nano
PURIFICATION SOLUTIONS

D-Series^5 NEX & NBP

start up procedure & notes

Warning! Before beginning the start up procedure outlined below, ensure that you are familiar with the operation of this equipment and that you have read and understand the Operating and Maintenance Manual, and the electrical, flow and mechanical drawings.

Start Up Procedure

1. Confirm the following:
   - ☑ The correct voltage is supplied to the dryer.
   - ☑ The dryer air inlet and air outlet are piped correctly.
   - ☑ Tanks are depressurized.
   - ☑ Any vent valves to ambient are closed.
   - ☑ The pre filter drain valve is energized and timer is working.
   - ☑ The dryer OFF/ON switch is in the OFF position.
   - ☑ 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.

   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 Repressurizing
   - 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 Repressurizing

   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)

Troubleshooting:

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 repressurize 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.

Alarms

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.*

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 repressurization 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.

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