be equipped with optional portable design features to allow for easy moving and positioning of the unit. Rubberized wheels are mounted beneath the cabinet base and a lift handle is conveniently located at the end of the unit to raise the unit on the wheels. A 15 foot long electric power cable is included with this option. The power cable is pre-terminated inside the electric control enclosure. A storage compartment is furnished beneath the cabinet for stowing the electric power cable (see Figure 6).

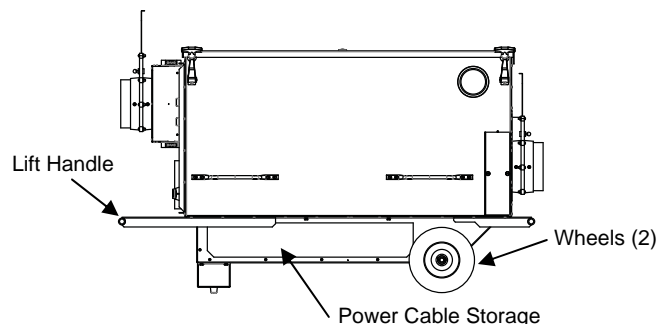


Figure 6 - Portable Construction Features

4.2.2 Customer Interface Terminals

This unit is equipped with customer interface terminals located on terminal blocks in the electrical enclosure. The terminals can be used for a control device to manage dehumidification. Refer to the unit DIN sheet to determine which type control device is to be used.

NOTE: Refer to the electrical drawing for specific ratings of the control device and for wiring details.

REMOTE START STOP CONTROL

Terminal positions are provided to connect a remotely operated “Start/Stop” control device (i.e humidistat). It may be used to start and stop the unit when the mode selector switch is in the “Auto” position. When the circuit is closed the unit will operate; when the circuit is opened the unit will stop (after the purge cycle). Refer to the Electrical drawing to determine the correct wiring for the control device.

NOTE: The unit will not start if space humidity is below the setting on the humidistat.

4.2.3 Electrical Disconnect

This unit may be equipped with an optional non-fused, rotary main power disconnect switch (S16) located on the control panel. The disconnect switch allows power to be removed during maintenance or service functions. The handle of the switch is equipped with a lockout feature to prevent unauthorized actuation during periods of service or maintenance. If not furnished by STULZ, a disconnect switch is recommended and may be required by national electrical codes. If a disconnect switch is NOT provided, the unit will have power when the electrical connections to the main power terminal block (TB1) are made. Use caution when servicing the unit. For wiring details, refer to the electrical drawing provided with the unit.



WARNING

Even with the optional Power Disconnect Switch (S16) in the “Off” position, incoming power may still be “live” between the switch and the main power source. Power must be disconnected from the main source before servicing.



WARNING

Components may still be energized with the “On/Off/Auto” mode selector switch (S15) in the “Off” position. Power must be disconnected from the main source before servicing the unit.

5.0 PREVENTIVE MAINTENANCE

Minimal periodic Preventive Maintenance Checks and Services (PMCS) are recommended to ensure utmost performance of the *DRY Series 500* dehumidification unit. Routine maintenance can correct deficiencies before they cause serious damage to the equipment and helps ensure the unit is ready for operation at all times.

A schedule for preventive maintenance inspection and service should be established immediately after installation of the unit. A system should be established to record any problems, defects, and deficiencies noted by operators and discovered during maintenance inspections, together with the corrective actions taken. Use copies of the Periodic General Maintenance Checklist in Appendix A to record maintenance inspections. For assistance, contact STULZ Product Support.

The following lists the preventive maintenance checks and services that should be performed and the recommended intervals. When operating under extreme or unusual conditions, such as a very dusty or sandy environment, it may be necessary to reduce the maintenance intervals indicated. The schedule below assumes your system operates continuously.



WARNING Disconnect all power before performing any service or maintenance function. Turning the unit “On/Off/Auto” selector switch (S15) to the “Off” position DOES NOT disconnect power.

