Touchscreen Technology
in a Compact Wheel Dryer

Now with a 4-inch or 7-inch DC-C touchscreen control, Conair's smallest Carousel Plus™ Dryers just got smarter! Dubbed the Carousel Plus, everything about this dryer is improved to help you stay profitable in a dramatically more competitive world market. The product improvements are an extension of the legacy of the original, workhorse Carousel desiccant dryers.

Purchase this dryer and you will find that you have more control over drying dewpoint and temperature than ever before, in a package that is simpler, smaller, lighter, more energy efficient, easier to use and maintain than any other dryer on the market today.

Model D25

Compact Dryer, Impressive Performance, No Cooling Water Required

These dryers are small enough to be used beside the machine with a mating hopper, yet powerful enough for small multiple hopper systems as well.

The Carousel Plus™ Dryers use molecular sieve desiccant that is bonded onto a fiberglass substrate and formed into a continuously rotating wheel. The result is rock steady drying temperatures and dewpoint levels, critical for processing moisture and temperature sensitive material.

This range of dryer models are capable of delivering nominal throughput rates ranging from 10 to more than 100 lb/hr {4.5 to 45.4 kg/hr}.

The new optional air-to-air aftercooler means this dryer does not require cooling water, saving additional installation and operation costs.

Also available as a mobile drying and conveying unit. *Refer to the dX spec sheets for more information.*

- **Reduced energy costs**
  The desiccant wheel heats and cools more easily than other drying technology saving you up to 50% on your energy bill. Fewer parts, lighter structural mass, less to heat, no cooling water needed therefore less wasted energy. Easily view power consumption on the DC-C control's "Energy Usage Meter".

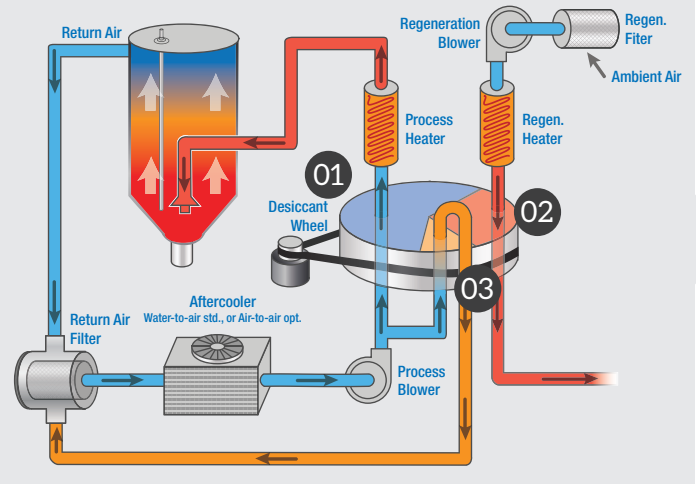
- **Advanced touchscreen controls**
  The 4-inch Plus, or 7-inch Premium DC-C control features trending, auto-start, password protection, predictive maintenance and an energy usage meter.

- **Maximum uptime, maximum reliability, smaller footprint**
  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. Shift-after-shift this dryer will deliver the performance you need to stay up and running.

- **Precise, adjustable dewpoint control**
  The dewpoint control option built into the microprocessor control system allows you to select a particular dewpoint value, which the control locks onto and maintains. The control then adjusts various dryer functions to precisely hold the dewpoint selected, virtually eliminating any chance of over drying expensive material.

How it Works

The core of the Carousel Plus Dryer is the Munters® unique fluted desiccant rotor, which is made of molecular sieve desiccant. The molecular sieve has been grown onto the rotor's porous fiberglass substrate, preventing desiccant break down and dusting over time. The desiccant rotor revolves slowly at the rate of 12 revolutions per hour, passing through three cycles with each revolution.



The Benefits

- The high airflow across the rotor surface area produces a resin-drying low dewpoint within 5 minutes of start-up and offers multi-year media life with virtually no maintenance.
- The continuously revolving rotor provides rock steady temperature and dewpoint control.
- The rotor technology minimizes energy consumption by reducing the structural mass. Less structural mass to heat means less energy wasted.

