

NovaWheel™ Dryers

**NWB+ & NWB-HC+ Series, 7" NovaTouch™
Color Touch Panel PLC,
MODELS -25 through -400**

**NWB & NWB-HC Series, With 4" NovaTouch™
Color Touch Panel PLC
MODELS -25 through -300**



NWB-50 & NWB-50+
DRYER ONLY



NWB-50-HC & NWB-50-HC+
Dryer with Hopper on Cart

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NOTES:

Please record the following information, which is specific to this piece of equipment, in the space provided. Our Parts/Service Department will need these numbers to properly respond to any of your requests.

Instruction Manual: NWB NWB-HC IM 10 July, 2017

Model #: _____

Serial # _____

DISCLAIMER: NOVATEC, Inc. shall not be liable for errors contained in this Instruction Manual nor for misinterpretation of information contained herein. NOVATEC shall not, in any event, be held liable for any special, indirect or consequential damages in connection with performance or use of this information.

NOTE: The only difference between the NWB and the NWB+ models is the size of the color touch screen PLC. 4" Diagonal for the NWB through -200 and 7" diagonal COLOR TOUCH SCREEN plc for NWB+ THROUGH -400

Same applies to the NWB-HC which has a 4" diagonal color touch screen PLC through -200 while the NWB-HC+ has a 7" diagonal color touch screen PLC.

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FOREWORD

This manual is dedicated to the principle that any engineered system will have many elements contributing to the smooth operation of the system, and that these must be understood in order that installation and operation can proceed successfully.

The electrical and mechanical components in the NWB+ and NWB-HC+ Series dryers have been manufactured, selected and assembled with care to give you excellent service. A wide range of NWB-DC series dryers have been introduced to enable our valued customers to select the right model for their application. These NWB+ and NWB-HC+ series dryers have been designed for beside-the-press drying applications. All components of your dryers have been carefully engineered and manufactured and have been thoroughly inspected for quality, function and performance.

Before installing this system, please read this manual, review the diagrams and the safety information. This should save valuable installation and operation time later and will help ensure safe operation and long life.

1.0 SALES AND SERVICE

NOVATEC maintains qualified sales, engineering, and service personnel to assist in any way possible. If you have any comments concerning the types of equipment which NOVATEC manufactures that might improve your process, or any questions concerning service, we urge you to contact us. Please have you Model and Serial Number handy.

Sales: 1-800-BEST-DRY • 1-800-237-8379 • Fax: 410-789-4638 • Sales@novatec.com

Technical Service Department: 1-800-938-6682 • Service@novatec.com

2.0 SHIPPING AND INSPECTION

Although NOVATEC uses reputed carriers to deliver products, it has no control over the products once it leaves the manufacturing facility. Upon receiving the products, thoroughly inspect all equipment inside and out for damage that may have occurred during shipment. If any damage is found, a claim should be filed immediately with your carrier.

NOVATEC thoroughly tests and inspects all products before shipment. You are to make the piping, and electrical connections for final installation and commissioning. If there any problems, shut down the equipment and contact the NOVATEC Technical Service Department.

3.0 ELECTRICAL CONNECTIONS

The NWB and NWB-HC, as well as the + model dryers come from the factory with all control circuits wired and a 10' power cord. A quick-connect plug should be installed if moving the dryer to other process machines is anticipated.

CAUTION

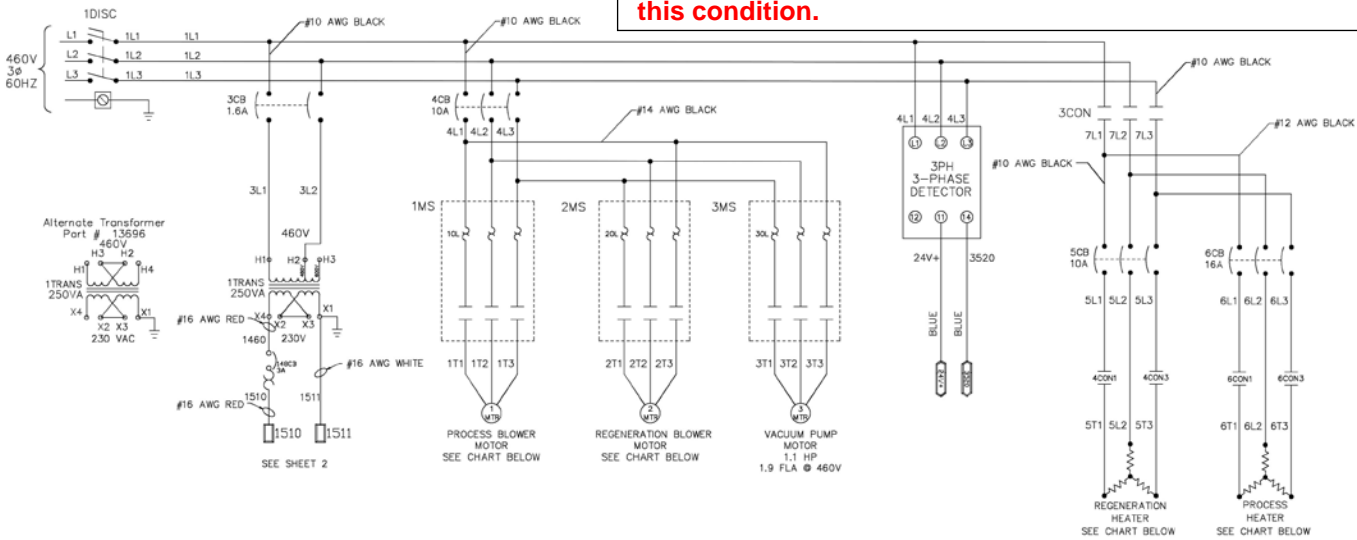
- All electrical connections must be made by qualified electricians, per national and local electrical codes.
- Disconnect and lock out the main power source before making the electrical connection.

Turn the Main Disconnect on the electrical panel door to the "OFF" position, lock out the main power source and open the electrical enclosure. Per the electrical diagram, install the main power wire to the main disconnect switch holder and install the ground wire.

Full size electrical drawings are included with this Instruction package for the voltage of the dryer you ordered.

460V/3Ph/60H

NOTE: 3 Phase detection is included on this model. If the connection is not correct, a pop-up alarm will appear on the touch screen upon startup. You should immediately correct this condition.



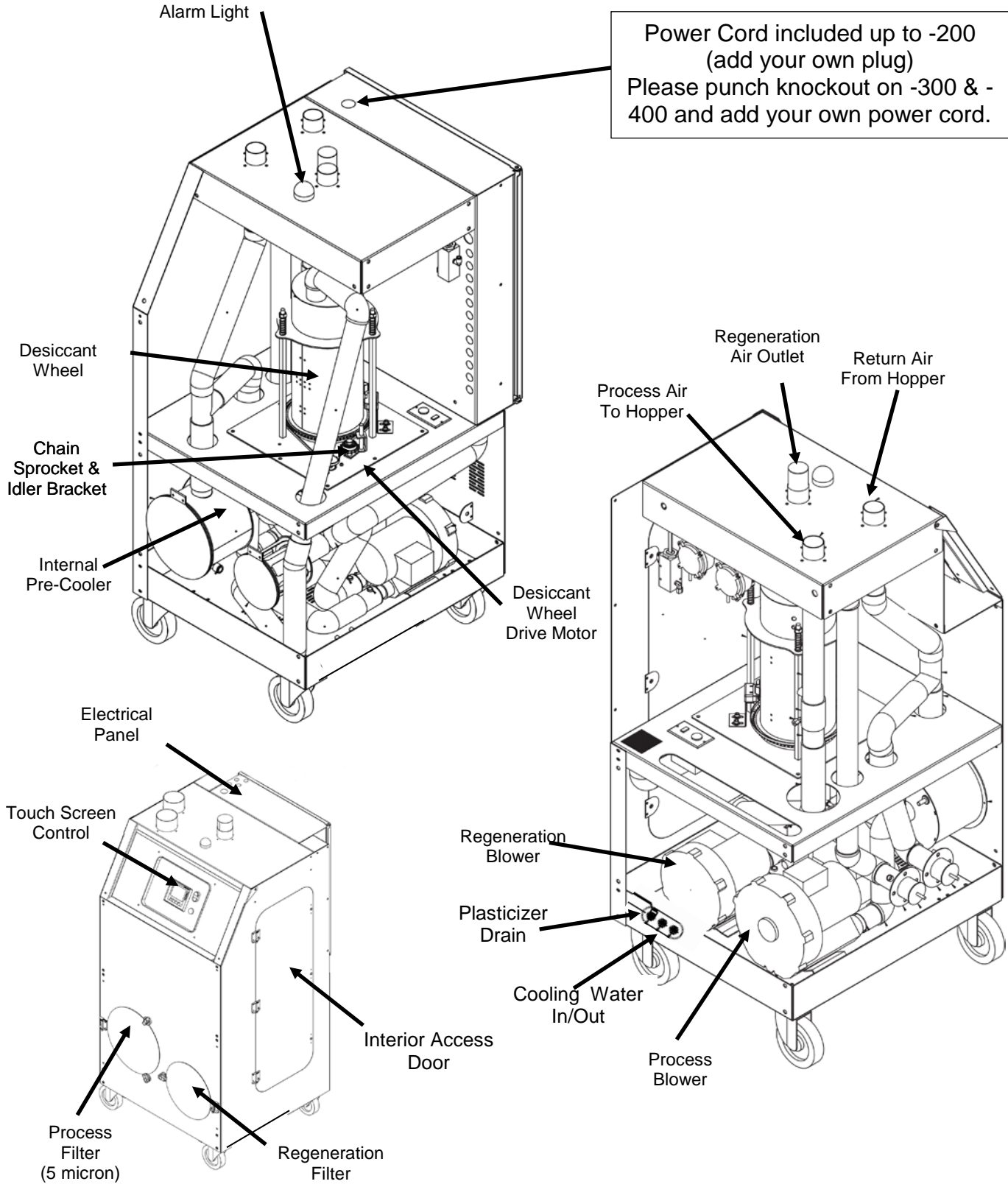
NOTE: Please make sure all electrical connections are tight. It is not common but a loose connection is possible after a long truck ride.

