A-PDII & H-PDII
OPERATING MANUAL

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DRYER OPERATION/ FEATURES

The PDII model dryer is a portable, dual hopper, self contained resin drying system. The PDII dryer series was developed to accommodate the customer who utilizes multiple resins and wishes to minimize mold press down-time by drying the resin prior to the material change-over. The PDII dryer can also be configured to allow the user to simultaneously dry and feed virgin and regrind, or two different resins.

Separate drying controls for each hopper give the operator the flexibility to dry at two different temperatures or allow the user to operate only one hopper to facilitate the cleaning and filling of the other hopper. These controls automatically divert air flow to and from each hopper and require no operator intervention other than actuating the control switch and setting the temperature.

Easy access to each hopper interior and takeoff box make cleaning quick and simple.

Each dryer can be equipped with various material feed and loading options which include:

Single and Dual Closed Loop Loaders that prevent material contamination by utilizing desiccated air to feed material to the receiver on the mold press.

Vacuum and DAC loaders that allow greater flexibility when dealing with a large volume of material.

Fixed and Variable Speed Auger Mixing packages that allow the user to blend virgin and regrind, and typically outperform standard proportional mixing systems that rely on vacuum and time for control.

Quick Disconnect material Feed Lines that allow for easy swapping of material lines between hoppers.

These options are discussed in more detail later in this manual.

ARID-X Design

The ARID-X dryer series is a dual bed design that provides a constant supply of dry air to the material hopper. While one bed is removing moisture from the process air the other is regenerating by heating the desiccant to a high temperature. Once the regenerated bed cools down, the Zone Valve switches the airflow, and the newly regenerated bed is used to desiccate the process air stream. The saturated bed is now regenerated in the same manner, completing the regeneration cycle. The cycle is depicted Page 10.

The airflow design of the ARID-X dryers makes the regeneration cycle more efficient because we utilize a small amount of the desiccated process air rather than ambient air to regenerate the desiccant bed. This reduces the impact of the high moisture content of the ambient air, which would contaminate the desiccant bed, and allows the dryer to attain a lower dew point. Please see the Air Flow Schematic on Page 8.

HP4-X Design

Our patented HP4-X design incorporates 4 desiccant beds where two are stacked, one over the other. This nearly doubles the amount of desiccant available for drying the process air stream, and because of the tower design, the dryer is able to regenerate the desiccant in the same time as our ARID-X series. This allows the dryer to operate in very high humidity conditions without affecting the process air dew point. In fact, this design produces dew point levels of – 40’ to -80’ C for faster more complete drying of your material. Please see the Air Flow Diagram on Page 9.

Hopper Design

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 quick cleaning for material changes as well as proper material flow to ensure that the material is dried efficiently and no dried material is left at the hopper bottom that needs to be fed out prior to operating. You must ensure that your hoppers are adequately sized for your usage rate and are kept filled, to ensure that you have sufficient time to dry the material.

Closed Loop Loading System

Dri-Air's closed loop loading system utilizes a dedicated blower, small receiver, filtration system and desiccated air to move the material from the dryer hopper to the molding machine. This eliminates the possibility that your material will be contaminated with moisture as with some other material transfer systems, helping to eliminate defects resulting from moisture contamination.

The PDII series dryers have an additional option of a Dual Closed Loop Loading System. This allows the operator to feed different materials from each hopper to two separate presses or load the material hopper and molding press receiver with the same blower. Please refer to the Closed Loop Loader System section of this manual for proper installation and maintenance.

Dryer Controls

The PDII series can be supplied with the standard PLC Control or the advanced Microprocessor Control Modules. PDII dryers supplied with the HP4-X option are only available with the Microprocessor Control Module. Each of these modules controls and monitors the dryer's regeneration cycle, operational hardware and their associated alarms.

PLC Module

The PLC Control module includes a PLC control board, display board and touch pad that is programmed for the drying cycle described previously. The display board and touch pad indicate the machine status and alarms. These are explained in more detail later in this manual.

Microprocessor Module

The Microprocessor Control Module is one of the most sophisticated yet operator friendly controls on the market. It has many more features than the PLC control module that provide the operator with more control and operational flexibility with the dryer. These features and the operating instructions are covered in detail in the Microprocessor Control Instruction Manual included with your dryer.

Process Air Controls

The process drying temperatures for each hopper are controlled by a digital controller dedicated to that hopper.

The digital controller is used to set, display and monitor the process air temperature, as well as, actuate alarms if a situation should arise.

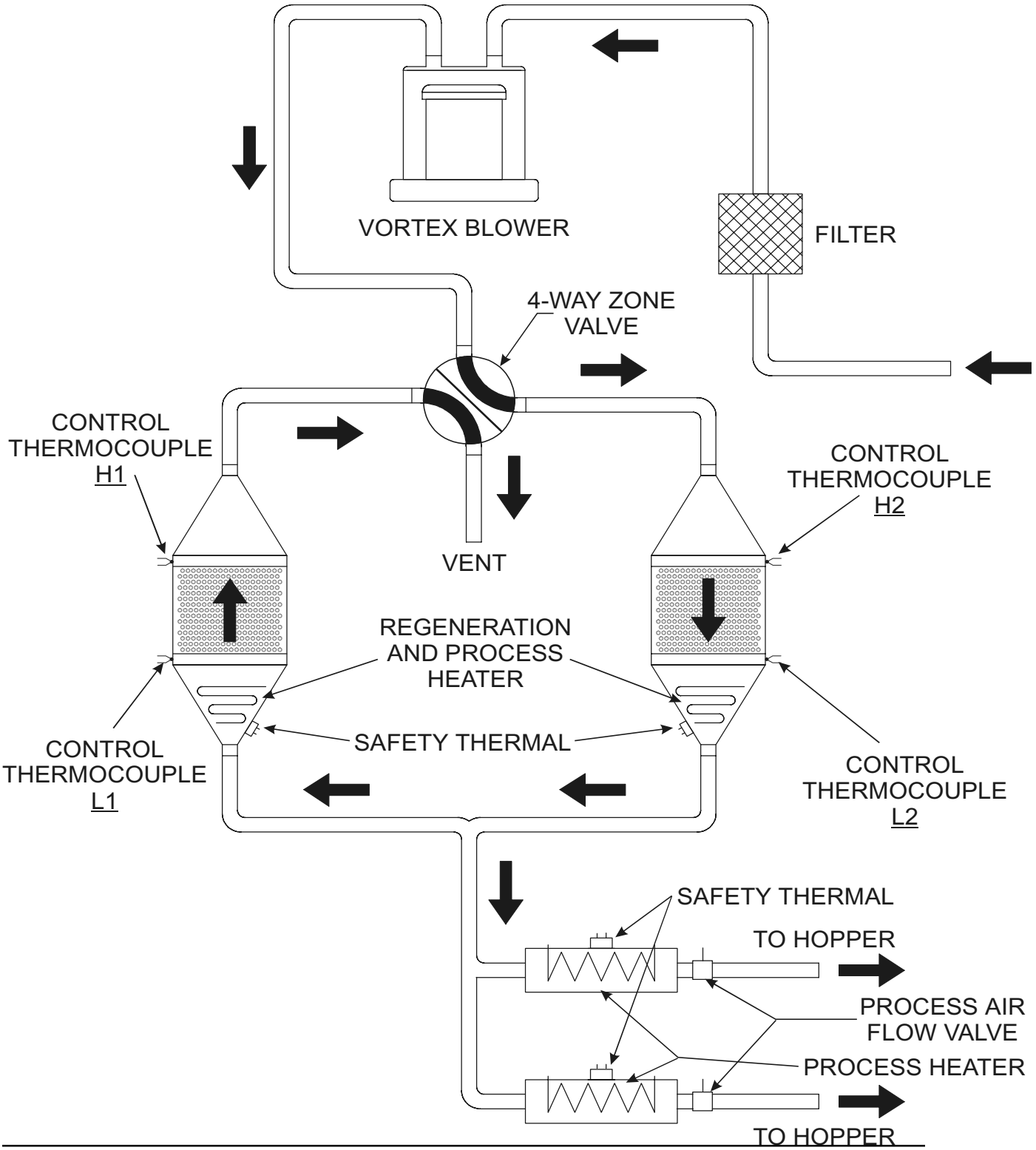
To allow for greater flexibility, each hopper can run independently. Each hopper can be set to a different temperature while still using a common dry air source.

