

SUCCESS STORY

Firestone



Facility maintains comfortable temperature and low humidity level at its tire manufacturing plant with the use of Advantix Systems' liquid desiccant technology.

BACKGROUND

Firestone is an American company that was sold to the Japanese firm Bridgestone in 1988. With more than 50 production factories and more than 43,000 employees in North and South America, Bridgestone is the largest tire and rubber company in the world. Firestone Costa Rica is the headquarters of operations in Latin America, with more than 1,000 employees producing more than 12,000 tires per day.

THE CHALLENGE

During the tire manufacturing process, the 2,400 square foot facility must be kept at 30% relative humidity, since the drums have to be kept dry before the vulcanization process.

To maintain the required conditions, the Firestone plant in Costa Rica initially used a solid desiccant wheel; however this solution generated a lot of heat, raising the room temperature to more than 104°F. Under these harsh conditions, workers were not able to stay in the

processing area for more than 30 minutes, reducing overall productivity in the manufacturing process. The desiccant wheel also wasted a lot of energy, even without incorporating a post-cooling system.

"Providing a solution for delivering dry, cool, OUTSIDE air is an advantage for us. We need to keep the facilities dry, but we also need to maintain comfortable working conditions for our employees. Advantix supplied this solution."

Miguel Matamoras, Machinist



MEASUREMENTS OF THE ATMOSPHERIC CONDITIONS IN THE CREEL ROOM

DURING LOADING

Relative Humidity	30% MAXIMUM
Target Temperature	+41 °F ABOVE ROOM TEMPERATURE
Minimum Temperature	84 °F MINIMUM

DURING EXTRUSION

Relative Humidity	25% Target, 30% Maximum
Target Temperature	+41 °F ABOVE ROOM TEMPERATURE
Minimum Temperature	84 °F MINIMUM

THE ADVANTIX SOLUTION

The factory installed an Advantix Systems DT-Large to treat humidity and temperature. The unit handles 2,100 CFM of indoor air, which is mixed with 300 CFM of outside air for a total of 2,400 CFM. The input conditions to the system are 81°F, 36% RH (63 grains/lb of dry air), which is further dried and cooled to 69°F, 34% RH (40 grains/lb of dry air).

The air is supplied to the space at indoor conditions of 77°F, 30% RH (46 grains /lb of dry air). With the implementation of this system, Firestone achieved the indoor conditions necessary in the Creel Room process, while at the same time providing a healthy working environment for its personnel.

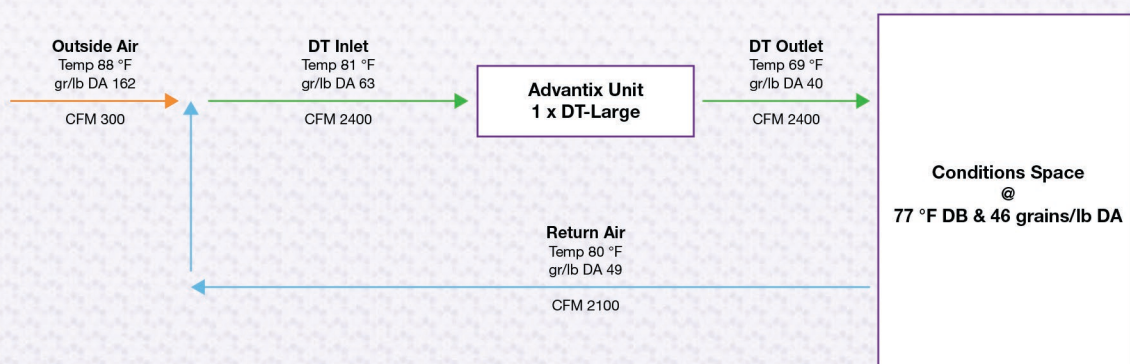
When the doors to the space are kept open for a period of time, the humid air infiltrates the space and the DT Large system must remove a total of 25.9 Lbs/Hr of humidity

from the environment to maintain required conditions. In these situations, the unit is able to reach conditions (77°F, 30% RH, 46 grains/lb of dry air) in approximately 40 minutes once the doors are closed.

HOW DOES IT WORK

Advantix Systems' dehumidification & cooling products are based on liquid desiccant's natural removal of moisture from air. This non-toxic, brine solution dehumidifies, cools, and cleans the air in a simultaneous process. Under normal conditions, the desiccant does not carryover or need to be replaced for any reason over the lifetime of the system. When heated, the liquid desiccant releases the collected moisture to the external environment. Liquid desiccant is also a natural disinfectant, eliminating airborne microorganisms.

FIRESTONE PROJECT – COSTA RICA Schematic One Line Diagram



For more information:

Mail: sales@ducoolindia.com

Tel: +91 22 6141 0935

Website: www.ducool.in