





operating & maintenance manual

### Introduction

Thank you for purchasing a nano-purification solutions D-Series<sup>5</sup> NEX / NBP externally heated desiccant air dryer. You are now the proud owner of one of the finest desiccant dryers on the market. nano dryers are engineered and manufactured to provide you with many years of trouble free service. To ensure that you get the reliable, trouble free and safe operation this dryer was designed to provide, we recommend that you read and understand the contents of this manual.

This manual contains all the information required for installing and maintaining your new equipment. It also includes the safety procedures and corresponding drawings. We strongly suggest that all personnel involved with the machine, read the entire contents of the manual before proceeding with the installation or maintenance activities.

nano-purification solutions reserves the right to make changes to this manual without any prior notification and is not obligated in any manner. Information in this manual is deemed current at the time of publication and nano-purification solutions disclaims all liability for any errors resulting in any loss or damage.

If you have questions, need additional copies or would like to schedule a service visit, please contact your local nano distributor.

## **Safety Instructions**

Safety symbols used in the manual:



Important Information! Pay extra attention to instructions and information following this symbol.



Warning! Use caution. Physical injury or death may result if the instructions are not followed correctly.



High Voltage! Risk of electric shock. Use only properly trained personnel with protective gear.



High Noise! Ear protection required.



Hazardous Fumes and Gases! Breathing apparatus required.



Suspension Points. Locate and use these lifting points when moving your equipment.



Tips and Suggestions. Following these tips can make your work easier.



Caution! Possible risk of material damage. Use extra caution

#### Do:

1. Use certified/authorized electricians to perform all electrical work.



- 2. Ensure all electrical work conforms to the specifications indicated in this manual and in accordance with all local, state and federal laws, and the power company.
- 3. Wear the appropriate safety gear at all times.
- 4. Use the appropriate tools for all installation and maintenance work. If special tools are required and are not available to the installation crew, contact your local nano representative.
- 5. Ensure a copy of the Operation Manual is available to all personnel involved with the installation, operation and maintenance of this equipment.
- 6. Ensure the unit is stopped, depressurized, de-energized and locked out before performing any maintenance on the equipment.
- 7. Use only genuine nano parts.

#### Do NOT:



- 1. DO NOT make any changes to the construction of the unit. Only nano or its authorized representatives (with the prior approval) are authorized to make changes to the construction of the equipment.
- 2. DO NOT use non OEM parts. The use of non OEM parts or media without the prior written authorization of nano-purification solutions may affect the operation, performance and safety of the equipment, and will void all warranties.
- 3. DO NOT use compressed air from the dryers for breathing purposes. Install a breathing air package to ensure conformance with OSHA regulations.
- 4. DO NOT disable or disengage any protective equipment used on the machine.

#### Safe operating procedures:

- 1. Pressurize and depressurize compressed air SLOWLY! Always open air valves slowly when pressurizing or depressurizing the air line or equipment.
- 2. Circuit breakers, fusible disconnects, and wiring must conform to all local, state and federal electrical codes. Make certain that the electrical installation for this unit is performed by qualified electrical personnel.
- 3. Only use original fuses for the rated voltage and current.
- 4. Shut down the unit using the correct recommended procedure. Depressurize the unit and remove and lock out all electrical connections.
- 5. After shut down, put up a warning notice to prevent the unit from being switched "ON" accidentally.
- 6. Inspect all piping, hoses and connections. Make sure that all hoses are in good condition and are rated for the correct working pressure. Do not allow hoses to come into contact with oil, chemicals, or sharp objects.
- 7. Secure condensate drain lines. Unsecured flexible drain lines may whip violently under pressure and may cause bodily harm.

#### Breathing Air Disclaimer



nano air dryers do not remove carbon monoxide and do not provide adequate treatment for human respiration (breathing). Breathing air must be at least grade D quality as described in compressed air and gas association (CAGI) commodity specifications 67.1-1966. User may refer to OSHA 29 CFI 1910.134 for special precautions and equipment suitable for breathing air applications. Nano-purification solutions disclaims any liability whatsoever for loss, injury or damage.

## **Unpacking and Inspection**

All nano dryers are tested and operated before shipment. However, damage can occur during shipment and parts may come loose.