Airflow to the hoppers is controlled by pneumatic valves on the air inlet lines to the process heaters and the hopper return air lines. The valves are opened when the corresponding toggle switch on the dryer control panel is actuated.

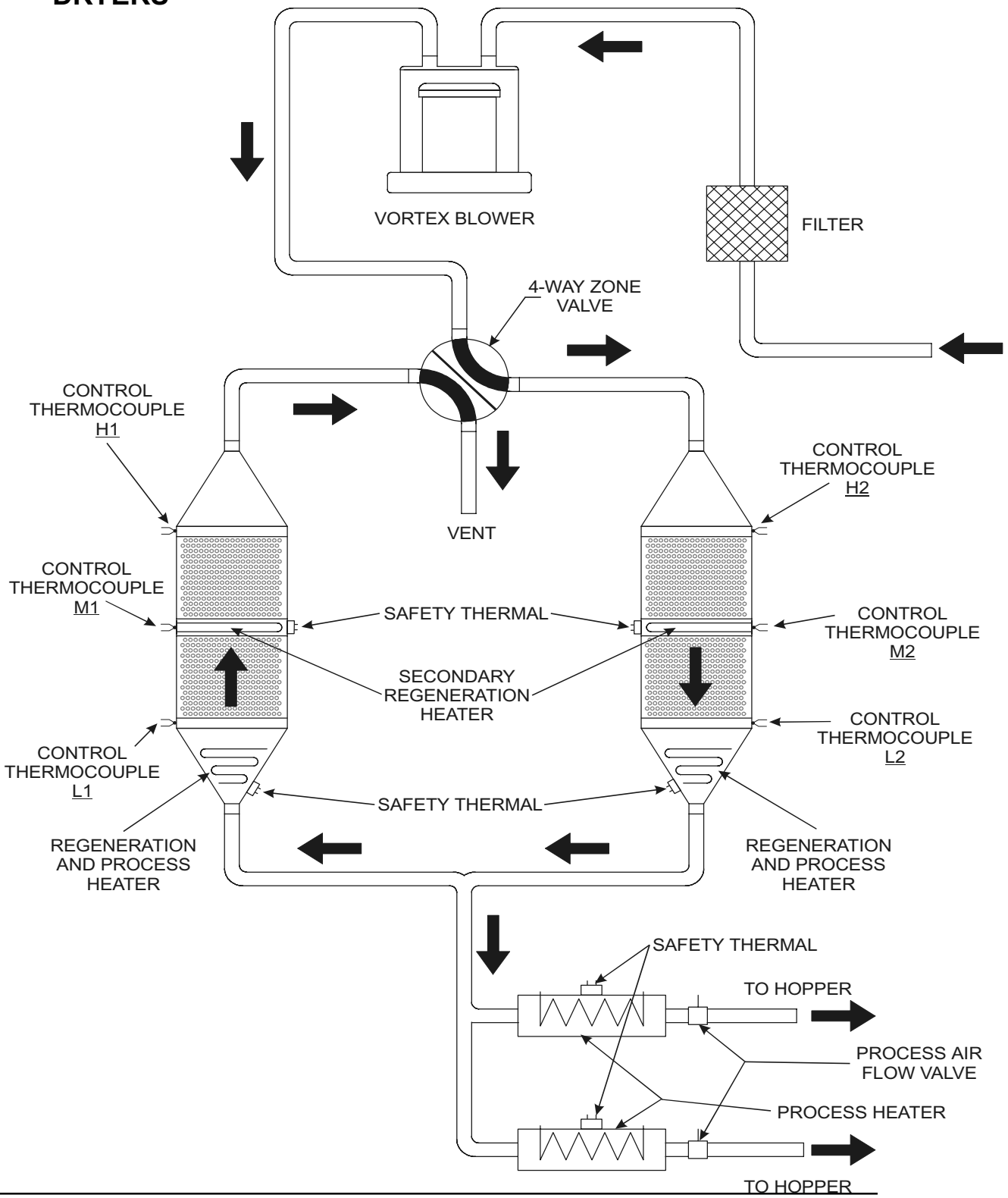
Auger Feeding/Mixing

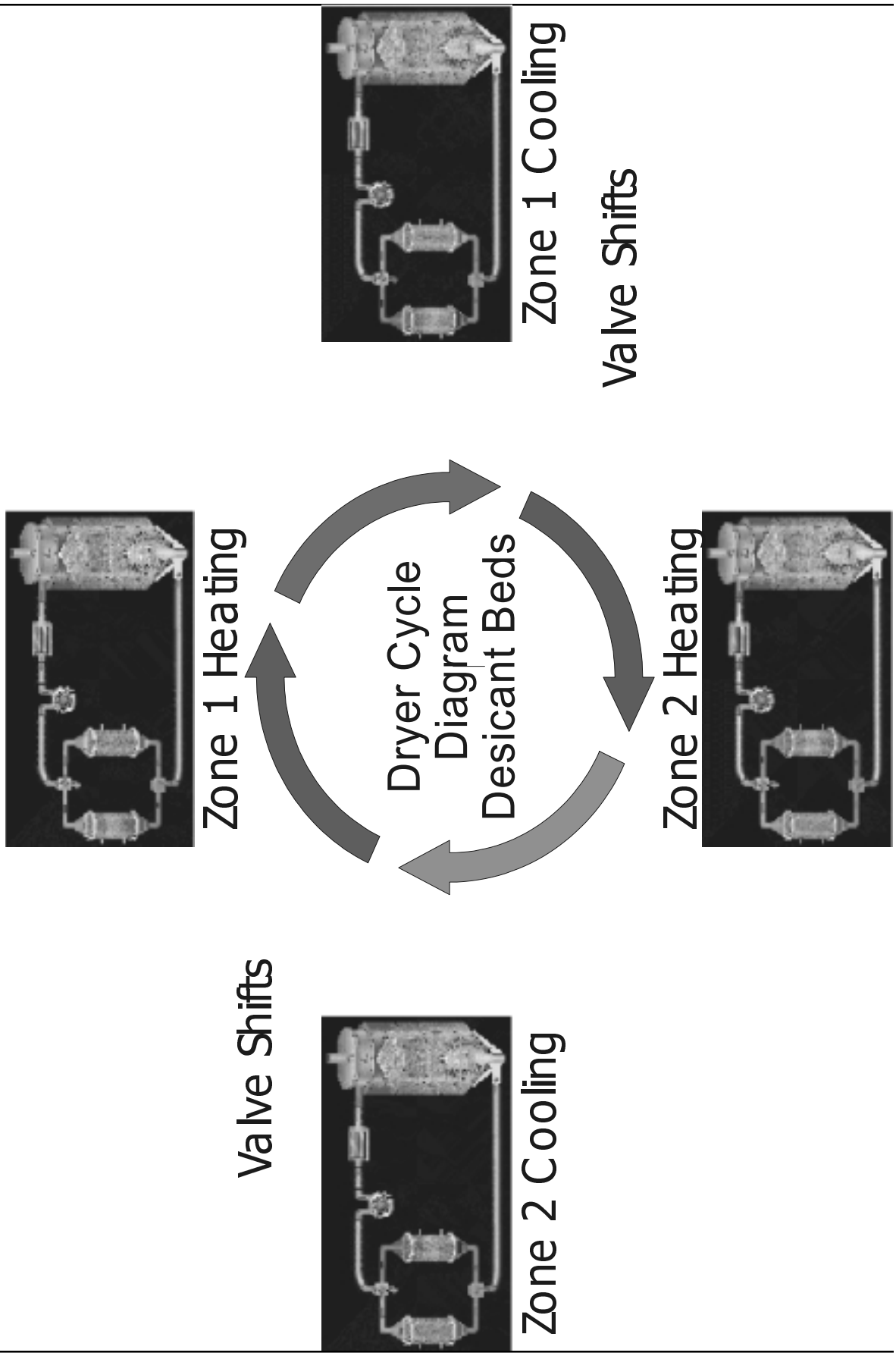
The Auger Feed System can be used to feed and blend materials from each hopper. A fixed speed auger is used in conjunction with a variable speed auger to accurately blend materials at various rates and proportions. This feed system can be utilized to blend materials at ratios ranging from 5 to 75 percent with tolerances of +/- 2%. This auger based system utilizes volumetric metering that offers greater flexibility and accuracy than the standard proportional systems that rely on vacuum efficiency and time to properly proportion the materials and eliminate the layering problems commonly associated with these systems.

