



Infrared Rotary Crystallizer/Dryer

Crystallize and dry in 1-Hour in 1-Step!
Reduces energy costs by up to 45%.

Novatec Infrared Rotary Drum Crystallizer/Dryer Systems are ideal for processors of flake, amorphous pellets and processors of polyester fiber. They provide continuous processing of PET flake, reducing moisture from over 3500 ppm to less than 50 ppm in about an hour, compared to 5-6 hours for conventional systems.



One Step Process

The IRD system crystallizes and dries up to 4000 lb/hr (1800 Kg/hr) in one process.

One Hour From Over 3500 ppm to Less Than 50 ppm

Material is dried to less than 50 ppm in 1 hour - that's 4-5 times faster than conventional crystallizer systems.

Energy Savings Up to 45%

Infrared lamps provide efficient crystallizing/drying in one hour, drastically reducing energy costs compared to conventional systems.

Up to 300% Space Savings

Due to drastic reduction of "in-process inventory and smaller equipment footprint.

Quick Change-over and Shutdown Time

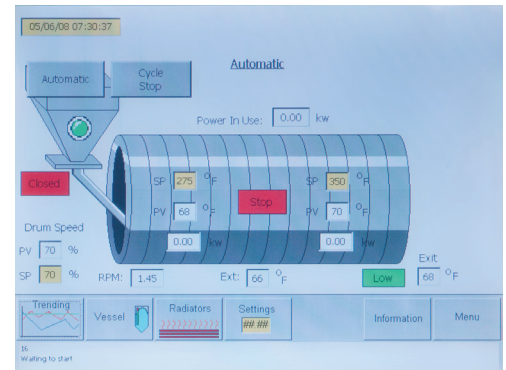
In-process inventory is only one hour of throughput capacity instead of 5-6 hours of production as with conventional crystallizer systems.

Faster Start-up

More production time results from the minimal in-process inventory.

Maintains Critical Resin Properties

Short exposure to heat help maintain critical properties including IV.