Immediately upon receipt of the unit:

- 1. Make sure you have received all the crates/packages that are indicated in the packing slip.
- 2. Check the packaging for signs of damage.
- 3. Remove the crate and all packaging.
- 4. Inspect the unit carefully for any signs of damage to the equipment. If damage is discovered, the carrier is legally responsible for all damages. Immediately file a claim with the carrier and notify your local nano Distributor of the nature of the damage.
- 5. Check the Nano nameplate and make sure that it is the correct Model that you had ordered.
- 6. Note the equipment Capacity and Power Supply requirements and ensure that they match what you ordered. The rated conditions of the dryer are indicated on the data plate. If you notice any discrepancy, contact your local nano Distributor.
- 7. Inspect all pipe and tubing connections and make sure they are all tightened and secured.
- 8. Leak test all piping and tubing connections prior to operation.

## Purpose

Untreated compressed air contains many contaminants such as water vapor, compressor oil, pipe scale, microorganisms and dust. These contaminants will cause corrosion, erosion, freezing and product contamination to process or product that comes into contact with the compressed air. A twin tower regenerative desiccant dryer with proper pre and after filtration will remove these contaminants to harmless levels, significantly reducing or even eliminating corrosion, freezing, and bacterial and mold growth. Products quality increases and rejection rates are reduced.

# Operation

The nano D-Series<sup>5</sup> NEX & NBP are fully automatic, twin tower, externally heated desiccant dryers which are designed continuously remove water vapor from compressed air. The air is dried through the process of adsorption as it passes through the desiccant bed of one tower. Meanwhile, the desiccant bed of the other tower is being reactivated. NEX dryers regenerate using a small portion of the dry outlet air, expanding it to near atmospheric pressure and heating it in an external electric heater. The NBP dryers regenerate using ambient air brought in through a blower, and heated in an electric heater. In both cases, the hot air is then passed , through the desiccant and is vented into the drying air flow. The hot air adsorbs all the moisture from the surface of the desiccant and is vented into the atmosphere. Dryer operation is performed automatically using a solid state timer or PLC. In order to prevent line surge and to minimize desiccant attrition, switching from one chamber to the other is carried out only when both desiccant chambers are at equal pressure. The tower being reactivated will be re-pressurized at the end of its reactivation cycle before switch-over takes place.

## Description

- Optimal tower size for low flow velocity, long contact time and minimal desiccant attrition.
- Tower pressure relief valves.
- Purge adjustment valve to control purge flow.
- Purge flow indicator.
- Purge exhaust mufflers for quiet operation.
- Tower pressure gauges.
- Stainless steel desiccant support screens and air diffusers to prevent channeling.
- Counter-current reactivation.
- Advanced PLC controls for ease of operation.
- Controlled re-pressurization to prevent desiccant fluidization.
- Fail safe design: failure of power and/or pilot air causes the purge exhaust valves to close.
- Control pilot air filter to protect instrumentation
- Desiccant fill and drain ports for ease of desiccant replacement.
- Reliable non-lubricated air inlet valves with position indication
- Angle seat valve design allows for high flow rate with minimal pressure drop.
- High quality soft seat check valves.
- Tower operating status lights.
- ON/OFF switch and power ON light.
- Failure to shift alarm.
- Tower and heater insulation for maximum efficiency and personnel protection.
- NEMA 12 (standard), 4 (optional) or 7 (optional) electrical construction.
- -40°F (standard) or -100°F (optional) pressure dew point
- High inlet temperature alarm (optional).
- Demand cycle control with dew point monitor (optional).
- Pre-piped filters and by-pass valve package (optional).
- Visual moisture indicator (optional).

# Specifications

Voltage (3 Ph/60 Hz):       □ 240 Volt       □ 460 Volt         Inlet and Outlet Size in Inches:	□ 575 Volt
Inlet and Outlet Size in Inches:       "flanged         Overall Dimensions:       "W x "D x "H         Maximum Rated Pressure:       100 psig       psig         Maximum Design Pressure:       150 psig       psig         Maximum Rated Temperature:       100°F       °F         Maximum Design Temperature:       120°F       °F         Maximum Design Temperature:       120°F       °F         Maxing Time:       240 min       min         Heating Time:       180 min       min         Cooling Time:       50 min       min         Re-pressurization Time:       10 min       min         Desiccart:       Type:       10 min       min         Read Size:       3/16″       min         Maxinum       ACTIVATED ALUMINA       min         Operature Parameter       Minimum       Optimum Maximum	
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Maximum Rated Pressure:       100 psig	
Maximum Rated Pressure:       □ 100 psig       □	
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Operating Parameter Minimum Optimum Maximum	
Air Flow (scfm)	
Air Pressure (psig)	
Inlet Air Temperature (°F)	
Ambient Temperature (°F)	
Purge Air Flow (scfm)	
Purge Line Air Pressure (psig)	