AIR FLOW SCHEMATIC FOR A-18 to A-100PDII DRYERS



AIR FLOW SCHEMATIC FOR H-18 to H-100PDII DRYERS

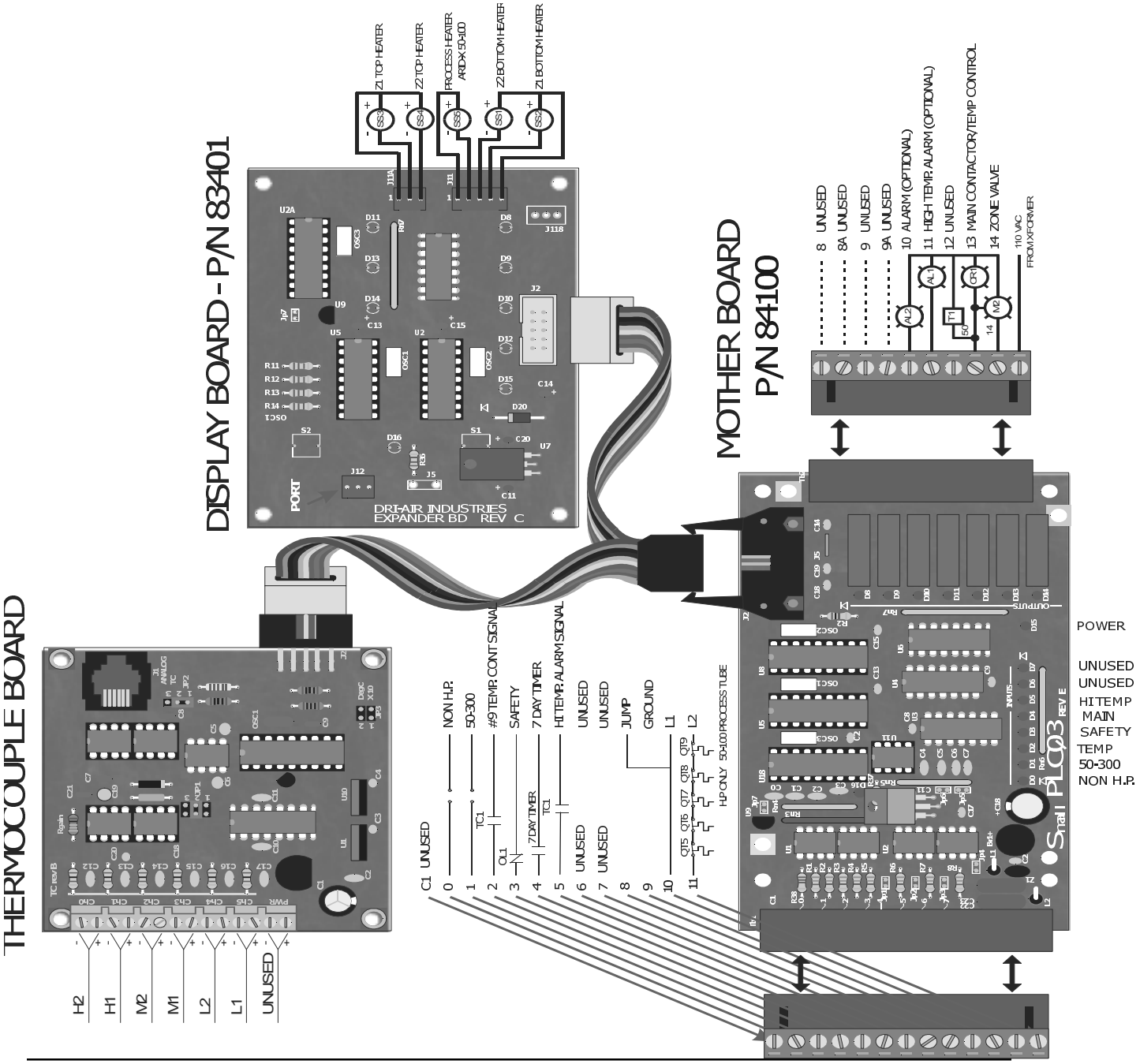



Zone 1 Cooling
Valve Shifts
Zone 1 Heating
Dryer Cycle
Diagram
Desicant Beds
Zone 2 Heating
Valve Shifts
Zone 2 Cooling

PLC STANDARD ELECTRICS

The control package includes a PLC controller which is programmed for the drying cycle previously discussed. The display board indicates the machine status, heater operation and alarms. See section on start up for details.

Below are descriptions of the inputs and outputs of the PLC which are used for trouble shooting. A lit LED indicates the input or output is actuated. All inputs are 12 volts AC and all outputs are 110 volts AC and 15 v DC to the heater relays. Refer to the electrical schematic for more detail.



INSTALLATION PROCEDURE

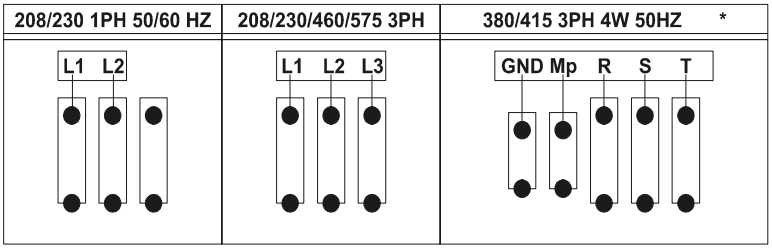
Electrical Connection:

Open electrical access door on the electrical panel enclosure by turning the disconnect off and loosening the bolt on each door clamp and sliding the clamp off the retainer. 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 machine.

« ***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.....
Connect compressed air and turn at least one hopper on. The blower can be observed directly under the tower cabinet. Turn on the power to the dryer and press the **ON/ START** touch pad and then immediately press the **OFF/ STOP** touch pad. Observe the cooling fan on the top of the blower motor and verify the fan is turning clockwise. If the motor is not turning clockwise, switch any two adjacent supply wires.

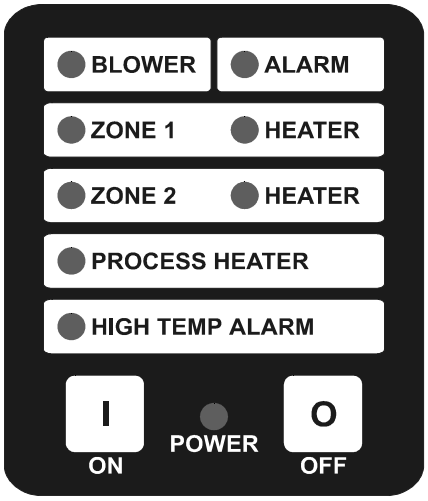
Compressed Air Connection:

Compressed air is required to operate the airflow control valves and the closed loop loader option. A minimum of 60 psi is required, maximum not to exceed 145 (1.0 mpa).

Thread connecting nipple and attach compressed air hose to inlet located below Tower Cabinet. The compressed air system includes a regulator that is factory set to the proper pressure and an automatic drain water separator.
