

CRUNCHY AND IRRESISTIBLE BREADCRUMB



Battered and breaded products are irresistible

Breading food products helps to seal in moisture when deep-frying or pan-frying. It also provides a crunchy and delicious exterior, and the golden-brown color makes the food more attractive. The consumption of breaded products has increased tremendously during the past decades.

Also breaded products have evolved beyond the traditional crumb in terms of functionality, potential health benefits, flavor, texture, and appearance. fertilizers contain all three of the most common nutrients: nitrogen, phosphorous and potassium.

Ventilex breadcrumb processing benefits

- High quality product with uniform particle size.
- Precise controls enable drying, or toasting, to achieve the desired color, shape and texture
- Processing (milling, drying and cooling) of pellets, bricks, sheets, extrusions or loaves of bread.
- Stand alone fire protection system incorporated into equipment.
- Gentle shaking motion creates fewer fines and less maintenance than competition's high frequency vibration system.



Rusk

Rusk is mainly used as a filler, an ingredient for dried stuffing mixes or a binding agent in hamburgers, sausages, pies, and other compound meat products. It is also a carrier for flavours, colors and seasonings. Rusk is important for its absorption, texture and color properties.

Breadcrumb

Breadcrumb comes in many shapes and sizes based primarily on what the customer wants as opposed to the technical characteristics of the material. Most food processing companies have been operating for many years and have defined specific requirements which their end product must meet.

Typically breadcrumb is used as a coating for fish, chicken, etc. The crumb is light weight with an airy structure, good for absorbing a lot of oils and water during the baking/frying/cooking of the food. Breadcrumb is assessed based on how it looks (shape, structure and color), the texture for eating, and the technical properties (absorption, initial moisture content, etc).

Standard breadcrumb is bread made in either bricks/sheets using a sheeting line, or extruded onto the baking belt as individual lines or as one large, continuous layer over the entire baking belt.



Breaded food, with its crispy outside and succulent inside, is simply irresistible

Breading food helps to seal in moisture when it is cooked. It also provides a crunchy and delicious exterior, and the golden-brown color makes the food more attractive. The consumption of breaded products has increased tremendously in recent decades.

The product has evolved in terms of functionality, potential health benefits, flavor, texture and appearance.

Due to its diverse nature, breadcrumb comes in many different shapes and sizes, requiring excellent drying equipment in order to be processed.

Great process knowledge and testing capabilities

To produce a crumb with these kind of specific properties, requires great process knowledge and testing capabilities. Your product will benefit from the experience we have gained from drying applications in many different breadcrumb production lines throughout the world.

Our fully automated solution requires a minimum number of employees to operate, control, clean and maintain the equipment. It can run 24/7 while continually maintaining product quality.



Production of breadcrumb

American breadcrumb (also called natural breadcrumb) is made from actual loaves of bread. The dough for this bread is mixed, kneaded, and placed into individual baking tins. It is allowed to rise, then baked. Bread for breadcrumb is generally made with yeast. The process involves mixing time, proving time (rising), baking and optionally cooling times.

Depending on the choice of the customer, the loaves may be allowed to cool first, or passed straight to the mill for the grinding. Cooling helps fix the bread's structure, making it more resilient through the mill. You get much lighter, less dense crumb from cooled bread. When cooled the bread is typically 50°C on the inside and mills better.

Production of rusk

Rusk is a bread mix where yeast is not used. This is usually replaced by a bicarbonate (either sodium or ammonium) to provide some rising during baking and to produce the airy structure normal for bread.

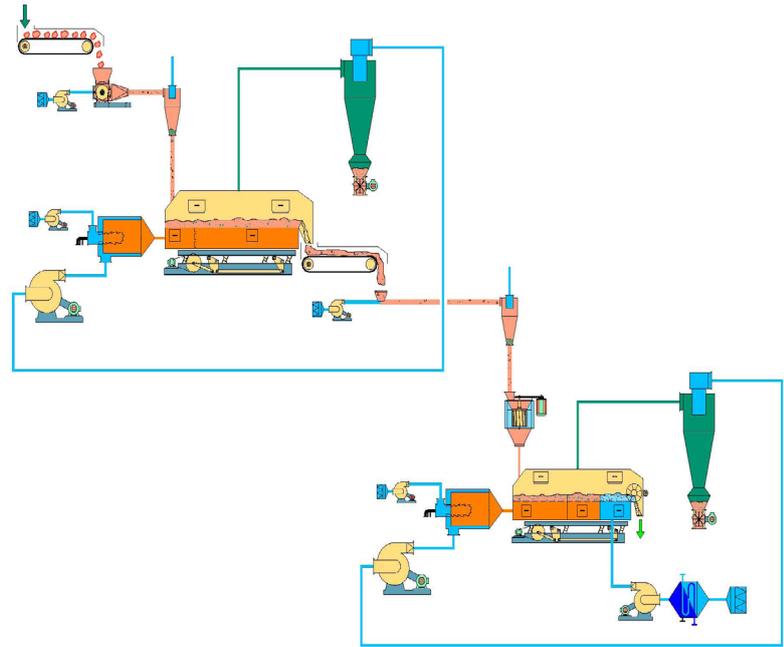
Because there is no proving time necessary to let the product rise, rusk lines tend to have a smaller footprint and higher throughputs than breadcrumb processing lines.

A standard baking process using an oven is very similar to breadcrumb, except without the proving time required to allow the dough to rise.

HOW THE VENTILEX FLUID BED BREADCRUMB DRYER WORKS

In a continuous fluid bed dryer/cooler, a continuous flow of wet granular material is dried and subsequently cooled. Drying of the material occurs by direct contact between the material to be dried and the hot drying air that is blown through a layer of the product.

This cross flow maximises heat transfer from the drying air to the product, making this one of the most efficient drying processes. The air velocity of the drying air is adjusted in such a way that the product is maintained in a fluidised state. The same principle applies for cooling, only the cooling is achieved with ambient air or with conditioned (cooled) air.



Production and drying

The bread dough is extruded into small pellets, \varnothing 2-3 cm, that are pneumatically transported into a fluid bed pellet oven process which is intensive, requiring a significantly smaller footprint than a typical tunnel oven.

The pellets are heated to $\sim 200^{\circ}\text{C}$ using process air of about $200\text{-}220^{\circ}\text{C}$. Due to the speed at which the dough is brought to temperature, and the small size of the pellets, there is a relatively large amount of crust, or denser material in the product. Depending on the end user's requirements, significant improvement of the structure can be achieved by adding a conditioning time and a cooling time for the pellets before they are transported to the mill.

The Ventilex system can incorporate a large diameter screw to hold the product at a relatively high temperature after the oven for 15-30 minutes to condition the pellets.

This helps the interior to form a better structure by cooking for longer, while allowing the outside denser crust to absorb the moisture coming from the interior of the pellet, softening and improving the structure.

Before milling, standard baking lines may use a cooling chamber, or a cooling belt with forced air, or a room cooling track. The Ventilex system can also include cooling (either a belt or a fluid bed) after the conditioning screw. Cooling fixes the structure before milling.

The typical sizes after milling include \varnothing 4, 6, 8, 10, 12 mm. The drying temperature depends completely on your requirements and the desired outcome for the product.



Why Ventilex?

Easy.. Drying systems for breadcrumb can consume a lot of energy, leading to significantly higher operational costs and low margins.

Greater wear-and-tear also means frequent maintenance and repairs or replacement expenses.

**Ventilex Fluid Bed Dryers:
especially designed to
prevent eroding, while
drying your product evenly.**

Many companies already chose to partner up with Ventilex for their drying needs. Our equipment is space saving, energy-saving and there is no product loss. Customers also discover that their installation and maintenance costs are significantly lower. Our machines use a gentle, cam-drive shaking motion that helps to preserve the quality of your product without altering the production.



> Our high-efficiency dryers typically provide you with 30-60% energy cost savings, the lowest energy consumption among dryer beds. The exhaust from the cooler area can be recycled to the dryer area, so that excess heat energy in the product is reclaimed in the dryer.

> Sturdy stainless steel construction backed by European excellence in engineering and manufacturing: requires less maintenance.

> The state-of-the-art PLC control system offers advanced temperature and humidity controls to deliver optimal processing capacity and quality.

**Ready to get the most out
of your drying equipment?**

It's a Ventilex

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