

*NovaVac II*TM

Vacuum Resin Dryer

Throughput capacities from <30 - 200 lb./hr.

(<15 – 90 kg/hr.)

WARRANTY: 5-YEARS



- A proven success with over 1000 sold
- Reduces energy costs up to 80% compared to desiccant bed dryers
- Re-designed heavy duty construction worthy of the NOVATEC name
- Smaller footprint than desiccant dryers because there is no large drying hopper nor desiccant beds.
- Dries most resins in about 1/6 the time of a desiccant dryer
- Faster startups result in increased production
- Less exposure time to heat means less material degradation and improved part quality
- Easy-to-reach, easy-to-clean canisters allow on-the-fly material/color changes
- Simple plug and play control can be easily programmed and can be set to alarm when material change is due
- Operates on well-proven laws of physics
- Energy is concentrated on drying resin, not the air in a hopper
- Low maintenance and easy access to all dryer parts.



How the *NovaVac II* works:

Vacuum drying relies on a couple of very simple and well-proven principles of physics:

- 1 – Heating resin excites the internal molecules of moisture.
- 2 – Water boils at about 133°F. when under a vacuum of 25-27” Hg. (depending on altitude)

The Novatec vacuum dryer utilizes these two basic principles to thoroughly dry resin and save energy at the same time.

STEP 1



Moisture laden pellets are loaded into a cannister and hot air is blown through the cannister for about 20 minutes, exciting the water molecules.

Moisture-laden resin is loaded into a stainless steel canister and air, heated to the proper temperature for that resin, is blown into the canister. Since the canister is only 1/3 the capacity of the dryer throughput (33 lb. for a 100 lb./hr. dryer) the resin is easily brought up to the required temperature in a few minutes but the temperature is maintained for about 20 -30 minutes. During this heating process, molecules of moisture become excited. Compare this to heating 400 lb. of resin for 4 hours with a 100 lb./hr. desiccant bed dryer. Then add the energy required to “regenerate” the desiccant and the energy savings of the *NovaVac II* becomes apparent.

STEP 2



Pulling a strong vacuum on the cannister reduces the boiling point of water to about 133°F so it escapes as vapor. The vacuum is continuously applied for approximately twenty minutes until the moisture is drawn off.

The canister of heated resin is then rotated to a second station within the dryer where custom designed gaskets seal off the ends of the canister and a vacuum of 25”-27” Hg. (depending on altitude) is applied to the canister. The boiling point of the water molecules suddenly drops to about 133° F. and the moisture is literally pulled from the pellets as vapor and is drawn out of the resin and expelled from the canister. As water vapor passes through the minimal atmosphere in the canister, the vacuum in the canister is slightly reduced. A reduction in vacuum of 1” Hg triggers a signal causing the vacuum generator to be reactivated to bring the vacuum back to specification as additional moisture is drawn from the resin. This process continues multiple times over about a 20 -30 minute period until the material is dry and ready for processing. A total of only 40-60 minutes (20 - 30 heating and 20 -30 under vacuum) is required for thorough drying of most resins.

STEP 3



The result is dry pellets in about 40 minutes using 70 to 80% less energy than with desiccant dryers.

Next, the canister moves to a third position within the dryer where the dry resin is automatically unloaded and transferred to the process machine. Meanwhile, two other canisters are moving through the heating and vacuum process to keep a continuous supply of resin available.

Advantages

Energy savings - The efficient way that vacuum drying pulls moisture from the resin using proven scientific principles guarantees dry resin with energy savings of up to 70-80%!

Fast drying - Many resins can be dried to your suppliers' specifications and be ready for processing in about 40 minutes... others may take up to 50 or 60 minutes... far less than desiccant dryers.

Quick startup times - From a cold startup, have resin ready for processing in about 1/6 the time it would take with a desiccant dryer.

Less material degradation - Unlike desiccant dryers with 4 hour residence times, the *NovaVac II* only exposes resins to a heated environment for 20-30 minutes so there is little opportunity to degrade material properties and that means fewer rejects and end-products with the properties intended.

On-the-fly material/color changes - No reason to stop production. The *NovaVac II* is designed for easy access to all components and with just a little planning, colors/materials can be changed on the fly, without losing valuable production time.

Low maintenance - No more concerns about desiccant contamination, no desiccant towers, no regeneration heaters, no changeover valves. Easy access to canisters, surge hopper, material take-off valve and filter means reduced maintenance.

Smaller footprint - Valuable floor space is made available because there are no desiccant towers and no large resin hopper.

Simple operation - All dryer functions and alarms are easily programmed... even by inexperienced personnel.



Small canisters facilitate quick heating of resin and are easily removable for on-the-fly changes of colors or resins.



The edges of the canisters are now rolled to eliminate sharp edges and add strength.



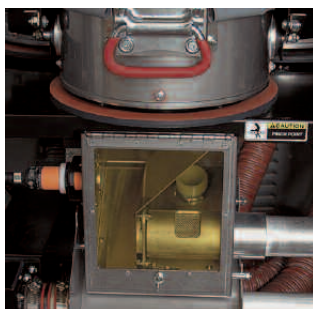
Easy access to all parts of canisters for on-the-fly material change and cleanout.



