

**HA750B - 1500B
HOT AIR DRYER
OPERATING MANUAL**

 **DRI-AIR** INDUSTRIES, INC.
16 THOMPSON ROAD
P.O. BOX 1020
EAST WINDSOR, CT 06088-1020

Tel. (860) 627-5110

FAX (860) 623-4477

Internet <http://www.dri-air.com>

e-mail: sales@dri-air.com

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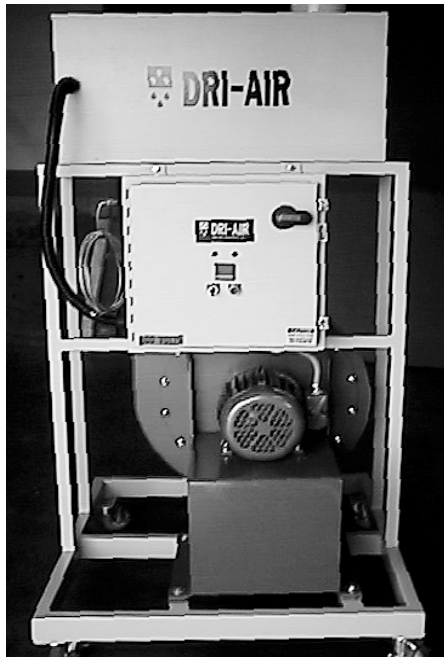
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DRYER OPERATION/ FEATURES



The HA750-1500 Hot Air dryer series is ideal for drying non-hygroscopic resins such as polypropylene and polyethylene. The moisture associated with these resins resides on the surface of the pellets. The surface moisture on these resins is easily removed by a flow of hot air.

Resins such as polycarbonates, ABS, and Nylons are hygroscopic, absorbing moisture into the pellet. These resins require a dryer equipped to desiccate the air stream and may not be suitable for a Hot Air dryer.

Air Flow

The airflow of the HA series dryers is circulated through a heater cabinet containing up to 9 tubular heaters and the material hopper by a fan type blower specified below.

HA750	750 cfm Blower
HA1000	1000 cfm Blower
HA1500	1500 cfm Blower

The HA series dryers are compatible with many types of material hoppers. The hopper must be designed to allow good material flow and should be equipped with a diffuser basket so that air flow through the hopper is not impeded. To ensure proper air flow, we strongly recommend that you use a Dri-Air hopper described below.

Hopper Design

These dryers are designed to be used with our large capacity 1000, 1500, and 2000 lb. hoppers. Dri-Air's "all stainless" hopper design utilizes a stainless steel inner shell surrounded by a stainless steel jacketed insulation layer. The easily removable stainless steel spreader cone promotes proper material flow to ensure that the material is dried efficiently and no undried material is left at the hopper bottom that needs to be fed out prior to operating. You must ensure that your hopper is adequately sized for your usage rate and is kept filled, to ensure that you have sufficient time to dry the material.

Dryer Controls

The HA series dryers are supplied with a digital temperature controller that allows the operator to easily monitor dryer performance and input operational settings. The controller is factory set and requires no additional programming.

The controller is used in conjunction with a 6 inch long 0.125"

DRYER OPERATION/ FEATURES (Cont.)

diameter Type J thermocouple that is placed in inlet air stream of the material hopper.

These dryers are designed to operate between 120 and 250 degrees F (49-121 degrees C). Operating outside these parameters may lead to temperature control problems.

Dryer Configuration

The HA750 - 1500 series dryers are designed to be portable and utilize a very compact footprint. The dryer's base dimensions are typically 39" wide by 42" long by 78" high. (99.1 x 106.7 x 198.1 cm) The dryers are equipped to operate at 380/460/600 volts, 3 phase at 50/60 HZ.

The dryer is configured with a 6" (15.3 cm) O.D. process air outlet and supplied with 12 feet (3.6 meters) of 500 degree F (260 deg. C) rated hose to connect with the material hopper and a 0.125" Type J thermocouple with an armored connector wire.

Setup and installation instructions are covered on page 6 of this manual.

INSTALLATION PROCEDURE

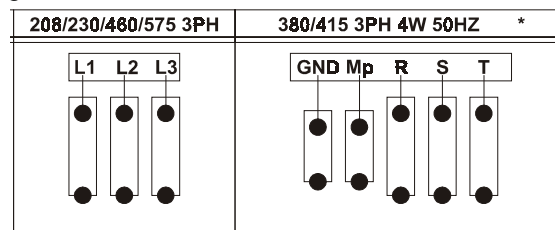
Electrical Connection:

Open electrical access door on the front of the electrical panel enclosure box by turning the disconnect off and loosening the screws on the clamping tabs for the door. Locate the disconnect by following the operating handle down to the electrical panel.

