

Honeycomb Matrix Drying System

An efficient and affordable way to reduce drying times by up to 65%.

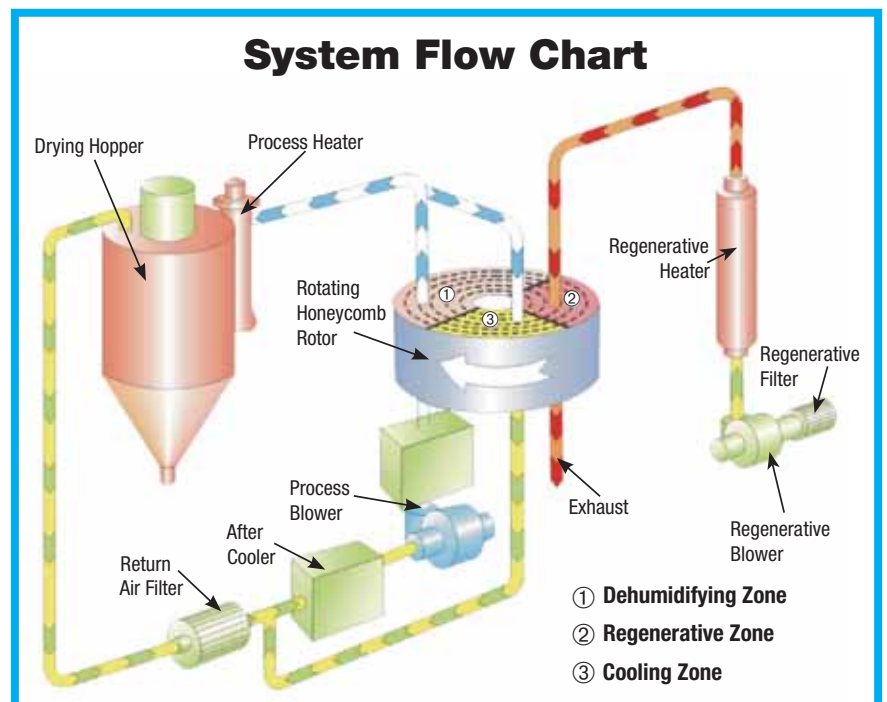
HCD Series Honeycomb drying systems are built using the *Rotating Honeycomb* principle. A rotor slowly turns while a cycle of dehumidification, regeneration, and cooling is repeated simultaneously. This drying system provides a constantly lower dewpoint than desiccant, compressed air, or vacuum dryers.

Because this unique system operates in continuous drying mode, it is able to maintain dewpoints of at least -60°F (-50°C), continuously.

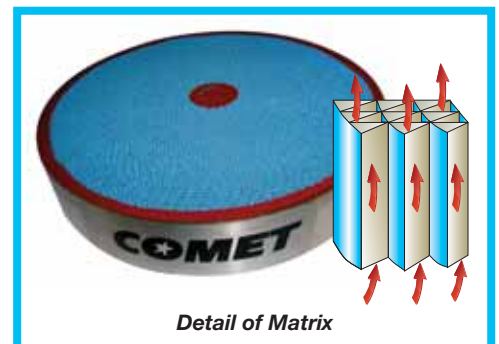
A closed loop circuit design eliminates the risk of moisture re-absorption and is suitable for polymer drying applications involving large quantities of hygroscopic material.

The Honeycomb Principle

The heart of the system is the Honeycomb Matrix Wheel. The Wheel has a series of air passages or channels that form the Matrix. The passages inside the Wheel are coated with silica gel that is bonded to ceramic fibers inside the rotor by a patented chemical crystallization process. When the Honeycomb Matrix Wheel comes into contact with damp air, it absorbs moisture. When the Honeycomb Matrix Wheel is heated, it releases the moisture again and performs this process faster than any other dryer ensuring fast drying times and unmatched resin quality.



Touch Control Panel



Detail of Matrix

The Process Circuit

A high-pressure blower draws moist air into the Honeycomb Matrix Wheel through the return air filter. Moisture is then extracted from the air and stored in the Honeycomb Matrix Wheel. The dry air is then discharged through the process outlet. The dry air is re-heated to the desired operation temperature and introduced into the drying hopper. Because the Matrix Wheel is desiccant-free, there is no dust sent from the dryer into the material.

The Regeneration Circuit

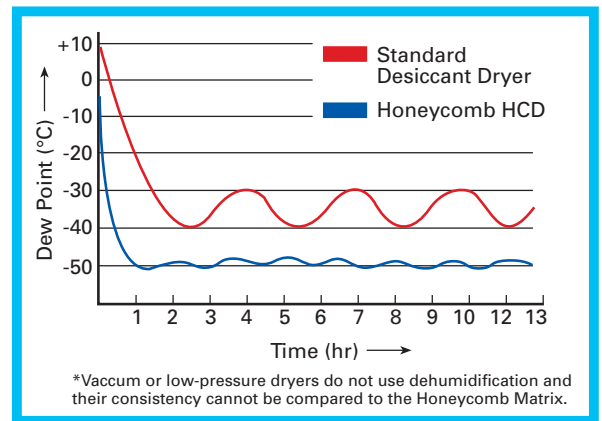
The regeneration phase is used to remove moisture from the Honeycomb Matrix Wheel. The regenerative blower draws ambient air to the regenerative heater. During this process, the air is heated to approximately 360°F (182°C). The heated air is forced through the channels in the Honeycomb Matrix. The Honeycomb Matrix releases the moisture into the heated air stream. Finally, the damp regenerated air is vented out. Air used to cool the Honeycomb rotor is dehumidified, making the Honeycomb a true closed loop dryer.

The process and regeneration circuits occur simultaneously. At one moment, the Honeycomb Matrix wheel is used to pick up moisture while at the same time moisture is being heat-driven from the Matrix. Both actions are happening at the same time on different sections of the Wheel. A small drive motor turns the Honeycomb Matrix Wheel at the precise time required for the drying conditions.

Options

- Dewpoint monitor with digital display.
- Polished-mirrored surface on all sides coming in contact material.
- Can be modified into a 356°F with heat-preservation behind the unit.
- PLC touch screen control.
- High efficiency HEPA filter.
- Suction box and hopper loader for added convenience when conveying material.

Dewpoint Comparison*



Specifications

Matrix Model	Dry Air Flow Rate (M3/h)	Process Blower (kW)	Regen. Blower (kW)	Regen. Heater (kW)	In/Out Pipe Diameter (inch)	Voltage (phase)	Feature Dimension Length/Width/Height (shown in mm and inches)
50	50	0.40	0.05	2.5	1.5	208~480 3φ	650x600x1100 mm / 25.4x23.6 43.3 in.
100	100	0.75	0.05	3.8	2.5		765x765x1555 mm / 30.1x30.1x61.2 in.
180	180	1.90	0.40	5.2	2.5		765x765x1555 mm / 30.1x30.1x61.2 in.
300	300	3.70	0.40	9.5	3.0		865x865x1855 mm / 34x34x73 in.
400	400	5.50	0.75	13.0	3.0		865x865x1855 mm / 34x34x73 in.
700	700	7.50	2.25	12.0	6.0		1200x1200x2200 mm / 47.2x47.2x86.6 in.
1000	1000	11.30	3.75	22.0	6.0		1200x1200x2200 mm / 47.2x47.2x86.6 in.
2000	2000	22.60	7.50	44.0	8.0		2400x1200x2200 mm / 94.5x47.2x86.6 in.
3000	3000	33.90	11.25	66.0	12.0		3600x1200x2200 mm / 141.7x47.2x86.6 in.

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