IMPORTANT - DRYER WILL NOT OPERATE UNLESS COMPRESSED AIR IS CONNECTED.

The unit is now ready for operation.

START-UP PROCEDURE
Std. Electrics - PLC



Standard Electrics Option- PLC Controlled Dryers

Depicted on the left is the Dryer Control Panel Touch Pad and Display located on the front of the Electrical Panel Enclosure. The control panel allows the operator to start the dryer and observe the status of the regeneration cycle and alarm conditions. To start the dryer, please do the following:

Ensure compressed air is connected.

Turn on the Hopper 1 or Hopper 2 process air controls by actuating the appropriately labeled toggle switch located on the front of the Electrical Panel Enclosure. **IMPORTANT - The dryer will not operate unless one of the above mentioned switches are actuated.**

Turn power on by actuating the main disconnect.

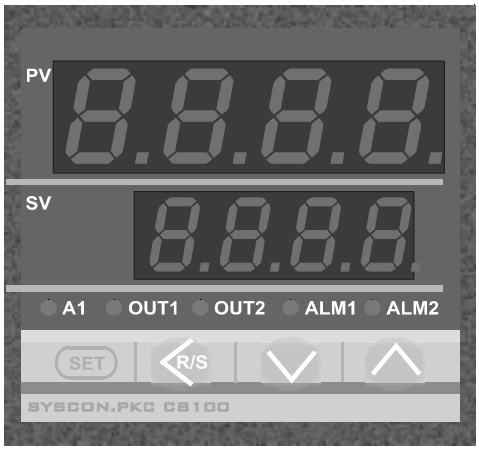
1. POWER light indicates power to the unit is on.

Press ON button on key pad.

2. Illuminated BLOWER light indicates Blower is on and system is ready.
3. Flashing ZONE light indicates which bed is in Regeneration cycle.
4. Steady ZONE light means bed is in cooling cycle.
5. Illuminated HEATER lights indicate heater is on.

Alarm Conditions:

6. Flashing HIGH TEMP. ALARM indicates an over or under temp alarm. Unit shuts down.
7. Steady HIGH TEMP. ALARM light indicates thermocouple has failed. Further diagnostics are required.
8. Flashing ALARM light indicates safety override condition has occured. Dryer shuts down.



Depicted on the left is the display and touch pad associated with the Digital Controllers used to monitor and control the process air temperatures for each hopper. To set the temperature, do the following:

Press SET button - temperature set point display (SV) will flash.

Press up arrow to increase temperature and down arrow to decrease temperature.