Insert the incoming power cable or conduit through the hole provided on the side of the enclosure.

« **use approved wire and fastening means** «

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



NOTE:

When 3 wire supplies are used in place of 4 wire supplies, a control transformer is required.

3 PHASE DRYER INSTALLATION
CHECK FOR CORRECT MOTOR ROTATION
BEFORE RUNNING DRYER

To check blower motor rotation.....

Turn on the power to the dryer and turn the **START/STOP** Actuator on the dryer's electrical panel enclosure and quickly press the **E-STOP** button. Observe the cooling fan on the blower motor. The motor should rotate in a "clockwise" direction or as shown by the arrows on the blower housing. If the motor is rotating counterclockwise, switch any two adjacent supply wires.

Process Air Thermocouple Connection:

The dryer is supplied with a 6' long 0.125" Type J Thermocouple with a 18 foot armored connecting cable and compression fitting.

Install the compression fitting into the inlet port of the material hopper and insert the thermocouple so the tip of the probe is situated in the center of the air stream and tighten the compression fitting.

Connect the cable to the thermocouple plug on the side of the dryer's electrical panel enclosure.

The unit is now ready for operation.

Dryer Start-up

START-UP PROCEDURE

To start dryer follow the instructions below.

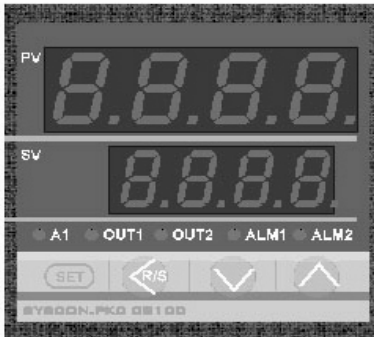
Turn disconnect to the ON position.

Turn START/STOP Actuator to RIGHT and release.

1. Green ON light indicates there is power on.
2. Blower starts.
3. Amber Heater light indicates heaters on.
4. To set the process air temperature see following section.
5. Upper display on controller indicates actual process air temperature.
6. Lower display on controller indicates process air temperature set point.

Setting Process Air Temperature

Using the Digital Temperature Controller pictured to the left:



Press **SET** button and the red Temperature Set display (labeled SV) will flash.

Press the < to move cursor to desired digit and press up arrow to increase temperature and down arrow to decrease temperature set point.

Press **SET** again to enter the new temperature.

If the upper Process Air Temperature display (labeled PV) flashes, the temperature is out of the lower control range. The display will flash until the temperature rises above low limit.

If the display shows 0000 the thermocouple is not connected or is faulty.

Dryer Shutdown

Routine Shutdown

To stop the dryer, turn the START/STOP Actuator to the LEFT. The dryer heaters will shut off as indicated by the amber light, but the blower will continue to run for one minute to allow the heaters to cool. The blower will then shut off. Return the START/STOP Actuator to the neutral position.

Emergency Shutdown

Should the need arise to stop the dryer due to an emergency situation, simply press the red E-STOP button on the electrical panel enclosure. This will shut off power to the blower and heaters.

CAUTION: Do not use the E-STOP for routine shutdown.

Operating the Dryer

DRYER OPERATION & ROUTINE MAINTENANCE

The Hot Air Dryer series is equipped with several features to facilitate their safe operation. Each dryer is equipped with a process air heater safety override that will actuate in the event the heaters “run away”, as well as a “Heater Cool Down” cycle, that keeps the blower operating for a short period of time after the dryer is shut down.

Heater Cool Down

To facilitate a quicker cooling of the process heaters, the dryer blower will operate for approximately one minute and then automatically stop after the dryer is shut down using the START/STOP actuator. **This feature will not actuate if the dryer is shut down by pushing the E-STOP button.**

High Temp Safety Override

The dryer is equipped with a safety snap disc located in the heater terminal compartment of the heater box. This snap disc will actuate when the temperature exceeds 550 degrees F, cutting power to the heaters. The blower will continue to operate so that the heaterbox will not overheat and must be shut down manually with the START/STOP actuator. The heaters will not operate until the unit cools down.

Routine Maintenance

Our Hot Air dryers are capable of operating in heavy industrial to clean room environments with no significant loss in performance. In order to maintain this high level of performance, the operator should take the following steps:

Hopper Maintenance/Material Control

1. In order to ensure that material is sufficiently dried;
 - a. The material hopper should be kept filled to a constant, predetermined level to allow sufficient dwell time in the hopper to dry the material
 - b. To ensure proper air flow through the hopper, always keep the level of material above the spreader cone on the diffuser basket, ensuring that it is completely covered.
 - c. Routinely clean the hopper and diffuser basket by removing the spreader cone assembly and blowing the basket and hopper out with compressed air.
 - d. Do not overfill the hopper, blocking the exhaust port at the top.

