


# HOPPER BANK OPERATING MANUAL





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## **DESCRIPTION & FEATURES**

Dri-Air Industries' Hopper Banks are a self-contained central drying system capable of being moved to any location in your facility where you might need multiple materials dried simultaneously at different temperatures, or quick changeovers to previously dried resins. Each Hopper Bank should be utilized in conjunction with one of our Arid-X/HP4-X dryers, or any other comparable desiccant dryer.

Only one dryer is needed to supply desiccated air to the hopper bank (the number of drying hoppers and sizes can vary depending on your needs). The air supply to the hopper bank is distributed to each drying hopper through the use of a multi-port manifold. Each hopper is equipped with independently adjustable valves to regulate airflow to the hopper. Care must be taken to ensure that the dryer is adequately sized for the capacity of the hopper bank. See the Dryer Selection section for further assistance on selecting a dryer.

Each hopper has its own heater assembly and dedicated digital temperature controller, allowing each hopper to operate at a different drying temperature. The recommended operating temperature range of each hopper is between 150 degrees to 350 degrees F (providing the dryer supplying the dry air to the bank is set for 150 degrees F or lower). To control the temperature for each hopper, first set the dryer to the recommended 150 degrees F (See dryer operating manual) and then set the digital controller to the desired operating temperature (See Start-up Procedure Section of this manual).

### **Operational Requirements**

Hopper Banks are available in various voltages and electrical configurations to accommodate domestic and export requirements. (See below)

208 - 230 volt, 3 phase, 50/60 HZ

400 - 480 volt, 3 phase, 50/60 HZ

The operational temperature range is 150° to 350° F (66° to 177° C). This may vary due to operational restrictions of the dryer, as some dryers may not be able to operate at 150°F or lower.

### **Dryer Selection**

Care must be taken when selecting the appropriate dryer size (CFM) for the Hopper Bank configuration. As the configuration and quantity of hoppers in a bank can vary, the dryer size can be determined by multiplying the total hopper capacity (listed pounds of material) by the minimum cfm/lb. factor of 0.5.

Example:

Hopper Bank Configuration – 4 60 lb. Hoppers

Total Capacity - 4 x 60 = 240

Minimum Dryer Size – 240 x 0.5 = 120 CFM

## **INSTALLATION PROCEDURE**

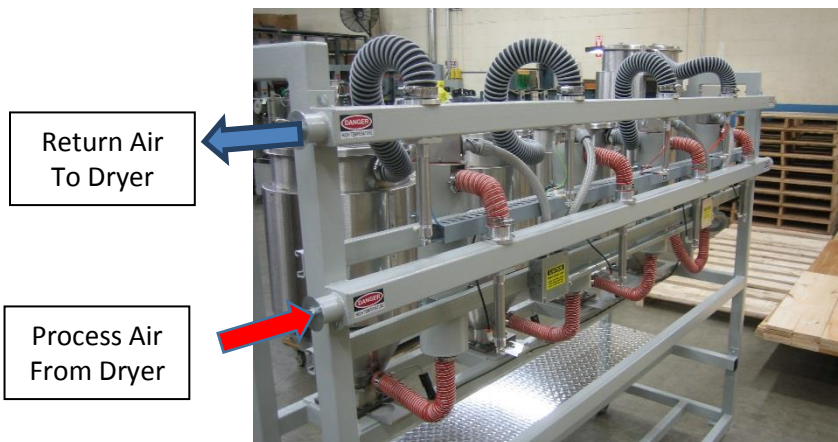
The following steps must be taken to properly set up and operate this hopper bank.

### **Hose Connection**

Place dryer next to hopper bank with controls placed for easy access.

The process air manifold on the hopper bank is designed to allow the dryer's process air hoses to be connected to either end of the manifold. This is to allow the operator greater flexibility when installing this unit. Simply choose which end of the bank is most suitable to connect the dryer to, connect the dryer, and then use the material plugs supplied with the hopper bank to plug the other ports.

Connect process air outlet hose from of dryer to the inlet port of the hopper bank located on the bottom manifold tube. Connect the dryer return air hose to the hopper bank outlet port located on the upper manifold tube. Tighten all clamps.

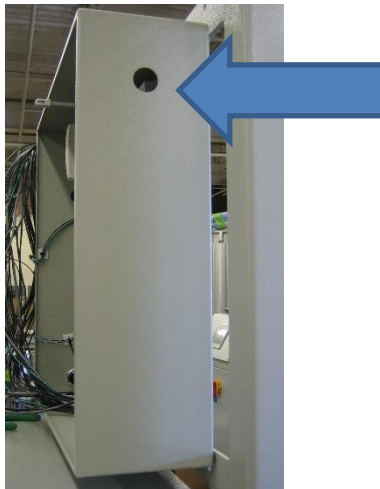


### Electrical Connection

Although a power drop is already used for the dryer supplying the dry air to the bank, it is necessary to provide a separate power drop for the hopper bank. The main power supply is used to operate the heaters on the hopper bank. The nameplate on the electrical enclosure will give the amperage draw for the unit.

