

Fruits and
vegetables.

**Drying,
Dehydration,
and Roasting
Solutions.**



Drying Fruits and Vegetables. **A Taste for Innovation and the Science Behind It.**

The options are endless for drying fruits and vegetables, harvested at the peak of their flavor. From slices and chunks to paste and puree, every form can be dried to make fresh tasting snacks, value-added ingredients or co-products for food innovations.

The drying process is key to achieving the ideal sensory combinations. Bühler applies principles deeply rooted in science to capture and preserve taste, color or texture, with gentle product handling that removes moisture without compromising what nature intended.

Since 1959, Bühler has manufactured dryers for the fruit and vegetable industry. Today, engineers are still innovating these processes, and the technology solutions to scale them. With a fierce dedication to food safety, Bühler sets the standard in cleanability, moisture uniformity and energy efficiency.

AeroDry and AeroRoast single-pass solutions. **Uniform drying, roasting, or dehydrating.**



At the time of harvest, fruits and vegetables have a high water content. For a variety of applications, such as pulses, chick-peas, textured vegetable protein and mushrooms, Bühler's single-pass drying solutions are best suited to achieve the perfect final moisture content or the ultimate color development.

For drying to a precise moisture content, Bühler's AeroDry single-pass dryer uses air to transfer heat and remove moisture as product gently moves through multiple zones with individually controlled temperature, humidity, and airflow.

Available in both single and dual plenum configurations, the

balanced airflow of AeroDry's independent process zones, maximizes the efficiency of heat/mass transfer to keep operating efficiency high and utility costs low, all while delivering consistently superior products.

For color development, the single-pass AeroRoast attains the desired results using a unique, dual-plenum configuration that delivers a uniform airflow across the entire conveyor, ensuring consistent color at high capacities.



Precise moisture control.

Individually controlled process zones, combined with superior airflow configurations, allow Bühler's single-pass solutions to deliver consistent and uniform product processed to very precise requirements. Energy savings is an additional benefit of Bühler's high thermal efficiency and balanced airflow designs.



Food safe processing.

Bühler's dedication to food safety is reflected in countless design features that enable superior access for cleaning and maintenance. Large doors and removable panels allow cleaning to be done quickly and thoroughly during routine operations. Dryer conveyor side guides are sloped and smooth to allow product to flow without becoming a safety or sanitation risk.



Hygienically engineered.

Dryer floors are continuously welded for maximum sanitation, with water collection troughs, making wet washes, easier and more effective. Optional rinse-in-place or clean-in-place systems are also available to aid in the effectiveness and speed of cleaning the dryer.



Understanding the entire process.

Bühler goes to great lengths to understand your production process from start to finish. That's what makes us different. When we understand the entire process, we understand the best way to address our specialty – the drying step. That approach results in more sugar-infused cranberries, for example, being dried on our dryers, than any others.

AeroDry multi-stage solutions. **Dehydrated and sugar-infused products.**



Product handling.

Products like French fries, onions, and sugar-infused products have dramatically different characteristics at each stage of processing. These applications require AeroDry's multi-stage drying solution. Thoughtfully designed transfer sections between stages gently reorient products that start out wet or sticky and end up dry or tacky, providing a more uniform drying process for these challenging products.



Integrated cleaning.

Comprehensive cleaning systems remove juice mixtures and sanitize the dryer interior. Continuously welded pitched floors reduce product accumulation points while directing water and other cleaning fluids out of the dryer.

Belt scrapers located at strategic points throughout the dryer help to clean the conveyor during operation, keeping the airflow through the product at its highest.



Quick to install. Engineered to last.

The modular design of the AeroDry reduces shipping costs, installation time and onsite costs.

A robust design that uses the heaviest gauge frames and bed-plates in the industry, ensures reliable operation for the long term.

AeroDry impingement systems. Roasting to achieve perfect color and texture.

Bühler's AeroDry impingement system is the optimal solution for rapid and uniform baking, roasting, toasting, cooking, drying and cooling. Impingement processing is ideal for many bakery applications as well as snacks, vegetables, refried beans, and other food products.



An innovative air delivery.

Impingement air tubes deliver rapid, uniform high heat transfer across the entire width of the conveyor bed, eliminating the oven edge effect. Precisely controlled air flow and temperature from both above and below the conveyor in dual impingement systems, improve operating efficiency while producing product of consistently high quality. Single impingement systems, delivering air from above the conveyor only, are also available.



Variety of nozzle designs.

Air impingement systems are available with a variety of nozzles depending on desired product characteristics. Radiused holes, V-nozzles, tubes and nozzle boxes can be configured to agitate or fluidize certain products.



Pre-drying reduces energy use.

Occasionally, a pre-dryer is a solution for removing high levels of moisture before processing. For fruits like blueberries or strawberries, or vegetables like onions and peppers, pre-drying up to 30% moisture can reduce overall energy consumption and operational costs.



Faster Processing.

Bühler's AeroDry impingement system is ideal for roasting vegetables, achieving the desired color or the perfect roast. During impingement processing, high velocity air strips away the insulating layer of cool air next to the product surface. This turbulent flow process greatly accelerates heat transfer, **reducing process time by at least 50%** compared to lower velocity convection or through-air systems.

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Food science and technology.

From standalone solutions to integrated production lines, Bühler's unique know-how in the science of modern food production is proven out at laboratories and food innovation centers around the world. Food technologists help customers create food products, scale them for production, and engineer value-added solutions to manage food waste sustainably.



Global presence, local support.

Twenty-four hour support draws on the expertise of more than 1,200 field engineers around the world, keeping unscheduled downtime to a minimum. Bühler also conducts field evaluations for drying processes and mechanical performance, optimizing thermal processes for our customers. Additionally, we offer parts, retrofits, and expansion support for conveyor dryers, regardless of the dryer make or model.



Processing education and training.

Bühler knows the drying step like no other. Specialized seminars help processors learn the theory of drying and how to apply it, to ensure product yield and profit margins. Whether attending seminars in locations around the world, or taking part in customized onsite training, customers frequently discover opportunities to improve processing operations, resulting in increased bottomline profits.

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