## **Before Installation**

To ensure a safe and smooth installation:

- Make sure that all personnel involved have read this Operation Manual thoroughly. If you have any questions, or need help with start up and commissioning feel free to contact your local nano Distributor or nano Technical Support and we will be glad to assist you.
- Have extra copies of the Operation Manual on hand.



Dryer must never be moved or lifted by the attached piping. Use the lifting points only. Special care must be used when lifting the dryer to prevent tip-over.

When choosing a location:

- Ensure that the load bearing weight of the floor is adequate for the weight of the dryer.
- Locate the dryer in an open area and a level ground. Dryer should be bolted to the floor to eliminate vibration.
- The ambient temperature should be between 40 and 100°F. Low temperatures could adversely affect the drying and regeneration process and result in poor outlet dew point performance. In conditions where the ambient drops below freezing, nano recommends the use of heat tracing and insulation for optimal performance. Contact your local nano Distributor for heat tracing and insulation recommendations.
- Dryer and accompanying filters should be installed with at least 2 5 feet of clearance from the adjoining walls to provide easy access for routine maintenance.

### **Installation Procedure**

- This dryer does not need any special tools for installation.
- Only qualified personnel should make electrical and mechanical connections.

Foundation:

• Dryer should be mounted on a suitably structured flat and level floor or base that is free from vibration.

#### Mounting:

• Bolt dryer to the foundation using the bolt holes provided in the frame.

Piping:

 Connect the inlet piping including the pre filter (if not already mounted to the dryer) and inlet isolation valve. Install the outlet piping including the after filter (if not already mounted to the dryer) and the outlet isolation valve. Bypass piping and valve is recommended to accommodate isolation of the dryer for maintenance. Compressed air piping has to be at least the same size as that of the inlet and outlet connections of the dryer. Larger pipe sizes can be used with reducers.

Back Pressure regulators:

• Install a back-pressure regulator to prevent possible fluidization of the desiccant bed. A back-pressure regulator will prevent excessive flow velocities through the desiccant bed due to high downstream demands, thereby protecting the media from attrition.

Desiccant:

• Make sure that the dryer towers are filled with desiccant. Larger dryers may have desiccant shipped separately. In this case, fill the pressure vessels with media using the desiccant fill ports. Exercise caution to prevent breathing desiccant dust.

Muffler:

• If mufflers have been shipped loose, they must be installed and secured prior to operation.

By-pass:

• If the dryer is not supplied with an optional block and by-pass valves and piping it is highly recommended that a block and by-pass valve system be installed around the dryer and filters to allow the dryer and filters to be isolated from the compressed air system for servicing. Ensure that the bypass valves are rated for at least 250°F.

Electrical:

• Make all electrical connections to the dryer as shown in the wiring diagram. Special care must be taken in connecting the proper voltage as indicated on the diagram.

Exhaust:

• Dryer exhaust may be vented to a remote location by removing the exhaust mufflers and installing piping. Condensate will form in this pipe. Ensure piping is installed such that condensate drains away from the dryer to a low point with an automatic condensate drain. Ensure that the exhaust piping does not result in any measurable back pressure, as this will adversely affect dryer performance.

Electrical:

- Dryer must be properly grounded. Improper grounding may result in control problems.
- A fused disconnect must be installed.
- Ensure that all electrical fuses and breakers are correctly sized.

Disclaimer: nano-purification solutions is not liable for any code violations, component damage, downtime or consequential damage related to improper installation or customer supplied electrical components and connections.

## Start Up Procedure

At any point during the process of startup you notice anything unusual, return the dryer to a safe state and refer to the operation manual. If you cannot find the answer in the trouble shooting section, contact your nano Distributor or the nano Technical Support.

