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We are Autobake.

With our expertise and experience of 22+ years, we have been the game-changers in assisting our clients to excel in their baking and food processing business. Our highly skilled team knows the intricacies of promptly setting up fully-automatic industrial lines to extract top-quality products from them. We help improve efficiencies and scale-up baking production to ensure better ROIs and superior product quality.

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Vacuum Cooling Conquers the Bakery Industry

Vacuum cooling is an old rapid cooling technology that is now conquering the bakery world. Yusuf Patanwala, Founder & CEO of Autobake Productions throws light on the subject to explain what cooling with vacuum can bring to bakers.



YUSUF PATANWALA
FOUNDER & CEO
AUTOBAKE PRODUCTIONS

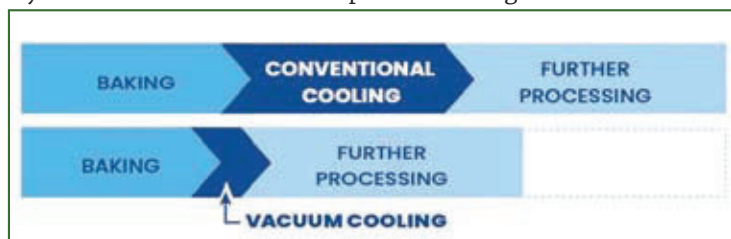
To properly understand what cooling with vacuum can bring bakers, it is important to understand how the technique works in essence: By continuously reducing the pressure in the vacuum chamber, the steam creation is forced to continue, and with that, the baking process continues as well. The heat required for this steam formation is not supplied by the oven, but is extracted from the bread; the bread cools down, within a few minutes

It makes use of the basic principle from physics - the lower the pressure, the lower the boiling point of water. Thus, by continuously lowering the pressure, the water continues to boil, and the bread continues to bake, while cooling down at the same time (within 2-8 minutes only), ready to slice and pack directly after!

What does this technology mean for bakeries?

During the continuous pressure reduction, you “pull” on the bread all the time, keeping the shape and the volume, creating a “proud” bread!

The stability of the bread is no longer important; in the oven, you can almost eliminate this phase of baking.



Croissants and Danish pastries

Vacuum cooling allows you to bake the perfect croissant: maximum volume, beautiful airy layers, deliciously brittle on the outside, and soft on the inside. The structure is strong and retains its shape for a long time. Danish pastries are also baked to perfection. Baking time is reduced by an average of 30 percent, while cooling takes about 90 seconds.

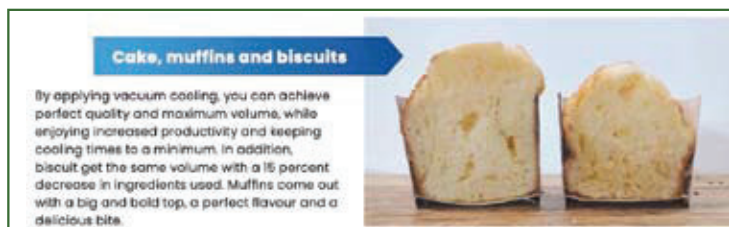


The bread only needs to be technically baked through and have a good crust colour; often this can be achieved in 2/3rd of the baking time (at a slightly higher temperature). This means 30% lesser baking time, 30 per cent lesser energy costs (= more profit) and one oven 'saved' for every 3 ovens (means less capital costs and high productivity)

In addition, the bread has a paper-thin and crispy crust - thus great quality and great taste!

If you want a thick crust? - then this can also be designed in the baking process!

And for packaged bread and rolls - by properly controlling the process, a bread with a super soft crust can be achieved.



Advantages of Vacuum Cooling

The story does not end here, it continues with more advantages of vacuum cooling:

- By continuously “pulling” the bread, the volume is maximized, and the shape optimized
- Shorter baking times (combined with the right vacuum conditions) retains more moisture, resulting in a more tender bread, and reduction in the amount of dough needed.
- The crust is preserved up to hours longer; super important for day-fresh products.
- Retrogradation is set back up to days; bread stays fresh longer.
- Since there is (almost) no bacterial growth during refrigeration, the microbiological shelf life of (packaged) bread and cakes is also much longer.
- Since the cooling time of bread / cake / puff pastry etc is reduced from hours to just minutes, there is huge saving in trays, trolleys, floor space and ultimately NO exposure to microbiological growth at all.

WEBER VACUUM COOLING



With over 600 systems build and sold in over 40 countries across 5 continents, Weber Cooling is the worldwide leading supplier in this industry.

Weber Cooling:

- Builds the fastest coolers, thanks to the unique vacuum/cooling concept
- Specifically tailored to six different target groups for optimal performance
- With the highest reliability, achieved through simplicity in design
- And the longest lifetime, thanks to the modularity of the systems
- Supported by a worldwide service network

Vacuum Cooling details

- 'Dutch Design' vacuum coolers are built according to the latest CE and or UL requirements, from high-end stainless steel. All models have an anti-drip roof, and automatic drip water removal system.
- For the creation of the vacuum, it uses renowned and proven rotary vane vacuum pumps from

Busch. On request it can be upgraded to the latest oil and maintenance free "NovaDry" screw pumps from Leybold. These pumps guarantee lowest maintenance costs and TCO.

- To ensure maximum performance of the vacuum technology, a full stainless steel condensation system processes all the water vapor released from the bread. The cold needed for the condensation is provided by an external cold-water cooler (chiller).

- The chiller range from Aermec (Italy) are energy efficient, and maintenance free. The latest generation of chillers require only a minimized amount of refrigerants. It's possible to (fully) recover the cooling power in the form of heating power (for cold water).
- With the full proportional pressure control system one can create the perfect cooling cycle. Combined with Siemens PLC and the latest WeCool software, it's extremely simple to modulate the perfect cooling

curve for each bread or pastry product, and for cake.

- All the systems guarantee lowest energy cost, thanks to intelligent combination of vacuum and cooling technology. To cool down one standard rack of bread, less than ONE kWh will be required on electrical energy. The vacuum room houses the basic vacuum and cooling technology. The cold needed for the process is provided by a separate chiller, best placed outside the building. With a multiple room system, one central chiller (with buffer tank) can supply the cold needed for all the vacuum rooms. Low cost – with maximum efficiency. One vacuum cooler can handle up to five ovens.

WeBake 80-SD – The solution for large racks

The WeBake 80-SD (Dutch Design) has been developed for the standard racks (800x660x1,800mm) but will also fit larger racks; it can be used for (Thermo Roll) ovens from all (European)

TECHNICAL SPECIFICATIONS:

Free inside space:
900 x 1.200 x 2.000 mm (w x d x h)

Vacuum technology:
Standard: Busch R5 RA 200 rotary vane vacuum pump. 5 kW (380V/3/50)

Cooling Technology:
Full stainless steel WeCo HX 40/80 condensation system. This combination provides maximum cooling efficiency at lowest energy requirements. The necessary cold is supplied by the external chiller.

External cooling system:
Aermec ANL 150 series. Suitable to cool up to 600 kg of bread per hour. Nominal power: 12 kW, during normal operation the system will run only at partial load.

suppliers, plus most double USA racks. You can also perfectly cool the bread from deck ovens, and even belt ovens, using a multiple room configuration.

The cooling system is designed to efficiently cool nominal loads of up to 80 kg of bakery products, within 90 seconds to maximal 8 minutes. In a standard operation, one vacuum cooler will be able to handle four, maximal five ovens. More rooms can be combined cost effectively with a central chiller to handle larger bakeries, with more ovens. ❀