All Models	TOTAL CONNECTED POWER KVA/AMPS	PRO MOTOR HP/AMPS	REG MOTOR HP/AMPS	REG HTR KW/AMPS	PRO HTR KW/AMPS
-25	9.0/10.8	0.25/0.4	0.25/0.4	3.0/3.8	3.0/3.8
-50	11.9/14.7	0.67/1.2	0.25/0.4	3.0/3.8	5.5/6.9
-75	14.2/17.8	1.1/1.8	0.25/0.4	3.0/3.8	7.5/9.4
-100	16.7/20.9	1.1/1.8	0.25/0.4	5.5/6.9	7.5/9.4
-150	16.7/20.9	1.1/1.8	0.25/0.4	5.5/6.9	7.5/9.4
-200	24.0/30.1	2.5/3.5	0.67/1.3	5.5/6.9	13.0/16.3
-300	38.3/ 48.0	3.5/5.4	0.67/1.3	10.0/12.6	22.5/28.2
* -400	39.1/49.1	4.0/6.0	1.1/1.8	10.0/12.6	22.5/28.2

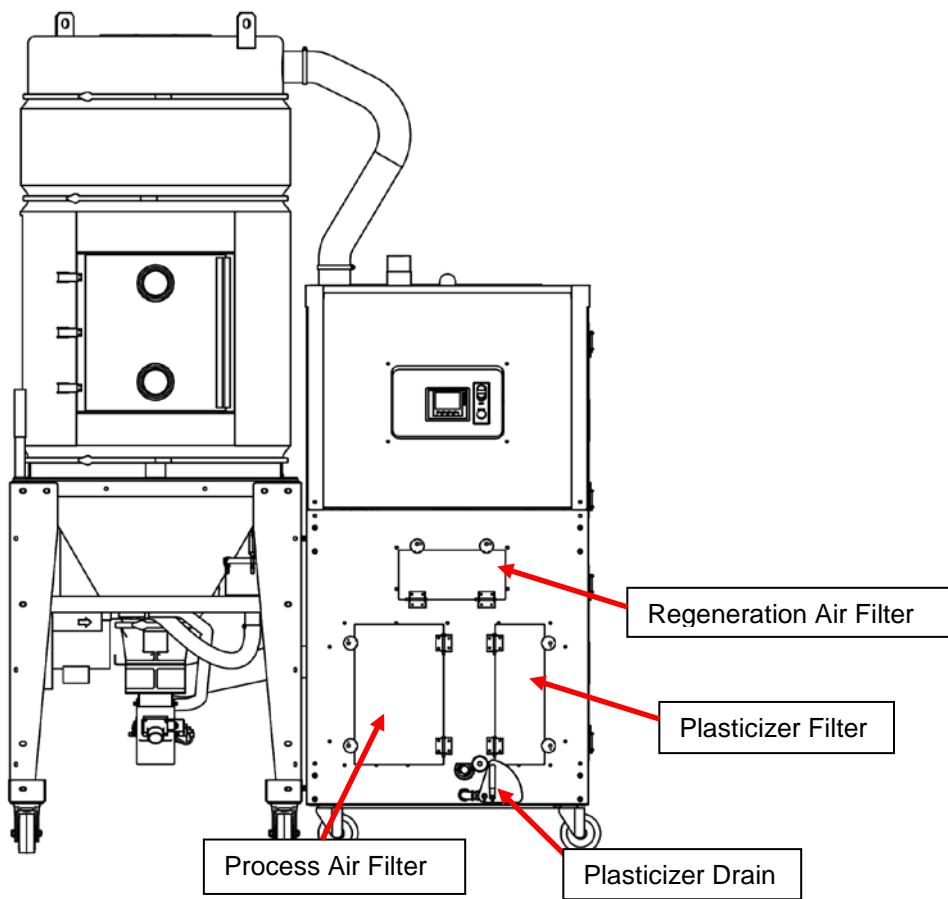
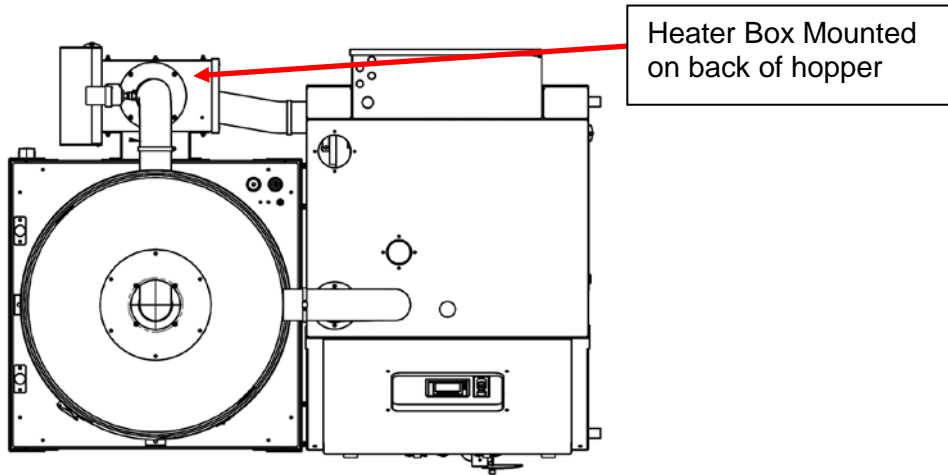
*NWB ONLY. -400 not available as -HC

4.0 PRODUCT FAMILIARIZATION

The major product components are shown below.



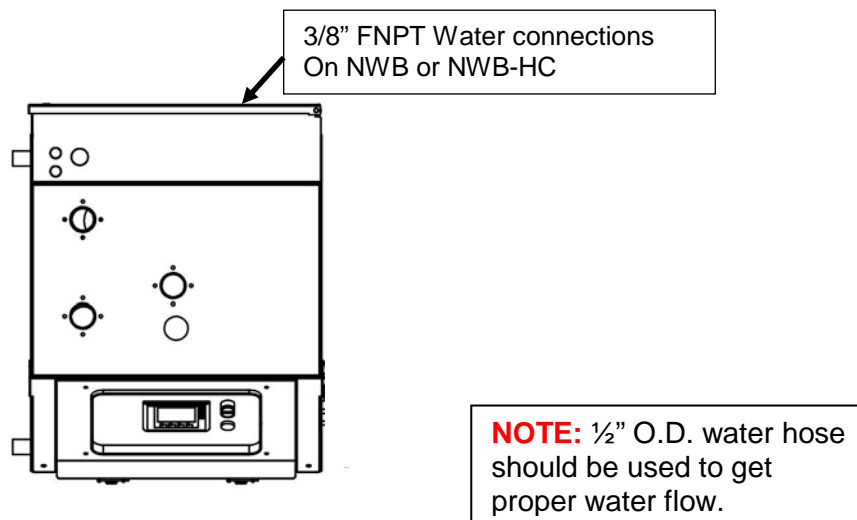
4.1 Differences in Layout for -300 & -400 models



5.0 PRE-COOLER WATER CONNECTIONS

A Cooling Coil is installed in NWB series dryers and is required to lower the hopper return temperature and this increases the efficiency of dryer ***IF THE DRYING TEMPERATURE IS ABOVE 225°F.***

Tower, city or chilled water is required at between 40 to 85°F. Connect the cooling water supply and return using flexible hose that is at least 2 feet long, to allow for easy removal of the cooling coil for cleaning. The water flow rates and the required customer connection sizes for different models are shown in the chart below.



Model Same values whether + models or not	NWB or HC -25	NWB or HC -50	NWB or HC -75	NWB or HC -100	NWB or HC -150	NWB -200 through -400 NWB-HC -200 through-300
Water Inlet/Outlet Connections	3/8"	3/8"	3/8 "	3/8"	3/8"	1/2"
Flow Rate-GPM Gallons per Min.	0.25	0.5	0.75	1.0	1.5	3.0

NOTE: Processor must use 1/2" ID water hose to get proper flow.

NOTE: Cooling water is required if drying temperature is over 225°F.

The process airstream must be connected to an external cooling coil if the drying temperature is below 170°F. **Contact Factory for Options**

6.0 HOPPER EXTENSIONS

If you ordered a hopper extension, with a –HC or –HC+ model it will be a bolt-on type. The extension will be installed at the factory if the overall height of the unit fits into a standard height truck for shipping. If the unit is too tall for the extension to be factory-mounted, it will be shipped in a separate container and must be installed at the processor’s plant.



Bolt top of hopper to the extension – lift into place - then bolt the extension to the top of the hopper.

Use bolts supplied to mount the extension to the top of the hopper.

7.0 ADJUSTABLE DIFFUSER CONE POSITIONING IN HOPPER (If Included)

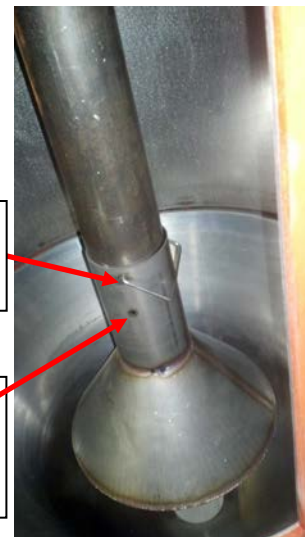
IMPORTANT FOR PROPER DRYING

We have found that processors can improve the efficiency of their drying process by adjusting the position of the diffuser cone as described below.

The diffuser cone should be placed in the lower position (shown) when drying virgin resin or resin with a low percentage of regrind.
When drying resin with a high % of regrind, spread the clip, raise the cone and place the clip through the lower set of holes.

Clip through upper set of holes for low % of regrind.

