

Single, Simple Control: Intuitive Drying

One control does it all. Milacron has eliminated the need to learn different controls or platforms for different features or dryer sizes. From small to large, fully-loaded or basic, all Milacron Carousel Plus dryers now use the same control. We believe this is the most intelligent touch screen dryer control to date, anywhere. Individual screens show how your process is running and ways to improve it. Plus, you control and monitor process heat from the dryer, whether you have one hopper or 16, whether you're heating with a multiple central drying hoppers (like a ResinWorks sled) or individual hopper heaters, or even natural gas (like the GasTrac).

Purchase this easy-to-use dryer and you will find that you have more control over dewpoint and temperature than ever before.



Model M-d600
Shown with DC-C control

Large Capacity Central or Machine-Side Drying, Any Heat Source

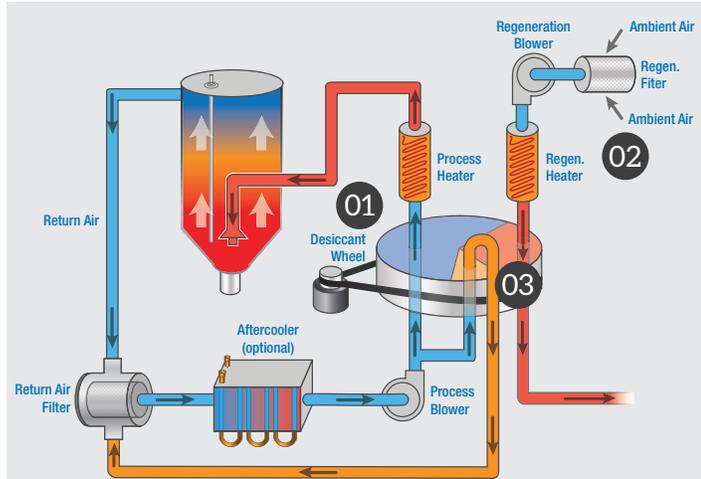
The Carousel Plus Dryer Series is now offered with TouchView™ Technology featuring full-color touchscreen controls. DC-C Premium dryer controls display critical process settings and live data on a 7-inch touchscreen graphical layout. At a glance you see everything going on in your drying system and can make adjustments with a touch of your fingertip for more efficient drying, better product quality and more profit on your bottom line. Warning messages are easy to read. No cumbersome alarm codes. Descriptive help screens make sure every operator understands how to use the dryer. Password security prevents unauthorized drying parameter changes. With DC-C, your control is web-enabled, so you can connect wirelessly with your tablet or smartphone.

The Md600-5000 series of dryers are capable of delivering nominal throughput rates ranging from 600 to more than 5,000 lb/hour {272 to 2,268 kg/hr}.

- ▶ **Easy-to-use, full-color touchscreen**
Intuitive screen navigation will allow you to easily view critical drying parameters such as dewpoint and temperature. A simple but very smart control makes operation easy and stress-free, while still offering the latest and greatest in drying technology.
- ▶ **Reduced energy costs**
The desiccant wheel assembly heats and cools more easily than previous drying technology saving you up to 35% on your energy bill. Fewer parts, lighter structural mass, less to heat, therefore less wasted energy.
- ▶ **Maximum uptime, maximum reliability**
With significantly reduced part count, easy access, and less wear, you can expect many years of trouble-free operation. The weight of the desiccant assembly has been reduced by 70%, the part count reduced by 90%, there are no more indexing bed plates, no more cumbersome 4-way valves and no more messy desiccant beads.
- ▶ **Precise, adjustable dewpoint control**
An industry first! The dewpoint control option built into the microprocessor control system allows you to select a particular dewpoint value, which the control locks onto. The control then adjusts various dryer functions to precisely hold the dewpoint selected, resulting in rock-steady dewpoint without swings. All accomplished while using less energy.

How it Works

The core of the Carousel Plus Dryer is the Munters® unique fluted desiccant rotor, which contains molecular sieve desiccant. The molecular sieve has been grown into the rotor's porous fiberglass substrate, preventing the possibility of desiccant break down and dusting over time. The desiccant rotor revolves slowly, passing through three cycles with each revolution.



Note: Dryers Md600-Md5000 that are central dryers do not have process heaters. Heater Packs, Hopper Temperature Controllers (HTC's), or GasTrac Dryers (CGT's) are used at the hopper for heating the process air.