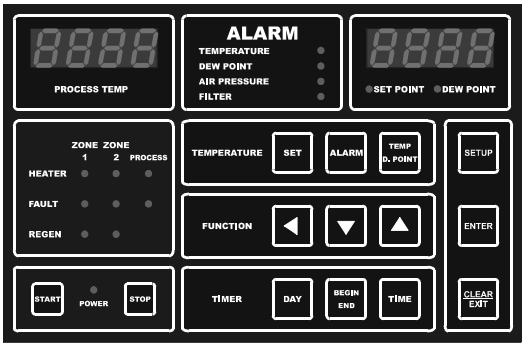
Press SET again to enter the new temperature setting.

If the upper “Temp. Readout Display” (PV) flashes, the temperature is out of the control range.

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

START-UP PROCEDURE
Microprocessor Control

Depicted on the left is the Dryer Microprocessor Control Display and Touch Pad located on the front of the Electrical Panel Enclosure. The control panel allows the operator to start the dryer and observe the status of the regeneration cycle, process air dew point and alarm conditions. To start the dryer, please do the following:



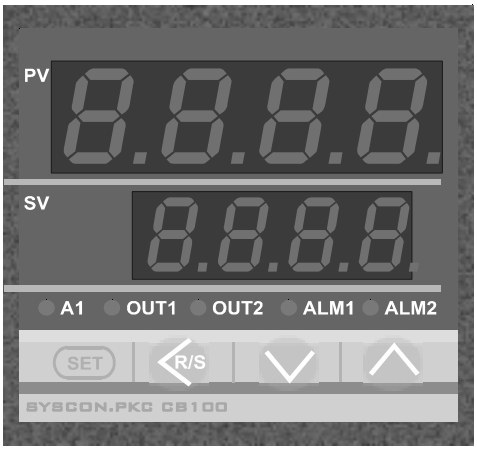
Turn power on to dryer by actuating the main disconnect. The POWER light on the Dryer Display should illuminate and the dryer will initialize.

Ensure compressed air is connected.

Turn on the Hopper 1 or Hopper 2 process air controls by actuating the appropriately labeled toggle switch located on the front of the Electrical Panel Enclosure. **IMPORTANT - The dryer will not operate unless one of the above mentioned hopper switches are actuated.**

After the dryer has initialized and ***dri Air*** is displayed, press the START button located on the Dryer Control Touch Pad. Observe the following:

1. Left display indicates actual temperature of process air ***prior*** to Process Air Heater.
2. Right display reads ***Pd II*** or Process Air Dew Point. To observe dew point, press TEMP D.POINT button on Dryer Control Touch Pad.
3. Status block indicates heater on, heater fault and regeneration status.
4. See Microprocessor manual for setting 7-day timer.
5. Configuration of the dryer parameters is done using the SETUP button. See Microprocessor manual.



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Press SET again to enter the new temperature setting.

If the upper “Temp. Readout Display” (PV) flashes, the temperature is out of the control range.

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

After completing the dryer installation and start-up procedures, the unit is ready for operation unless it has been equipped with the options discussed below. Prior to beginning operation of the dryer, you may need to install and set up the optional components/systems that accompanied the unit. The Closed Loop Loading and Auger Feed/Mixing Systems or the Vacuum Loaders will require additional installation steps.

To install and operate the Vacuum Loaders, simply follow the procedures detailed in the Instruction Manuals included with loaders that were shipped with your dryer. These options will require separate power and compressed air sources, and operate independently of the dryer's controls.

The Closed Loop Loading and/or Auger Feed/Mixing systems require integration with the dryer controls and do not operate independently of the dryer. The operating parameters for these systems have been set at the factory and are suitable for most applications. Each system is discussed in detail in the following sections of this manual.

CLOSED LOOP LOADING SYSTEM (OPTIONAL)

The closed loop loading system uses a separate vortex blower to provide the vacuum and “pressure assist” necessary to move the dried resin from the hopper takeoff box to the receiver mounted on the feed throat of the molding machine.

At the start of the loading sequence, the lower proximity switch on the receiver senses there is no material. The blower starts, and the loader valve on the inlet line to the blower is opened. Because the receiver is sealed to the feed throat, a vacuum is created within the take off box, pulling material from the hopper.

The outlet of the blower (pressure side) blows air into the take off box to help move the material to the receiver and close the air loop. When the upper proximity switch on the receiver senses material, the blower is stopped and the loader valve is closed to prevent anymore material from being conveyed and left in the hose to possibly be contaminated with moisture.

To operate the system, complete the installation steps detailed below and turn on the system by actuating the toggle switch labeled LOADER on the front of the electrical panel enclosure. If the Dual Closed Loop Loading option has been installed, please consult the Dual Closed Loop Loader Operating Manual enclosed with your dryer.

RECEIVER INSTALLATION

Prior to installing the receiver, you must inspect the surface of the molding press feed throat that the receiver is being installed upon to ensure that it is clean and flush. Surface irregularities must be removed, or a gasket installed, so that there will be no vacuum leaks between the receiver and feed throat after installation.

IMPORTANT

If the molding machine is equipped with a slide gate, swing arm, starve feeder, additive feeder, or feed throat vent, you must ensure these are sealed, as the system may not work properly. If it is impractical, or impossible to seal off the aforementioned equipment, Dri Air Industries has a Flap Valve, available for purchase, that will enable the loading system to function properly.

To install the receiver, simply drill holes in the bottom flange of the receiver to match the hole pattern on the molding press feed throat and affix the receiver with bolts sufficient to accommodate the operating stresses. A silicone gasket is provided with the receiver to ensure a tight seal between the receiver bottom and the feed throat. Connect the plug for the upper proximity switch into the line labeled H and connect the lower proximity switch plug into the line labeled L. Connect the material feed hose and vacuum hose as

shown in drawing 82222 in the appendix to this manual.

VACUUM CHECK

Prior to production operation of the loading system, we strongly recommend that you ensure the loading system is properly sealed. To test the seal, follow the steps detailed below.

While the loader is running, close the hopper slide gate and remove the material wand and attached hose from the takeoff box. Check the vacuum level by placing your hand over the wand. Return the wand to the takeoff box.

Remove the hose from the bottom port of the blowback filter canister. Place your hand over the filter canister port. Compare this vacuum level to the level observed at the material wand. The two vacuum levels should be the same.

Any difference between the vacuum levels is caused from leaks in the loading system. Check for loose hoses, missing gasket on the cyclone, or other possible sources of leaks described below.

The most likely source is the seal between the feed throat and receiver, or the configuration of the feed throat and material feeder associated with the molding press. The presence of vacuum leaks at these locations may exhibit the following characteristics:

- Material in the receiver may be seen to bubble or move when loading, as a leak at the feed throat causes air to be drawn in at the bottom of the receiver rather than from the take off box.

