CM-MDCW **150 AND 200 CAROUSEL PLUS MODELS**

CM-MDCW150

THE NEXT GENERATION IN MOBILE DRYERS

Mobile Drying and Conveying systems eliminate the need for machine-mounted hoppers by placing all components on a safe, convenient cart.

Set-up, batch drying, clean-out and maintenance can all take place without tying up valuable process machine time, or climbing on the machine.

The CM-MDCW system integrates an efficient Carousel Plus Dryer with a conveying blower, dust collector and direct-feed vacuum receiver to convey with dry air to the throat of a processing machine. The new self-loading option adds an integral hopper loader which allows the CM-MDCW to load itself. If you don't need dry-air conveying, order a non-dry air conveying CM-MDCW with a dryer and hopper, and add a self-contained vacuum loader.

PROVEN PERFORMANCE FOR LOW THROUGHPUT

These Carousel Plus CM-MDCW models are small enough to be used beside the machine.

CM-MDCW units feature true closed-loop drying and conveying technology to eliminate moisture that can cause defects in parts. You can dry at temperatures up to 375°F {191°C} and at throughput rates of 150 to more than 200 pounds per hour.

The Carousel Plus Dryers use molecular sieve desiccant that is bonded into 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.

The thermo-formed, impact resistant ABS cover adds to the good looks and space-saving design of the Carousel Plus Dryers.

■ Closed-loop drying/conveying

Each unit provides drying temperatures up to 375°F {191°C}, automatic desiccant regeneration and dewpoints of -40°F {-40°C}.

■ No-downtime material changes

With a spare MDC system, material changes are fast. Roll one unit to the processing machine, while another heats and pre-dries material for the next run.

■ 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. Shift-after-shift this dryer will deliver the performance you need to stay up and running.

■ Precise, adjustable dewpoint control

An industry first! The new 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, virtually eliminating any chance of overdrying expensive material.

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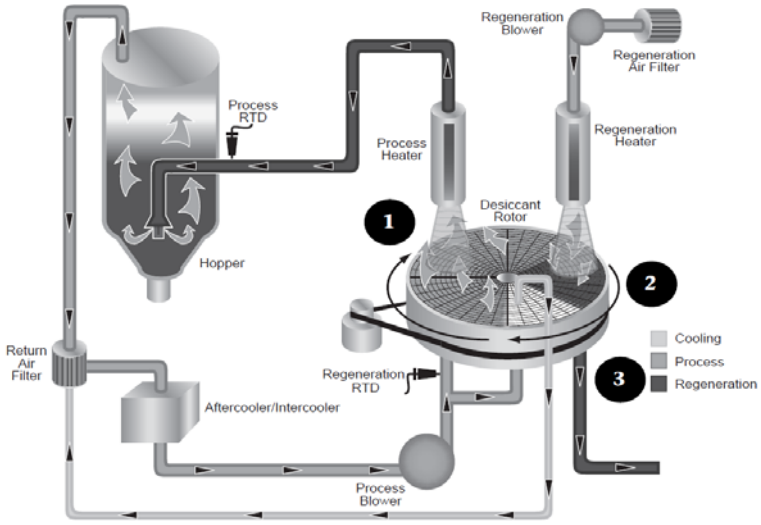
How it works

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 at the rate of 12 revolutions per hour passing through three cycles with each revolution.

The benefits

- The high airflow across the surface area of the rotor produces a resin-drying low dewpoint within five 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.



1. First, the dry air is dehumidified in the adsorption cycle, capturing and removing moisture from the drying air stream.
2. Next, the desiccant passes into the high temperature regeneration cycle where the adsorbed moisture is heated and purged out of the desiccant to the atmosphere.
3. 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.

Which package is right for you?

	CM-MDCW Dry Air Conveying				CM-MDCW Non-Dry Air Conveying‡	
STANDARD PACKAGES*	MX	MY	MZ	HY‡	MA	MC
DC-1 Control	•	•	•		•	•
DC-2 Control				•		
Audible and Visual Alarms		•	•	•		•
Temperature Setback			•	•		•
Dewpoint Monitor		•	•	•		•
Dewpoint Control		•	•	•		•
Communications				•		
Self-loading hopper				•		

FEATURE NOTES:

* Other options are available upon request. Please check with a Milacron sales representative.