- 1. Confirm the following:
  - $\square$  The correct voltage is supplied to the dryer.
  - $\square$  The dryer air inlet and air outlet are piped correctly.
  - ☑ Tanks are depressurized.
  - $\boxdot$  Any vent valves to ambient are closed.
  - ${\ensuremath{\boxtimes}}$  The pre filter drain value is energized and timer is working.
  - ☑ The dryer OFF/ON switch is in the OFF position.
  - $\square$  The inlet and outlet isolation valves are closed, and the bypass valve is open.

- 2. Slowly pressurize the dryer vessels to operating pressure by slowly opening the inlet isolation valve. Note that one dryer vessel will pressurize slower than the other. If both vessels do not pressurize, open the purge adjustment valve.
- 3. Make certain the control air pressure regulator is set to 100 psig, and that the system pressurizes.
- 4. Ensure the MANUAL/AUTO switch (located on the front of the electrical enclosure) is in the AUTO position.
- 5. Turn the ON/OFF switch to the ON position.
- 6. After a short time, the on line tower should depressurize. Adjust the purge adjustment valve until the purge pressure gauge reads 60 65 psig.
- 7. Slowly open the outlet isolation valve.
- 8. Slowly close the bypass valve. All flow is now going through the dryer and the dryer is operating.
- 9. The text display on the front of the electrical enclosure should display the dryers status (i.e. step in the cycle) and any alarm condition. Steps of the cycle are outlined in "Operation" below. Alarms are outlined in "Alarms" below.

### Shut Down Procedure

Always leave the dryer operating and under pressure whenever possible. If it must be turned off, leave it pressurized if possible. If it must be turned off and depressurized:

- 1. Slowly open the by-pass valve.
- 2. Slowly close the outlet isolation valve.
- 3. Slowly close the inlet isolation valve.
- 4. Slowly open the purge exhaust valves and allow the dryer to slowly depressurize. (The dryer can also be depressurized through the valve on the after filter drain port and through the pre filter drain.)
- 5. Switch off electrical power only after both towers have been depressurized.

### **Operation:**

After the initial startup, the dryer operation is completely automatic.

Dryer status / cycle steps:

- Right Tower Drying
- Right Tower Drying --- Left Tower Depressurizing
- Right Tower Drying --- Left Tower Heating
- Right Tower Drying --- Left Tower Cooling
- Right Tower Drying --- Left Tower Re-pressurizing
- Left Tower Drying
- Left Tower Drying --- Right Tower Depressurizing
- Left Tower Drying --- Right Tower Heating
- Left Tower Drying --- Right Tower Cooling
- Left Tower Drying --- Right Tower Re-pressurizing

### **Temperature Settings and Indication**

"1TH" monitors the purge air temperature via a thermocouple located downstream of the heater, and displays it on the large red L.E.D. display. The purge air temperature control set point "1TH1" is set at 325°F. The purge air temperature high limit setting "1TH2" is stored in the control program.

"2TH" monitors the heater temperature via a thermocouple located inside the heater thermowell, and displays it on the text display. The heater temperature control set point "2TH1" is set at 500°F. The heater temperature high limit setting "2TH2" is stored in the control program.

### **Demand Cycle Control Option**

The optional demand cycle (or purge saver) system consists of a dewpoint monitor, a dewpoint sensor probe with probe holder, two valves and a DEMAND CYCLE OFF/ON switch on the front of the electrical enclosure. Some adjustment of valves at the dewpoint sensor may be required at the time of start up. The valve upstream of the sensor should be fully open. The valve downstream of the sensor should be adjusted slightly open until a very slight amount of air (less than 10 SCFH) is felt at the end of the dewpoint sensor flow meter.

With the DEMAND CYCLE OFF/ON switch in the off position, the dryer will operate on a fixed automatic timed cycle. With the DEMAND CYCLE OFF/On switch in the ON position, the dryer will operate as follows:

If, at the end of the re-pressurization step the outlet dewpoint is below the setting of -40°F, the dryer will go into standby. The text display will display "Left drying... Right in standby" or "Right drying... Left in standby" as applicable. When the outlet dewpoint rises above the set point of -40°F the dryer will automatically switch towers and continue to the end of the next cycle.

Note: If the dewpoint sensor or monitor is disconnected, turned off, or has an error, place the DEMAND CYCLE OFF/ON switch into the OFF position.

### Maintenance:

Prior to performing any maintenance on the dryer, all personnel should familiarize themselves with the equipment by reading the entire contents of this operation manual. nano strongly recommends the strict adherence of all the safety procedures prior to any performing any maintenance on the dryer.

Daily

- Monitor the differential pressure across your pre and after filters daily. The pre filter protects your media from particulate as well as oil and water aerosols which can significantly decrease the life of your media. The after filter element protects downstream equipment from desiccant dust which is extremely abrasive. While the differential pressure indicator will indicate premature blockage of the elements (in which case they must be immediately replaced), it does not indicate the condition of the filtration media. There are many reasons including damage to the element, an improper seal or degradation of the media that can cause the differential pressure to stay low, while the element provides no useful filtration. For this reason it is critical to the performance of your system and protection for your media and downstream process to replace your pre and after filter elements a minimum of once a year, even if (or especially if) the differential pressure does not rise.
- Test your pre filter condensate drain daily. If your pre filter drain is not functioning, condensate will build up in the pre filter housing and can carry over into the desiccant damaging it and requiring your desiccant to be replaced.
- Monitor the pressure in the off line tower during regeneration daily. Over time (and especially after initial start up or replacing the media) desiccant dust will accumulate in the exhaust mufflers increasing the back-pressure in the regenerating tower and decreasing the efficiency of regeneration. A blocked exhaust muffler will cause a decrease in dryer performance, and when severely blocked, can rupture.

#### Weekly:

- Check all control panel lights.
- Verify purge flow indicator. The purge flow depends on the set dewpoint.
- Check the dewpoint monitor (if applicable) to ensure that the desired dewpoint is being achieved.

Semi-annually:

• Remove and inspect the pre filter element(s), after filter element(s), pilot air filter element, and mufflers for debris, excessive particulate loading and/or physical damage and replace as necessary.

• Check all solenoid valves including the valve seating, coil condition and control circuit.

#### Annually:

- Replace pre filters, after filters, pilot air filter and mufflers.
- Replace the dew point analyzer probe and monitor and send the expired items back to the factory for recalibration.

### Alarms

Alarm conditions:

- Heater High Limit (requires reset to clear)
- Purge Air High Limit (requires reset to clear)
- Left Drying Low Pressure (automatically resets when pressure reaches set point)
- Left Fail To Depress or Left High Pressure (requires reset to clear)
- Left Fail To Repress (requires reset to clear)
- Right Drying Low Pressure (automatically resets when pressure reaches set point)
- Right Fail To Depress or Right High Pressure (requires reset to clear)
- Right Fail To Repress (requires reset to clear)

When an alarm condition is active:

- a down arrow will blink on the text display,
- the common alarm light will illuminate,
- the common alarm relay will energize\*,
- the cycle will stop, and
- the heater (if energized at the time of the alarm) will de-energize.

Press the down arrow button on the text display to display the alarm condition. After the problem has been corrected the alarm can be reset by pressing the "COMMON ALARM RESET" push button on enclosure door.

\* Connect to the common alarm relay dry contacts inside the electrical enclosure for remote alarm indication. See the electrical drawing for applicable terminal numbers.

### Troubleshooting

The following section briefly discusses alarms or issues that may occur, the reason for the alarm or issue and how it can be rectified. If you do not find the solution here, contact your local nano Distributor. All necessary safety and precautionary steps must be followed before attempting to perform any of the recommended measures outlined below.

Before attempting any maintenance on the system, ensure the dryer is shut down using the procedure outlined in "Shut Down Procedure" section earlier in this manual.

For any alarm or issue:

- 1. Confirm if the unit has been damaged externally or if any part is missing.
- 2. Confirm there is a power supply and that it corresponds to the power supply indicated on the data plate.
- 3. Confirm there is power at all the electrical connections in the proper amounts.
- 4. Confirm there is control air available to all pneumatically operated components.
- 5. Confirm all valves are in the correct positions.
- 6. Confirm that the operating conditions including the inlet flow, temperature and pressure fall within the design parameters of the dryer.

For normal operation the MANUAL/AUTO switch should be in the AUTO position. To confirm proper dryer operation or for troubleshooting place the switch in the MANUAL position. To advance the dryer to the next

step in the cycle, press and hold the STEP CYCLE button for 3 seconds. During each step, carefully observe the dryer valves to ensure they are operating as expected. Allow approximately 3 minutes to re-pressurize or depressurize towers as necessary during each step before moving onto the next step in the cycle. If possible, advance the cycle back to the same step it was in originally, then switch the MANUAL/AUTO switch back to the AUTO position.