5.1 Monthly

- Check all electrical connections to ensure they are tight and not shorted to ground.
- Ensure the control panel lights are functional and not burned out (Use the “Press to Test” feature).
- Remove, clean, and/or replace the filters to ensure proper airflow through the unit. If your environment is exceptionally dusty or sandy, this may be required on a more frequent basis.
- Check the rotor seals for wear and ensure they evenly contact the rotor face and rotor flange.
- Check the rotor drive belt for signs of abnormal wear.
- Lubricate motor bearings if necessary.
- Ensure shaft key, pulley and bearing lockdowns are tight.

5.2 Yearly

- Thoroughly clean the unit inside and out, making sure to remove any dust from fan blades and dirt buildup in the ductwork (if applicable).

5.3 Desiccant Rotor Drive Motor Maintenance

A speed reducing gearmotor is used to rotate the desiccant rotor. The gearmotor bearings are pre-lubricated and do not require re-lubrication. Periodically inspect around the gearmotor for accumulated dirt and remove by vacuuming. Dirt accumulation can cause motor heating and a fire hazard. Also observe the motor while operating for high motor current, unusual noises or vibration, overheating, worn or loose couplings and belts or loose mounting bolts.

5.4 Blower Motor Maintenance

5.4.1 General Inspection

Inspect the blower motors at regular intervals (approximately every 550 hours of operation or every 3 months). Keep the motors clean and make sure the ventilation openings are clear. The steps listed below should be performed at each inspection.



WARNING Voltages used with this unit can be deadly. Use the services of a qualified electrician and/or technician to make the electrical power connections and perform maintenance.

1. Ensure the motor is clean. Check to make sure the interior and exterior of the motor are free of dirt, oil, grease, water, etc. because these things can accumulate and block motor ventilation. If the motor is not properly ventilated, overheating can occur and cause early motor failure.
2. Use a “Megger” periodically to verify the integrity of the winding insulation, and record the readings. If there is a significant drop in insulation resistance, immediately investigate.
3. Ensure all electrical connections are tight.

6.0 TROUBLESHOOTING

The *DESICaIR* dehumidifier is designed for continuous and dependable operation. In the event that a high reactivation temperature is encountered, a lamp on the control panel illuminates red to provide an alarm indication.

The following guidelines are included to assist you in troubleshooting the dehumidifier due to operational or performance problems. Refer to the electrical and installation drawings provided with your unit for the location of the system components and their relationship to each other. If the problem can't be resolved using the guidelines below, contact STULZ Product Support for assistance (see Section 8.0).

NOTE: The High Reactivation Temperature safety could trip if the main power is disconnected from the unit while it is running. Before disconnecting main power, turn the dehumidifier mode selector switch to the OFF position and wait five (5) minutes until the reactivation time delay shuts off the reactivation blower.

Problem: Unit Does Not Run

If the dehumidifier is controlled by a remote device such as a humidistat, check this device before you check the dehumidifier itself.

In the AUTO mode:

1. Check remote humidistat or control device.
2. If this check-out does not solve the problem, set the mode selector switch to the ON position. If the unit operates, the problem is related to the remote controller or the wiring between the controller and the dehumidifier.

In the ON mode:

1. Check power supply for correct voltage and phase.
2. Check wiring connections. Refer to the electrical diagram provided with the unit.
3. Check circuit breakers and reset if necessary.
4. Check the motor thermal overloads or circuit controllers.

Problem: "High Reactivation

Temperature" Light is Illuminated
A High Reactivation Temperature Fault can indicate a number of fault conditions. Allow at least 10 seconds for the blowers to cool the unit and then check the Overheat Safety Switches, (S4-1) & (S4-2). If one of the switches is tripped, turn the unit selector switch OFF and disconnect main power. Reset the tripped safety switch. See Figure 7 for the location of the overheat switches.