Color touch screen control

Plus

› 1-Year warranty

How the Novatec IRD Works

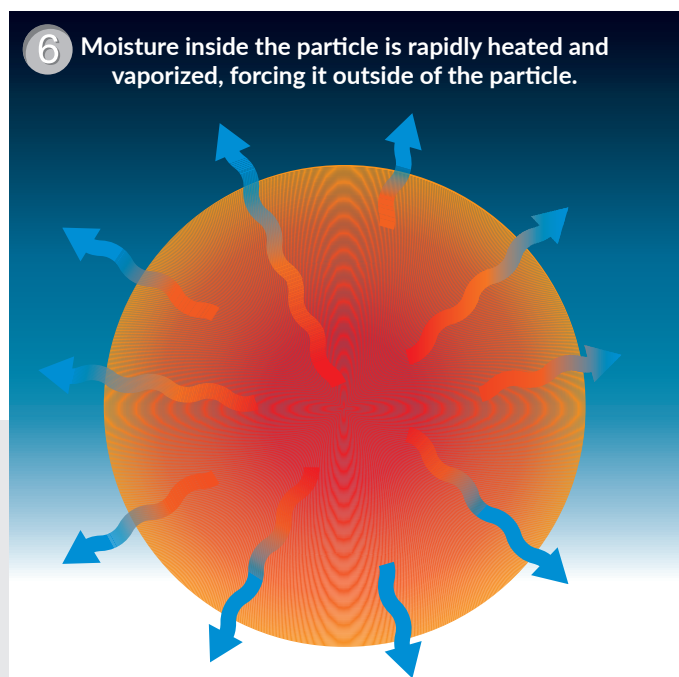
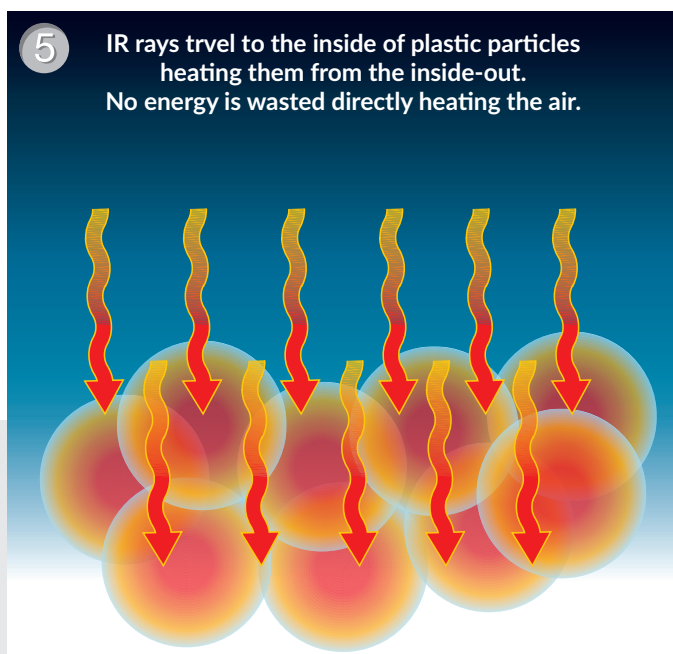
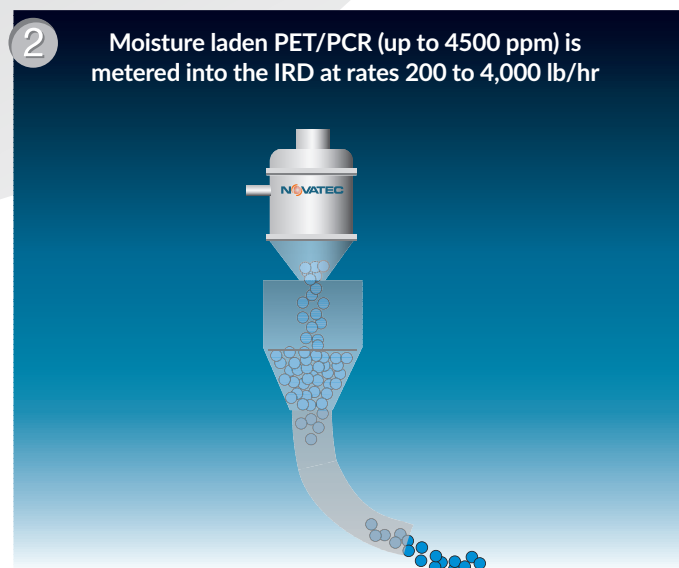
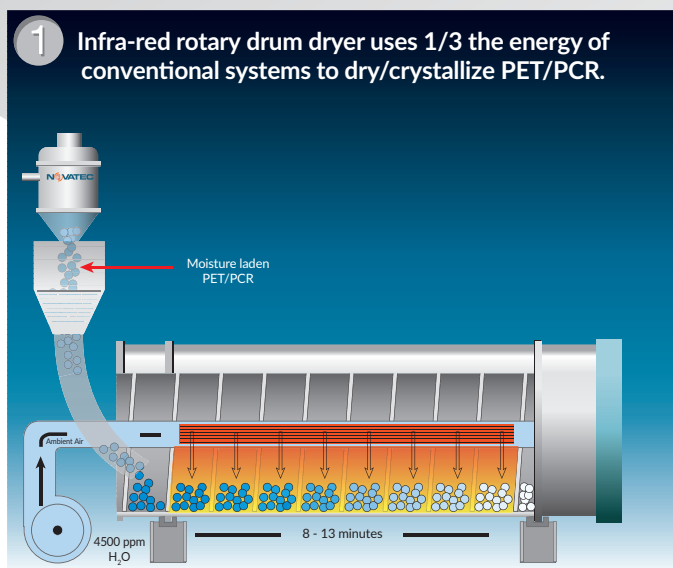
Moisture-laden PET regrind is fed into the rotary drum inlet of the IRD using a standard Novatec resin loading system. Special provisions can be made for loading low bulk density material.

Sensors monitor the material level in the supply hopper to ensure continuous operation and the entire process is controlled by a SIEMENS Touch Panel PLC.

The rotating drum gently transports the material through the length of the drum using an internal helix. The drum is fitted with "tumbler fins" ensuring that all surfaces of the material are quickly exposed to the rays from the banks of IR heaters. This guarantees fast crystallization and drying.

Energy costs are reduced by up to 45% because infrared rays are so much more efficient at crystallizing/drying the material than a conventional desiccant system. The lower energy costs translate into an excellent return on investment.

There is no need for high volume, bulky desiccant dryers and hoppers that are required with conventional crystallizing systems. The traditional crystallizer unit, by necessity, has a height that sometimes requires plant modification. A separate dryer, with the throughput capacity of the extruder, adds to the total cost and footprint and greatly increases energy usage.