‡ Excludes all conveying features.

FEATURE DESCRIPTIONS

- **Audible and visual alarms** - 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 overdrying of moisture sensitive materials such as Nylon. The Carousel Plus is the first dryer in the plastics industry to provide precise dewpoint control.
- **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. SPI, Modbus and Ethernet communications are available.

NEW!

†Drying Monitor, DM-II option to HY Packages -

Saves you time and money, and from the aggravation of dealing with improperly dried material.
The DM-II automatically monitors the temperature profile inside your drying hopper within a pre-set temperature band to protect you from overdrying or under drying your material. A warning alarm shown on the control display and light tower alerts you to improper drying conditions. This advanced notice provides time to diagnose and correct otherwise undetected problems that can lead to defects in products manufactured from hygroscopic material.
This valuable option can help you uncover common drying problems that may exist, including: a failed or out-of-place process RTD; improperly sized hoppers or dryers; drying or loading equipment failures; reduced airflow caused by dirty filters; kinked hoses and other obstructions, throughput change, loss of power or overheated material.
The DM-II does not alert you to the specific drying problem, however, the DC2 control will identify most dryer related faults. **Available on models MDCW50 and above.**

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Choose the control you need...DC-1 or DC-2

DC-1 CONTROL FEATURES

- Six character, seven segment LED display for high visibility of setpoint and actual operating parameters
- Full access to setup parameters and alarms through error codes
- Autostart count down timer
- Operator password protection
- English/Metric units
- Solid-state heater contactors with isolation protection
- Return air temperature display

DC-2 CONTROL FEATURES

- LCD (2 X 20 character) alpha-numeric display with access to set-up parameters, full diagnostics, alarm/event log and numerous options
- Eight character, fourteen segment LED display for high visibility of selected parameter status
- Keypad for easy operator access
- Real time clock
- Temperature setback
- Operator password protection
- Date format selection
- English/Metric units
- Return air temperature display
- Solid-state heater contactors with isolation protection

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 Milacron drying hopper specifications, or contact a Milacron representative to determine the correct hopper for your application.

3 Select the dryer model and options to suit your application. Carousel Plus models can be used for individual station or central drying applications.

RECOMMENDED THROUGHPUTS (60 Hz Chart)*

MATERIAL	DRYING TEMP / °F (°C)†	DRYING TIME / HR†	BULK DENSITY‡	MODEL THROUGHPUT RATE§ / LB/HR	
				CM-MDCW150**	CM-MDCW200**
ABS	180-190 {82-88}	2–4	40	230	310
Acetal	180-230 {82-110}	3-4	40	250	335
Acrylic	170-180 {77-82}	3-4	40	230	310
Nylon	160-180 {71-82}	4-6	40	205	275
PBT	210-260 {99-127}	3-4	45	135	185
PC	250 {121}	3-4	40	185	250
PE (HD/LP) w/40% black	170 {77}	4-5	26-34	150	200
PET virgin bottle grade	300-350 {144-177}	5-6	50	135	185
PETG	140-150 {60-66}	3-5	50	185	250
Polysulfone	200-275 {93-135}	4-5	50	185	250
Polyurethane	180-210 {82-99}	2-4	40	185	250
SAN	160-180 {71-82}	3-4	45	250	335

RECOMMENDED THROUGHPUTS (50 Hz chart)*

MATERIAL	DRYING TEMP / °F (°C)†	BULK TIME / HR†	MODEL DENSITY‡	THROUGHPUT RATE§ / LB/HR	
				CM-MDCW150**	CM-MDCW200**
ABS	180-190 {82-88}	2–4	40	191	257
Acetal	180-230 {82-110}	3-4	40	208	278
Acrylic	170-180 {77-82}	3-4	40	191	257
Nylon	160-180 {71-82}	4-6	40	170	228
PBT	210-260 {99-127}	3-4	45	112	154
PC	250 {121}	3-4	40	154	208
PE (HD/LP) w/40% black	170 {77}	4-5	26-34	125	166
PET virgin bottle grade	300-350 {144-177}	5-6	50	112	154
PETG	140-150 {60-66}	3-5	50	154	208
Polysulfone	200-275 {93-135}	4-5	50	154	208
Polyurethane	180-210 {82-99}	2-4	40	154	208
SAN	160-180 {71-82}	3-4	45	208	278

APPLICATION NOTES:

* Material throughputs are based on typical virgin material with initial moisture content as supplied by the material suppliers. Consult Milacron 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. 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 the capacity of the drying hopper and the drying time desired.