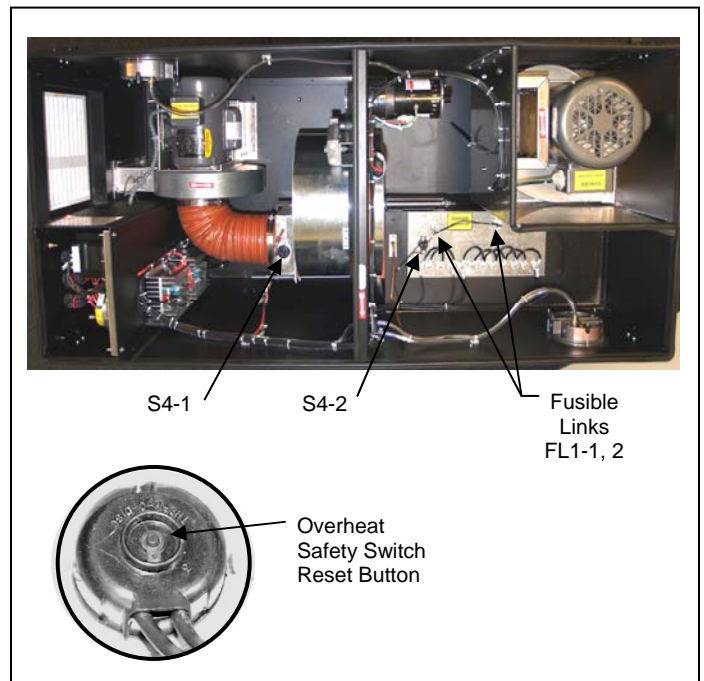


Figure 7 - Cabinet Interior- Top View

Check the fusible links (FL1-1) & (FL1-2). If a fusible link has opened, a replacement is necessary. See Figure 7 for the location of the fusible links.

To prevent this problem from recurring, verify that reactivation air volume is sufficient. Refer to Section 4.1.3, Monitoring Unit Performance for information on setting and verifying the correct airflow. Ensure the filters are clean, the rotor flutes are not dirty (clogged), the reactivation damper is in the proper position and the ductwork is not obstructed or damaged.

Problem: Process Blower Does Not Turn, Yet "Unit On" Lamp is Illuminated

1. Check the motor thermal overload and circuit controller (CT3) for the process blower.
 - a. Reset if necessary.
 - b. Identify and correct the cause of the overload condition.

In this case, amp draw of the motor exceeded the design condition. With main power off, ensure the blower turns freely. Also, ensure all wire connections are tight and no shorts are present.

- c. Ensure the overload current setting on CT3 matches the motor data plate FLA for the rated voltage. Adjust CT3 if necessary.

Problem: Reactivation Blower Does Not Turn, Yet "Unit On" Lamp is Illuminated

1. Check the motor thermal overload and circuit controller (CT2) for the reactivation blower.
 - a. Reset if necessary.
 - b. Identify and correct the cause of the overload condition.

In this case, amp draw of the motor exceeded the design condition. With main power off, ensure the blower turns freely. Also, ensure all wire connections are tight and no shorts are present.

- c. Ensure the overload current setting on CT2 matches the motor data plate FLA for the rated voltage. Adjust CT2 if necessary.

NOTE: With D-Stat II capacity control, the reactivation blower and desiccant rotor do not run if humidity conditions are satisfied.

Problem: Desiccant Rotor Does Not Turn

1. Ensure the belt and tensioner are properly positioned. Realign the belt or reset the tensioner if necessary. See Section 7.1
2. Check the power supply to the rotor drive motor.
 - a. Ensure all wire terminations are tight and no shorts are present.
 - b. Check the transformer circuit breakers.
3. Check the seals for wear. If the surface is worn through, then increased drag will occur. This may cause increased power draw or too much torque for the motor.

Problem: Dehumidifier Performance is Reduced

This condition could indicate a problem with the dehumidifier or a change in moisture loads within the space which is being conditioned. See the Technical Data Sheets provided with your unit to verify the performance conditions are as stated.

It is important that the power supply voltage be correct and that the airflow rate be adjusted to the correct values.

1. To check the dehumidifier performance, take dry bulb and wet bulb temperature measurements upstream and downstream of the dehumidifier rotor in the process air stream. Convert the readings to dry bulb temperature and grains per pound. Compare the results to those indicated by the Technical Data Sheets provided. If the results are comparable, the problem is not with the unit. In this case, analysis of the entire "system" of duct work and space, including any changes in moisture loads (occupancy etc.), is required.
2. Ensure the fans are rotating in the correct direction. If they are reversed, turn the unit off then disconnect main power. Check the motor wiring against the diagrams shown on the motor nameplate to ensure it matches the phase and voltage shown on the dehumidifier nameplate (Figure 4). If the unit is 3 phase, simply switch any two power supply leads at the power distribution block. If the unit is single phase, reconnect the wires according to the motor nameplate diagram.
3. Check the process and reactivation airflows. See Section 4.1.3, Monitoring Unit Performance.