The Benefits

- The high airflow across the surface area of the rotor produces a resin-drying low dewpoint within 5 minutes of start-up and offers multi-year media life with virtually no maintenance.
- No beads means no dust, no change in performance over time, and no dreaded tank changes.
- The continuously revolving rotor provides rock steady temperature and dewpoint control - no sways.
- The rotor technology minimizes energy consumption by reducing the structural mass; less structural mass to heat means less energy wasted.

01

First, the dry air is dehumidified in the adsorption cycle, capturing and removing moisture from the drying air stream.

02

Next, the desiccant passes into the high temperature regeneration cycle where the absorbed moisture is heated and purged out of the desiccant to the atmosphere.

03

The desiccant is then advanced to the post-regeneration cooling cycle and cooled with closed loop dry air. All Carousel Plus Dryers feature this unique closed loop cooling technology to eliminate moisture that can cause defects in parts.

Just tell us what you want. Each option is available individually.

Standard Features	Standard	Optimizer™
Features		
7-inch touch screen HMI	●	●
English or Metric units	●	●
Password protection levels	●	●
Recipe storage	●	●
Trending	●	●
Audible and visual alarms	●	●
Temperature Setback	●	●
Auto start/stop	●	●
Energy usage meter	●	●
VNC viewer	●	●
Dewpoint monitor	●	●
Dewpoint control	●	●
Water-cooled aftercooler	●	●
Return air dewpoint		●

Options	Standard	Optimizer™
Options		
Volatile trap	○	●
Drying Monitor	○	●
VFD (Variable Frequency Drive)	○	●
Process filter check	○	●
Modbus communications	○	○
Conveying (2 loaders, 1 pump)	○	○
Add an option to the loader*	○	○
H2O flow valve	○	○
UL label	○	○
SmartServices	○	○
Water-cooled precooler	○	○
Continuous level sensor	○	○

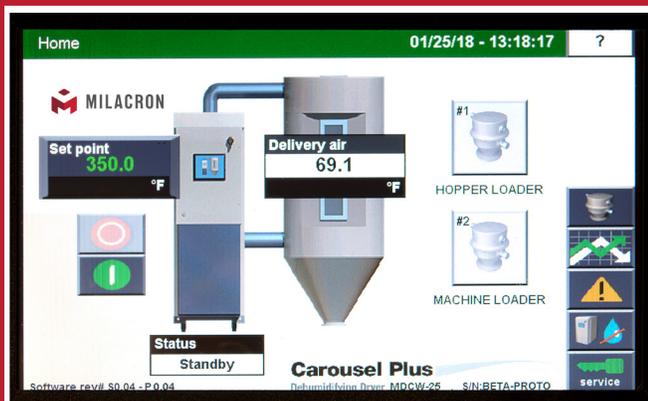
* Available loader options include: purge, ratio, and positive discharge