01

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

02

The desiccant passes into the high temperature regeneration cycle. 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. This unique closed loop cooling technology eliminates moisture that can cause defects in parts.

Recommended Throughputs (60 Hz chart)*			For 50 Hz Application, Reduce Rates by 17%						
Material	Drying Temp / °F {°C}	Drying Time / Hr †	Initial Moisture %	Bulk Density ‡	Model Throughput Rate§ / Lb / Hr				
					D15 **	D25 **	D50 **	D75 **	D100 **
ABS	180-190 {82-88}	4	0.40	40 {0.64}	15	25	50	75	100
Acetal	180-230 {82-110}	4	0.60	40 {0.64}	13	19	37	55	75
Acrylic	170-180 {77-82}	4	0.30	40 {0.64}	17	29	59	86	116
Nylon	160-180 {71-82}	6	0.40	40 {0.64}	16	27	54	80	108
PBT	210-260 {99-127}	4	0.30	45 {0.72}	17	28	56	83	112
PC	250 {121}	4	0.30	40 {0.64}	16	26	52	77	104
PE (HD/LP) w/40% black	170 {77}	5	-	26-34 {0.42-0.54}	15	25	50	75	100
PET virgin bottle grade	300-350 {144-177}	6	0.30	50 {0.80}	15	25	50	75	100
PETG	140-150 {60-66}	6	0.30	50 {0.80}	16	27	54	80	108
Polysulfone	200-275 {93-135}	4	0.50	50 {0.80}	8	16	32	46	62
Polyurethane	180-210 {82-99}	4	0.50	40 {0.64}	9	17	35	51	70
SAN	160-180 {71-82}	2-4	0.30	45 {0.72}	20	31	63	94	125

Select the right dryer for your application –

1. **Identify the resin and throughput rate.**
   Use the chart to quickly select the correct dryer model for your throughput rate.
2. **Multiply the suggested drying time by your throughput rate to determine the hopper size.**
   Refer to Conair drying hopper specifications, or contact a Conair representative to determine the correct hopper for your application.
3. **Select the dryer model and options to suit your application.**
   Carousel Plus™ D Series models can be used for individual station drying applications.

Application Notes

* Material throughputs are based on typical virgin material with initial moisture content as supplied by the material suppliers. Consult Conair if specific initial and final moisture content of your material are known for your application.

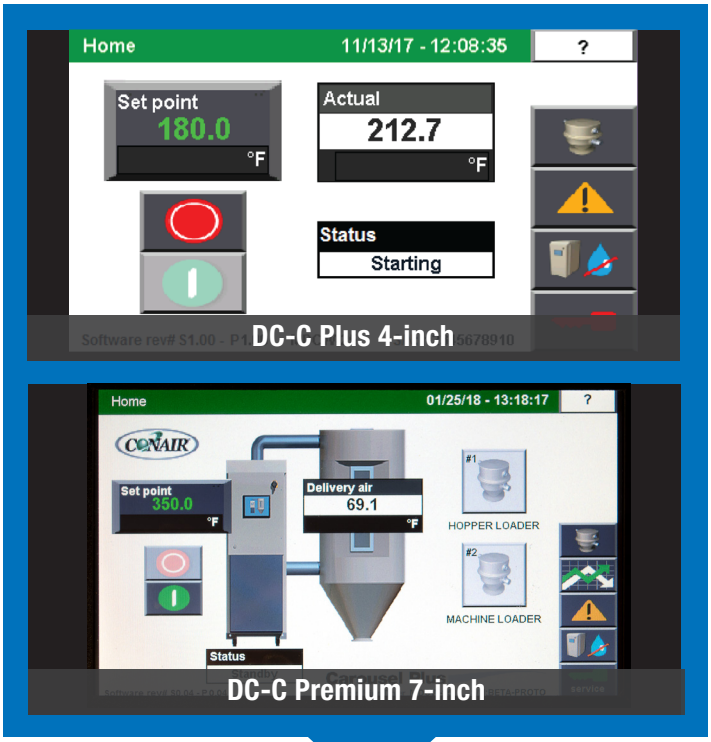
† The parameters of drying temperature and time may vary depending upon the type, grade and manufacturer of the material being processed. Consult your material supplier for their precise recommendations.

