



REFRIGERANT/DEHUMIDIFYING HOPPER DRYER Model MD-750-50

Item #119916 / Item #119920

INSTRUCTION MANUAL



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SAFETY SUMMARY

This manual uses the following words to show different levels of danger:

DANGER means that you are very likely to be killed or injured if you don't take the needed steps to avoid the hazard. This is the highest level of warning.

WARNING is for a situation where you could be killed or injured if you don't avoid the hazard.

CAUTION means you could receive moderate or minor injuries, or equipment could be damaged if you don't avoid the hazard.

The following are some general alerts that apply to this machine:

DANGER

LIVE ELECTRICAL CONTACTS could cause DEATH or SHOCK.

Lock out and tag out power before doing service.

Only qualified electricians are to do electrical work.

WARNING

CHANGES TO MACHINE could cause DEATH, INJURY or DAMAGE.

Do not modify this machine without approval of IMS Company.

SPECIFICATIONS

Voltage	230/60/3 or 460/60/3 (check serial tag on machine)
Capacity	Up to 300 lbs/hr, depending on material and its moisture content
Temperature Control	Solid state controller, 0 to 400°F, with 450°F high heat limit
Air-out Connection	1-1/2" NPT; accepts standard 1-7/8" ID hose
Heating Element.....	3-phase 7.5 kW, nichrome coil, duct-type
Blower Motor	1 hp, 3450 rpm
Blower	810 cfm at 1" static pressure
Dehumidifier	
Type	Refrigerating - heavy duty, commercial, continuous service
Compressor.....	1/2 hp, *230/60/1, 15-amp fused
Current Draw.....	6 amps @ *230V (compressor running)
Control	Automatic thermostat, factory set at 34°F to prevent evaporator coil icing
Dimensions:	
Overall.....	51" high (w/ pipe nipple) x 36" deep x 22" wide
Drain Connection	3/8" copper tubing connection, 20" from floor
Weight (crated):	
230 V	435 lbs
460 V	475 lbs

* 460-volt machines step voltage down to 230 for compressor.

DESCRIPTION

The IMS MD750-50 Hopper Dryer is a system for drying and preheating plastic pellets in a hopper. The 750-50 draws air from the plant and chills it to remove moisture. The dried air is then heated in a heating chamber before being blown through an air hose to the hopper. There, a dispersion cone evenly spreads the hot, dry air through the pellets, pulling moisture from the pellets.

Air movement comes from a centrifugal blower. Chilling is by a compressor refrigeration unit. Thermostatically-controlled electric heaters provide the heating. The air hose is silicone.

INSTALLATION

Refer to Figures 1 and 2 on page 10 and 11.

1. Location

The MD750-50 has casters for easy moving.

It is most efficient if used where there is good air movement and little dust. Since long hoses lose heat, use dryer close to hopper and cut hose to length.

2. Drain Connection

Connect the 3/8" drain outlet (located on rear of unit) to floor drain or to a container. If a container is used, assign someone to empty it regularly. The water exiting this tube is room temperature. It is not under pressure.

3. Hose Connection

Attach one end of hose (included with dryer) to outlet on top of dryer and other end of dispersion cone. Use provided clamps to secure hose connections.

4. Dispersion Cone

Set dispersion cone inside hopper. If material cannot flow freely around dispersion cone, legs on cone can be cut or bent to suit taper of hopper.

INSTALLATION (continued)

6. Electrical Connection

- a. Lock out and tag out power to circuit before connecting dryer.
- b. All wiring and connectors must meet national and local codes.
- c. Connect dryer only to voltage it was designed for -- 230/60/3 or 460/60/3. See serial tag on machine.
- d. Hard wire to plant wiring, or use a line cord with a strain relief and plug so unit can be moved. In that case, locate an outlet at every station where dryer is to be used.
- e. Be sure dryer is grounded.

DANGER

LIVE ELECTRICAL CONTACTS could cause DEATH or SHOCK.