● Standard ○ Option

Feature and Option Descriptions

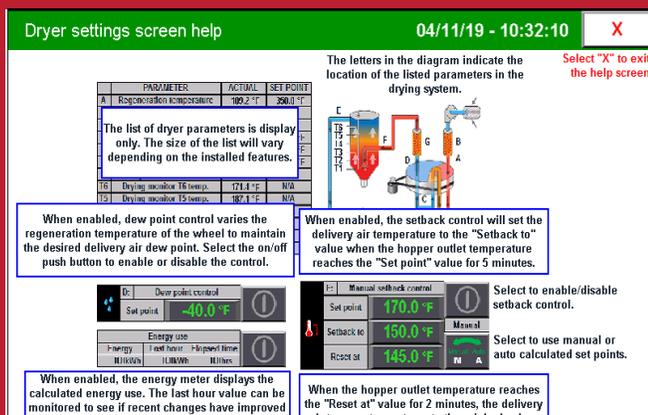
- **Audible and visual alarm** - A combination of a blinking red alarm light and a horn alert the operator to any shut down alarm.
- **Temperature Setback** - Automatically reduces the drying temperature to a lower standby mode when the machine throughput is reduced or stopped.
- **Dewpoint monitor** - Allows the operator to monitor the performance of the dryer by providing a digital dewpoint readout of the drying air.
- **Dewpoint control** - Allows the dryer to lock onto and track an operator selected dewpoint level. This feature helps prevent over drying of moisture sensitive materials such as Nylon. The Carousel Plus is the first dryer in the plastics industry to provide precise dewpoint control.
- **Precooler** - To achieve and maintain very low drying temperatures, a pre-cooler can be supplied to assure the supply air to the hopper is not heated by the heat of the dryer's blower, residual heat from regeneration, etc.
- **Volatile Trap** - Extend the operational life of filters and desiccant when dehumidifying materials that give off volatiles during the drying process. The volatile trap option provides a serviceable collection filter for volatiles on the return line of the system.
- **Filter check** - Keeps the drying system's air flow optimized by monitoring the filter condition through automatic differential pressure measurements on each side of the filter. An alarm indicates when it's time for cleaning.
- **Drying Monitor** - Automatically monitors the temperature profile inside the drying hopper(s) within a pre-set temperature band to protect from over drying or under drying your material.
- **Communications** - Allows the dryer to be networked to industrial control systems. When a dryer is connected to a network, the controller on the network may read actual temperatures, change set points, read dryer status, and process and display this information at a central location.
- **Conveying** - Control your conveying equipment, up to two receivers and a single pump. You chose where you want your receivers - on the machine throat, on the drying hopper(s).
- **Recipe storage** - Allows the operator to save current settings for a specific material or process as a recipe. Saved recipes can be instantly recalled when you are processing the same type of material again. Recipes can have custom names and can be saved to a flash drive, where they can be stored for safe-keeping or used to program multiple dryers with the same settings.
- **Energy use meter** - The energy use meter displays the calculated energy use. This is extremely useful for seeing the energy savings from features like Temperature Setback and Dewpoint Control. It also is useful for tracking energy use that could indicate a system problem.
- **Auto Start and Auto Stop** - Auto Start and Auto Stop allow setting start or shut down times on a calendar. This calendar has the days of the week. Start/stop can be set for certain times each day.
- **Continuous level sensor** - Available with hopper sizes CH54 and larger, the DC-C control, with the appropriate hardware, can accurately read the resin level inside the hopper. More importantly, it allows you to set the desired fill level. No need for devices in the hopper or multiple sensors.

One easy-to-use control, limitless possibilities

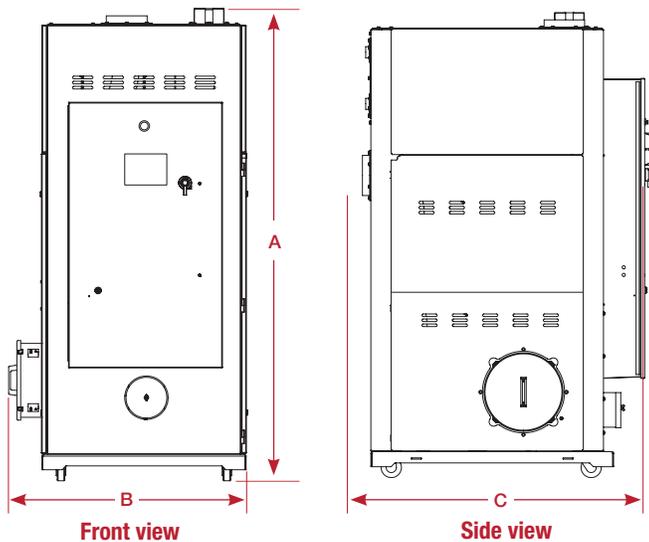


One control does it all - the new DC-C Premium

- 7-inch color touchscreen
- Web-enabled
- Trending - air temperature and dewpoint, heater on time %, energy usage
- Password protected (multiple level)
- English / metric units
- Return air temperature display
- Real-time clock - time of day
- Auto start / auto stop
- Milacron's Drying Monitor is the most accurate method to determine if all resin is dried prior to molding. It is the only technology created for analyzing drying performance from a multi-zone, resistance temperature detector (RTD) probe installed inside the drying hopper. Competitive methods detecting moisture at the throat, which is too late. Embedded into the DC-C dryer control software, Drying Monitor is designed to provide early detection of poor drying conditions and provide alarms for correcting problems. Up to 16 hoppers can be monitored and controlled from each dryer.
- When ordered with the Drying Monitor package, Milacron's DC-C control includes a set of contacts that can be used for your application needs. For example, the contact can be utilized for a conveying interlock or another custom-configured option.
- Date format selection
- Temperature Setback
- Solid-state heater contactors with isolation protection
- Multiple hopper control
- Descriptive help screens
- Energy usage meter
- Recipe storage
- Dewpoint monitor and control



Specifications



Application Notes

All dryers are supplied with an aftercooler/intercooler as standard. The aftercooler/intercooler reduces the temperature of the return air from the drying hopper, improving the efficiency of the desiccant. The aftercooler/intercooler should be connected with the proper water flow rate and temperature to attain the optimal throughput.

When to use central models
 Central dryers do not have process heaters. These models should be used when drying multiple materials that require different drying temperatures. Central models dehumidify the process air, which is then heated to the correct setpoint by a Hopper Temperature Controller (HTC) or a "pre-heater" mounted on the hopper.

When to use additional filtration
 The standard return air cartridge filter is sized for the airflow of each dryer model and is suited for most applications. You should consider adding an optional dust collector and/or volatile trap if:

- The material contains excessive fines. An additional dust collector or cyclone will extend time between filter cleaning.
- The material produces volatiles during drying which condense into a waxy or oily residue.
 A volatile trap will help to protect the desiccant.

Models	Md600*	Md800*	Md1000*	Md1300*	Md1600*	Md2000*	Md2400*	Md3200*	Md4000*	Md5000*
Performance characteristics (with full hopper)										
Drying temperature	All models 100° - 375°F {38° - 191°C} with options									
Dewpoint	All models -40°F {-40°C}									
Dimensions inches {cm}										
A - Height	93.8 {238.3}			92.2 {234.2}			98.3 {249.7}			
B - Width	49.3 {125.2}			53.9 {136.9}			58.2 {147.8}			
C - Depth	63.1 {160.2}			97.5 {247.6}			112.9 {286.7}			
Outlet/inlet hose diameter	8.0 {20.3}			12.0 {30.5}						
Approximate weight lbs {kg}										
Installed	1300 {590}		1400 {636}		1600 {726}			2000 {907}		
Shipping	1495 {678}		1515 {687}		2620 {1188}			3385 {1535}		
Voltage - standard/central full load amps† ††										
400 V/3 phase/50 Hz‡	89.1 / 34.2	116.6 / 34.2	116.6 / 34.2	180.1 / 70.3	186.5 / 76.7	214.0 / 76.7	249.6 / 84.9	282.2 / 90.0	371.4 / 96.9	371.4 / 96.9
460 V/3 phase/60 Hz	77.7 / 29.9	101.6 / 29.9	101.6 / 29.9	157.2 / 61.6	162.6 / 67.0	186.5 / 67.0	216.9 / 73.5	246.5 / 79.2	322.9 / 83.9	322.9 / 83.9
575 V/3 phase/60 Hz	61.9 / 26.7	81.0 / 26.7	81.0 / 26.7	125.6 / 49.2	130.0 / 53.6	149.1 / 53.6	173.3 / 58.7	197.0 / 63.3	258.1 / 67.1	258.1 / 67.1
Water requirements (for aftercooler or optional precooler)§										
Recommended temperature**	45° - 85°F {7° - 29°C}									
Water flow gal./min. {liters/min.}	6 - 25 {22.7 - 94.6}††			12 - 40 {45.4 - 151.4}††			15 - 50 {56.8 - 189.3}††			
Water connections NPT	1 1/2 inch									

Specification Notes

* Dryers M-d600-M-d5000 that are central dryers do not have process heaters. Heater Packs, Hopper Temperature Controllers (HTC's), or GasTrac Dryers (CGT's) are used at the hopper for heating the process air. See the Hopper Temperature Controller (HTC) and GasTrac Dryer (CGT) specification sheets for further technical information. Even though Heater Packs are remote from the dryer, they are controlled by the dryer.

† The first full load amps number listed includes current to operate the dryer and the heat supply controlled by the dryer. The second full load amps number is current required for the dryer only, when operated as a central dryer with heaters (more than one) controlled and powered remotely. **Dryers that have the optional VFD will see an increase in FLA by up to 10% on standard units, and an increase of up to 20% on units used as central dryers.**

‡ Dryers running at 50 Hz will have 17% less airflow, and a 17% reduction in material throughput.

§ When drying below 150°F {66°C} a precooler is required.

**Temperatures above or below the recommended levels may affect dryer performance. Tower, chiller or municipal water sources can be used.

†† Higher chilling water temperatures will require a greater flow rate.

‡‡ FLA data for reference purposes only. Does not include any options or accessories on equipment. For full FLA detail for power circuit design of specific machines and systems, refer to the electrical diagrams of the equipment order and the nameplate applied to the machine.

Specifications may change without notice. Consult a Milacron representative for the most current information.

Installation Note

Wiring between process air heater, Heater Pack, and dryer where control for this heater is located is not included. Maximum wire length between dryer and heat source is 100 feet {30 meters}. Consult Milacron or a qualified electrician to determine gauge of wire required for distance. Maximum physical distance between dryer and hopper is 20 feet {6 meters}.