The supply is equipped with adequate over-current protection.

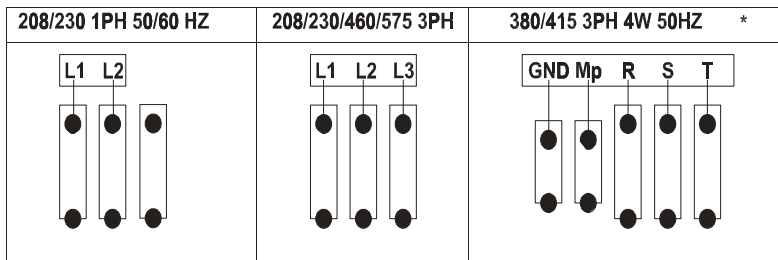
Open the electrical panel enclosure door by turning the disconnect off and turning the retaining screw holding the enclosure door. Open the door. Locate the disconnect by following the shaft down to the panel. Use the provided cable hole in the side of the enclosure and insert the power cable through the hole.



**CAUTION !!!! FAILURE TO CORRECTLY WIRE THE HOPPER BANK TO THE DRYER WILL RESULT IN DAMAGE TO THE HOPPER BANK AND MOST LIKELY MATERIALS BEING DRIED.**

**<<Use approved wire and fastening means>>**

Wire the incoming power to the top of the disconnect as shown in the diagram below.



An independent cord is also supplied on the dryer and hopper bank.



INTERFACE  
CABLE FEMALE  
DRYER



INTERFACE  
CABLE MALE  
HOPPER BANK

This independent cable is an interface cable that is used to tie the hopper bank's control system to the dryer. The interface allows the hopper bank to operate only when the dryer is running properly. In the event that the dryer shuts down, controls on the hopper bank will prohibit the bank from operating unless the dryer is connected and operating.



## **START-UP PROCEDURE**

Located on the hopper bank's Electrical Panel Enclosure are the controls for operating the hopper bank. Each bank is supplied with a Main Power Disconnect and Advanced Dryer Control.

### Switches/Disconnect

The Main Power Disconnect controls power for the operation of the heaters and controls.

With the use of the ADC, the individual hoppers can be turned on and off and the process temperature can be set.

To start the Hopper Bank, open each of the hoppers' inlet and outlet port butterfly valves to allow full airflow and follow the procedures detailed below.

**CAUTION !!!!! MAKE SURE IF A HOPPER TEMPERATURE CONTROLLER IS TURNED ON, THE AIRFLOW BUTTERFLY VALVE MUST BE OPEN. FAILURE TO DO SO WILL RESULT IN DAMAGE TO HEATERS AND HEATER TUBES.**

1. Start the dryer in accordance with the dryer's operating manual.
2. Making sure the dryer is running, press the START button on the ADC to turn the hopper bank on..
3. By pressing the MENU button, you will be able to access the Main Menu. Press down arrow until Set Temperature appears. Press ENTER and you will be able to select the hopper that you would like to set the temperature for.
4. Using the keypad, enter the temperature that you would like to set the hopper for and press ENTER.
5. To turn on the hopper, access the Main Menu and select Hopper Control and press Enter. Select the hopper you would like to turn on and follow the directions to turn it on.

## **ROUTINE OPERATION**

Fill each hopper to be utilized with the resin that you want to dry, ensuring that the level of the material is always above the perforated liner in the hopper base. Do not overfill the hopper as airflow may become restricted due to material blocking the outlet port. This will cause the material to not fully dry, resulting in molding problems.

If not all hoppers are in use, turn off the controls to the applicable hopper controller on the hopper bank and close the hopper's airflow butterfly valves

When shutting down the hopper bank, turn off the main power on the hopper bank and open all airflow butterfly valves.

## PARTS LIST FOR HOPPER BANK

<u>PART NUMBER</u>	<u>DESCRIPTION</u>
85584-5	ADC motherboard for hopper bank
84930-5	ADC display board for hopper bank
85197	ADC keypad
85364	Solid State Relay 2 pole
83502	250 DEGREE SNAP DISC THERMOSTAT
87361	1/8"X 3" THERMOCOUPLE
81142M	THERMOCOUPLE PLUG
84368	HEATER TUBE GASKET
85365	DISCONNECT
85355	MAIN CONTACTOR
85351	Power Supply 24 VDC
85959	TRANSFORMER

### HEATERS

	<u>208/240v</u>	<u>400v</u>	<u>460v</u>	<u>575v</u>
RH5 TO RH30	84399	84400	84400	84065
RH60 TO RH150	82343	84204	82319	84065





