



The FD-675 is rated to remove 675 lbs of moisture per hour

Energy Efficient Heat Pump Technology for Food Drying

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Energy Efficient Food Drying

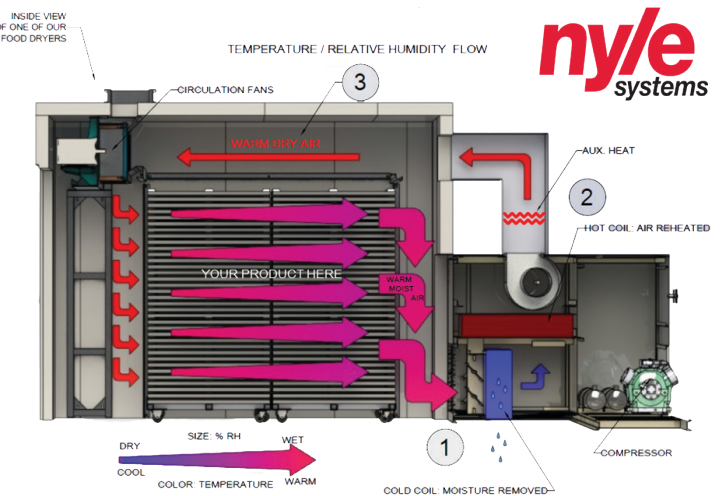
In the array of dehydration equipment available, ranging from very large scale and high temperature industrial equipment to small residential electric forced air dryers, Heat Pump Dehydration has proven to be a cost effective way to dry many different types of food products. Up to 60% less energy use versus the conventional systems.

Food Drying Methods

Food drying, a method of food preservation in which food is dried (dehydrated), has been used widely in the human food industry for many years. Drying inhibits the growth of bacteria, yeasts, and mold through the removal of water. Traditionally water is removed through evaporation (for example air drying, sun drying or wind drying). Dehydration has gained a strong market for a wide variety of foods and snacks with companies looking to optimize the capabilities of this technology with energy cost savings by using Heat Pump Dehydration.

Heat Pump Dehydration Methodology

Heat Pump Dehydration works differently than conventional (forced air) drying methods. Both systems heat air to the desired drying temperature (set point), then move, usually via a fan system, the heated air over the product to absorb moisture released by the product. However, instead of exhausting this hot, moist air like a conventional dryer would, a Heat Pump Dehydration system draws the moistened air over the cold coil of a refrigeration system. There the moisture is condensed from the air and drained away. As the air is cooled to condense the moisture, the heat energy is captured in the refrigeration cycle. This same air is then drawn over the hot coil of the Heat Pump system where the captured heat is used to reheat the air to the desired temperature which is then circulated back over the wet product (see diagram above). This cycle repeats, continuously, until the product has reached the desired moisture content. The result is a closed system that dries consistently, independent of the temperature and humidity in the space outside the drying chamber (where the conventional system pulls the air from).



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Energy Usage is Reduced

The energy used with a Heat Pump Dehydration system is only what is necessary to operate the refrigeration compressor, blower, and circulating fans and bring the chamber up to temperature at the start of the process. This reduced energy use translates directly into significantly lower operating costs. Additionally, Heat Pump Dehydration systems allow for setting and controlling the Relative Humidity (Rh) of the air in the drying chamber and, as the air is recycled, it is less susceptible to the external environment fluctuations or pollutants and functions more consistently over the long term.

Real Life Applications

Healthy Snack Food - FD60

Background: A growing, mid-size, New England based healthy snack food company needed to increase their production capacity. They were using two (2) medium size conventional electric dryers for their product.

Decision: They purchased a Nyle FD60 (12 rack capacity) to support their growing operations.

Result: They more than doubled their production capacity while at the same time they cut their electric utility bill in half!



Pet Food Treats - FD24

Background: A Midwestern based pet treat manufacturer needed to increase the production capacity of their growing business. They turned to Nyle for a recommendation. It was important to maintain their highest level of product quality while significantly increasing their production capacity.

Decision: The recommendation, which was subsequently implemented, was to install two(2) energy efficient Nyle FD24 heat pump food dehydrators.

Result: The customer increased their production capacity more than six fold while delivering consistent high quality output. Additionally, they incurred significant energy savings that allowed them to improve their operation costs, specifically they are very happy with the efficiencies they have experienced with their new units!

About Nyle

Nyle Systems is a US based Manufacturing company with over 40 years experience providing complete “Drying Solutions”, focused on three core markets: Lumber Drying, Food Drying and Heat Pump Water Heating. Nyle started manufacturing Food Drying Systems to dry products such as fruit, meat, seafood, croutons, pet food, and others. We first developed a line of highly energy efficient dehumidification dryers specifically designed for the food market. This product line was quickly followed with a line of indirect gas fired units. We continue to innovate and expand our product line for the food and pet food markets. Nyle has also developed and offers industry leading controls which allow the customer to monitor and control; “load tracking”, remote monitoring, and operation of its dryers. As a company committed to offering complete Drying Solutions, Nyle provides training and ongoing support to its growing family of customers around the world. For more information or to contact our engineering group, go to www.nyle.com



Nyle’s product design and manufacturing facility is in Brewer, Maine, just across the river from Bangor, central Maine’s economic and cultural center. Nyle has administrative offices in Westport, Connecticut.