Clip through lower set of holes for high % of regrind to raise level of cone.



**You are now ready to proceed to Dryer Setup.
See QuickCard attached to dryer.**

8.0 PRINCIPLE OF OPERATION

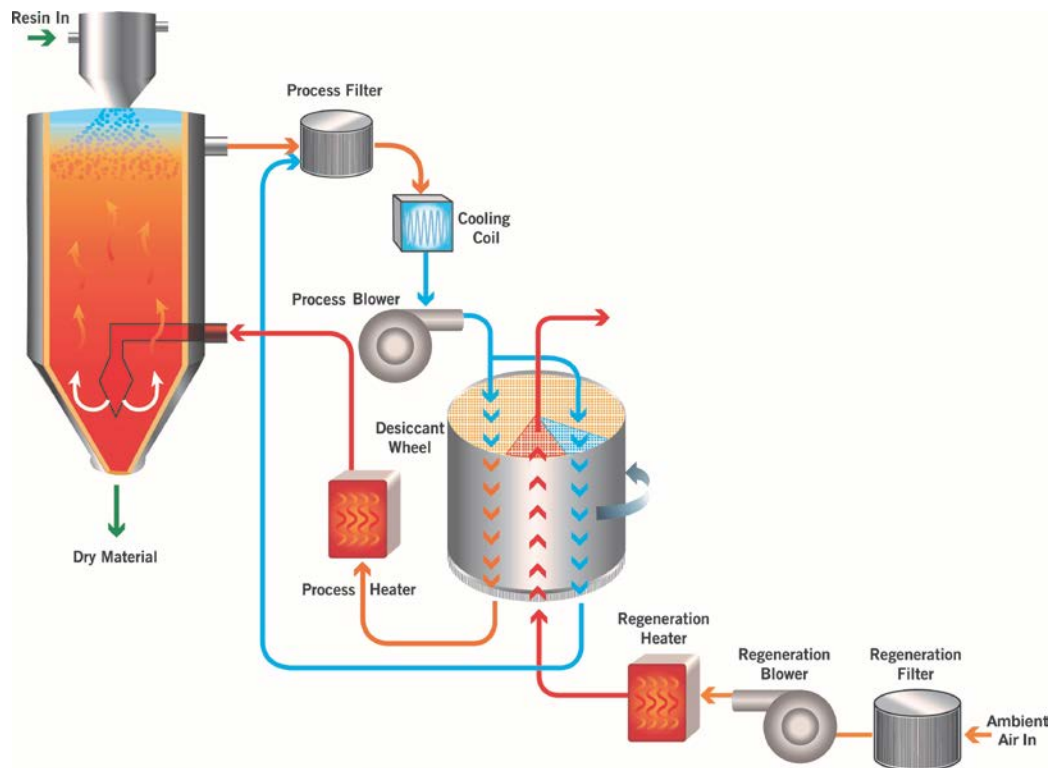
The NWB, NWB+ and the NWB-HC & -HC+ Series is designed to dry moisture laden resin in preparation for molding.

8.1 Resin Drying

This NovaWheel dryer is engineered and designed to effectively remove moisture (in the vapor state) from hygroscopic plastic resins. This process is accomplished by the continuously rotating desiccant wheel and the three air streams (Process, Purge and Regeneration). The Process return air is exposed to an adsorbing media (desiccant wheel) in a sealed air stream, where the desiccant adsorbs the moisture from process air. After the desiccant has adsorbed the moisture, it is exposed to a Regeneration air stream which has been pre-heated to a temperature of about 380°F. (190°C). This causes the moisture to be driven out from the desiccant and prepares it for more moisture adsorption. Now the desiccant media passes through third air stream called purge air stream. Here the desiccant media is cooled down by some of the process air before entering back into the process to provide for better performance. The three air streams (process, regeneration and purge) are separated by special Teflon fabric coated silicon seals. The process air and regeneration air is compressed by using regenerative blowers.

The dry air from the dryer is then heated to the desired drying temperature by an electric heater located in the dryer cabinet. The hot dry air enters the hopper at the bottom and removes moisture vapor from the resin in the hopper. The air from the top of the hopper is returned to the dryer, where it is filtered, passed through the desiccant wheel to remove moisture from the air stream and cooled before the process blower sends the air back through the heater and into the bottom of the hopper again in a continuous process.

8.2 System Flow Diagram



9.0 SPECIFICATIONS – NWB & NWB+ and NWB-HC & NWB-HC+

Model	-25	-50	-75	-100	-150	-200	-300	-400**
*Max Material Flow – Lbs./Hr. / (kg/hr.)	25/11.4	50/22.7	75/34	100/45.4	150/68.2	200/92	300/136	400/182
Voltage – Phase - Hz	460-3-60							
Wheel Speed - Nominal RPH (revolutions per hr.):	6	10	10	10	10	10	≤10	≤10
Water Inlet/Outlet Connections	3/8" 10mm	3/8" 10mm	3/8" 10mm	3/8" 10mm	3/8" 10mm	3/8" 10mm	1/2" 13mm	1/2" 13mm
Flow Rate-GPM Gallons per Minute	0.25	0.5	0.75	1.0	1.5	3.0	3.0	3.0

Process Air dew Point (nominal): -40°F (-40°C)

Drying Temperature: 150-350°F (66-177°C)

Air and Material Hose Diameter: 1.5" ID (40 mm)

*Based on material bulk density of 38 lb./ft.

** Available only as NWB & NWB+. An NPH Hopper can be added to the -400 NWB or NWB+

10.0 FUNCTION CONTROLS

The NWB+ & NWB-HC+ Series dryers come complete with the following controls:

10.1 Process Temperature Control (Drying Temperature)

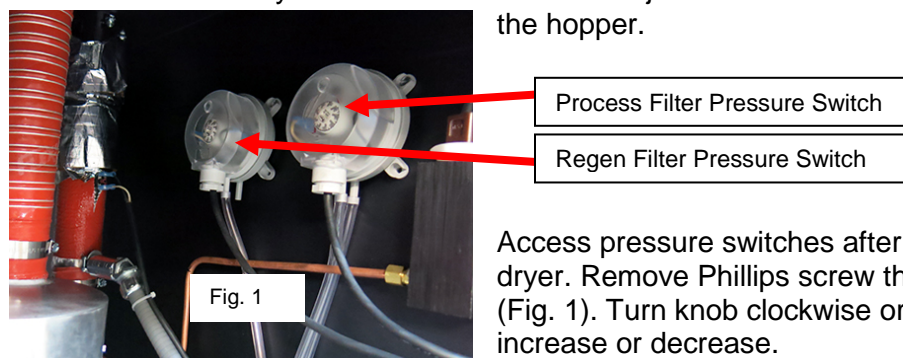
The Temperature Control is a part of the NovaWheel NovaTouch PLC controller and controls the process outlet temperature as per the set value. In addition, there is a process high temperature limit thermostat that is provided for extra safety. (Refer to the controller section).

10.2 Regeneration Temperature Control

The regeneration temperature is controlled by the NovaTouch PLC controller. In addition, there is a regeneration high temperature limit thermostat, which provides extra safety. The regeneration temperature is set at about 380°F. (190°C) and should not be changed.

10.3 Process & Regeneration Air Filter Pressure Switches (PS)

The air pressure differential across the process filter and the regeneration filter is monitored and the NovaTouch display will alarm and show when a filter needs to be cleaned or replaced. These are factory set but often need to be adjusted in the field once the customer loads resin in the hopper.



Access pressure switches after opening the side panel of the dryer. Remove Phillips screw that holds clear cover in place (Fig. 1). Turn knob clockwise or counter-clockwise to either increase or decrease.

10.4 Process Air Dew Point Monitor

It measures the process air dew point from the dryer.

10.5 Intelligent Regeneration

Intelligent Regen constantly monitors the regeneration inlet and outlet temperatures and controls them to optimize the energy and dew point performance of the dryer.

11.0 PRE-OPERATING SYSTEM CHECK

Once material, vacuum hose, water and electrical connections are made, the dryer should be given a final checkout.

11.1 Starting The Dryer

Turn the main disconnect switch  to "ON" position to power the dryer.

Depress the GREEN START  switch on the front panel to start the dryer.

The blowers and heaters are now energized and the desiccant wheel will begin turning and start to dry the return air. **It will take several minutes and a couple revolutions of the wheel, for the dew point to get down to the -40° dew point.**

WARNING: Always use the Green/Red switch to START or STOP the dryer. The Power Disconnect switch should only be used in True Emergency conditions. Repeated use of Power Disconnect can cause dryer component failure.

11.2 Checking Electrical Phase

Your NOVATEC Dryer includes Phase Detection. This is particularly important for dryers that may be moved around the plant. When you turn the MAIN Disconnect switch to the ON position, a Pop-Up Alarm will appear on the screen if the connection is not correct. You should immediately correct this condition.

WARNING:

Any wiring procedure should only be done by a qualified electrician familiar with three phase electrical wiring.

11.3 Changing From F° to C°

See page 15.

NOTE: All dryers are set to display temperatures in degrees F when shipped.

12.0 NovaTouch™ CONTROL

12.1 System Conventions:

All information and data displays will appear two dimensional in configuration and flat. All data entry points or operational features will appear three dimensional in configuration and raised or depressed in appearance depending on their operational position.

Numerical Entries: When you touch an IO field on the HMI device touch screen that requires only a numerical entry (Password, Temperature, number of seconds etc.) the following keyboard will appear.



