

Micro Compressed-Air Resin Dryer

Designed for small and micro injection molding machines.

Comet's 3DX-M Micro Compressed Air Resin Dryer is ideally suited for small and micro injection molding machines using dry hygroscopic plastic resins. It features a double wall of Borosilicate glass for optimal thermal protection, stepless adjustable material sensors in combination with an automatic hopper loading device, and a full range process controller just like its "bigger brother," the 3DX system.

There are three hopper sizes available: 2, 4 and 7 liters, and are available in two versions, 3DX-M Integral and 3DX-M Split. With the Integral version, the main components are built into one unit. With the Split version, the process air module and the hopper are separated allowing for a more flexible installation, improved ease of use, and to take the weight off the molding machine's feed throat. The throughput is from .05 to 4 kg/hr.

Standard Features

- Process air with dewpoints of -13°F (-25°C) (if required to -85°F / -65°C).
- Double wall borosilicate BORAN® high temperature glass.
- Air supply unit with process air pre-setup and micro controller.
- Connection of Window® PC via a PC port on the unit.
- Detachable operating panel with an easy-to-read, large scale display.
- Extremely easy and intuitive using a guided 3-level menu logic.
- Totally adjustable material sensors combined with an automatic compressed air loading device.
- Automatic filling with adjustable filling level sensor.
- Air supply unit equipped with a solenoid valve.
- Direct feed throat mount.
- Automatic temperature controller with flexible electronic control.
- Integrated control for easy cleaning.



3DX-M (split version)



3DX-02 (integral)

Options

- Claw Flange installed at the bottom of the dryer hopper (includes a fastener lever and fastener plate).
- Holding Frame with Wheels to engage a brake.
- Air Jet Supply System with a suction pipe, compressed air hose, and conveying.
- Integrated Conveying Unit, the level sensor, installed on the drying hopper cover, can be plugged into a designated connection on the side of the hopper body.

3DX-M Series

Working Principle

The 3DX-M consists of a drying hopper, a removable unit, and accessories. Compressed air, connected to the dryer, is reduced inside the unit. The amount is regulated and heated to the drying temperature. Air is then run through an air distributor in the hopper and circulated through the plastic resin from bottom to top. This process removes the moisture where it exits at the top into the atmosphere.

Dryer Control Module

The inside of the dryer control includes a pressure regulator, pressure sensor, volume flow controller, heater with

control sensor and safety thermostat, and an electronic control unit. When the unit is activated and the controller is turned on, the solenoid valve opens and compressed air (84 to 145 psi) flows into the unit with a maximum dewpoint of 41°F (+5°C). A lower dewpoint can be reached using an optional desiccant dryer.

A pressure sensor is installed triggering an alarm when the drying air pressure falls

too low and immediately shuts off the electric heater (an alarm light indicates a disruption). Then, the operator has different options available to affect the drying temperature and air quantity.

Drying Hopper

The interior of the drying hopper consists of a stainless steel cylinder that forms a funnel at the bottom. It is sheathed in a stainless steel cylinder with a layer of thermal insulation. The machine receiver is attached at the bottom end of the hopper. The hopper is closed at the top with a cover using fasteners. Two steel cables are used to ensure that the cover does not fall off when opened.

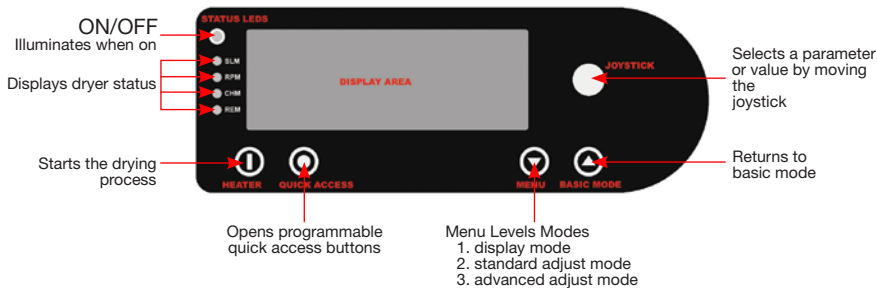
The filter for the air escape and level probe are attached to the cover. The control unit is attached using the two center holes on the recording console. The top of the hopper contains the temperature sensor which regulates the resin temperature.

Dryer Loading

Resin is conveyed into the dryer through an air conveyor. The filling level is specified and regulated using an adjustable fill level sensor. After the drying time is complete, the slide on the dryer opens releasing the connection to the plastics processing machine or to an additional loader mechanism. The removal process automatically takes place using these devices.

Protective and Maintenance Openings

The dryer is closed using quick release fasteners on the cover. The control module is attached to the dryer using a turnbuckle. The assembly in the control unit is accessible for service work via the removable cover.



Four Main Components... One System!