The desiccant itself is designed for a ten year life with little degradation over time (<10% over 10 years). However, improperly filtered air or oil-contaminated air can affect the capacity of the desiccant. If this is the case, performance may be restored by cleaning the rotor as described in Section 7.2, Rotor Cleaning and Replacement.

If the result of following the above troubleshooting steps doesn't solve the problem, contact *DESICAiR* Product Support.

7.0 REPAIR PROCEDURES

Under normal operating conditions and with the proper preventive maintenance, the unit should provide excellent service for many years. If necessary, the unit may be returned to the manufacturer or a suitably qualified depot for major overhaul and refurbishment. All work must be performed by qualified technicians and should include replacement of rotor, seals, motors, starters, contactors, bearings and other accessories as necessary.

7.1 Desiccant Rotor Drive Belt Tension

The rotor drive belt is used to turn the rotor. The belt is placed over the rotor, the drive pulley and the tension idler pulley (refer to Figure 8 below). The rotor drive belt is designed to last a long time, as long as the belt alignment and tension are correct. Over a period of time, the rotor drive belt may stretch causing slippage and therefore require tension adjustment.

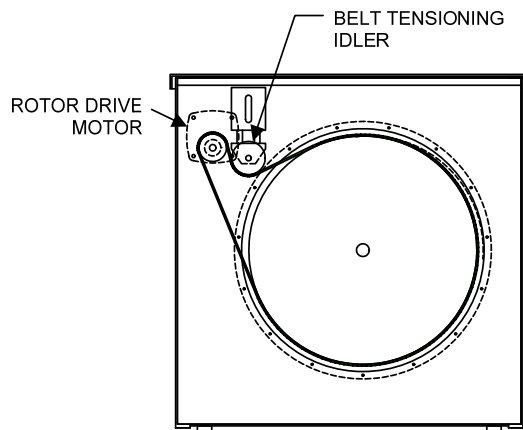


Figure 8 - Rotor Drive Belt Tension

The rotor drive belt may be adjusted using the following steps:

- De-energize the unit and remove the access cover.
- Loosen the nut on the tension idler pulley.
- Slide the tension idler pulley in the slot inward toward the rotor until the rotor drive belt grips the outside surface of the rotor firmly.
- Tighten the nut snugly on the tension idler pulley.

- Energize the unit and let the rotor make several revolutions, carefully checking that the rotor is rotating smoothly and continuously.
- Replace the cover on the unit.

7.2 Rotor Cleaning and Replacement

The *DESICAIR* silica gel rotor is washable. Over time, dirt may accumulate on the surface of the rotor, blocking the openings of the flutes. The rotor may require periodic cleaning to maintain peak performance. Accumulated dirt can be removed from the surface of the rotor using a vacuum cleaner. Heavier accumulations may be removed by washing the rotor with clean water. If the desiccant wheel is continuously exposed to air containing oil laden vapors, it may be necessary to wash the rotor with a solution of water mixed with a light, non-alkaline detergent.

The following procedure describes the steps required to clean the rotor. Required materials include:

- Dry vacuum
- Wet vacuum
- Hand-held spraying device (found at most hardware stores)
- Water/solution supply

7.2.1 Preparation

To wash the rotor it is recommended that it first be removed from the dehumidifier. Operate the unit with the reactivation blower ON, the reactivation heater OFF, and the process blower OFF for two hours, or until the entering and leaving reactivation air temperature is the same. Pre-cooling the air stream is not necessary.

1. Disconnect the power (turning the mode selector switch to the OFF position DOES NOT disconnect the power).
2. Remove the top cover from the unit to allow access to the rotor cassette.
3. Loosen the drive belt tensioner and allow the belt to drop free from the drive system.