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

** All Milacron 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. The aftercooler must be connected with the proper water flow rating and temperature to attain the listed throughput.

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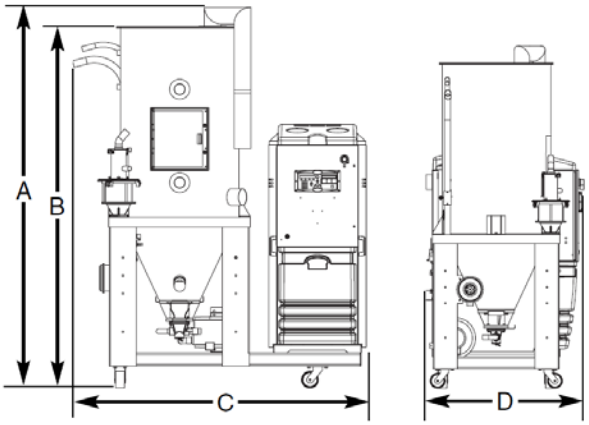
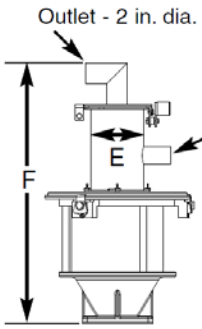
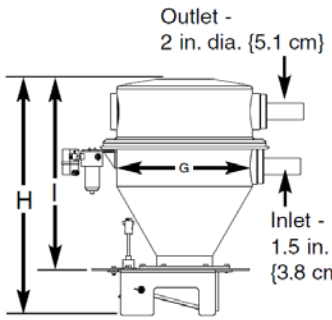


CM-TLR Tube Loader
(machine loader)



E - Receiver diameter
4.5 in. {11.4 cm}
F - Height with viewing chamber
4 lb.
23.7 in. {60.2 cm}

Duraload - CM-DL12
(hopper loader)



G - Receiver diameter
12.0 in. {30.5 cm}
H - Height
29.3 in. {74.4 cm}
I - Height above mounting plate
17.4 in. {44.2 cm}

MODEL	CM-MDCW150	CM-MDCW200
Standard hopper size	**CH33-21**	**CH39-35**
Optional hopper size	**CH33-28**	**CH39-42**
Performance characteristics (with full hopper)		
Drying temperature	All models 150° - 375°F {66° - 191°C} with options	
Dewpoint	All models -40°F {-40°C}	
Standard conveying dist. ft {m}	8 {2.44} vertical; 6 {1.83} horizontal	
Long distance option ft {m}	15 {4.57} vertical; 50 {15.24} horizontal	
Dimensions inches {cm}		
A - Height to top of hopper (standard)	113.3 {287.8}	124.9 {316.7}
B - Height to top of hopper (optional)	127.4 {323.6}	135.0 {317.3}
C - Overall width	87.2 {221.5}	102.0 {259.1}
D - Depth	52.0 {132.1}	55.0 {139.7}
Outlet/inlet tube size OD	5.0 {12.7}	5.0 {12.7}
Approximate weight lbs {kg}		
Standard dryer installed	750 {340.2}	750 {340.2}
Voltage - Total amps {std./long}		
230 V/3 phase/60 Hz	49.1/52.7	63.4/67.0
400 V/3 phase/50 Hz*	26.6/27.7	34.8/35.9
460 V/3 phase/60 Hz	24.6/26.4	31.7/33.5
575 V/3 phase/60 Hz	19.3/20.9	25.4/27.0
Total kilowatts† kW {Std./Long}		
	7.5/8.6	9.4/10.5
Water requirements {for aftercooler or optional precooler}‡		
Recommended temperature§	45° - 85°F (7.2° - 29.4°C)	
Water flow gal./min. {liters/min.}	3 {13.6}	
Water connections NPT	3/4 inch NPT	

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. The aftercooler must be connected with the proper water flow rate and temperature to attain the rated throughput.

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.

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.

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

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

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