

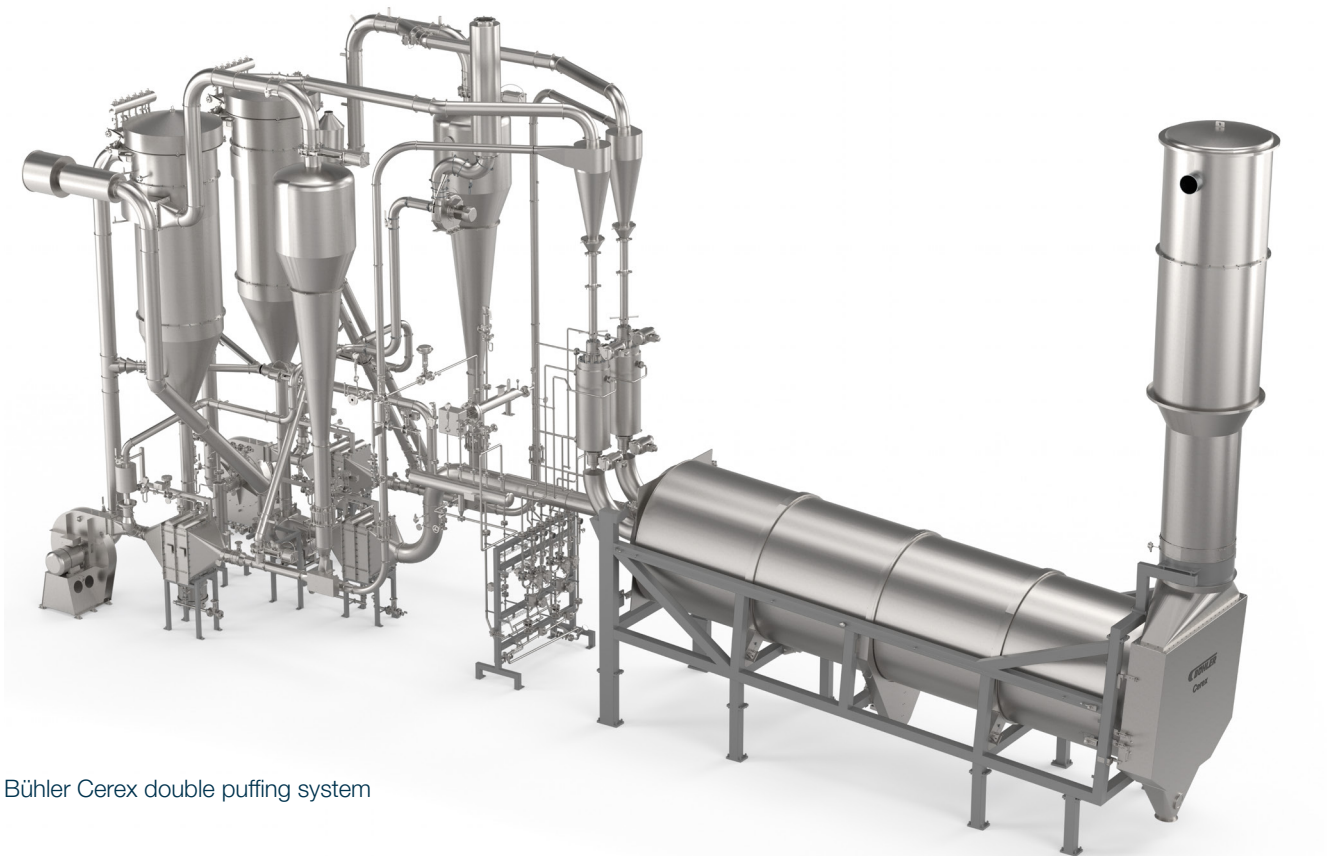
## Böhler Cerex Puffing System

# Bühler Cerex advanced puffing technology

## **Unlocking creativity and enabling product diversification**

In the ever-evolving world of cereals and snacks, innovation is key to meeting consumer demands for healthier and more diverse options.

Bühler introduces Bühler Cerex puffing technology—an advanced solution engineered to deliver high performance and an innovative processing system for controlled, efficient grain expansion. This cutting-edge process preserves the natural shape of the grain while enhancing the texture and nutritional value of the end product, making it ideal for creating wholesome breakfast cereals, snacks, chocolate bars, and more. With Bühler Cerex puffing system, manufacturers can achieve consistent results, high yields, and sustainable production—unlocking new product possibilities and reaching new markets.



Bühler Cerex double puffing system



## Puffed products examples

Bühler Cerex advanced puffing technology can process an extensive range of cereals and grains, so you can create diverse and innovative products. It can handle common grains like hard wheat, soft wheat and rice, as well as ancient grains such as Khorasan wheat, spelt, quinoa and many more.