Lock out and tag out power before doing electrical work.

Only qualified electricians are to do electrical work.

All wiring must be to code.

OPERATION

1. Loading Hopper

Do not restrict air flow by overloading hoppers. Often, a partly-full hopper will dry material faster and better than a full hopper.

Also, if air flow is poor, the dryer can overheat. Over-temp safety switch would shut heaters down in that case.

NOTE

Too-full hopper will not let material dry well. Do not overfill hopper.

NOTE

To prevent overloading the heater and compressor, the dehumidifier and heaters will not start unless the blower motor is on.

2. Startup

- a. Turn main breaker on. See Figure 3 page 12.
- b. Turn blower on.
- c. Check motor rotation if dryer has just been installed or is connected to new circuit. To check, look through blower-motor access panel and make sure motor is running in direction of arrow on panel. See Figure 2 on page 11.

- Shut off dryer. Lock out and tag out power to circuit.
- Have an electrician change any two power wire connections.

- d. Turn heater on.
- e. Turn compressor on.

3. Duration of Drying Time

- a. Heat draws moisture from center of pellets. Hot, dry air carries moisture away.
- b. Time, temperature and air flow are all important to drying. Ask your material supplier for the best time and temperature for the resin you are drying. Thermostat may have to be set a little higher than that temperature to make up for heat lost through hose.

Check controller readout occasionally to verify that actual temperature agrees with setting on controller.

- c. There must be enough room around pellets for air to flow freely. If hopper is overloaded, drying would be poor and high-heat limit switch could shut down machine.
- d. When good parts are molded, record drying times and temperature, for use next time job is run.

4. Shutdown

- a. Turn off heaters and dehumidifier. Leave blower ON to cool heaters.

DANGER

LIVE ELECTRICAL CONTACTS could cause DEATH or SHOCK

Lock out and tag out power before opening control panel.

- b. After heaters have cooled, turn off blower and main breaker.

CAUTION

Lack of air flow can damage heaters.

When shutting down, let blower run for a few minutes after heater shutoff.

RESETTING CONTACTORS AND MOTORS AFTER OVERLOAD

1. Compressor Contactor
Thermal overload -- automatically resets when contactor temperature drops.
2. Over-Temp Safety Switch
Automatically resets when temperature drops below 400°F.
3. Blower Contactor
Manual-reset button on overload.

DANGER
LIVE ELECTRICAL CONTACTS
could cause DEATH or SHOCK.

Lock out and tag out power before
opening control panel.

REFRIGERATION TEMPERATURE ADJUSTMENT

Hopper dryer is factory-set for 34°F temperature at refrigerator coil. Ideal range is 34° to 40°F. Actual temperature may be different from place to place and from season to season, depending on temperature and humidity.

Check evaporator coil temperature after installation or if you think unit is not drying material as well as it should. For example, if little or no water comes out drain outlet on a humid day, refrigeration temperature may be too high.

1. To check, remove intake filter and use contact thermometer. Do not puncture coils or fins; refrigeration gases would leak out.
2. To lower refrigerator coil temperature:
 - a. Improve Air Flow
 - (1) Do not restrict air flow by overloading hoppers. Often, a partly-full hopper will dry material faster and better than a full hopper.
 - (2) Keep coils and filters clean.

NOTE

Do not set refrigeration temperature too cold; coil could freeze up.

Unit would not work until coil thawed.

b. Adjust Refrigeration Control

- (1) Disconnect and lock out power to hopper dryer.
- (2) Loosen spring latch at top of control panel. Top of panel will hinge forward.
- (3) Refrigeration control is a knob on inside left wall.
Turn knob one number; higher number gives lower temperature. Entire range of control is about 12°F.
- (4) Close control panel door and re-start dryer.
- (5) Monitor coil for 30 minutes. Readjust if needed, one number at a time.