- Poor transfer of material from the takeoff box to the receiver.

- Large amounts of material or dust being pulled into the blowback filter cannister.

If any of these occurrences are observed, the steps to improve the vacuum seal detailed in the previous section on Receiver Installation will be required.

PROXIMITY SENSOR ADJUSTMENT

The proximity sensors supplied with the receiver may require adjustment to operate properly. When positioning the sensors, ensure that they are placed as close as possible to the outer surface of the receiver as they operate by sensing the density of the material in the receiver. Vertically position the lower sensor to set the material level at which the load cycle will initiate and the upper sensor to

set the material level at which the load cycle will stop. **CAUTION: Do not overfill the receiver as material may be drawn back into the blowback filter canister.**

To adjust the sensor's sensitivity, turn the adjustment screw on the back of the sensor. The adjustment screw turns a 20 turn potentiometer with a clutch to prevent over adjustment. If you are unsure as to the current setting of the sensor, turn the screw 20 turns **counterclockwise**. The LED should light with no material in front of the sensor. Turn the screw 4-6 turns **clockwise** and proceed as directed below.

With no material in front of the sensor, the LED on the back of the sensor should be lit. If not, turn the adjustment screw located on the end of the sensor **counterclockwise** until the LED turns on.

With material in front of the sensor, the LED on the back of the sensor should be off. If not, turn the adjustment screw **clockwise**, until it turns off.

MATERIAL FLOW ADJUSTMENT

Material flow to the receiver should be continuous and smooth. Irregularities in flow rate and volume can be affected by the position of the material wand inserted into the takeoff box or the density of the resin. To adjust the flow, take the steps detailed below.

Upon initial operation of the loading system, push the wand in until it stops. Then pull it out 1 to 2 inches and tighten the set screw on the takeoff box material outlet. Operate the loading system and observe how the material flows into the receiver. If the flow rate is not as desired, the wand can be adjusted **out** to reduce the flow of material conveyed, or **in**, to increase the amount. Typically, loading times are 5-6 seconds for a 2" receiver and 15-20 seconds for the 4" receiver.

If the material flow is irregular, with "slugs" of resin being delivered to the receiver, the wand is most likely pushed too far into the takeoff box. This "chokes" off the air flow required to convey the material, causing the irregular flow. To remedy this condition, pull the wand out slightly and the material will flow more evenly and quickly.

If little or no material is conveyed and there are no blockages in the takeoff box or material hose the wand may be pulled too far out of the takeoff box. Push the wand in until you get the desired flow rate.

CLOSED LOOP LOADER TROUBLESHOOTING

Material will not feed.

1. Ensure the proximity sensors are adjusted and working properly. Both sensors LED's should be lit when the receiver is empty. Check that the sensors are tightened on the bracket and the cable connectors are tight and correct.

2. Check system for leaks. Tighten hose clamps. Check seal at receiver/feed throat interface by comparing vacuum levels as directed in previous section on Receiver Installation.

3. Ensure the blower operates. Check the electrical system to see if the relay is working and that the blower overload is not tripped. Trip window will be orange/yellow if tripped. Check to see that the blower rotation is correct (clockwise).

4. Ensure that the compressed air is connected to the system and the pressure regulator is set to 60 psi. Does the air valve open when the system calls for material? The air line to the valve can be easily disconnected by pushing in on the plastic sleeve and removing the hose. The air line should be pressurized when the system is loading.

5. Ensure the drain valve at the bottom of the filter is closed properly.

CLOSED LOOP LOADER MAINTENANCE

Daily Maintenance:

CAUTION: Clean filter when loader is not working.

The filter is cleaned automatically with an air blast at the start of each loading cycle. The canister needs to be drained periodically by opening the valve at the bottom of the canister. Gently bang on the side of the cannister with your hand to loosen any fines and close the valve.

Monthly Maintenance:

Clean filter sock by removing the quick clamp on the filter canister and removing cover. Remove the bag assembly and blow off with compressed air. Reinstall bag assembly, cover and quick clamp, checking that the seal is proper. This maintenance may need to be performed more frequently if your material is dusty.

Tighten all hoses and hose clamps and check for leaks.

AUGER FEED MIX SYSTEM (OPTIONAL)

The Auger Feed Mix System utilizes a fixed speed auger in conjunction with a variable speed auger to blend materials from each hopper to the user's desired proportions. The auger and motor assembly for each hopper is located directly below the hopper, and feed a central takeoff box connected to the mold press loading system. The controls for each auger motor are in a control box located on the hopper support frame. Each auger motor is actuated by a 3 position toggle switch located on the front of the control box. The auger situated below Hopper 1 (left side hopper) is operated by a fixed speed AC motor, while the auger below Hopper 2 is operated by a variable speed DC motor controlled by a 10-turn potentiometer located on the Auger Feed Mix System Control Box. The system allows the user to blend materials at ratios ranging from 5 to 75 percent with accuracies in the range of +/-2%.

AUGER FEED SETUP

To set up the Mix System, first remove all the shipping straps attached to the system feed tubes and motor clamps. Ensure that there is material in each hopper and the slide gates for each hopper are open. Remove the V-Box Feed Tube Assembly from the augers and follow the steps detailed below.

1. Actuate Auger 1 (fixed speed auger) by putting the toggle switch in the TEST (down) position. This will operate the auger for a 15 second interval. Allow the material to drop into a container. Weigh the resin dispensed by the auger (Do not include wt. of container). This will establish the "Constant Portion" for your proportional mix formula (See page 27 in this manual for formula). Repeat this several times by returning the toggle switch to the OFF (Middle) position and back to the TEST position so that you obtain an average result which will be more reliable.

2. Return the toggle switch for Auger 1 to the OFF (middle) position and put the toggle switch for Auger 2 in the TEST (down) position. Auger 2 will operate for 15 seconds. If the auger is not at the correct speed setting, turn the potentiometer to the right to increase the motor speed or to the left to decrease the speed. Allow the material to drop into a container. Weigh the dispensed material and compare it to the desired weight as determined by your proportional mix formula.

3. Return toggle switch for Auger 2 to the OFF (middle) position and repeat the previous step until you obtain the desired weight. After obtaining your desired weight, repeat the cycle several times to ensure that the auger is feeding the correct amount of material. Record the potentiometer setting and lock the potentiometer at the desired setting by pushing the locking tab to the right. Reinstall the V-Box Feed Tube Assembly and begin operation.