Filter Maintenance

1. Routinely remove and clean the filter element (Strongly recommended that this be performed **weekly**.) by blowing it

out with compressed air. DO NOT OPERATE DRYER WITHOUT FILTER ELEMENT INSTALLED.

Heater Maintenance

Annually check terminal connections on each heater element for looseness. Ensure that they are tight to prevent overheat conditions.

BASIC TROUBLESHOOTING

Basic Trouble-Shooting

In the unlikely event that an operating failure should arise, take the following steps to troubleshoot the problem.

1. Blower does not rotate:

- a. Check incoming power fuses or circuit breaker
- b. Check all dryer fuses with multimeter.
- c. Check blower overload.

2. Inaccurate process air temperature readout:

- a. Ensure thermocouple tip is situated in center of air stream.
- b. Check hose connection.
- c. Check Heater ON light.

3. Air Flow Circuit:

- a. Check outlet port on hopper and ensure that no material is obstructing air flow through hopper.
- b. Make sure that process air hose is properly connected, not crushed, and free from obstructions.
- c. Inspect filter and make sure cover is tight and the filter element is clean.

4. Temperature Controller display flashing:

- a. Check for open or disconnected thermocouple.
- b. Temperature exceeded "High Limit".
- c. Check thermocouple location.

5. Process Air Heaters will not actuate

- a. Allow dryer to cool. Safety snap disc may have tripped.
- b. Check safety snap disc in heater box.

6. Operating Conditions:

- a. Check the process temperature. It should **not** be set below 125 degrees F (52 degrees C) or above 250 degrees (121 degrees C).

PARTS LIST

HA750 & 1000

GENERAL

DESCRIPTION

PART NO

Blower Filter Element	83233
Thermocouple (Process)	82163
Blower - 750-1000CFM (480v)	83674
Blower - 750-1000CFM (575v)	83747
Process Air Hose - 6"	83715
Caster (Swivel)	81799
Caster (Fixed)	81798

ELECTRICAL

NOTE:

*TO ORDER BLOWERS OR
OVERLOAD REFER TO
PART NUMBER ON ITEM.*

*IEC CONTACTOR/OVERLOADS
USED IN ALL FM, PD, HA & HM
DRYERS AND CLL POWER
PACKS WITH SERIAL NUMBERS
GREATER THAN D14650*

Disconnect (480v)	82714
Disconnect (575v)	83684
Transformer (480v)	80063
Transformer (575v)	82713
Blower Overload (480v)	82683
Blower Overload* (480v)	84858
Blower Overload (575v)	82731
Blower Overload*	84857
Solid State Heater Relay	84817
IEC Contactor (Blower)	80576
IEC Contactor* (Blower)	84860
IEC Contactor (Heater)	84818
Start/Cool Down Switch	84547
E-Stop Button	81314
Disconnect Handle	82729
Digital Controller	84016
Single Pole Relay	82496
Timer	83442
Amber Light	80074
Green Light	80073

HEATERS

480V 600V

Process	82159	84458
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PARTS LIST

HA1500

	<u>DESCRIPTION</u>	<u>PART NO</u>
<u>GENERAL</u>	Blower Filter Element	83233
	Thermocouple (Process)	82163
	Blower - 750-1500CFM (480v)	83674
	Blower - 750-1500CFM (575v)	83747
	Process Air Hose - 6"	83715
	Caster (Swivel)	81799
	Caster (Fixed)	81798
<u>ELECTRICAL</u>	Disconnect (480v)	82174
	Disconnect (575v)	83684
	Transformer (480v)	80063
	Transformer (575v)	83562
	Blower Overload (480v)	82683
	Blower Overload* (480v)	84858
	Blower Overload (575v)	82731
	Blower Overload* (575v)	84857
	Solid State Heater Relay	84817
	IEC Contactor (Blower)	80576
	IEC ConTactor*	84860
	IEC Contactor (Heater)	84818
	Start/Cool Down Switch	84547
	E-Stop Button	81314
	Disconnect Handle	82729
	Digital Controller	84016
	Single Pole Relay	82496
Timer	83442	
Amber light	80074	
Green light	80073	
<u>HEATERS</u>		<u>480V</u> <u>600V</u>
	Process	82159 84458

NOTE:
*TO ORDER BLOWERS OR
OVERLOAD REFER TO
PART NUMBER ON ITEM.*

*IEC CONTACTOR/OVERLOADS
USED IN ALL FM, PD, HA & HM
DRYERS AND CLL POWER
PACKS WITH SERIAL NUMBERS
GREATER THAN D14650*