Alpha/Numeric Entries:



When you are prompted to enter alphabetical and numerical data (Resin Names/Numbers) this screen will appear:




Proceed as follows:

1. Touch the relevant IO field on the screen.
The applicable screen keyboard opens and displays the current value.
2. Set the value.
The following options for entering values are available:

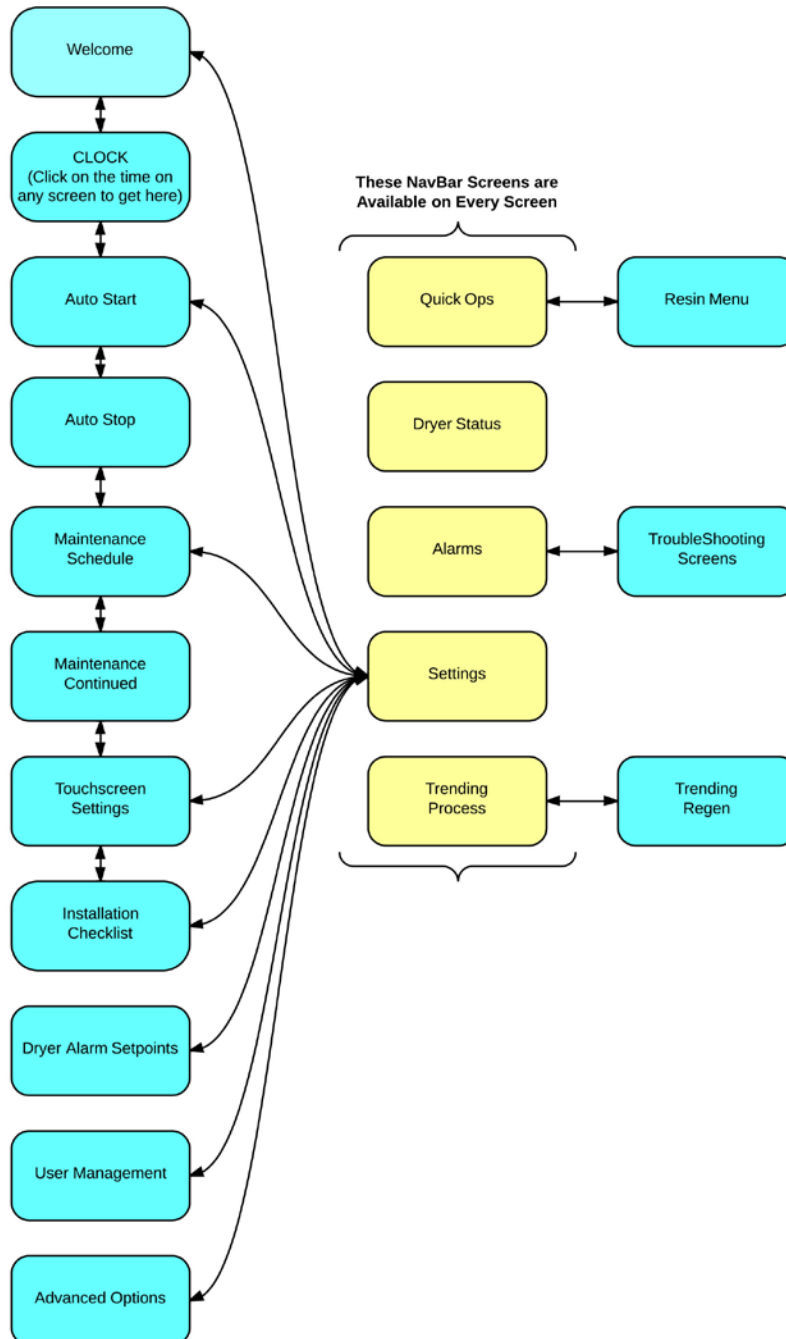
The current value is deleted when you enter the first character.

Select  to confirm your entries or cancel them with . Both actions close the screen keyboard.

“[?]” or an  may appear on any screen, or in any alarm message. This is the indication that there is additional information available. By pressing the symbol, an information page will appear on the screen. The information page will be removed by pressing the X in the upper right hand corner of the page.

12.2 Screen Map:

For all operational functions available to processor:



13.0 INITIAL DRYER SETUP

13.1 Dryer Pre-Check

NOTE: Assure voltage, connection and phasing are correct, cooling water is supplied (for drying over 225°F) and thermocouple is inserted in hopper.

Connect material source to Hopper Loader

Turn Main Disconnect Switch  to "ON" position.

On first start you should enter Information requested on WELCOME screen.

NOTE: Username setup and password 4444 is required for initial setup.


If the proper level of password protection has not been entered prior to attempting changes, the alpha/numeric password entry keypad will appear, prompting the user to input the proper password before changes can be made.

Setup username and password will not be required after initial setup except to change other usernames and passwords.



13.2 Explanation of Password Levels

User name and Password factory defaults (below) should be updated to ensure proper access.

To do that, double-tap the ***** after each Level and enter the new password on the alpha/numeric screen that will appear.

You will be prompted to enter the password twice. Press  to return to USERS MANAGEMENT screen.

User name and Password factory defaults (below) should be updated to ensure proper access.

6/13/2014 13:51:29		USERS MANAGEMENT			 Setup
User	Password	Group	Logoff t...		
Level1	*****	Ope...	0		
Level2	*****	Sup...	5		
Level3	*****	Mai...	5		
PLC User	*****	Una...	5		
Setup	*****	Setup	5		

setup : 4444

level1 : 1111 (Operator) –
Can choose pre-set recipe and run it.

level2 : 2222 (Production Supervisor) –
level1 plus can change recipes set clock
& Auto START/STOP

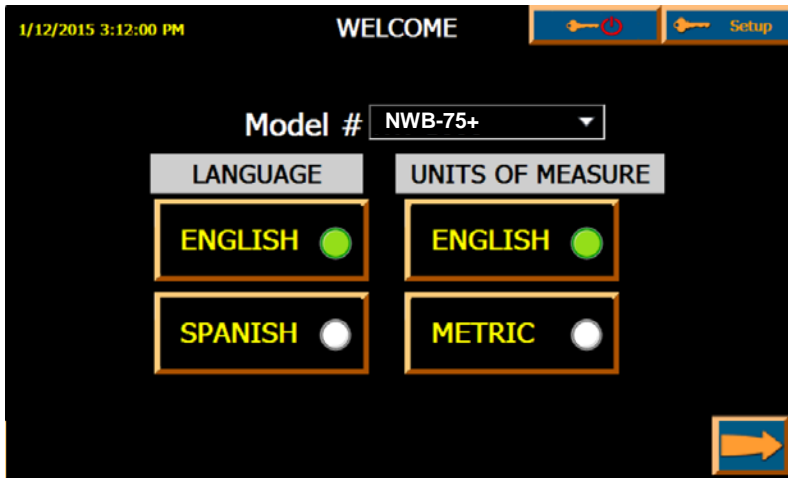
level3 : 3333 (Maintenance)
Same as level 2

<p>Setup can change all usernames & passwords level3 can change level1-3 passwords level2 can change level1-2 passwords level1 can change level1 passwords</p>
--



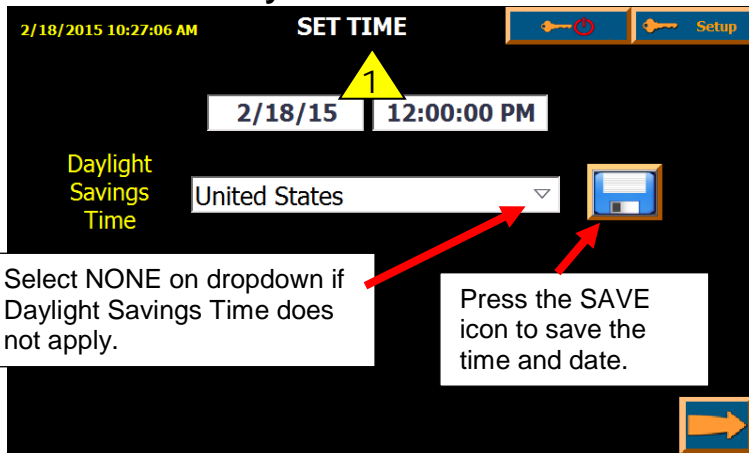
13.3 WELCOME Screen (setup username and password 3333 required for initial setup)

Pressing METRIC will change °F to °C.



Press the Forward Arrow to continue through the initial setup.

13.4 Verify/Set Time and Date



Select NONE on dropdown if Daylight Savings Time does not apply.

Press the SAVE icon to save the time and date.

Press for **VERIFY/SET TIME CLOCK**. Check the time pre-sets. If corrections are required, press Date or Time Box. An alpha-numeric screen will appear. Enter date as xx/xx/xx and time as xx:xx:xx AM or PM. See page 14.

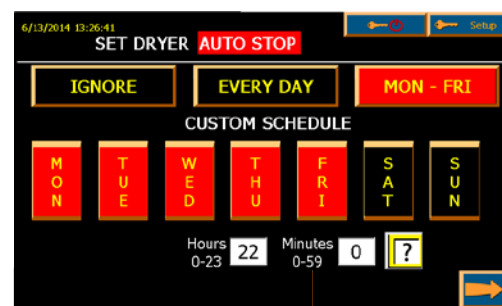
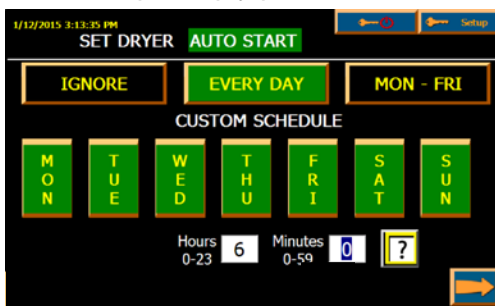
Press after each entry is complete.

Setting date and time assures that alarms will have correct date & time stamp.

Setting time is a level1 function after initial setup.