The IRD crystallizes and dries in one operation. A low cfm dryer connected to a buffer hopper, holding about one hour of extruder production capacity, is used to further reduce the resin moisture content to the desired final level (can be below 50 ppm) while waiting to be processed. The total energy required to operate the IRD system is far less than using a conventional crystallizer plus a large desiccant dryer.

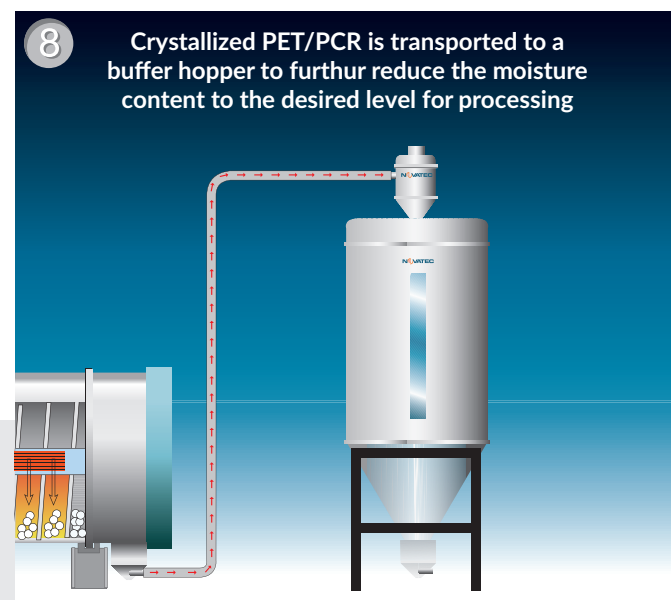
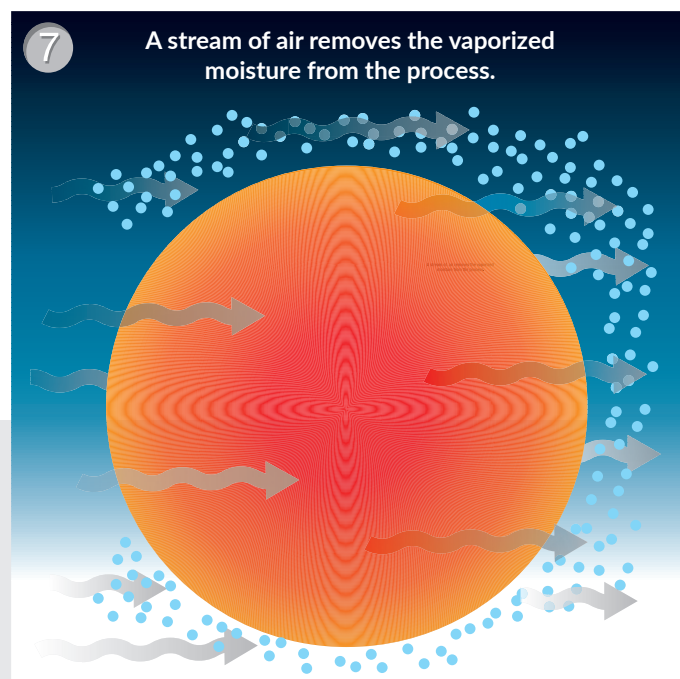
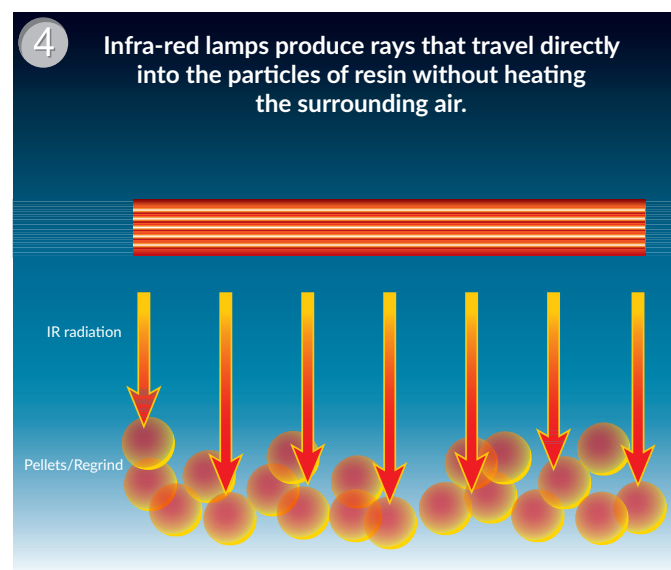
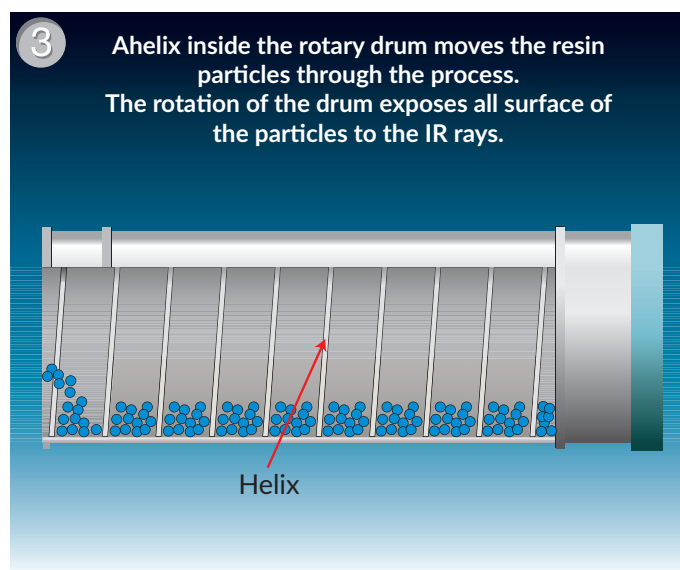
IRD start-up time is minimal so processors are operating faster from a cold startup. Material change over and clean-out is accomplished faster, than with conventional systems, translating into reduced material waste and more production time.