AUGER FEED OPERATION

To operate the system, put the toggle switches for each auger in the RUN (up) position. When the low material sensor on the mold press receiver calls for material, the loader blower will actuate and the augers will begin to feed material two seconds after the blower starts. The augers will continue to feed until the upper sensor is satisfied. The blower will continue to operate for a factory set period of time to clean out the material feed line and then shut down.

To prevent damage to the augers, the V-Box Feed Tubes are equipped with material sensors that will shut the auger motor off if the feed tube fills with material due to the loss of vacuum in the loading system or material bridging. If this occurs, clean out the feed tube and continue operation.

AUGER FEED SYSTEM MAINTENANCE

The Auger Feed Mix System is designed for easy cleaning and maintenance. Follow the steps detailed below to clean the system.

V-Box Collection Tubes

Remove the V-Box Tube Assembly by loosening thumb screws on inlet tubes, removing material hose and detaching material sensor plugs. Loosen wing nuts fastening plugs at top of tube and remove plugs. Clean tubes with compressed air or wipe thoroughly.

Auger Tubes & Takeoff Box

After removing V-Box Assembly, unlatch clean-out cover on bottom of auger assembly takeoff box. Remove motor and auger assembly by loosening clamp on motor side of auger assembly and detaching motor power cord. Pull motor and auger assembly from feed tube and clean takeoff box, tube and auger with compressed air or wipe thoroughly. When reinstalling motor and auger assembly be sure to place guide tab on auger tube in the up position so that it fits into the notch on the takeoff box.

MATERIAL SAMPLER (OPTIONAL)

Your dryer's mixing system may be equipped with our Material Sampler option. This allows you to operate each auger individually to obtain a small amount of material for moisture content or other testing.

To operate, remove the end cap on the top of the V-Box Colection Tube and insert the Material Sampler Container into the tube. Press the Sample Feed button located on the Auger Feed System Control Box. The respective auger will operate for as long as the button is depressed, feeding material into the Sampler Container. Remove the sampler, return the end cap to the tube and resume operation.

DRYER OPERATION TROUBLE SHOOTING

The new Dri-Air Standard PLC and MICROPROCESSOR Electrics were designed for quick diagnosis of problems.

If a problem is encountered while operating the dryer please follow the steps below before proceeding with other diagnostic steps.

1. Check the Power Circuit:

a. Incoming power fuses or circuit breaker
b. All dryer fuses:
   Each fuse, with the exception of the main fuses, has a blown fuse indicator light that illuminates when the fuse is blown.
c. Is power supplied to the unit?
d. Check heater continuity using a volt ohmmeter.

2. Compressed Air:

a. Is compressed air connected with at least 60 PSI.
b. Check water separator and drain if necessary.
c. Pressure gauge should read 60 PSI.

3. Air Flow Circuit:

a. Ensure Zone Valve position corresponds to the regeneration cycle by comparing the Zone position lights on the Zone Valve to the ZONE position lights on the dryer panel.
b. Make sure that all hoses are connected, not crushed, and free from obstructions.
c. Inspect filter and make sure cover is tight and the filter is clean.
d. Is at least one hopper air control valve actuated. The toggle switch(es) on panel door **must** be actuated.

4. Control Circuit:

a. Using the PLC/MICRO Display Panel ZONE indicator lights as a guide for the dryer regeneration cycle, check that all inputs/outputs are proper for the part of the regeneration cycle that the machine is in.
b. Monitor the PLC output lights to ensure the corresponding LED on the power board is illuminated and there is an output voltage to the heater.

5. Operating Conditions:

a. Check the process temperature. It should **not** be set below 140° F (60° C) because the unit will go into high temp alarm.

DRYER OPERATION DETAILED DIAGNOSIS (PLC Controlled Dryer)

For Micro-Controlled dryers please see the Microprocessor Control Instruction Manual

Machine will not start: Power light is not on.

1. Check to ensure that at least one hopper process air valve is actuated. Toggle switch(es) on panel door should be on.

2. Check circuit breakers (CB1) or incoming fuses inside control box to see if they are tripped or blown. Reset circuit breakers by turning them off and then on.

3. Check small fuses (FU1 & FU2) next to contactor. The LED will be lit if they are blown. Replace if necessary by opening the fuse holder and put new fuse into holder.

4. Check that incoming power to the unit is proper.

5. Check safety snap discs.

Alarm light is flashing: Unit will not run.
Main contactor is not pulling in.

1. Check the motor overload OL1 located in the panel. If it is tripped, the window will show as orange/yellow. Reset overload by pushing in the reset button.

Machine will not run: High Temp Alarm Light flashing.

This indicates that the temperature has exceeded the high limit programmed into the temperature control or the set temperature can not be reached.

Press stop and restart machine holding in the start button. Monitor the actual temperature to see if it exceeds the set point or can not reach the set point. If it can not reach set point, see section below.

Machine will not run: High Temperature Alarm Light on, not flashing:

1. This indicates an “open” thermocouple or the temperature in the desiccant tower exceeded 900° F.

Machine will not reach temperature:

1. If the process heater light is not lit.
   A. Check output from temperature controller and input to PLC.
   B. Check the thermocouple. The tip should be in the middle of the hose.

2. If the process heater light is lit.
   A. Check fuses on power board
   B. Check solid state relays on power board.

C. Check that the air flow is not obstructed.
D. Check blower rotation
E. Check heater for continuity.

Check the limit first by pressing the SET button on the temperature control and holding until AL is displayed. The setting shown indicated the amount over set point that the alarm will be actuated. It is factory set to 50°F (30°C) and should not be set below 30°F (16°C) or it will actuate too soon.

If the temp exceeds the set point check the following:

1. Remove the hose from the top of the hopper to check air flow. There should be air flow out of the hopper with a suction on the hose. If there is little or no flow, check the inlet hose.
2. Inspect the filter to make sure that it is clean and not affecting the air flow.
3. Check the power boards to see if one of the solid state relays has failed on. Using an ammeter or voltmeter on the output to the heater, see if there is power when the LED is not lit which will indicate a failed relay.
4. Check the valve position.

DRI-AIR ROTARY ZONE VALVE

The Dri-Air rotary zone valve is designed to provide very little flow restriction and no leakage. It incorporates high temperature, self adjusting seals for years of trouble free service. The electrical controls are built into the end of the valve and include zone position lights.

Trouble shooting is easy. If the lights indicating position do not match the zone displayed on the control panel, or there are no lights, the valve is not working properly.