13.5 Auto Start/Auto Stop Screens

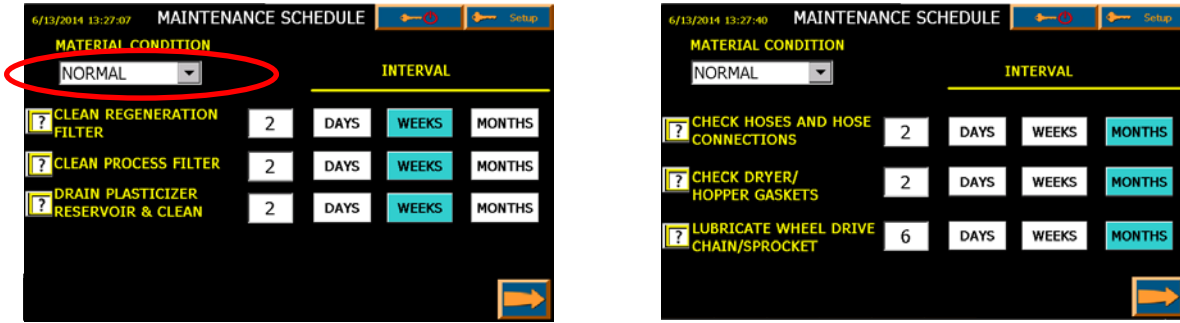
Press and the **AUTO START** screen will appear. Choose days and times and press again to enter **AUTO STOP** days and times. Entries are optional. If you do not want to set Auto Start/Stop, simply press IGNORE.



Auto Start/Stop is a level2 function after Initial Setup.

13.6 Maintenance Schedule

Press  to page forward to set up maintenance schedule.



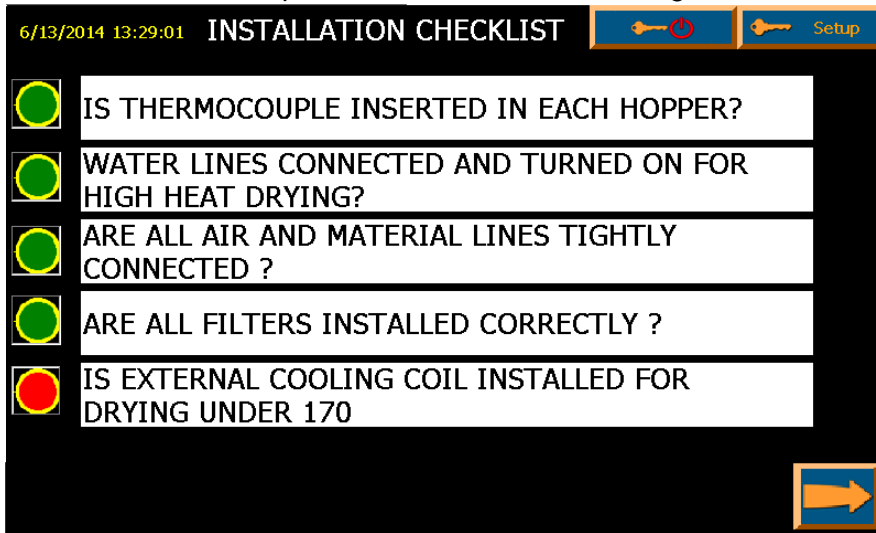
Choose the material condition that will be run and then the appropriate maintenance schedule for each task.

Maintenance Schedule is a level 3 function after initial setup.

NOTE: Performing maintenance on regular intervals will enhance dryer performance and life and minimize downtime.

13.7 Installation Checklist

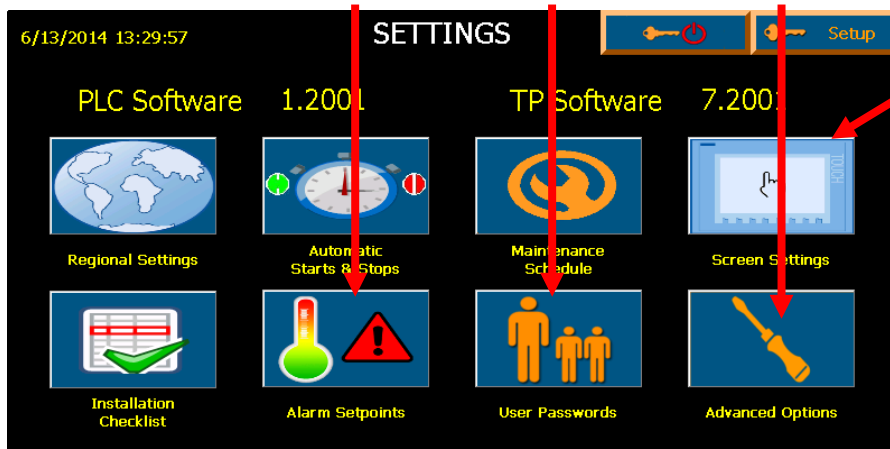
It is important that each of these things are checked before starting the dryer.



Pressing the FORWARD button one more time will open the Settings screen (next page).

14.0 SETTINGS SCREEN (Any level can view)

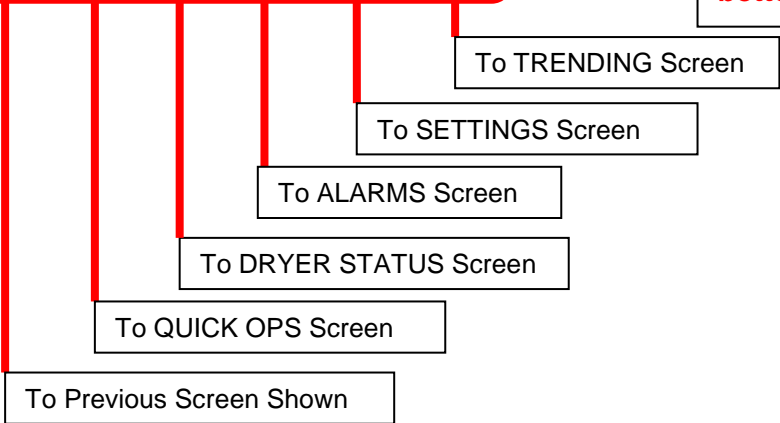
This screen allows changes to be made to previous screens and also allows adjustments to be made to, Alarm Setpoints, User Passwords Advanced Options and Screen Settings.



NOTE: You will go directly to Quick Op screen (page 25) on all future starts.

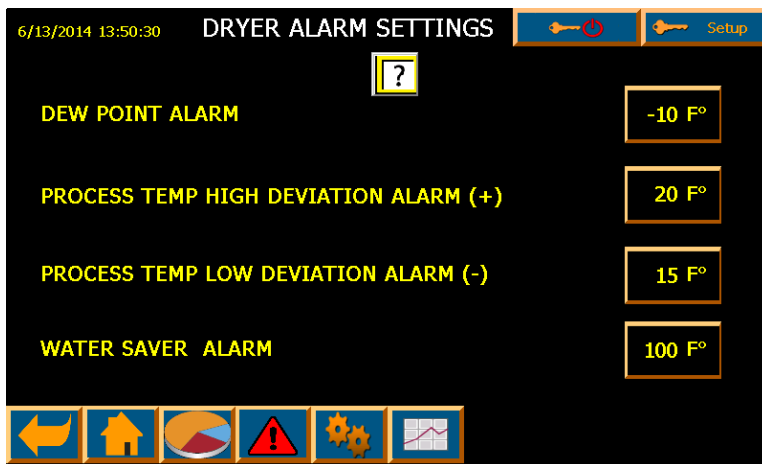


NOTE: From here on, these icons will appear at the bottom of every screen.



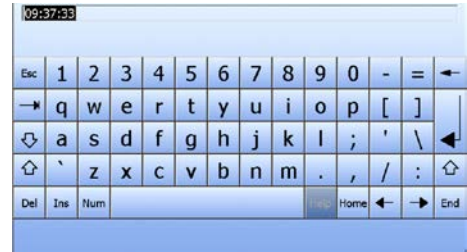
14.1 Dryer Alarm Settings

These variables are pre-set at the factory but can be changed by the processor. Setting the values too tightly can cause nuisance alarms.




14.2 Users Management

User	Password	Group	Logoff t...
Level1	*****	Ope...	0
Level2	*****	Sup...	5
Level3	*****	Mai...	5
PLC User	*****	Una...	5
Setup	*****	Setup	5



You may want to set usernames/passwords for various personnel so they only have access to certain functions.

To do that, double-tap the ***** after each Level and enter the new password on the alpha/numeric screen that will appear.



You will be prompted to enter the password twice. Press  to return to USERS MANAGEMENT screen.

14.3 Advanced Options (level 2 & up)


OverDry Protection is Standard on + models and can be activated for moisture sensitive resins like nylon. Water Saver is an option that must be ordered in advance and can be activated when an external Cooling Coil is employed.

Water Saver and Moisture Manager are options that must be ordered in advance.


Alarm Settings are pre-set at NOVATEC but level3 personnel can adjust the settings.


6/16/2014 13:50:48 **ADVANCED OPTIONS**  

OVER DRY PROTECTION OPTION

ON OFF 

WATER SAVER COOLING







 ON OFF 

MOISTURE MANAGER OPTION: 

HOPPER #1

DEW POINT SETTING °F

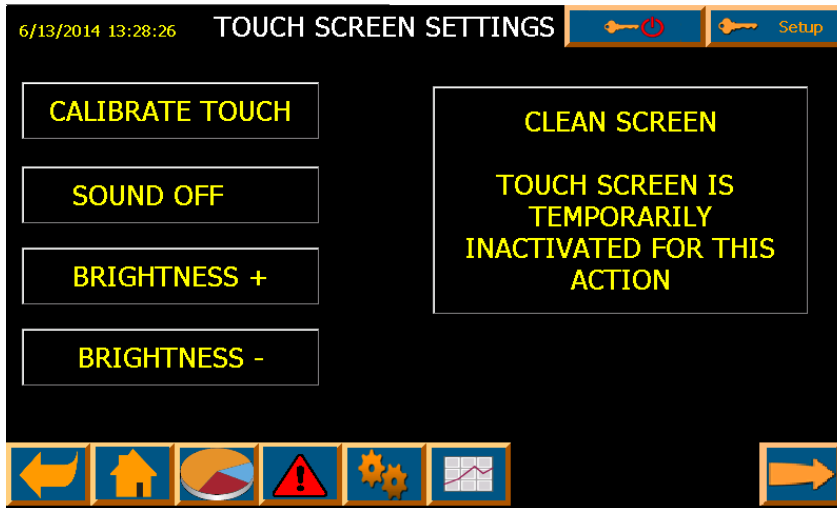
ON OFF

No security to view these pages but level2 and up required to make changes

14.4 Touch Screen Settings

You can calibrate “Touch”, Brightness and turn Sound ON or OFF. If the screen is dirty, a button allows you to clean it without disturbing the settings.