Easy access to air filter.



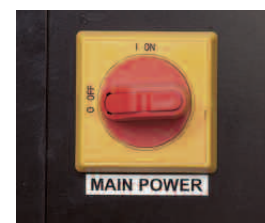
Simple control can be easily programmed and can be set to alarm when material change is due.



Convenient front material drain out.



High-level sensor monitors intake of material and eliminates over-filling of canister.



Emergency STOP is standard.

Dryer Specifications

	U.S. UNITS			METRIC UNITS		
Model	VRD-30	VRD-100	VRD-200	VRD-30	VRD-100	VRD-200
Characteristics						
Throughput Capacity	30 lb./hr.	100 lb./hr.	200 lb./hr.	14ℓ	45ℓ	90ℓ
Canister Volume	0.32 ft. ³	1.1 ft. ³	2 ft. ³	9ℓ	28ℓ	57ℓ
Dryer Dimensions WxDxH	23x26.5x64 in.	30x37.5x82 in.	33x40x97 in.	58x67x163 cm	77x95x208 cm	84x102x246 cm
Dryer Weight	550 lb.	730 lb.	950 lb.	250 kg	331 kg	430 kg
Shipping Weight	620 lb.	800 lb.	1010 lb.	281 kg	363 kg	458 kg
Heater Element	3 kw / 6.25 A	3 kw / 7.5 A	5 kw / 11 A	3 kw / 6.25 A	3 kw / 7.5 A	5 kw / 11 A
Max. Standard Drying Temp.	265° F.	265° F.	265° F.	130° C	130° C	130° C
Max. Optional Drying Temp.	300° F.	300° F.	350° F.	150° C	150° C	177° C
Blower	0.5 hp / 2.5 A	2.5 hp / 6.2 A	3.5 hp / 6.2 A	.37 kw / 2.5A	1.86 kw / 3 A	2.6 kw / 6.2 A
Power Supply	460V/3 ph/60 Hz 3.47 kw / 9A	460V/3 ph/60 Hz 6.96 kw / 18 A	460V/3 ph/60 Hz 7.7 kw / 30 A	400V/3 ph/50 Hz 3.47 kw / 11 A	400V/3 ph/50 Hz 6.96 kw / 16 A	400V/3 ph/50 Hz 7.7 kw / 19 A
Compressed Air Requirement	70-90 psi	6-8 bar	70-90 psi	6-8 bar	70-90 psi	6-8 bar
Compressed Air Usage	0.4 cfm	2 cfm	2.4 cfm	0.7 m ³ /hr.	3.4 m ³ /hr.	4 m ³ /hr.

Recommended Drying Times

Material	Final Moisture %*	Cycle Time Minutes**	Drying Temperature***	
			°F.	°C
ABS	0.10	20 - 25	180 - 190	82 - 88
ABS/PC	0.02	25 - 30	210	100
LPC	0.02	20 - 50	300	150
PA	0.20 - 0.10	20 - 30	180 - 190	82 - 88
PBT	0.02	20 - 25	250	120
PC	0.02	20 - 25	250	120
PC/PBT	0.02	20 - 25	250	120
PEEK	0.20 - 0.10	20 - 30	300	150
PEI	0.02	40 - 60	300	150
PES	0.05 - 0.02	25 - 30	300	150
PET (Inj. Grade)	0.010	30 - 35	300	150
PET (Ext. Grade)	0.005	30 - 35	300	150
PMMA (Acrylic	0.02 - 0.04	30	185	85
POM (Acetal)	0.20 - 0.10	25	210 - 250	100 - 120
PPO	0.02	25	300	150
PPS	0.02	25	300	150
PUR	0.02	25	160 - 180	70 - 82
PSU	0.02	25 - 30	300	150
SAN	0.20 - 0.10	20 - 40	180	82

About Drying Times

This table shows recommended specifications for drying these resins. If your material is not shown, please contact NOVATEC to arrange for testing.

* Final moisture content as recommended by the raw material supplier.

** Recommended cycle time is based on average initial moisture content. For higher initial moisture, cycle time should be extended 5 minutes.

*** As recommended by the material supplier.

Only NOVATEC...

sells and services ALL types of dryers so only NOVATEC will give you an honest appraisal of your drying needs.

A comment about dew point:

Vacuum drying IS NOT ABOUT -40° dew point process air. Vacuum drying IS ABOUT drying resin in the fastest, most energy-efficient way.

Dryers referencing a dew point operate on a principle of heating and drying the air surrounding the resin so that moisture moves from the resin to the low dew point air.

Low dew point refers to the dryness of the air entering the resin hopper...not to the dryness of the pellets. There is no dew point reading for vacuum dryers because they operate on different principles.



222 East Thomas Avenue
Baltimore, Maryland 21225 USA
Phone: 410-789-4811 • Fax: 410-789-4638
1-800-BESTDRY (800-237-8379)
email: sales@novatec.com
Website: <http://www.novatec.com>