

Plastic Mold Operations

Surrounding a chilled mold with dry air prevents the sweating and part damage that occurs during the spring, summer and fall.

In many plastic injection molding operations, the mold coolant temperature must be very cold to obtain optimum results.

This rapid cooling of the mold means that water vapor in the surrounding air will condense on the mold surfaces, just as happens on cool glass in the summertime. Condensed water means problems for the mold, because it will begin to corrode. It also means problems for the part, which will have watermarks and cracks.

One option is to raise the coolant temperature to avoid condensation. But that means slower cycle times, and in many cases, less than optimum material properties due to slow resin cooling.

The most economical and highest quality solution to mold sweat problems is a Munters dehumidification system. It prevents sweat problems regardless of the temperature of the mold cooling system.

Why Dehumidify?

☑ Faster Cycle Times

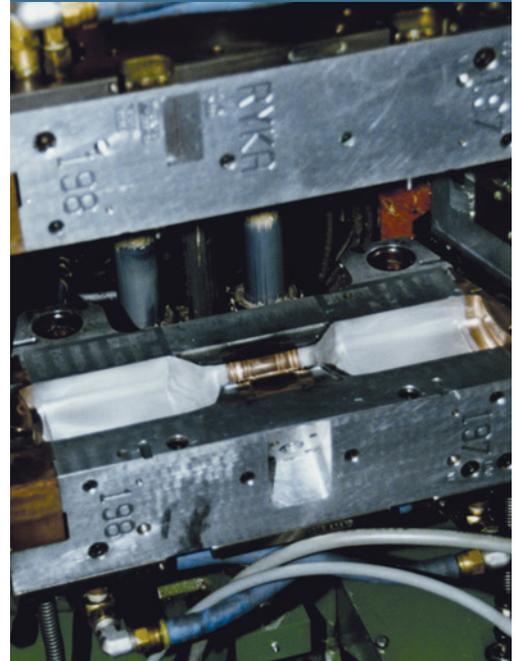
The lower the coolant temperature, the faster parts will cool. Some customers report a 40% production increase from the same machines, simply by lowering the coolant temperature. Dry air from the Munters dehumidifier insures there will be no condensation on the colder mold.

☑ Improved Part Properties

Rapid part cooling without condensation can improve the clarity and crystalline structure of PET parts. Thermal shock cracks that result from resin contacting water droplets will no longer be a problem.



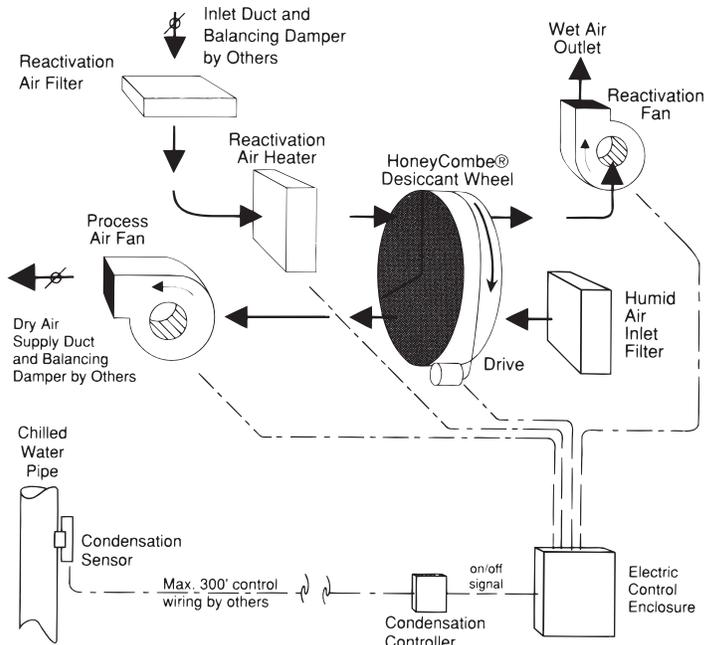
Humidity Control for Plastic Injection Molding



BENEFITS

- Faster Cycle Times
- Improved Part Properties
- Reduced Mold Maintenance
- No Rust on Guide Pins
- Better Part Surfaces
- Winter Production Rates all Summer Long

Honeycombe® Dehumidifier Schematic



☑ Reduced Mold Maintenance

Since the mold is no longer being bathed in water on each shot, surface corrosion is much reduced. Some customers report a doubling in the life of a mold surface when it is protected by dehumidified air.

☑ No Rust on Guide Pins

Guidepins and stripping pins are also protected from corrosion by dry air. No need to slow production or idle your expensive machines due to rust on precision sliding surfaces.

☑ Better Part Surfaces

Without water droplets in the mold, surface finish of the part is much improved. Molders of high-volume, high-precision parts, like optical disks, appreciate the importance of dry air: it ensures that condensation will not corrupt microprecise part surface detail, or leave water on the surface to interfere with finishing operations

☑ Winter Production Rates all Summer Long

Dry air from Munters insures that you can meet production schedules consistently, regardless of the weather.

Conventional Molding

Many injection and blow-molding operations make use of chilled water to accelerate press cycle times. In the spring, summer and fall, the dewpoint of the air is high enough to cause condensation on chilled molds.

A typical method of dealing with this problem is to raise the coolant temperature so that the mold is not cool enough to condense moisture. But there are difficulties with this technique.

When cooling rates are changed to meet weather conditions, resin precessing parameters change as well, which can affect part strength. Also, it becomes difficult to take advantage of short-notice, high-demand for profitable products.

An alternate strategy is to keep the cooling temperatures high, accepting the lower production rates, but compensate by purchasing additional machinery. Then there will be production capacity to meet peak market demands. But this leaves valuable capital equipment idle during that part of the year when market demand may be very low.

The Munters Improvement

Munters eliminates condensation by going to the heart of the problem, - the moist air surrounding the mold. An energy efficient, dry desiccant dehumidifier absorbs and removes the moisture from the air. Since the air is dry, moisture cannot condense on the cooled mold surface.

There are two basic ways to surround the mold with dry air. When there are a large number of machines located in the same space, the most economical solution is to dehumidify the entire room.

In that case, the desiccant dehumidifier can be added to an existing air conditioning system. If the room is not currently air conditioned, Munters can supply a complete heating/cooling and dehumidifying system to control the space to a constant temperature and a low-humidity condition, all year round.

If the machines are separated into several rooms, or if there are only a few machines to protect, a separate dehumidification system can be attached to the machine itself.

In that case, the dry air from the Munters System is ducted to an enclosure that surrounds the moisture-sensitive part of the machine. The Munters system blows the dry air into the enclosure, where it protects the chilled mold surface from condensation. Then the air exits the enclosure through the same opening that allows the parts to leave the mold.

With the Munters system in place, your molding operations can proceed smoothly - without concerns about the weather and its effect on production schedules.

The deep-drying capacity of the desiccant dehumidification process allows you to operate the mold coolant system at any temperature you choose. Now you can adapt your process to the requirements of the resin and the needs of the part, rather than having to compromise product integrity because of the weather.

Munters sales engineers will assist you in sizing and selecting a dehumidification system to meet the unique requirements of your facility.

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