Amaranth



Barely



Wheat



Sorghum



Spelt



Soft Wheat



Rice



Quinoa



Corn



Chickpeas



Khorasan Wheat



Oat



## Unlocking the power of puffing

The puffing process rapidly expands grains by applying heat and pressure, producing lighter and airier products with increased volume and porosity. Bühler Cerex advanced puffing technology goes beyond expansion—it enhances product functionality by improving digestibility, extending shelf life, and boosting flavor. This results in better-tasting, higher-quality products that are perfect for cereals, snacks, and more.

## Wide range of applications

Bühler Cerex puffing technology opens up unique opportunities to venture into diverse product areas. With unmatched versatility, it is perfectly suited for applications such as breakfast cereals and protein bars made with puffed grains, as well as innovative toppings for baked goods. Enhance the texture of confectionery and chocolate products or add a delightful crunch to yogurts and ice creams. Whether you are crafting ready-to-eat snacks or pioneering culinary trends, Bühler Cerex puffing technology allows you to expand range offering and captivate multiple markets.

## Maximizing yield, efficiency, and safety

Bühler Cerex's puffing system is unique on the market, offering unparalleled benefits in yield, efficiency, and safety. As the only technology capable of delivering yields up to 95%, it significantly reduces waste while ensuring uniform puffing across all grains. Its energy-efficient design consumes up to 50% less energy than other systems, using just 60 kWh per 100 kg of product—resulting in substantial cost savings and environmental advantages. Additionally, the system meets the highest food safety standards, providing a stable, compliant, and reliable process for industrial food production.

## Available in Different Sizes

- Single System: 350 – 500 kg/h
- Double System: 700 – 1,000 kg/h
- Quattro System: 1,400 – 2,000 kg/h

## Key benefits

Efficient, sustainable, and high-quality puffing solution



Achieve yields up to 95% for maximum efficiency



Industrial-grade puffing with full food safety compliance



Energy consumption is up to 50% lower than competitor systems



# Bühler Cerex puffing system

## Product features



### Fluidized preheating

The fluidized preheating system ensures even, consistent preheating of each grain, preparing them optimally for puffing. This reduces energy waste and ensures that all grains are perfectly conditioned before entering the puffing phase, ensuring maximum yield.



### Low noise emission

Unlike conventional puffing methods that use noisy blow guns, Bühler Cerex puffing technology uses a hydrothermal processing unit-based system. This eliminates the disruptive "gunshot noise" typical of older systems, providing a quieter working environment with significantly reduced noise.



### High consistency and quality

The laminar expansion process from the hydrothermal processing unit to the expansion channel ensures that every grain experiences the same level of expansion, minimizing unpuffed grains and maximizing output consistency.



### Sealed, food-safe design

The Bühler Cerex puffing system is designed with a sealed expansion channel, ensuring the highest standards of food safety. This prevents contamination and guarantees that the entire process meets strict hygiene requirements for food production.



## User-friendly automation system for safe, efficient production

The Bühler Cerex puffing system features an intuitive touch screen control that ensures easy operation and safe, efficient production. Equipped with safety circuits to prevent damage from improper use, the system automatically stops in emergency situations. For enhanced quality control and food safety, it logs real-time and historical data and identifies trends, ensuring full traceability.

Backed by Bühler's decades of automation expertise, this flexible system is designed to meet the highest industry standards, offering reliable, tailored solutions to keep your processes running smoothly.