Maintenance on the Novatec infrared rotary dryer/crystallizer is minimal. There are no rotating agitators to bend and break and no large desiccant dryer and hopper with their associated maintenance.

The Novatec IRD system is designed to overcome disadvantages associated with competitive units and Novatec is the only U.S. manufacturer of IRD systems for plastics processors.

Our drying technology center in Baltimore is available to demonstrate actual drying/crystallizing results using customer-supplied material.

Contact Novatec for further information.



Unique tumbling action in the rotating drum exposes all resin surfaces to the IR heat source

Up to 300% space savings due to drastic reduction of "in-process" inventory

Minimizes change-over time associated with conventional crystallizers

Faster start-up and quick change-over results in more production time

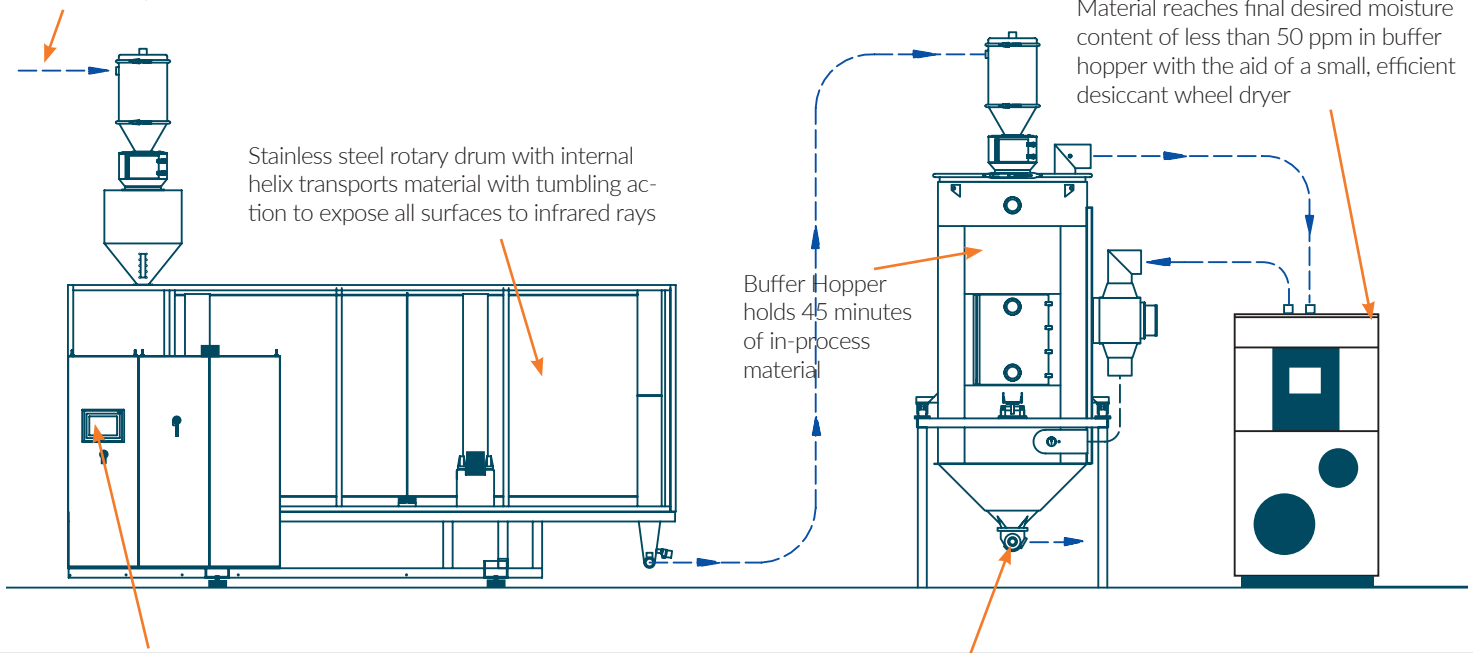
Maintains critical resin properties because of the short exposure to heat