MAINTENANCE

1. Intake-Air Filter

- a. Clean or change intake-air filter when dirty.
- b. Gently clean evaporator coil behind filter (Figure 2, page 12) when it is dirty. Use soft-bristle nylon brush (included) to loosen dirt and dust on coil. Be very careful not to bend fins on coil.
- c. Use vacuum cleaner to remove dirt and dust.

2. Condenser Coil

Clean condenser coil weekly. To do this:

- a. Loosen spring latch on bottom of condenser cover. Swing cover up.
- b. Be very careful not to bend fins on coil.
- c. Gently use soft-bristle nylon brush (included) to loosen dirt and dust on coil.
- d. Use vacuum to remove dirt and dust.
- e. Close condenser cover. Secure latch.

CAUTION

Dirty condenser coil could make compressor fail.

Keep coil clean.

TROUBLESHOOTING

1. Unit won't start

- Is main circuit breaker tripped?
- Is blower contactor tripped?
- Are any fuses blown?
- Is over-temp safety switch tripped?
- Are there loose power lines at terminal, or broken wire.

- Is there correct voltage in all three phases?
- Is main circuit breaker faulty?
- Is control transformer good?
- Is wiring good?
- Is motor internal overload defective?
- Check for seized motor shaft or bearing.
- Is fan loose or broken?

2. Unit stops drying; compressor won't start

- Is COMPRESSOR ON/OFF switch in ON position?
- Check compressor temperature controller. Is it set to low number (lower number means higher temperature)?
- Is compressor contactor tripped?
- Are fuses good?
- Are there any loose connections or broken wires.
- Is compressor's external overload-protector defective?
- Check for dirty condenser.
- Check for failed fan motor.
- Is fan shaft or bearing seized?
- Is dryer filter clogged.
- Is there a restriction in air intake? In refrigeration line?

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TROUBLESHOOTING (continued)

3. Compressor runs all the time, even when not heavily loaded
 - Is compressor temperature controller set to too high a number? (Too-high number means too-cold temperature.)
 - Have qualified refrigeration technician check system for leaks.

4. Unit stops heating
 - Check main temperature controller.
 - Check over-temp safety switch.
 - Check heater control relay.
 - Check heater coils.

**REPLACEMENT PARTS
For 460 Volt 3-Phase**

Air Filter	108508
Blower Motor, 1 hp.....	121742
Blower Fan Assembly	128314
Blower Motor Starter (CR2)	106297
Blower Motor Overload	107470
Main Circuit Breaker	106234
Indicator Light	160671
Transformer	110909
Transformer Primary Fuses	115697
Transformer Secondary Fuse	112284
Heater Fuses	107475
Compressor Fuses	108031
Heater Rack & Coil Assembly.....	108363
Heater Contactor (CR1).....	106192
Compressor Contactor (CR3)	106196
Over Temp Safety Switch	109406
Main Temp Controller	134332
Main Thermocouple	146646
Main Start/Stop Switch.....	158874
Compressor Assembly.....	113218
Compressor Temperature Controller	108836
Compressor Drier	159677
Coil Brush	108501
Freon 134A	