DO NOT PUT FINGERS INTO VALVE WITH POWER ON

If you are experiencing problems with the valve, check the following:

1. Check to see if the cam is actuating a zone position switch on the valve's circuit board.

2. Check all electrical connections to make sure they are tight.

3. Contact factory with the serial number of the dryer for a replacement valve.

A18-35PDII and H18-35PDII

GENERAL

DESCRIPTION	APDII	HPDII
Dryer Filter Element	81055	81055
Zone Valve	83705	83705
Thermocouple (Process)	84054	84054
Desiccant (Pounds) 80082	8 lbs.	14 lbs.
Tower Clamp	81172	81172
Tower Gasket	81028	81028
Pressure Switch	82813	82813
Regulator	80896	80896
SMC Valve	84221	84221
Caster (Swivel)	81799	81799
Caster (Fixed)	81798	81798

CLOSED LOOP LOADER

Filter Element	82389	82389
Blowback Valve	82695	82695
Proximity Switch (K10203 Std. El.)	81180	81180
Proximity Switch (K15208 Micro)	82298	82298
SMC Valve	84221	84221

ELECTRICAL

	STD	MICRO
Disconnect	82308	82308
Temperature Control (RKC CB-100)	84016	84016
Main Board	84100	82071
Display Board	83401	82072
Thermocouple Board	84049	NR
Transformer	83437	82245
Current Transformer	NR	82246
Main Contactor	82270	82270
Solid State Relay	82302	82302
IEC Contactor	80576	80576
IEC Contactor*	84860	84860
Power Board	83397	83493
Power Board (208 & 230 v Dryers)	84080	84080
Single Pole Relay	82496	82496
Double Pole Relay	80587	80587
Dual Solid State Board	NR	82870
Toggle Switch	80466	80466
Safety Thermal Switch (Tower)	80221	80221
Safety Thermal Switch (Process)	80551	80551
Thermocouple (Tower)	82175	82175
Transformer .050	82245	82245
TRI-Solid State Board	NR	83468
Dewpoint Sensor	81908	81908
Solid State Timer (Blowback)	83318	83318
Solid State Timer (Cleanout)	83527	83527
Solid State Timer (Auger Delay)	83442	83442

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

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

HEATERS

	208V	230V	400V	480V	575V
Regeneration (Cone Style)	83342	83373	83982	83374	84235
HP Center (Flat Style)	82373	82373	83958	82505	84260
Process	82343	82343	84204	82319	84065

A50-100PDII and H50-100PDII

GENERAL

DESCRIPTION	APDII	HPDII
Dryer Filter Element	81331	81331
Zone Valve	83705	83705
Thermocouple (Process)	84054	84054
Desiccant (Pounds) 80082	30 lbs.	50 lbs.
Tower Clamp	81172	81172
Tower Gasket	82795	82795
Pressure Switch	82813	82813
Regulator	80896	80896
SMC Valve	84221	84221
Caster (Swivel)	81799	81799
Caster (Fixed)	81798	81798

CLOSED LOOP LOADER

Filter Element	82389	82389
Blowback Valve	82695	82695
Proximity Switch (K10203 Std. El.)	81180	81180
Proximity Switch (K15208 Micro)	82298	82298
SMC Valve	84221	84221

ELECTRICAL

	STD	MICRO
Disconnect	82308	82308
Temperature Control (RKC CB-100)	84016	84016
Main Board	84100	82071
Display Board	83401	82072
Thermocouple Board	84049	NR
Transformer	83437	82245
Current Transformer	NR	82246
Main Contactor	82270	82270
Solid State Relay	82302	82302
IEC Contactor	80576	80576
IEC Contactor*	84860	84860
Power Board	83397	83493
Power Board (208 & 230 v Dryers)	84080	84080
Single Pole Relay	82496	82496
Double Pole Relay	80587	80587
Dual Solid State Board	NR	82870
Toggle Switch	80466	80466
Safety Thermal Switch (Tower)	80221	80221
Safety Thermal Switch (Process)	80551	80551
Thermocouple (Tower)	82175	82175
Transformer .050	82245	82245
TRI-Solid State Board	NR	83468
Dewpoint Sensor	81908	81908
Solid State Timer (Blowback)	83318	83318
Solid State Timer (Cleanout)	83527	83527
Solid State Timer (Auger Delay)	83442	83442

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

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

HEATERS

	230V	400V	480V	575V
Regeneration (Cone Style)	81351	81766	81366	81432
HP Center (Flat Style)	82364	83934	82493	83372
Process	82343	84204	82319	84065

PROPORTIONAL MIX FORMULAS

The following formulas are to be utilized to determine the material feed rates for the variable speed auger. Select the formula to be used based on the proportional mix that the user specifies. If the proportional mix is based on a proportion of the TOTAL output, then you should use Formula 1. If the mix is based on the proportion of "virgin" (fixed speed auger), then you should use Formula 2.

FORMULA 1

This formula is to be used if the mix proportion is expressed as a percent of the TOTAL mix. For example; 85% Virgin, 15% regrind.

DATA REQUIRED

FIXED AUGER % of TOTAL _____

VARIABLE AUGER % of TOTAL _____

FIXED AUGER OUTPUT (grams) _____

COMPUTATION

Divide ***Fixed Auger % of Total*** by ***Variable Auger % of Total*** to obtain the ***MIX RATIO***.

Divide ***Fixed Auger Output*** by ***MIX RATIO*** to obtain ***VARIABLE AUGER OUTPUT*** (grams of material from Variable Speed Auger).

EXAMPLE 1

Fixed Auger % (FA) = 85
Variable Auger % (VA)= 15
Fixed Auger Output (FAO)= 1000g

Mix Ratio (MR) = FA%/VA%
Mix Ratio = 85/15
Mix Ratio = 5.667

Variable Auger Output = FAO/MR
Variable Auger Output = 1000g/5.667
Variable Auger Output = 176.5g

FORMULA 2

This formula is to be used when the mix proportion is expressed a percent of virgin (Fixed Auger Output). For example; Regrind output is to be equal to 15% of virgin.

DATA REQUIRED

FIXED AUGER OUTPUT (grams) _____

VARIABLE AUGER % of Fixed Auger Output _____

COMPUTATION

Divide ***Variable Auger %*** by **100** to obtain ***DECIMAL EQUIVALENT***.

Multiply ***Fixed Auger Output*** by ***Variable Auger % DECIMAL EQUIVALENT*** to obtain ***VARIABLE AUGER OUTPUT*** (grams of material from Variable Speed Auger).

EXAMPLE 2

Fixed Auger Output (FAO)= 1000g
Variable Auger % of Output (VAO)= 15

Decimal Equivalent (DE)= VAO/100
Decimal Equivalent = 15/100
Decimal Equivalent = .15

Variable Auger Output = FAO x DE
Variable Auger Output = 1000g x .15
Variable Auger Output = 150g

NOTES:

NOTES: