

Fogmaster has been manufacturing industrial atomization equipment for many years, but not until 1997 did we become acquainted with barrel room humidification. A small winery bought a custom unit and later suggested that we develop a regular product for this application.

In 2000, we delivered prototypes for evaluation to six wineries. They had barrel rooms of 600-3,600 sq. ft., ceilings of 12-20 ft. and humidity goals of 75-84%. Most systems reached their humidity targets within 2 hours of startup and thereafter ran 10-15% of the time (3-4 minutes in 30) to make up losses of water vapor.

Wetting was not a problem. Some wineries initially saw floor wetting downstream from the nozzle, but reducing fog droplet size solved the problem.

Cooperator feedback showed a desire for a quieter blower; a built-in humidity controller; do-it-yourself installation; and low maintenance cost. Cooperators also offered suggestions on installation and startup. These and other improvements have been incorporated into the Sentinel 5850 humidification system. It is now serving more than one hundred wineries on four continents.

Current Status of Fogmaster and Barrel Room Humidification

The Sentinel 5850 has made humidification affordable for small and mid-sized wineries. Here are some general observations on conditions and needs in this market:

- Most wineries set a relative humidity target of 70-80% and a water flow rate of 1.0-2.0 gph. A few, with "tight" barrel rooms and little traffic, use a RH setpoint greater than 80%.
- Nozzle plugging has not been an issue. However, wineries with hard water do experience a gradual build-up of minerals on the nozzle. This does not cause plugging but it does slowly reduce nozzle efficiency. When nozzle performance becomes degraded, they rotate a clean nozzle into service and store the old one in a solution of Lime-Away. This seems to do an excellent job of removing mineral deposits.
- The most important determinant of a successful humidification project is the construction and usage of the barrel room. A room with heavy traffic and frequent door openings loses a lot of water vapor. Ventilation louvers and night air cooling also release moist air and admit dry air. If water vapor losses are high, the humidifier must work harder to compensate; if losses are excessive, it will not be able to keep up.
- Wineries that have barrel aging and fermentation in the same room are often surprised by the amount of water vapor lost from condensation. (Remember – all that water dripping from tank chiller coils started as humidity.) Sometimes hanging plastic film can help isolate the barrel area, but separate rooms are preferable.
- A refrigeration system, if not designed for humidification, will very likely *dehumidify* the room. Sometimes a simple fix – changing orifices to increase coil face temperature and possibly changing the fan pulley ratio to increase air flow – can solve the problem.

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- Case goods and flat cardboard are best stored *outside* the barrel room. They absorb moisture, weakening both fiberboard and glue.
- Blower noise can be a problem for wineries that hold tastings or other public events in the barrel room. Turning off the system during the event eliminates the conflict with only a minor impact on humidity. It is also possible to mount the blower *outside* the barrel room, and run the blower's intake and discharge lines through the wall.
- A recurring question is "What size barrel room does your system work in?"

Although much depends on the specifics of the installation, rooms of 1,200 sq.ft. to 10,000 sq. ft. [160-1100 m²] seems to be ideal for the Sentinel 5850. We offer humidification solutions for larger and smaller rooms as well. We invite you to contact us for the name of a distributor in your area who can assist.