‡ Unit of measurement for bulk density is lb/ft³ {g/cm³}. Bulk density listed is the nominal weight for typical pellets. The bulk density may vary somewhat depending upon the size and shape of the pellets. The bulk density of regrind may vary widely depending upon the size and the shape of the flake. Be sure to consider the bulk density of the material when selecting and the drying time desired.

§ Throughputs will vary by type of material. Consult Conair concerning throughputs for materials that are not listed here.

** All Conair Dryers are equipped with an aftercooler as standard. The aftercooler reduces the temperature of the return air from the drying hopper, improving the efficiency of the desiccant. If using the water-cooled aftercooler option, the aftercooler must be connected to supply water with the proper flow rate and temperature.

DC-C Control Features and Options



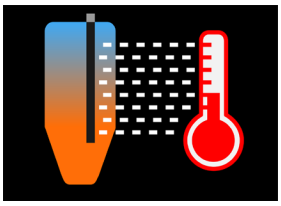
Control	DC-C Plus	DC-C Premium
Standard		
Processor / control type	Proprietary	Proprietary
Display / HMI screen	4-inch color	7-inch color
Trending screens (dewpoint, temperature, heater on-time)	●	●
Auto start/stop	1 day/time	7 day/time
English / metric units	●	●
Password protected	●	●
Temperature Setback (manual/auto)	○	●
Dewpoint monitor and control	●	●
Energy Usage Meter	●	●
Audible and Visual alarm	●	●
VNC viewer		●
Air-to-air heat exchange	○	○
Predictive maintenance	●	●
Available options		
Drying Monitor		○
Vacuum Conveying	○	○
Number of vacuum receivers	1	2
Ratio loading		Conveying dependent
Purge		Conveying dependent
Vacuum fill		Conveying dependent
Modbus TPC Communications		○
H2O flow control		○
UL option		○
Process filter check	○	○

● Standard ○ Option

Dryer Features and Options

Model	D Dryers 15, 25, 50, 75, 100
Standard Features	
Audible and visual alarms	●
Temperature setback (DC-C Premium)	●
Dewpoint monitor	●
Dewpoint control	●
Air-to-air aftercooler	●
Available Options	
Volatile trap	○
Precooler	○
Process filter check	○
Communications	○
Drying Monitor	○
Water-cooled aftercooler	○
Aftercooler flow control	○

Drying Monitor – Available with DC-C Premium



Save time and money from the aggravation of improperly dried material.

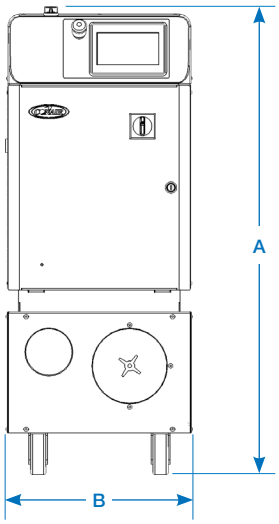
The Drying Monitor automatically monitors the heat profile inside your drying hopper with a 6-zone temperature probe, to protect resin from over or under-drying. A control alarm and a light tower alert if proper drying is in jeopardy. Advanced notice provides time to correct issues instead of wasted drying and product defects from common issues like: failed or out-of-place process temperature probe, an improperly sized hopper or dryer for the application, lack of resin or loading equipment failure, reduced airflow from dirty filters, kinked hoses and other obstructions, unplanned throughput change and loss of power.

Your DC-C Premium control will alarm on most dryer-related problems, but the Drying Monitor goes further to report proper drying happening inside the drying hopper.