Typical Novatec IRD Crystallizer/Dryer System

More than 100 systems installed worldwide!

PET with up to 3500 ppm moisture content is continuously fed into IRD



Touch screen controller programmed to cycle infrared elements on/off to maintain proper temperature in each zone

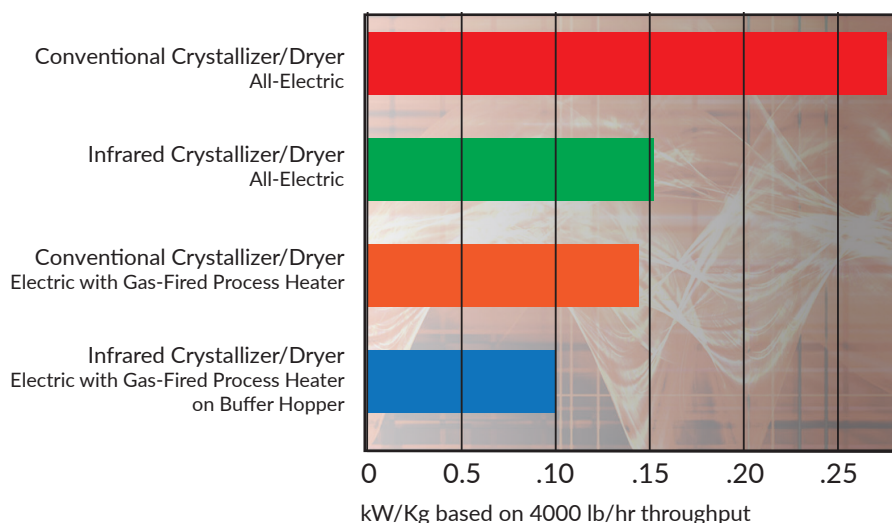
IRD Compatible Materials

PIR	Post industrial regrind
CPET	Crystallized PET
APET	Amorphous PET
PETE	Crystalline PET
R-PET	Reprocessed PET
PCR	Post consumer regrind

Material with less than 50 ppm moisture content is pneumatically conveyed to machine throat

NOTE: Various de-dusting options are available when processing dust-laden material.

Infrared Energy Savings up to 45% Qualifies for tax rebate in some states

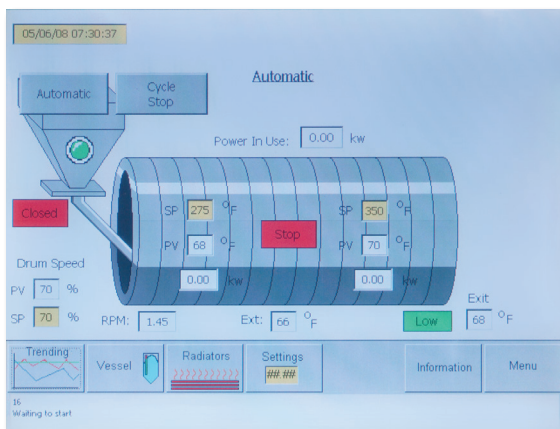


An all-electric IRD uses about half the energy required for an all-electric conventional crystallizer/dryer.

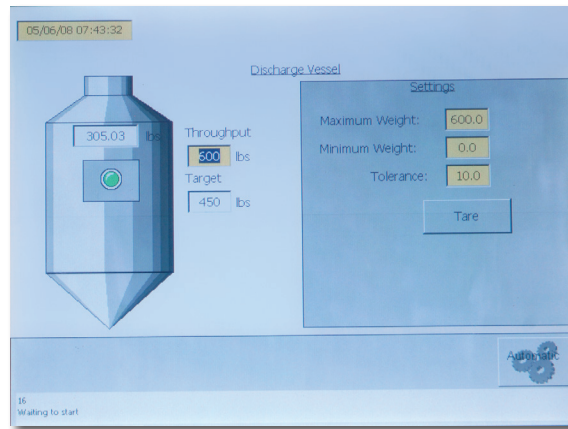
An IRD with a gas-fired process heater on the buffer hopper, uses about 30% less energy than a conventional system with a gas-fired heater.

Proprietary Color Touch-Screen Control

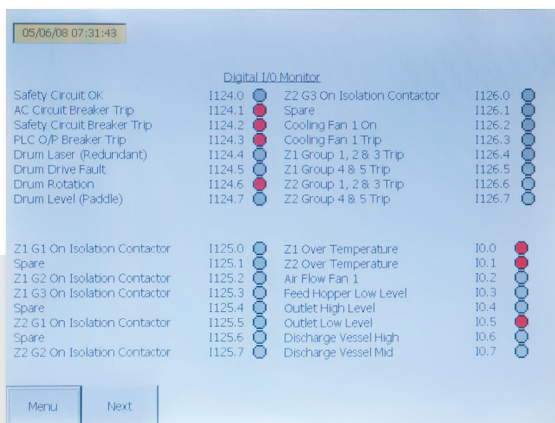
Easy-to-understand displays provide control over all IRD functions



"Automatic Operation" screen displays current conditions



Throughput settings screen for the buffer hopper



Monitors all inputs and outputs continuously



Temperature trending screen for heating zones

Busting the myths circulating about Infrared Dryers:

Myth: Infrared rays destroy the IV properties of PET flake

Truth: In fact, short exposure to heat in the IRD actually preserves IV properties.

Myth: Initial cost of IRD systems is much higher than conventional systems

Truth: Initial costs of IRD and conventional systems are very comparable.

Myth: Infrared systems can not get PET flake moisture below 50 ppm

Truth: Moisture content of less than 50 ppm is attained in one hour and the moisture content can be controlled to higher levels if required.

Myth: IRD technology is only applicable on low throughput applications

Truth: Novatec has built systems to process over 4,000 lb/hr

Myth: IRD is such a new technology that it is not proven

Truth: There are over 100 infrared drying systems actively being used by plastics processors around the world.

Myth: IRD dryers are not being used for anything but PET

Truth: Though we have heard of the IRD being used to dry other resins, Novatec is not currently recommending those uses... but we are working on it.



Only 10 minutes from BWI Airport

Tests in our Drying Technology Center and in extrusion plants confirm drastic energy savings – while reducing moisture content from upwards of 4000 ppm to less than 50 ppm in 1 hour using the proprietary Novatec IRD system.

We invite PET processors to furnish gaylords of the material they want tested and to visit our drying technology center to witness actual test results.



Measuring moisture content of material samples

Nominal Dimensions and Throughput Capacities

Model Number	IRD-500	IRD-1000	IRD-1500	IRD-2000	IRD-3000	IRD-4000
Throughput*	180-450 lb/hr 82-200 Kg/hr	300-800 lb/hr 140-360 Kg/hr	500-1200 lb/hr 225-540 Kg/hr	700-1750 lb/hr 320-800 Kg/hr	1000-2400 lb/hr 450-1100 Kg/hr	1600-4000 lb/hr 725-1800 Kg/hr
L x W x H**	9.7x4.8x6.8 ft 3x1.5x2 m	9.7x4.8 x 6.8 ft 3x1.5 x 2 m	13x4.8x6.8 ft 4x1.5x2 m	13.2x6.6x9.2 ft 4x2x2.8 m	16.9x6.6x9.2 ft 5.2x2x2.8 m	17.6x6.6x9.2 ft 5.4x2x2.8 m

* Depending upon bulk density of material.

** Add 4.8 ft (1.5 m) for feed Hopper with loader extension

Baltimore, MD 21225 USA 410-789-4811 | Fax: 410-789-4638 | 1-800-BESTDRY (800-237-8379) | sales@novatec.com | www.novatec.com