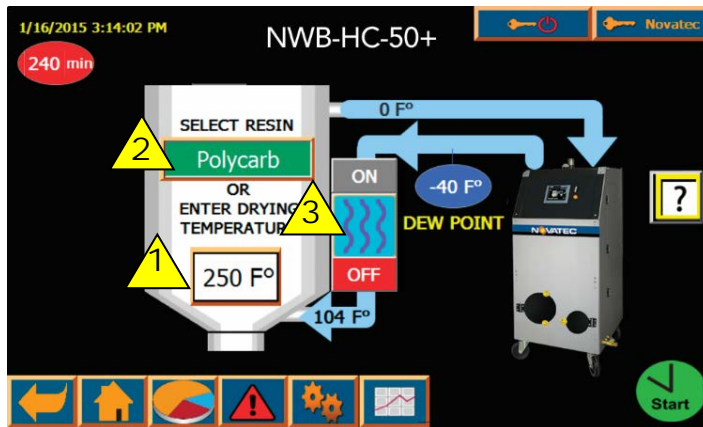
Press  to access Quick Op Screen .

1 15.0 DRYING MATERIAL

After the initial setup is completed, drying material is easily accomplished and overview screens show you the dryer parameters at a glance.





15.1 Quick Op Screen

The Quick Op Screen is the primary screen that provides an overview of the drying operation.



level1 can access RECIPE MENU


level2 and up can change temperature or turn process heater ON/OFF

Process Temperature is factory set at 160°F. Press temperature button  to change temperature or  to access **RESIN MENU** and choose one of the pre-set resins. Press Green  “ON” switch to start the Process Heater & Blowers. Press each function and enter value on numeric screen. Press  after each entry

Note that Process Heater can be turned OFF or ON using buttons  above.

NOTE: DO NOT TURN THE PROCESS HEATER AND BLOWERS ON UNTIL THE HOPPER IS AT LEAST HALF FULL

15.2 Resin Menu

Access by pressing  on **QUICK OP** screen.
Select a material by pressing the button next to a Material.



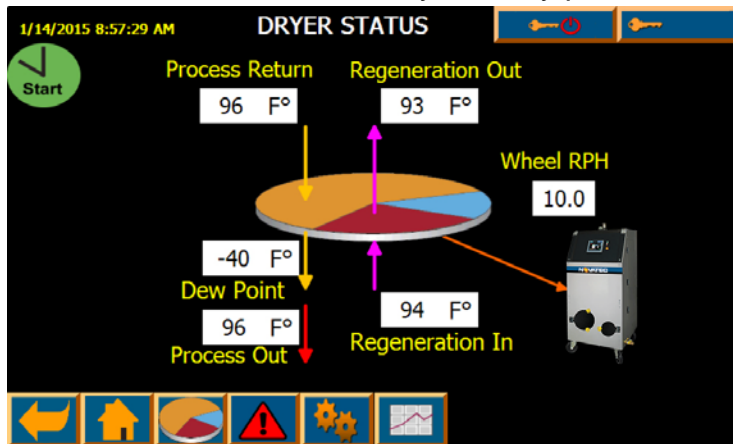
Several materials with appropriate drying temperatures have been pre-loaded into the resin menu.

level1 can select recipe and RUN.
level2 and up can change recipe name, temperature or drying time.


Up to 10 different recipes can be entered. Note that level1 personnel can choose a recipe and run it but only level2 personnel can change recipes.

15.3 Dryer Status Screen

This screen is widely used by processors



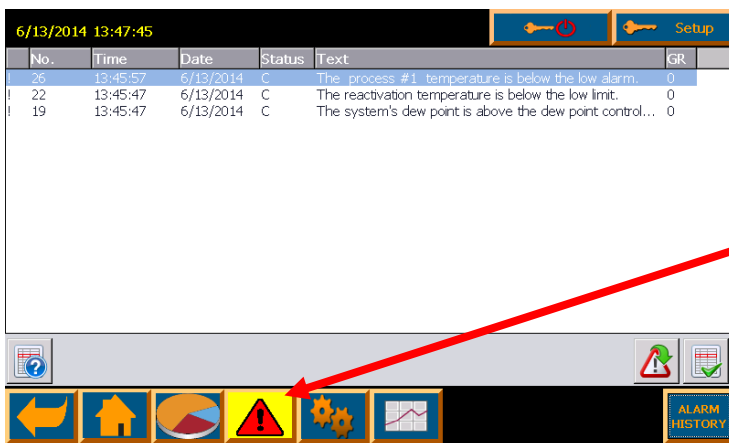
Access by pressing the dryer image on the

Quick Op screen or  on ANY screen.
All of the dryer parameters can be monitored.

- Reactivation inlet and outlet temperature
- Process inlet and outlet temperature
- System dew point
- Calculated desiccant wheel RPH

The graphics on this screen will change appearance in accordance with the mode of operation.

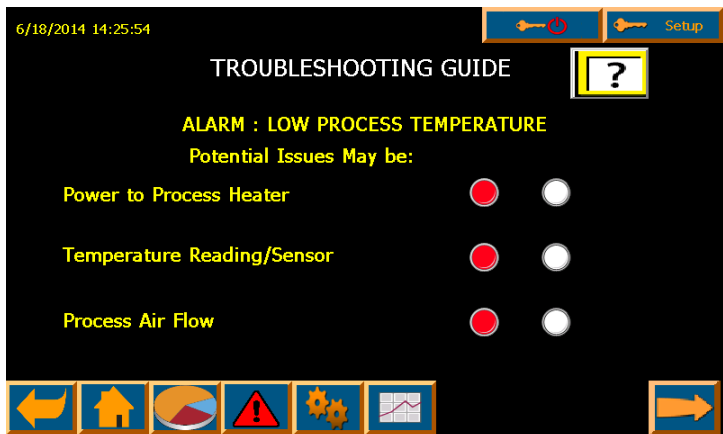
15.4 Message Screen – Alarms





Alarm messages will appear as a closeable pop-up window on any screen when new alarms occur. The Alarm History screen displays the same information and can be accessed by pressing the Alarm icon on the navigation bar.


16.0 INSTRUCTIONAL TROUBLESHOOTING SCREENS

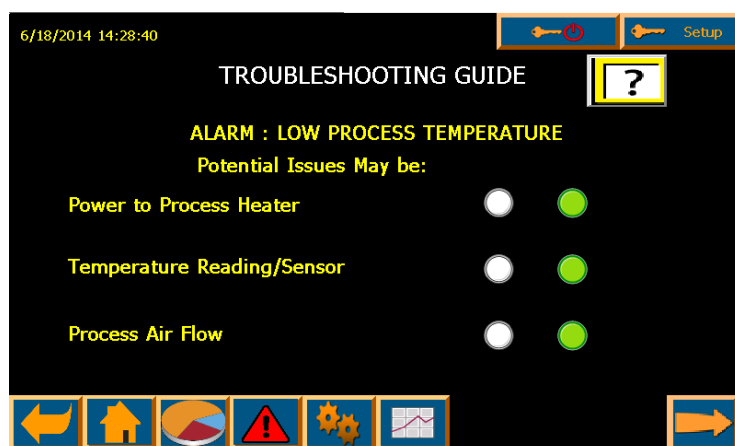
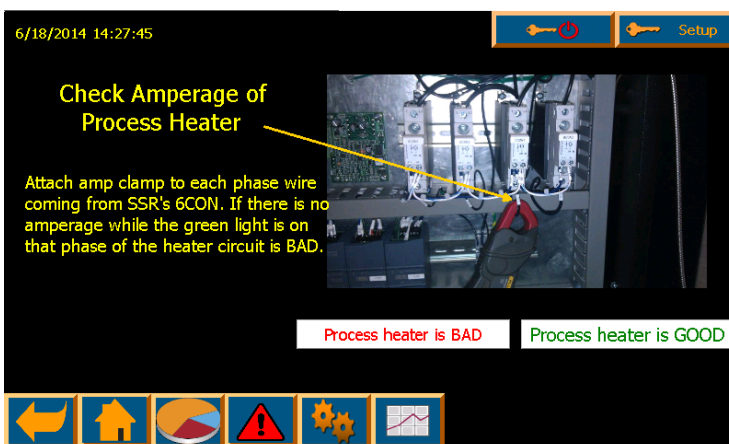
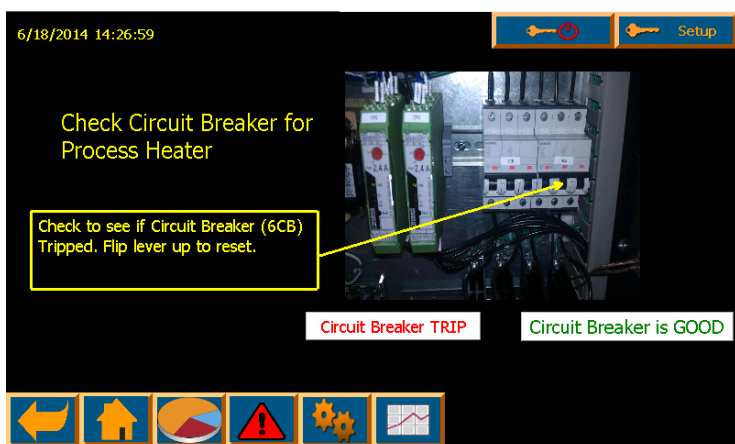
Examples are shown below.



If you need more information about a particular alarm, press  and a more detailed explanation of the alarm will appear, if available. Some even have photos with instructions on how

Press  to see those screens.