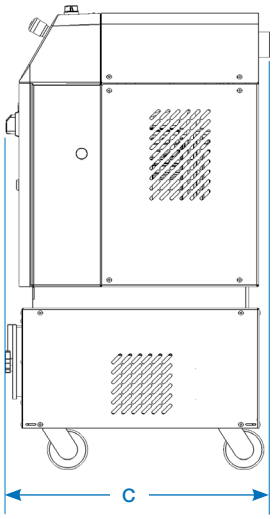
Feature Descriptions

- **Audible/visual alarm** - A combination of a blinking alarm light and a horn.
- **Temperature setback** - Automatically reduces the drying temperature when the machine throughput is reduced. Processors using resins prone to degradation due to over drying could greatly benefit from this feature. ** Standard on DC-C Premium controls, optional on DC-C Plus.*
- **Dewpoint monitor** - Monitor the performance of the dryer with a digital dewpoint readout of the drying air.
- **Dewpoint control** - Allows the dryer to maintain an operator-selected dewpoint level. This feature helps prevent over drying of moisture sensitive materials such as Nylon. Location and season changes can drastically change the atmospheric dewpoint of air. Dewpoint control is used to increase or decrease the regeneration temperature as needed depending on atmospheric conditions. This type of control saves energy costs and increases end-product quality.
- **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 setpoints, read dryer status, and process and display this information at a central location. Ethernet communications are available on the DC-C Premium control.
- **Air-to-air heat exchange** - An optional air-to-air aftercooler means no cooling water hook-up is required for operation. An aftercooler is required to reduce the temperature of the return air from the hopper, which improves the efficiency of the desiccant. The new air-to-air cooler achieves drying efficiency at temperatures up to 375°F {190.5°C}, while saving water and simplifying installation.

Specifications

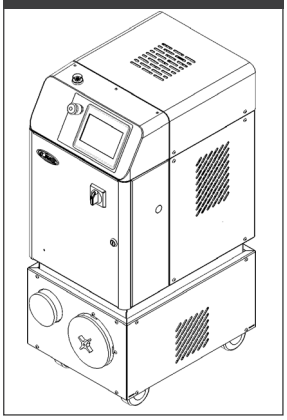


Front view



Side view

ISO view



Application Notes

All dryers are supplied with an aftercooler as standard. The aftercooler reduces the temperature of the return air from the drying hopper, improving the efficiency of the desiccant. If using the water-cooled aftercooler, the aftercooler must be connected to supply water with the proper flow rate and temperature.

Central drying

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.

Additional filtration options

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	D15	D25	D50	D75	D100
Performance characteristics (with full hopper)					
Drying temperature	100° - 375°F {38° - 191°C} with options				
Dewpoint	All models -40°F {-40°C}				
Dimensions inches {cm}					
A - Height	46.3 {117.6}		46.5 {118.1}		
B - Overall width	18.2 {46.3}		27.5 {69.8}		
C - Depth	26.4 {67}		30.1 {76.5}		
Outlet/inlet tube size OD	2.5 {63.5}				
Approximate weight lbs {kg}					
Installed	244 {619.7}		297 {135}		
Shipping	309 {784.8}	329 {835.6}	350 {159}		375 {170}
Voltage - Full load amps †† (standard dryer / central drying)					
208 V/3 phase/60 Hz	16.0 / 10.4		20.4 / 9.3	26.9 / 10.2	N/A
230 V/3 phase/60 Hz	14.4 / 9.3		18.5 / 8.4	24.3 / 9.2	25.5 / 10.4
400 V/3 phase/50 Hz*	8.4 / 5.5		10.8 / 4.9	14.1 / 5.4	14.5 /5.8
460 V/3 phase/60 Hz	7.1 / 4.6		9.1 / 4.1	12.0 / 4.5	12.6 / 5.1
575 V/3 phase/60 Hz	5.7 / 3.7		7.3 / 3.3	9.6 / 3.6	10.1 / 4.1
Water-cooled requirements (for aftercooler or precooler)‡ §					
Recommended temperature**	45° - 85°F {7.2° - 29.4°C}				
Water flow gal./min. {liters/min.}	1 {4.6}		2 {9.1}		
Water connections NPT	3/8 inch				

Specification Notes

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

† Total kW listed at a process setpoint of 250°F {121°C} and a regeneration temperature of 350°F {177°C}.

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

§ When ambient temperature is above 110°F {43°C} and drying above 375°F {191°C} a water-cooled aftercooler is required.

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

†† 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 Conair representative for the most current information.