Carefully remove the rotor. Be careful not to damage the surface. If damage does occur, repairs may be made by applying RTV silicone to the damaged area (see Section 7.4, Rotor Repair).

CAUTION Do not roll the rotor on its rim once it is outside of the cassette. This may cause damage to the rotor flutes. Allow the rotor to achieve equilibrium by leaving it in an area where humidity is not controlled for a minimum of eight (8) hours.

7.2.2 Cleaning

- Using an industrial dry vacuum cleaner with a clean, soft bristle brush applicator, draw air through the rotor flutes into the vacuum, being careful not to damage the flutes. Vacuum the entire surface of the rotor.
- Repeat this process for the other side of the rotor.

NOTE: DO NOT blow air through the flutes as any particulate blown free would scatter through the work site.

- With the water/solution in the spraying device, flush the rotor through the rotor flutes.

NOTE: Ensure that a means of collecting the cleaning solution for proper disposal is provided.

NOTE: If using a detergent solution, thoroughly rinse the rotor with clean water after flushing with the solution.

- Wet vac both sides of the rotor cassette, then dry vac the two sides of the rotor cassette.
- Ensure the entire rotor has been washed, rinsed, and vacuumed.
- Reinstall the rotor. Ensure the seals are in good condition and reset them to just lightly contact the rotor surface.
- Align and reinstall the rotor drive belt and tensioner. Replace the top cover (making sure all tools/supplies are removed from unit first). Reconnect power.

IF RTV WAS USED TO REPAIR ANY DAMAGE, ALWAYS ALLOW ADEQUATE TIME FOR THE RTV TO "CURE" PER THE INSTRUCTIONS.

- Operate the unit with the reactivation blower ON, the reactivation heater OFF and the

process blower OFF for 60 minutes. Then resume normal unit operation.

- Air should not leak from either air stream to the other. If air does leak from the reactivation to the process side, readjust the seals until no leakage occurs.
- After 6 hours, check the performance of the unit. If the process air discharge is excessively humid (greater than 10% of original performance), turn the process blower OFF and run the reactivation heater and blower for another 2 hours to "reactivate" the desiccant. If conditions still do not return to normal, consult the factory.

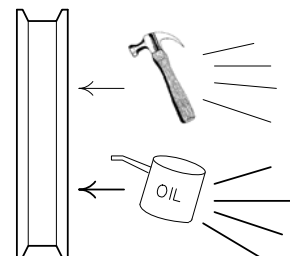
Once the RTV has cured, replace the access panel and restore power. Turn the unit to the ON position and let the dehumidifier operate for two (2) hours in order to run the rotor through several reactivation cycles. Reset the selector switch to the AUTO position or leave in the ON position as required.

Check the seals for wear. If leakage occurs, or if the seals show significant wear, replace the seals.

If these recommended installation and maintenance guidelines are followed, the *DESICAiR* desiccant dehumidifier should perform satisfactorily for many years.

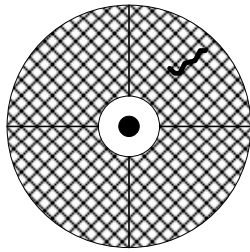
7.3 General Rotor Handling Guidelines

When performing maintenance on the rotor, please observe the following guidelines:



DO NOT STRIKE ROTOR

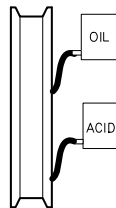
- DO NOT strike the surface of the rotor or allow any objects to strike the surface which may cause damage to the shell and the fluted desiccant media.



DO NOT SCRATCH ROTOR

- DO NOT allow the surface of the rotor to become scratched. Use caution around the rotor when working with any tools that could cause scratches to the surface.

NOTE: If damage DOES occur to the face of the rotor, refer to the Rotor Repair Section or contact STULZ Product Support for repair assistance.



AVOID CONTACT WITH PAINT, OIL, ACIDS, ETC.

- DO NOT allow the rotor to come into contact with paint, oil, acids, etc.
- DO NOT allow dirt, dust, or debris to settle into the rotor element. Follow the rotor washing instructions if the rotor has been subjected to long periods of storage in extreme conditions.
- DO NOT subject the rotor to vibration.