Press  to view possible solutions to resolve an alarm.



17.0 MAINTENANCE INSTRUCTIONS

17.1 Suggested Maintenance Schedule*

Component	Action	Frequency
Process Blower Motor Reactivation Fan Motor Rotor Drive Motor	Permanently lubricated - No Action required.	X
Process Filter Regeneration Filter Conveying Air Filter	Clean with compressed air or replace as necessary.	Every 2 weeks
Plasticizer Drain	Drain plasticizer into pan	Every 2 weeks
Process Heater	Compare process temperature setting to hopper inlet temperature to make sure they are comparable. If they are not - Contact NOVATEC Service Department.	Every 2 weeks
Hose, Tubing & Clamps	Check for leaks or holes. Tighten or replace as necessary.	Every 2 months
Hopper Gaskets & Seals	Check for leaks Repair or replace as necessary.	Every 2 months
Pellet Screen	Locate wire mesh at hopper return air outlet and clean with compressed air.	Every 2 months
Rotor Drive Chain & Sprockets	Lubricate	Every 6 months
Rotor Seals	Do Not Disturb Except in an Emergency	X
Rotor Rotation	Preset at factory-No action required. Rotor speed should be 6-12 rotations/hour. If outside this parameter, make sure the limit switch hump is re-setting the limit switch.	X

*This schedule may have to be varied depending on the dust level and abrasiveness of the materials you are processing and the number of hours you are operating the dryer each week.

17.2 Filters

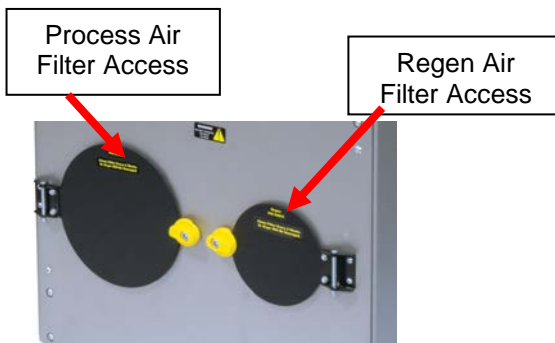
The filters shipped with the dryer are cleanable. The maintenance interval for the filters depends on the cleanliness of the surroundings and the dust/fines in plastic raw materials. A program should be established to ensure the filters are cleaned.

17.3 Process and Regeneration Filters

TURN THE MAIN DISCONNECT SWITCH OFF.

On All Models:

Turn the yellow knob, lift the filter access cover, remove the lock nut and pull cartridge filter out from housing. Replace the filter or clean it with compressed air, reinstall filter, re-tighten the lock nut, close filter access cover and turn the yellow knob to the locked position. Turn the power ON and restart dryer.

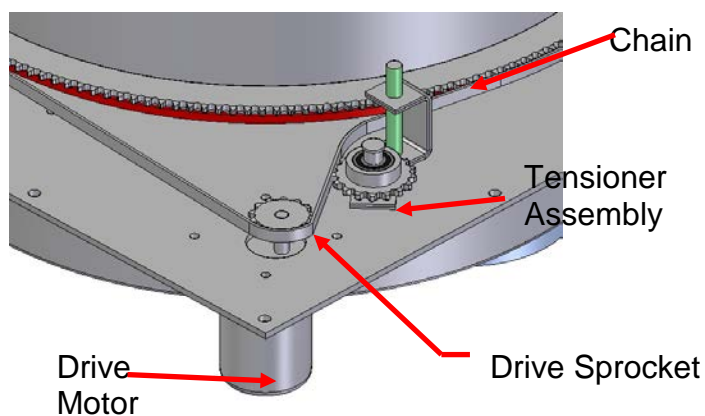


17.4 Draining Plasticizer



All models have a plasticizer drain on the *back panel. Every 2 weeks (or more often) a pan should be placed under the drain and the valve should be turned to the open position to drain any accumulated plasticizer. Close the valve after draining.
*-300 &-400 plasticizer drain on front.

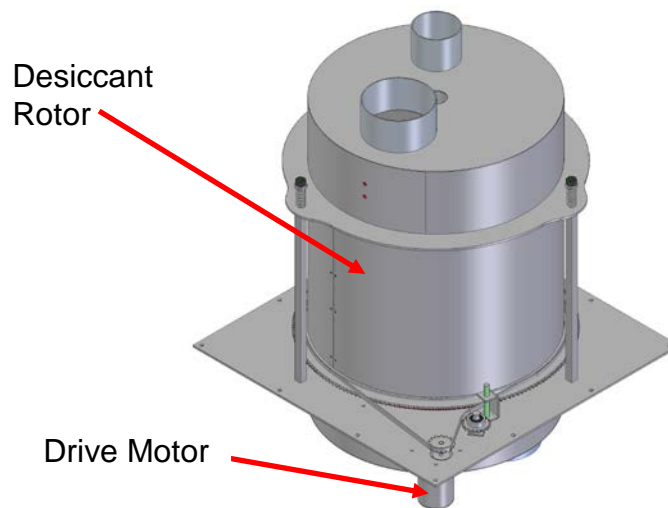
17.5 Chain and Sprockets



Chain and sprockets should be lubricated every six months.

17.6 Desiccant Rotor

The state-of-the-art desiccant rotor supplied with NWB-DC+ series dryers will last very long under ideal conditions. Due to the nature of desiccant and honeycomb matrix they make very good filters. The life of desiccant is directly related to the air born contaminates passed through it. Avoid exposure to acidic gases or unusual amounts of dust. Although the desiccant rotor is considered a cleanable/washable media, the preferred method of cleaning is to blow dust out with low pressure compressed air and to reactivate the rotor at a maximum temperature of 380°F (190°C) for 15 minutes. Washing the rotor, although possible, is not recommended as wash water impurities may contaminate the desiccant. Proper filtration and preventing contact with chemicals will greatly improve the life of the desiccant. Inspect the face of the rotor to see that no surface damage has occurred. The rotor should turn smoothly upon the shaft.



17.7 Motor Rotation Signal

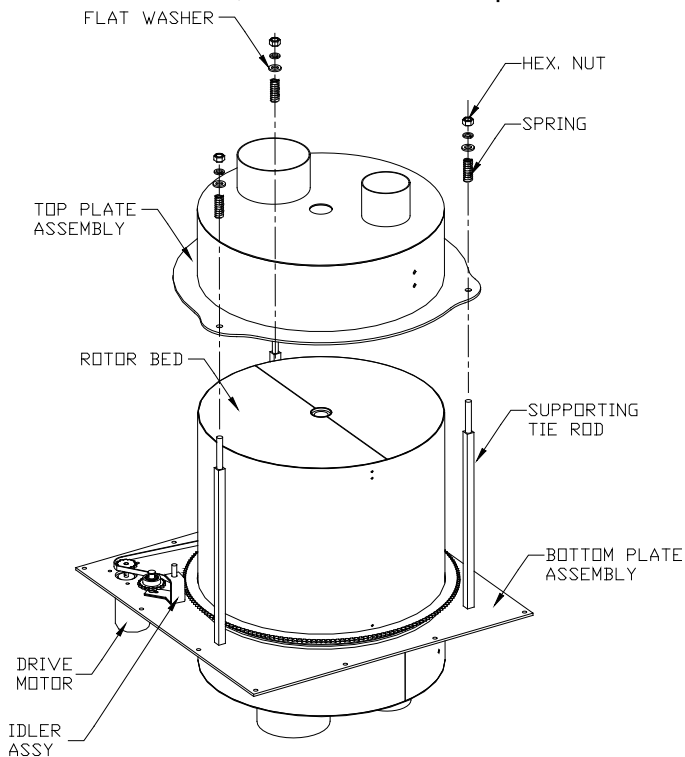
Check that the wheel rotor is rotating properly and each time a signal goes to the controller, ensure that rotor complete its cycle and the limit switch hump has reset the limit switch provided near the rotor. If the hump is not resetting the limit switch, reset the limit switch toward the rotor.

17.8 Rotor Replacement

Desiccant rotor removal is accomplished as follows:

1. Remove the hex nuts on the Top Plate Assy..
2. Remove the washers & spring from the Tie Rod.
3. Slide the Top Plate Assembly straight & upward gently.
4. Loosen the Supporting Tie Rod from where rotor is to be moved.
5. Remove the driven sprocket.
6. Slide the Rotor straight & upward, make sure that rotor does not get damaged.
7. Replace the desiccant rotor.

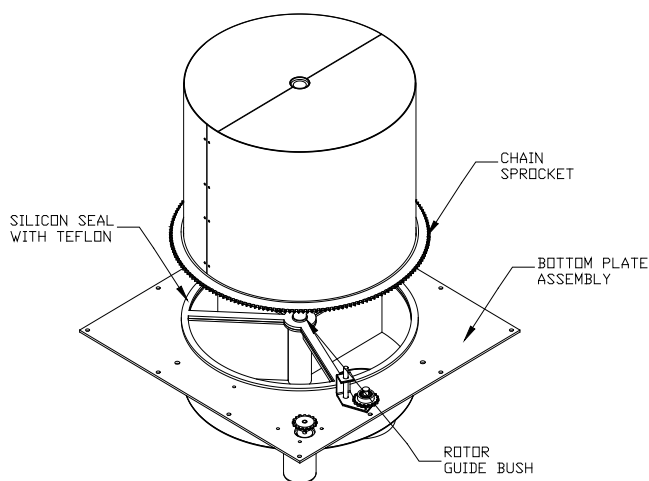
To re-install rotor, reverse the above procedure.



17.9 Seal Replacement

The top and bottom silicon PTFE coated fabric flat seals which separates the process from the reactivation purge compartments. **Normally they do not require service or replacement.** However, should damage occur, or if air leakage is suspected of causing poor performance, the seal should be replaced using the following procedure.