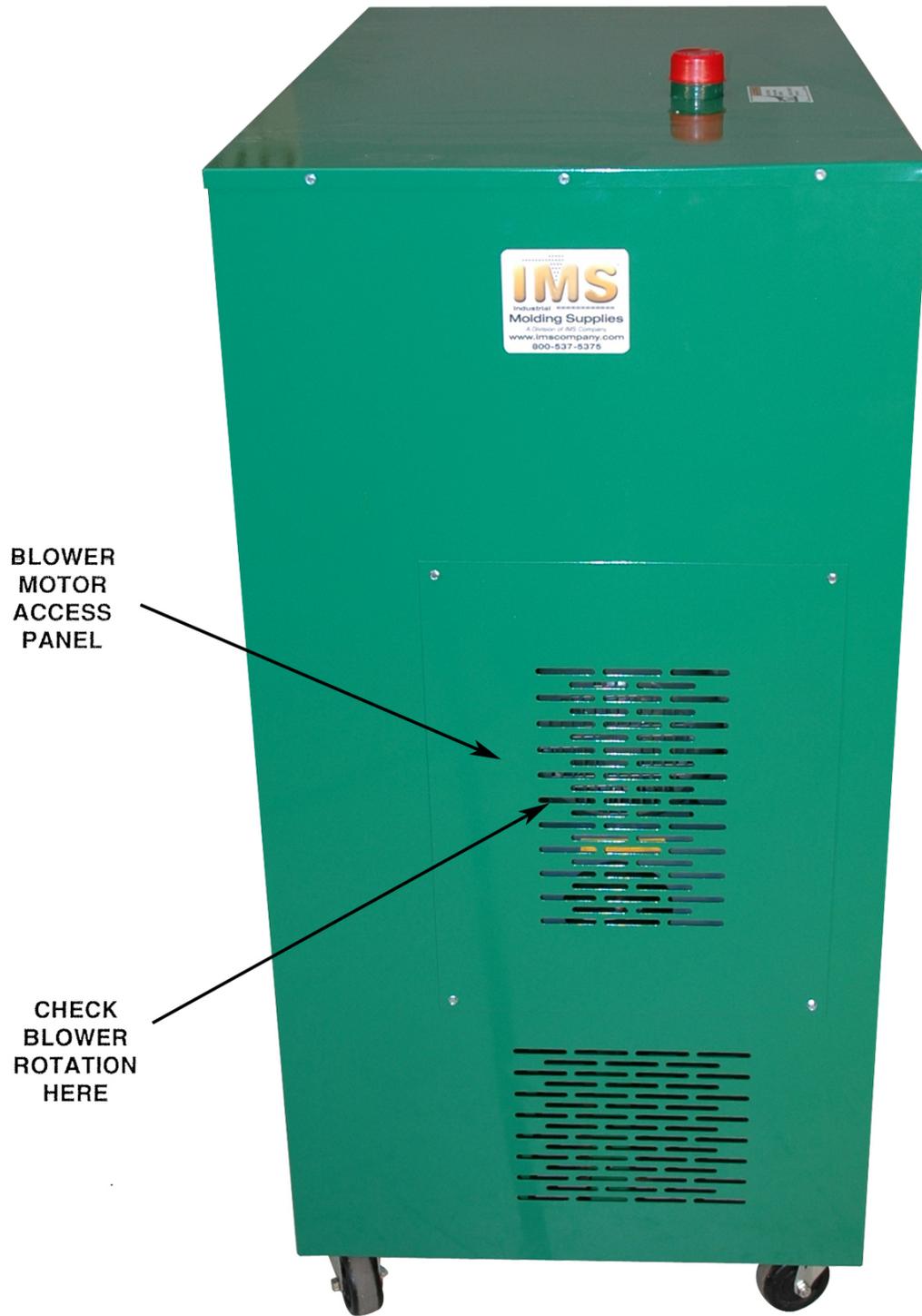
REPLACEMENT PARTS
For 230 volt 3 phase

Air Filter	108508
Blower Motor, 1 hp	121742
Blower Fan Assembly.....	128314
Blower Motor Starter (CR2)	106297
Blower Motor Overload	106133
Main Circuit Breaker (230V).....	106156
Indicator Light (Amber)	106263
Transformer (230V).....	108173
Transformer Primary Fuses (230V)	111930
Transformer Secondary Fuse (230V).....	112284
Heater Fuses	107314
Compressor Fuses	108031
Control Fuse	112284
Heater Rack & Coil Assembly (230V)	108372
Heater Contactor (CR1)	106192
Compressor Contactor (CR3)	106196
Over Temp Safety Switch	158510
Main Temp Controller	134332
Main Thermocouple	146646
Main Start/Stop Switch.....	158874
Compressor Assembly.....	113218
Compressor Temperature Controller	108836
Compressor Drier	159677
Coil Brush	108501
Freon 134A	

**Typical MD-750-50
HOPPER DRYER**
Figure 1

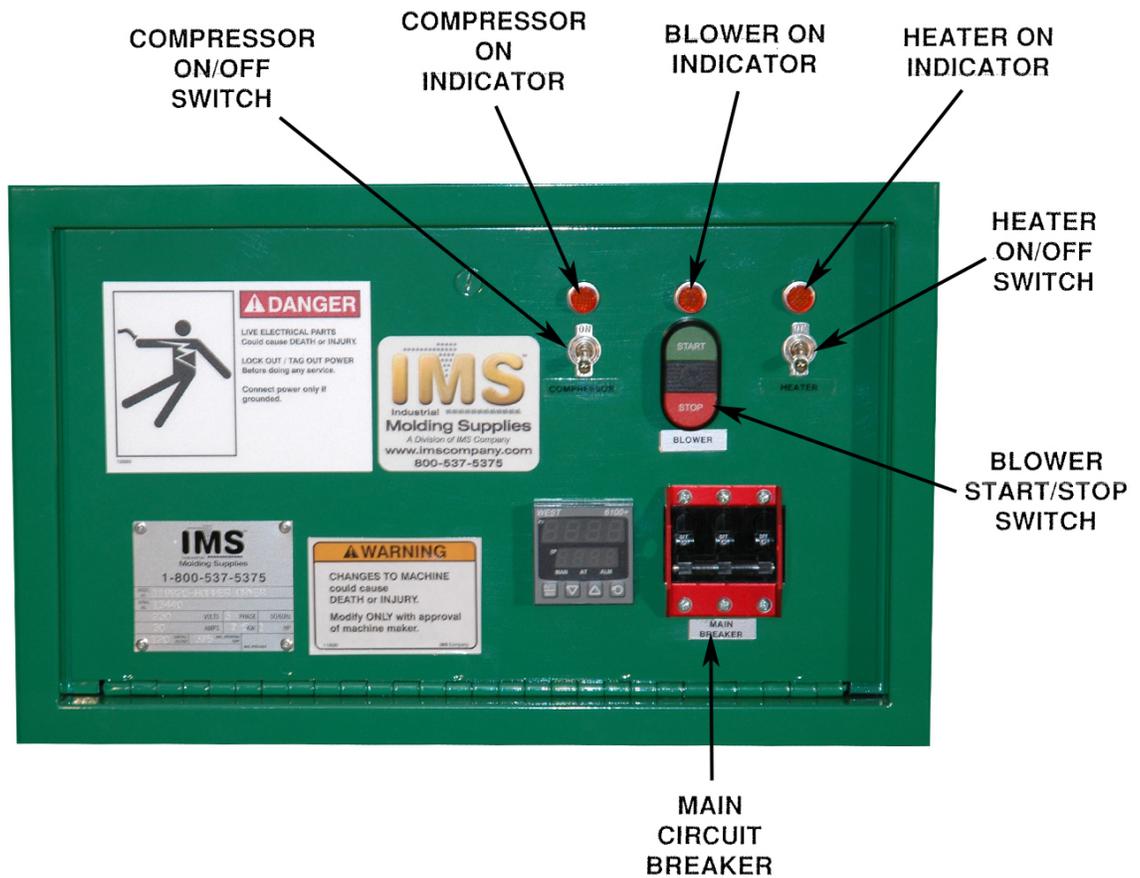


**Typical MD-750-50
HOPPER DRYER**
Figure 2



Typical MD-750-50 HOPPER DRYER

Figure 3



NOTE:
Compressor and Heater
will not come on unless
blower is on.

*ELECTRICAL SCHEMATIC
MD750-50 HOPPER DRYER
230/60/3*