7.4 Rotor Repair

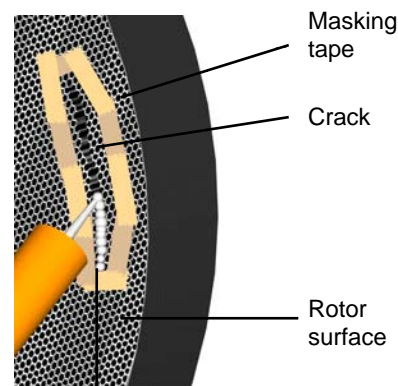
Minor repairs, such as rotor cracks, can be performed by service technicians when required. Materials needed include:

- Masking tape
- Small piece of stiff cardboard with flat edge
- 100% Silicone tube
- Caulking gun

NOTE: These instructions are for small cracks in the rotor surface. For large cracks or for information on replacing the rotor, contact STULZ Product Support.

- Turn the unit Off and disconnect main power. Remove the top cover from the unit.

- Remove the belt from the rotor drive pulley so you can turn the rotor freely. Position the rotor so you have unobstructed access to the cracked portion of the rotor.
- Apply masking tape to the face of the rotor on the right and left sides of the crack. Allow for about two "corrugations" on each side of the crack.
- Apply 100% silicone to the crack, keeping the angled cut of the silicone tube parallel and very close to the surface of the rotor to ensure good penetration. Allow the silicon seal to extend 1/2" beyond the crack. For best results, apply the silicone in an upward motion to push the silicone into the crack.
- After applying the silicone, take the piece of cardboard, and at a 45 degree angle, drag the cardboard over the bead to press the silicone into the crack and make the surface of the silicone smooth and flush with the face of the rotor. This will further enhance the penetration of the silicone and will ensure the silicone does not protrude above the surface of the rotor.
- Immediately after pressing the silicone into the crack with the cardboard, remove the masking tape. This must be done before the silicone starts to cure or "skin over".
- Allow the silicone 24 hours to fully cure prior to running the unit. Should any questions or problems arise, contact STULZ Product Support.



Apply silicone using an upward motion to push silicone into crack

Figure 9 - Rotor Scratch Repair

8.0 STULZ PRODUCT SUPPORT

STULZ provides its customers with Product Support which not only provides technical support and parts but the following additional services, as requested:

- Performance Evaluations
- Start-up Assistance
- Training

8.1 Technical Support

The STULZ Technical Support Department is dedicated to the prompt reply and solution to any problem encountered with a unit. Should a problem develop that cannot be resolved using this manual, you may contact (888) 529-1266 Monday through Friday from 8:00 a.m. to 8:00 p.m. EST. If a problem occurs after business hours, provide your name and telephone number. One of our service technicians will return your call.

When calling to obtain support, it is important to have the following information readily available, (information is found on unit's nameplate):

- Unit Model Number (DRY-XXX-XX-X)
- STULZ Sales Order Number (123456)
- STULZ Item Number (123456)
- Unit Serial Number (1234567)
- Description of Problem

8.2 Obtaining Warranty Parts

Warranty inquiries are to be made through the Technical Support Department at (888) 529-1266 Monday through Friday from 8:00 a.m. to 8:00 p.m. EST. A service technician at STULZ will troubleshoot the system over the telephone with a field service technician to determine the defect of the part. If it is determined that the part may be defective a replacement part will be sent UPS ground. If the customer requests that warranty part(s) be sent by any other method than UPS ground the customer is responsible for the shipping charges. If you do not have established credit with STULZ you must provide a freight carrier account number.

A written (or faxed) purchase order is required on warranty parts and must be received prior to 12:00 p.m. for same day shipment. The purchase order must contain the following items:

- Purchase Order Number
- Date of Order
- STULZ Stated Part Price

- Customer Billing Address
- Shipping Address
- Customer's Telephone and Fax Numbers
- Contact Name
- Unit Model No., Serial No. & STULZ Item No.

The customer is responsible for the shipping cost incurred for returning the defective part(s) back to STULZ. Return of defective part(s) must be within 30 days at which time an evaluation of the part(s) is conducted and if the part is found to have a manufacturing defect a credit will be issued.

When returning defective part(s), complete the Return Material Authorization Tag and the address label provided with the replacement part.

8.3 Obtaining Spare/Replacement Parts

Selected spare parts are recommended to have on hand to help ensure minimal down time for the system. Spare and replacement parts requests are to be made through Product Support by fax (301) 620-1396, telephone (888) 259-1266 or E-mail (parts@stulz-ats.com). Quotes are given for specified listed parts for a specific unit.

STULZ accepts Visa and MasterCard. STULZ may extend credit to its customers; a credit application must be prepared and approved (this process could take one week).

A 25% minimum restocking charge will be applied on returned stocked parts that were sold as spare/replacement parts. If the returned part is not a stocked item, a 50% restocking charge may be applied. Additionally a Return Material Authorization Number is required when returning parts. To receive credit for returned repair/replacement parts, the parts must be returned to STULZ within 30 days of the purchase date. Spare part sales over 30 days old will be considered final and the parts will remain the sole property of the ordering party.

Appendix A

Forms

DRY Series 500 Installation, Operation and Maintenance Manual

DESICAIR PRODUCT DIVISION

Telephone: (301) 620-2033
Facsimile: (301) 620-1396

Appendix A- Forms

Checklist for Completed Installation

- | | |
|--|--|
| <input type="checkbox"/> 1 Proper clearances for service access have been maintained around equipment. | <input type="checkbox"/> 9 Main power wiring connections to the equipment, including earth ground, have been properly installed according to applicable codes. |
| <input type="checkbox"/> 2 Equipment is level and mounting fasteners (if applicable) are tight. | <input type="checkbox"/> 10 Customer supplied main power branch circuit protection device/ fuses have proper ratings for equipment installed. |
| <input type="checkbox"/> 3 Foreign materials removed from inside and around equipment installed (shipping materials, blower lockdown bolts construction materials, tools, etc.). | <input type="checkbox"/> 11 All control wiring completed according to applicable codes to wall mounted control panel, temperature/RH sensor transmitter, etc. (as applicable). |
| <input type="checkbox"/> 4 Blowers rotate freely without unusual noise. | <input type="checkbox"/> 12 Control Sensors (+/-) polarity wired correctly. |
| <input type="checkbox"/> 5 Filter(s) installed (if required). | <input type="checkbox"/> 13 All control wiring completed to terminal positions for customer control and monitoring lines. |
| <input type="checkbox"/> 6 Duct work installed and sealed against leaks | <input type="checkbox"/> 14 All wiring connections are tight. |
| <input type="checkbox"/> 7 Air dampers installed in ductwork (if required). | |
| <input type="checkbox"/> 8 Incoming line voltage matches equipment nominal nameplate rating \pm tolerances. | |

Name _____ Date _____

Company _____

Model # _____ Job # _____



DESICAIR PRODUCT DIVISION

Telephone: (301) 620-2033
Facsimile: (301) 620-1396

Periodic General Maintenance Checks and Services Checklist

Date: _____ Prepared By: _____
Model Number: _____ Serial Number: _____
Item Number: _____

Monthly

<p><u>Filters</u></p> <p><input type="checkbox"/> Cleanliness</p> <p><input type="checkbox"/> No Obstructions</p> <p><u>Rotor</u></p> <p><input type="checkbox"/> Check Condition of Rotor Face</p> <p><input type="checkbox"/> Check Condition of Seals</p> <p><u>Miscellaneous</u></p> <p><input type="checkbox"/> Check and Tighten Loose Fasteners</p> <p><input type="checkbox"/> Check Condition of Belts</p> <p><input type="checkbox"/> Check Pressure Drop Readings on Gauges</p> <p><input type="checkbox"/> Status Indicator Lights "Press to Test" Feature Operates Properly (Should Illuminate When Pressed)</p>
--

Quarter-Annually

<p><input type="checkbox"/> Tighten Electrical Connections and Check for Corrosion</p> <p><input type="checkbox"/> Check Pads on Contactors for Pitting</p> <p><input type="checkbox"/> Clean Unit as Necessary</p> <p><input type="checkbox"/> Check Motor Amps Per Unit Name Plate</p> <p><input type="checkbox"/> Check Motors, Lubricate Per Maintenance Schedule</p>