Issue	Possible Causes	Correction
High Dew Point	Inadequate purge air flow.	Adjust purge flow.
	Blocked mufflers causing back-pressure during regeneration	Replace mufflers.
	Inlet air flow above design limit.	Reduce inlet air flow.
	Inlet air temperature above design limit.	Reduce inlet air temperature.
	Inlet air pressure below design limits.	Increase inlet air pressure.
	Inadequate pre filtration.	Check pre filter element & replace if necessary.
	Desiccant contaminated.	Replace desiccant.
	Re-pressurization valve not closing, or leaking.	Rebuild or replace valve.
	Exhaust valve(s) not fully opening or closing.	Rebuild or replace valve(s).
	Outlet check valve leaking.	Rebuild or replace valve(s).
	Purge check valves leaking.	Rebuild or replace valve(s).
	Low heater temperature or heater not working.	Check & adjust heater temperature controller.
		Check thermocouples, PLC & fuses.
High Pressure Drop	Inlet air flow above design limit.	Reduce inlet air flow.
	Blocked pre and/or after filter element(s).	Replace pre and/or filter element(s).
	Inlet air pressure below design limits.	Increase inlet air pressure.
	Desiccant severely contaminated.	Replace desiccant.
Dryer fails to switch towers	Inlet valve(s) not functioning.	Confirm pilot air supply to actuator.
		Confirm solenoid valve functioning.
		Rebuild or replace valve(s).
	Exhaust valve(s) not functioning.	Confirm pilot air supply to actuator.
		Confirm solenoid valve functioning.
		Rebuild or replace valve(s).
	No input power.	Confirm power supply and correct voltage.
	Pilot air supply is restricted.	Check pilot air filter differential pressure, and check for a restriction in the pilot air tubing.
	Controller malfunction.	Reset controller. If it does not reset, replace.

Failure to purge	Purge flow control valve or orifice is clogged.	Clean or replace valve and/or orifice as needed.
	Pressure switch failure.	Reset or replace pressure switch.
	Exhaust valve(s) not functioning.	Confirm pilot air supply to actuator.
		Confirm solenoid valve functioning.
		Rebuild or replace valve(s).
	Blocked mufflers.	Replace mufflers.
Failure to Pressurize	Re-pressurization valve failure	Confirm pilot air supply to actuator.
		Confirm solenoid valve functioning.
		Rebuild or replace valve(s).
	Orifice is blocked	Clean or replace orifice as needed.
	Re-pressurization regulator failure	Clean or replace regulator as needed.
High back pressure in off-line tower during regeneration	Blocked mufflers.	Replace mufflers.
	Restrictive purge exhaust piping	Increase pipe diameter.
	Check valves for leaks.	Rebuild or replace valve(s).

**To test the outlet check valves:** By-pass and depressurize dryer, close the purge adjustment valve and slowly open the outlet isolation valve to pressurize the outlet to the dryer. The towers should remain depressurized. If one or both chambers pressurize, rebuild or replace the corresponding outlet check valve.

### Warranty

nano D-Series<sup>5</sup> twin tower desiccant dryers are warranted to be free from defective material and workmanship for a period of one year from the date of shipment. Any equipment, material or part proving so defective will be replaced free of charge, provided that within a reasonable time for inspection after delivery, the seller is notified of such defects and the equipment, material, or part claimed to be defective is delivered prepaid to the factory with evidence that it has been properly maintained and used in accordance with instructions and specifications.

This is the only authorized warranty and is in lieu of all other expressed or implied warranties or representations, including any implied warranties or merchantability or fitness, or any other obligations on the part of nanopurification solutions. Warranty claims must be submitted and shall be processed in accordance with nano's established warranty claim procedure. In no event will Nano be liable for business interruptions, loss of profit, personal injury, costs of delay or for any other special, indirect, incidental or consequential losses, costs or damages.

Note: Routine maintenance and minor adjustments to the equipment is not covered under this warranty.

Prior to performing any possible warranty service or replacing a possible warranted part, Nano must be notified. Failure to comply with this procedure will result in denial of warranted claim. Overseas shipments are excluded from this warranty. The warranty card accompanying each dryer should be mailed to the factory to activate the warranty. Nano maintains a policy of ongoing development and improvement. We therefore reserve the right to change dimensions, specifications, and design without prior notice.

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