1. Remove rotor from the cassette as explained above.
2. Remove the old seal using knife. Also remove silicon sealant.
3. Clean the plate surface.
4. Apply fresh silicon sealant.
5. Gently press the seal towards the plate, make sure the seal's section does not get offset
6. After joining the seal to the plate, let it dry for 24 hrs.



NOTE: The smooth Teflon coated side of the seal is always on the top side of the seal and there should not be any silicon sealant remaining on that side.

17.10 Drive Motor Replacement

Desiccant rotor removal is accomplished as follows:

1. Remove the chain from the drive sprocket.
2. Remove the drive sprocket from the motor shaft.
3. Remove the screws of the motor from the plate.
4. Replace the drive motor.

To re-install drive motor, reverse the above procedure.

18.0 TROUBLE SHOOTING and ERROR MESSAGES

TROUBLE	PROBABLE REASON	CORRECTIVE ACTION
1. Unit not running	Control main circuit breaker tripped. Main power off. Control power interrupted.	Reset the breaker. Check line and main. Check per item as per electrical wiring diagram.
2. Material in hopper melts.	Process temperature controller set too high for material being dried. Temperature probe not installed in process air stream. Process blower rotating in wrong direction. Temperature sensor connection loose or reversed.	Check set temperature for proper drying process temperature. Ensure temperature probe is installed in the dryer outlet, or in the hopper inlet. Change blower rotation. Correct the connection.
3. Reactivation (regeneration) temperature too high.	Reactivation temperature set too High.	Check set-temperature on NWB-DC+ controller. it should be 380°F (190°C)
4. Reactivation (regeneration) heat too low (Rotor not fully reactivating.)	Reactivation thermostat setting too low Reactivation temperature controller set too Low Reactivation heaters faulty.	Adjust thermostat for proper reactivation heat at around 380° F (190°C) Check set temperature on NWB-DC+ microprocessor controller. it should be 380° F. (190°C) Replace heaters.
TROUBLE	PROBABLE REASON	CORRECTIVE ACTION

<p>5. Material in hopper not getting dried properly.</p>	<p>Clogged Filters</p> <p>Door gasket leaking or damaged.</p> <p>Leak in hose. Hose connection loose. Wrong process temperature for material being dried.</p> <p>Hopper is running almost empty. See #6 below</p>	<p>Inspect, clean/replace filters as necessary</p> <p>Check all gaskets (filter cover, hopper doors, and hopper lids) and repair or replace damaged gaskets.</p> <p>Replace hose</p> <p>Tighten hose connections.</p> <p>Add material to hopper and control the</p>
<p>6. High dew point in process air from dryer into hopper.</p>	<p>High inlet temperature to the wheel rotor (should be less than 150°F per the display).</p> <p>Leaks in the system.</p> <p>High moisture levels in plastic resin being dried in hopper, reducing the drying performance.</p>	<p>Check the cooling water is flowing to the cooling coil and make sure the temperature is below 85°F and at the proper flow.</p> <p>Check the dryer system & hopper for any air leaks & repair as required.</p> <p>Reduce the moisture of the resin being loaded into the hopper. Keep the resin sealed until ready for use, to reduce the amount of moisture being picked up by the resin from the surrounding air.</p>
<p>7. Process blowers not running.</p>	<p>Motor main circuit breaker tripped.</p> <p>Motor overload tripped.</p>	<p>Reset main circuit breaker. Rectify fault reset overload and check motor AMPS are in limit.</p>
<p>8. Dew Point Sensor not working properly.</p>	<p>Not operating</p> <p>High or erratic dew point</p>	<p>Check sensor wiring for tightness & breaks.</p> <p>Check sensor wiring and check tubing to the sensor & sensor for tightness and air leaks.</p> <p>Replace the dew point sensor as required (it should be replaced yearly)</p>
<p>9. Wheel rotor turning but not indexing or showing a RPH speed.</p>	<p>Rotor limit switch not aligned properly. Rotor drive motor defective.</p>	<p>Align the limit switch it should be reset by limit switch hump on each rotation.</p> <p>Replace motor</p>

NOTE: When ALARM message is followed by a ?, press the ? for more information.

19.0 WARRANTY

WARRANTY – NOVATEC, INC. - Effective Date 8 MAY 2017

NOVATEC, INC. offers COMPREHENSIVE PRODUCT WARRANTIES on all of our plastics auxiliary equipment. We warrant each NOVATEC manufactured product to be free from defects in materials and workmanship, under normal use and service for the periods listed under **“Warranty Periods”**. The obligation of Novatec, under this warranty, is limited to repairing or furnishing, without charge, a similar part to replace any part which fails under normal use due to a material or workmanship defect, within its respective warranty period. It is the purchaser's responsibility to provide Novatec with immediate written notice of any such suspected defect. Warranted replacement parts are billed and shipped freight pre-paid. The purchaser must return the suspect defective part, freight prepaid and with identifying documentation to receive full credit for the part returned. Novatec shall not be held liable for damages or delay caused by defects. No allowance will be made for repairs or alterations without the written consent or approval of Novatec.

The provisions in equipment specifications are descriptive, unless expressly stated as warranties. The liability of Novatec to the purchaser, except as to title, arising out of the supplying of the said equipment, or its use, whether based upon warranty, contract or negligence, shall not in any case exceed the cost of correcting defects in the equipment as herein provided. All such liability shall terminate upon the expiration of said warranty periods. Novatec shall not in any event be held liable for any special, indirect or consequential damages. Commodities not manufactured by Novatec are warranted and guaranteed to Novatec by the original manufacturer and then only to the extent that Novatec is able to enforce such warranty or guaranty. Novatec, Inc. has not authorized anyone to make any warranty or representation other than the warranty contained here. Non-payment of invoice beyond 90 days will invalidate the warranty. A renewed warranty can be purchased directly from Novatec.

Please note that we always strive to satisfy our customers in whatever manner is deemed most expedient to overcome any issues in connection with our equipment.

Warranty Periods:

Note: All warranty periods commence with the shipment of the equipment to the customer.

5-Year

Resin Drying to Include

NovaWheel™ Dryers *
Dual Bed Dryers
NovaDrier *
NDM-5 Membrane Dryer
Gas-Fired Process Heaters
Gas-Fired Regeneration Heaters
Drying Hoppers
Central Drying Hopper Assemblies
Heater/Blower Units and Hot-Air Dryer
Silo Dehumidifiers
NovaVac Dryers *

Resin Blending and Feeding to Include

WSB Blenders, MaxiBatch & Feeders *
Gaylord Sweeper Systems

Resin Conveying to Include

GSL Series Vacuum Loaders
GlassVu Loaders, Receivers and Hoppers

Downstream Extrusion Equipment to Include

C and NC Bessemer Series Cutters
NPS Bessemer Series Pullers
NPC Mini Puller/Cutter
All NS Series Servo Saws
All Cooling and Vacuum Tanks Manufactured by Novatec

3-Year

When a Prophecy data plan is activated for VPDB and SVP pumps with PumpSense™, Novatec automatically extends the warranty to 3 years. The data plan must be activated within 60 days after pump shipment, and remain active through the warranty period to maintain extended warranty eligibility. The first 6-months of data plan usage is free from Novatec.

2-Year

Central System Controls to Include

FlexTouch™ Series Controls
FlexXpand™ Series Controls
OptiFlex™ Series Controls
PLC Communications Modules
Greenboard Communications Modules
LOGO! Mini PLC

Moisture Measurement Equipment to Include

MoistureMaster®

PET Resin Crystallizers

Resin Conveying and Systems Components to Include

VL/VLP Series Loaders
VRH, VR, VR-FL & VRP Series Receivers
Compressed Air Loaders
AL-B Barrel Loader
Cyclone Dust Collectors
Conveying System Accessories
Surge Bins
Valves and Accessories
Electronic Metal Separators
Quick Select Manifolds
Tilt Tables
Filter Dust Collectors
Drawer Magnets

1-Year

Resin Conveying System Components to Include

*VPDB Vacuum Positive Displacement Pumps
*SVP Vacuum Pumps
MVP Vacuum Pumps
UltraVac Vacuum Pumps
Vacuum Regenerative Blower Pumps
Velocity Control Valves

Central System Controls to Include

MCS-600 Series Controls – (Distributed I/O)
MCS-400 Series Controls
CL Silo Manager

***Infrared Dryers
Custom Equipment of any kind unless otherwise specified
Railcar Unloading Systems***

*See 3-Year Warranty above

Exclusions:

Routine maintenance/replacement parts are excluded from the warranty. These include, but are not limited to: hoses, desiccant, filters, filter elements, wiper seals, gaskets, dew point sensors, infrared lamps, motors, internal solenoids, fuses and motor brushes. Use with abrasive materials will void the warranty of any standard product. Wear resistant options may be available to extend usable service life with abrasive materials. Novatec reserves the right to limit the warranty if the customer installs replacement parts that do not meet the specifications of the original parts supplied by Novatec.

***Specific Exclusions:**

1. NovaDrier warranty is void if coalescing filters are not replaced on a 6-month or yearly basis (per instruction manual) and/or membrane has been exposed to ozone.
2. NovaVac Dryer -The ability of the canisters to hold vacuum will be compromised if the vacuum seal edge is damaged from mishandling. We do not warranty canisters damaged from improper handling. We do, however, warranty the seals.
3. LOAD CELLS on our WSB's are covered by Novatec standard warranty as long as they have not been damaged from improper handling.
4. Desiccant Wheel Warranty will be void if the wheel has been exposed to plasticizer, dust or other contaminants as a result of negligence on the part of the processor.

This warranty shall not apply to equipment:

1. Repaired or altered without written approval of NOVATEC unless such repair or alteration was, in our judgment, not responsible for the failure
2. Which has been subject to misuse, negligence, accident or incorrect wiring by others
3. Warranty is void if processing rates exceed manufacturer-recommended levels or if damage is caused by ineffective power isolation and/or power spikes/sags or incorrect installation.

NOTE: All conditions and content of this warranty are subject to changes without notice.