Annually

<p><input type="checkbox"/> Conduct a Complete Check of All Services Listed Above and Clean Unit's Interior</p> <p><input type="checkbox"/> Inspect Wiring For Fraying, Discoloration</p>

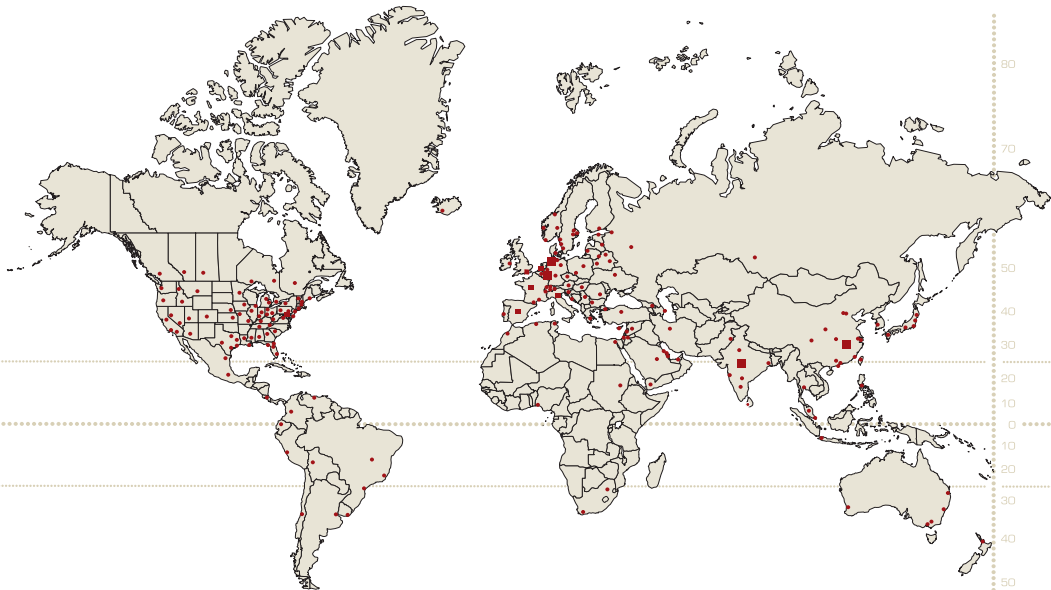
APPENDIX B-GLOSSARY

Terms and Abbreviations

Absorb	Penetration of Vapor Molecules Into the Molecular Structure of Another Substance	In. w.g.	Inches of Water Gauge
Adsorb	Attraction of Vapor Molecules to the Surface of Another Substance	KVA	Kilo-VoltAmp (One Thousand Volt Amps)
BTU/Hr	British Thermal Units Per Hour	KW	Kilo-Watts (One Thousand Watts)
CFM	Cubic Feet Per Minute	LRA	Locked Rotor Amps
D-STAT™	Cycles Dehumidifier On & Off To Maintain Relative Humidity	MFS	Maximum Fuse Size
Desorb	Removal of Absorbed or Adsorbed Vapor Molecules	MSDS	Material Safety Data Sheet
Dew Point	Temperature At Which Humid Air Becomes 100% Saturated	MCA	Minimum Circuit Ampacity
Dry Bulb	Temperature of Air As Measured By a Thermometer.	NEC	National Electric Code
° F	Degrees Fahrenheit	PH	Phase
FLA	Full Load Amperage	PSI	Pounds per Square Inch
F.O.B.	Freight On Board	PSIG	Pounds Per Square Inch Gauge
GPP	Grains Per Pound	RH	Relative Humidity
HP	Horse Power	SATS	Stulz Air Technology Systems, Inc
Hz	Hertz (Frequency)	VAC	Voltage, Alternating Current
In. w.c.	Inches of Water Column		

Notes

Notes



Production Facilities: U.S.A. • Germany • Italy • China • India



Our mission is to be the premier provider of energy efficient temperature and humidity control solutions for mission critical applications.



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ISO-9001 Quality Management System - Requirements

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