

SUPERIOR SOLUTIONS FOR PLANT DRYING ROOMS

DriCure™ Systems

INTRODUCTION

For cannabis, the crop must be dried before delivering the final product to the market. It is desirable for the drying operation to remove a significant amount of water weight in the first 24 to 48 hours of drying but need up to 7 to 14 days to achieve the appropriate dryness. The grower is concerned with the formation of mold so they want to dry quickly at first to reduce the chance for mold and then dry at a slower rate in order to dry the product from the inside out. These drying rooms operate at a colder temperature than the growing rooms. Typical design conditions are 55°F to 68°F @ 45 to 65% RH.

Desert Aire's DriCure™ is an all-in-one climate control system for the drying room. It will handle the complete year-round dehumidification, heating and cooling needs of the room. DriCure™ is a single unit solution for your production level facility.

SIZING

The drying room application will be based on the need to dry the harvested crop in approximately 7 to 14 days. The plant will lose about 40%-50% of its total weight in the first 24 to 48 hours and then slowly remove the remaining water over the remaining drying period. Units are expected to be sized for the moisture removal that will occur in the first 24 hours of drying. This is expected to yield a design where the unit will run constantly at full capacity at the start of the process. There may be a small, temporary deviation of total moisture content in the room relative to target setpoint. The unit will then cycle to maintain conditions.

FEATURES

This dehumidifier is a vapor-compression refrigeration cycle based machine designed to remove the moisture released by the plant and provide the airflow to make sure all drying racks have air movement over them. Blowers run continuously, (except for the short defrost cycle) to reduce stratification in the room and maintain a constant temperature and humidity throughout.

A factory installed sensor is provided for control of the unit's compressor operation. As relative humidity increases above the setpoint, the dehumidifier's compressor is energized to remove unwanted moisture.

The system's controller has the capability of interfacing with the facility's building management system via communication such as BACnet, Modbus, or LON. This BAS option provides the grower the ability to program a multiple day temperature and humidity schedule (see Table 1 example), or it can be programmed in the local controller.

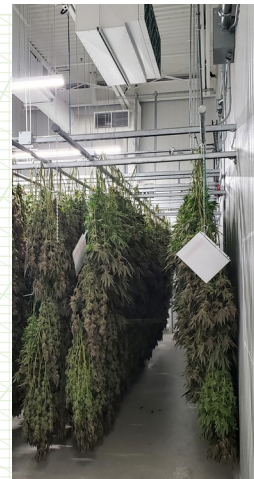


Figure 1 - Cannabis Drying Room

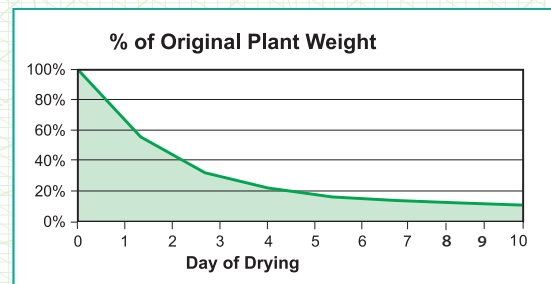


Figure 2 - Percent Water Loss by Day

Day	Temp	RH	Dew Pt
1	70	70%	59.8°F
2	68	65%	55.8°F
3	66	60%	51.7°F
4	64	60%	49.9°F
5	63	59%	48.5°F
6	62	58%	47.1°F
7	61	57%	45.7°F
8	60	56%	44.3°F
9	59	55%	42.9°F
10	58	55%	41.9°F

Table 1 - Example of a Ten Day Program Cycle



EFFICIENT DEHUMIDIFICATION DESIGN FOR LOW TEMPERATURES

The DriCure™ dehumidifiers combine numerous design features into a cost-competitive system that removes the unwanted moisture problem in a wide range of entering air conditions. Desert Aire starts with an evaporator coil designed specifically for low ambient moisture removal and then adds appropriate refrigerant components to ensure long operating life.

The DriCure™ system incorporates a variable defrost cycle that automatically engages when operating in low entering air temperatures. When the unit senses that frost has formed on the evaporator coil to a point that the performance is reduced, the control system automatically engages a defrost routine that switches off the fan and introduces hot gas into the coil until the frost is cleared. This allows the unit to continue to efficiently dehumidify while operating at lower temperatures where typical vapor compression cycle dehumidifiers would be ineffective. The DriCure™ system is also less costly to purchase and operate than a desiccant based dehumidifier alternative.

OTHER FEATURES AND OPTIONS

If the air temperature should exceed the desired setpoint, the controller will automatically shift the dehumidifier from the reheat mode and reject all of the energy to the remote condenser or cooling water loop, thereby providing sensible cooling to the space.

Units are available in the following electrical power:

- 208/1/60
- 230/1/60
- 230/3/60
- 460/3/60
- 575/3/60

Cooling option

- Split air-cooled remote condenser
- Water cooled unit

Filter options

- MERV 10 disposable
- Washable aluminum

Controller with local display

- Wall mount temperature and humidity sensor
- Optional: Remote mounted display
- Optional: BMS output card
- Remote 24/7 internet ready controller through AireGuard™

BACnet, Modbus, and LON protocols available.

OPTIMIZING SOLUTIONS THROUGH SUPERIOR DEHUMIDIFICATION TECHNOLOGY

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WARNING: Cancer and Reproductive Harm - www.P65Warnings.ca.gov