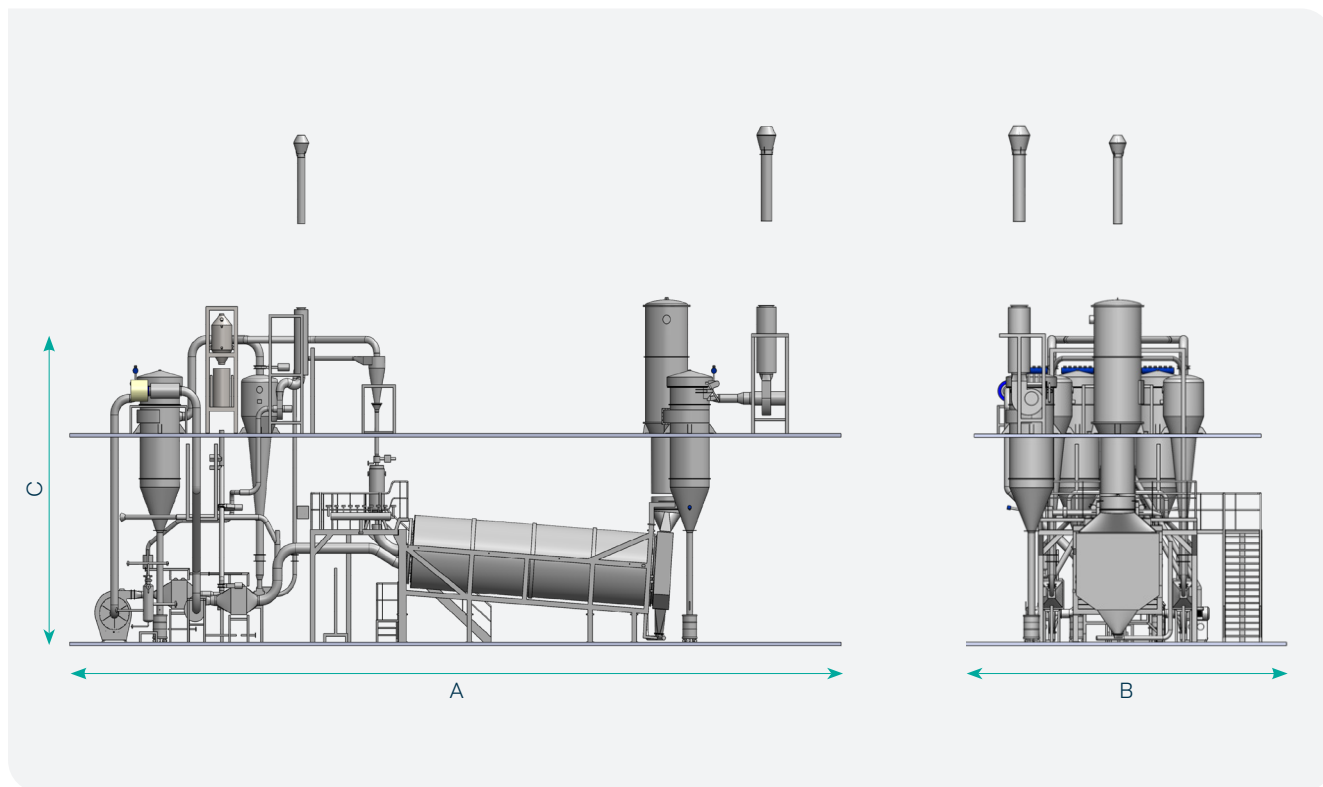
## Bühler Cerex puffing system – product and capacity

Product & capacity	Single puffing	Double puffing	Quatro puffing
Puffed durum wheat (hard wheat)	350 kg/h	700 kg/h	1400 kg/h
Puffed amaranth	500 kg/h	1000 kg/h	2000 kg/h
Puffed quinoa	500 kg/h	1000 kg/h	2000 kg/h
Puffed oat	350 kg/h	700 kg/h	1400 kg/h
Puffed oat grits	400 kg/h	800 kg/h	1600 kg/h
Puffed sorghum	400 kg/h	800 kg/h	1600 kg/h
Puffed millet	400 kg/h	800 kg/h	1600 kg/h
Puffed buckwheat	350 kg/h	700 kg/h	1400 kg/h
Puffed spelt	350 kg/h	700 kg/h	1400 kg/h
Puffed fieldcorn	300 kg/h	600 kg/h	1200 kg/h
Puffed corn	300 kg/h	600 kg/h	1200 kg/h
Puffed corn grits	500 kg/h	1000 kg/h	2000 kg/h
Puffed chickpeas	300 kg/h	600 kg/h	1200 kg/h
Puffed khorsan wheat (Kamut)	350 kg/h	700 kg/h	1400 kg/h
Puffed soft wheat	350 kg/h	700 kg/h	1400 kg/h
Puffed spelt grits	400 kg/h	800 kg/h	1600 kg/h
Puffed rice	350 kg/h	700 kg/h	1400 kg/h
Puffed barley	350 kg/h	700 kg/h	1400 kg/h

All values in [kg/h]. Capacities indicated are subject to tolerance  $\pm 10\%$ , depending on customer requirements. Values for indicative purposes only.

# Technical details

## Bühler Cerex puffing system



Technical features	Single puffing system	Double puffing system	Quatro puffing system
Overall length (A*)	25,000 mm	25,000 mm	25,000 mm
Overall width (B*)	7,500 mm	8,500 mm	8,500 mm
Overall height (C*)	11,500 mm	11,500 mm	11,500 mm
Supply voltage	400V / 50Hz	400V / 60Hz	480V / 60Hz
Steam quality	Saturated steam	Saturated steam	Saturated steam
Excess pressure	30 bar	30 bar	30 bar



## Coated puffed products

# Boost flavor, texture, and freshness



Coating puffed grains with sugar, honey, chocolate, or other delicious ingredients not only elevates their flavor but also adds a satisfying crunch and preserves freshness. This process creates a more appealing finish that is perfect for products like breakfast cereals, snack bars, and confectionery items. Additionally, coatings provide the opportunity to add nutritional enhancements such as vitamins or proteins, making them ideal for a wide range of applications across the snack and health food industries.