The modular 3DX-M series consists of four main components: process air module, material hopper, dryer lid and hopper extension. This enables quick changes of hopper sizes to adapt to the needed material throughput and also provides easy maintenance accessibility.

Hopper Cover

Available in multiple versions (i.e. dust filter unit and fully integrated material feed system; flange for an external conveying unit; exhaust hose for clean-room applications). When performing cleaning and maintenance, the quick disconnect system enables easy cover removal.

Air Supply Module

The air supply module has many convenient features such as a swivelling, detachable control terminal, large display area (readable from distances up to 40 ft.) and a multi-port I/O dock to easily link to your equipment. The required process air is microcomputer controlled and adjusted using a simple, intuitive joystick for control. The unit works seamlessly with all available hopper sizes and configurations for maximum flexibility. A bottom central process air coupling provides quick, safe hopper connection.



Swivelling, Detachable Control Terminal



Large Area Display



Bottom Central Process Air Coupling



Extender Ring

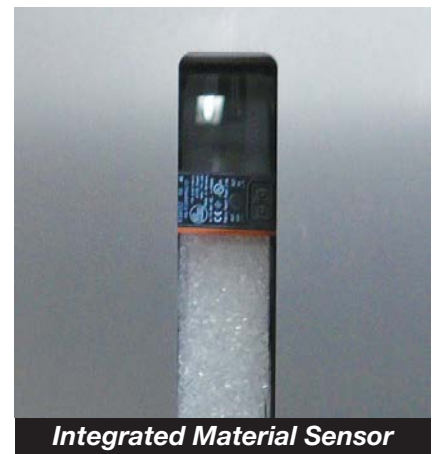
Unique, fast and flexible hopper size adjustment by inserting an optionally available extender ring with a quick connector ring system that can be engaged or disengaged in seconds.

Resin Hopper

All hoppers are made of corrosion free stainless steel and feature high-efficiency isolation and thermal separation between inner and outer surfaces. When coupled with the optional fully integrated material feed system, the unit becomes a unique, compact total solution. The integrated ring nozzle system provides evenly processed air distribution within the hopper and easy cleaning of the inner hopper surface steering clear of obstructions such as blow pipes, etc.



Quick Connector Ring



Integrated Material Sensor



Ring Nozzle System

Mounting the 3DX-M

Mounting on a Processing Machine

The 3DX-M dryer can be mounted directly to the extruder flange of a processing machine. A hopper loader supplies the dryer with material from a storage bin.

Mounting on a Wall Holder

In case production requires a small batch size, the dryer is closed after loading. To minimize idle time, due to production changes, the material for the next batch is pre-dried at a pre-drying station.

The pre-drying station consists of a simple attachment to the wall with a support for the dryer. The compressed air supply from the insulated pipe system is set up using a quick connect coupling that is commercially available. The power supply comes from a regular electric plug.

After turning on the unit and setting the drying temperature, you can view the elapsed drying time (operating hours) from the integrated counter at any time. You can also activate a countdown when operating the dryer that communicates to the controller when to emit a signal after the pre-set time has elapsed. Switching the dryer from station-to-station requires the use of a few hand grips. Transport aids may also be used to make transportation easier.

Mounting on a Swivel Arm

Mounting on a swivel arm is nearly identical to mounting on a wall holder. The only difference is production and/or material changes take place more often. A 3DX-M and hopper loader and corresponding dryer supports is installed on a swivel arm. The integrated programmable weekly timer enables you to turn the dryer on at the desired time.

Specifications

Model		3DX-M 02	3DX-M 05
Hopper Capacity	(pounds)	4.4	11
	(liters)	2	5
Adjustable Capacity	(pounds)	2.2 – 11	2.2 – 11
	(liters)	1 – 5	1 – 5
Max. Air Consumption	(SCF/hr)	211.86	211.86
	(Nm ³ /hr)	6	6
Max. Throughput (2 hr. drying time)	(kg/hr)	0.59	1.7
	(lb/hr)	1.30	3.75
Max. Throughput (3 hr. drying time)	(kg/hr)	0.39	1.15
	(lb/hr)	.86	2.53
Max. Throughput (24 hr. drying time)	(kg/hr)	0.29	.90
	(lb/hr)	.64	1.2
Dimensions			
Height	(in)	93.7	151.6
	(mm)	435	644
Width	(in)	9.5	9.7
	(mm)	240	247
Depth	(in)	5.1	17.2
	(mm)	130	436
Compressed Air Supply			
Air Pressure	(PSI)	87 - 101.5	
	(bar)	6 - 7	
Max. Dewpoint Pressure	(°F)	39.2	
	(°C)	4	
Max. Remaining Oil Content	(lb/ft ³)	1.8728e-7	
	(mg/m ³)	3	
Ambient Conditions			
Ambient Temperatures Operation / Storage	(°F)	41 - 104	
	(°C)	5 - 40	

We reserve the right to change specifications without prior notice.