### Spraying Drum WAAA

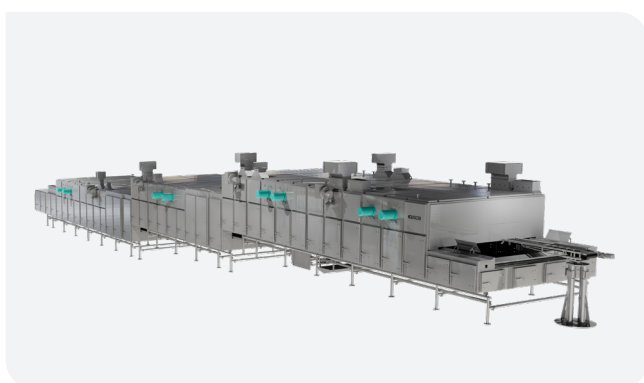
The spray drum is suitable for extruded and puffed products like breakfast cereals and snacks, as well as for pet nutrition and fish food.

Liquids like sugar solutions, syrup, dyes, oils and fats can be added, along with fine and coarse-grained dry substances like powdered sugar, nut clusters, aromatics, vitamins and spices. The twin spray drum model is available as a shifting dual-drum system.

# Drying and cooling solution

## **AeroDry multi-pass and multi-stage dryer**

Bühler is the global leader in thermal processing technology. Our dryers offer an exclusive hygienic design that makes cleaning faster and easier, improving productivity and helping prevent costly recalls.



### **AeroDry-Available for different applications**

For extruded, flaked, puffed and direct expanded cereals applications. The multi-pass conveyor dryer is an ideal solution. The Aero-Dry uses zoned temperature control and alternating airflow to customize the thermal process and maximize the efficiency of heat/mass transfer, ensuring consistent product characteristics across the entire conveyor bed.



### **Unmatched moisture uniformity**

Multi-stage configurations allow the product to be stacked deeper as it progresses through the drying cycle, resulting in longer retention times and more efficient and uniform drying. Even airflow with the dual plenum option provides unmatched moisture uniformity.



### **Highest production rates with the smallest floor space requirement**

Plant owners with restricted floor space can double or triple production capacity with conveyor beds positioned one above the other in order to maximize capacity. These designs also set new standards in cleanability.

# Global expertise. Local presence

## A lifetime of customer service

Bühler customer service provides assistance not only to keep your machines, plants and facilities running at a high operational level, but also to prolong their service life, thus maximizing return on investment. You can test new products, shapes, recipes, textures, flavors, technologies and optimize your production process on fully equipped production lines and laboratories at our Application Centers world wide.



### Puffing Application Center Uzwil, Switzerland

Explore the Puffing Application Center and test a wide range of raw materials, including wheat, oats, rice, corn, quinoa, amaranth, millet, and more, using advanced Bühler Cerex puffing technology. With hands-on trials and expert support, optimize your processes to achieve consistent, high-quality puffed products tailored to your needs.



### Food Creation Center Uzwil, Switzerland

Food Creation Center in Uzwil, Switzerland, is a state-of-the-art facility for conducting product testing, production trials and training, whether it is fruit, protein, muesli or nut bars, wafers, biscuits, chocolate, baked goods, spreads, or snacks.



### Extrusion Application Center Uzwil, Switzerland

Our Extrusion a multi-purpose lab where you can conduct tests on food and animal feed. Check new recipes, product shapes and textures. Food trials include cereals, extruded breadcrumbs, reconstituted rice, flavoring, modified starch and modified flour, soybeans, sunflower seeds, peas and new proteins.



# Extensive range of services

## From engineering to training



### Lab Services

The laboratories offer a broad range of analyses and testing of food and technical materials in order to innovate processes and improve equipment for our customers.

### Spare and wear parts

Highest standards of reliability apply to original Bühler spare and wear parts. They are perfectly adjusted and ensure performance and production safety.

### Training

At Bühler training centers – or at any site worldwide – specially trained experts pass on their hands-on expertise and knowledge to customers' employees.

### Revision

Bühler evaluates, over-hauls, adjusts or renews customer installations, including Bühler and non-Bühler machines.

### Consulting

Strategic, plant performance, or energy consulting are just some of the consulting services to improve product quality, production processes and energy efficiency.

### Repairs

Dedicated to minimizing downtime in the event of an incident: Fast and reliable technical repair service via the Bühler eTicket or the Bühler Helpline – world-wide, 24/7.

### Maintenance

Packages are adjusted to fit production cycles to prevent downtime, loss in production efficiency or product quality, ranging from individual services to complete outsourcing of maintenance.

### Retrofits

With individual upgrades and conversion kits time-worn Bühler machines will perform to current standards of technology and efficiency.





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