

Success Story: Bäckerei Wagner, Ruhstorf/Hütting

Different procedures in an efficient overall concept

Special challenges - Special solutions

The customer's priority was quality-oriented, process-optimised manufacturing of multiple products: Pretzels (2,400 per hour, produced using traditional baking methods and treated in alkaline solution, proofed, and frozen), wheat buns and rolls which are to be produced for the following day in a long-term process as half-baked products), as well as other intermediate proofed Danish-style pastries and other pretzel-dough products. The design challenge was to combine the various refrigeration processes to a harmonised overall concept, link them to a new rack oven via rolling loading, while guaranteeing optimal energy efficiency.

One existing and one new blast freezer MIWE SF for three 60/80 rack trolleys with a temperature range from $-20\text{ }^{\circ}\text{C}$ to $-38\text{ }^{\circ}\text{C}$ were used for all products which are to be passed through blast freezing. For example, the pretzels, which weigh 90g each, are rapidly and carefully lowered from an arrival temperature of roughly $23\text{ }^{\circ}\text{C}$ to a core temperature of $-7\text{ }^{\circ}\text{C}$. For long-term management of the wheat buns and rolls, 4 automatic proofing machines MIWE GVA were installed for a total of 15 rack trolleys, which are filled alternately, and are therefore also ready for removal alternately. The dough preservation unit MIWE TLK is used to store dough pieces; it can hold roughly 40 rack trolleys in a temperature range from $-5\text{ }^{\circ}\text{C}$ to $-25\text{ }^{\circ}\text{C}$. The proofing chamber MIWE GR holds 4 rack trolleys (to $+35\text{ }^{\circ}\text{C}$). The products from the blast freezer and the dough preservation unit are also united in a packaging chamber with a refrigeration system for dehumidification ($+3\text{ }^{\circ}\text{C}$ to $+10\text{ }^{\circ}\text{C}$) in which raw materials can also be held in cold storage.

The automatic proofing machine, the dough preservation unit and the packaging chamber are supplied by a



Bäckerei Wagner GmbH
Hans-Resch-Str. 10, 94099 Ruhstorf/Hütting, Germany

■ The task: An extension building was needed because of bottlenecks in production capacity in the current bakehouse. The new building project was also to provide an opportunity to optimise material flows, further improve product quality and significantly reduce energy costs (for existing conveyor systems also).

power-controlled joint cooling system, which automatically adapts to the respective conditions. The blast freezers are equipped with their own separate compressors due to their different temperature profiles. This concept offers the customer multiple advantages: On one hand, it saves up to 15% of the energy required for cooling. On the other, the spatial requirements are far lower, as instead of 8 distributed compressors, only one combined cooling system with 2 compressors must be installed. The system was also designed so that it remains functional even if one compressor fails, in the interest of operational reliability.

The waste heat from the refrigerating units is recovered using MIWE eco:recover modules. They are used to heat water (approx. $40\text{--}45\text{ }^{\circ}\text{C}$), which is supplied back to the process via an intermediate circuit. The automatic proofing machine and the proofing chamber are heated via a MIWE eco:proof; the dough preservation unit

is defrosted energy-economically using a MIWE eco:defrost.

Besides the lower connected load of the system, the gentle heating provided by MIWE eco:proof was particularly important to the customer, as it effectively reduces the risk of skin formation and defrosts the products without damage. The system is connected to the MIWE fault reporting system online and is monitored continuously from there, even when there is nobody in the bakehouse.

This comprehensive holistic approach persuaded the customer to leave their previous technology partner, and give MIWE the job instead.

The scope of supply:

MIWE was responsible for the entire combined cooling system and modeling the rolling production, up to and including the rack ovens. The following MIWE systems are currently operational at Bäckerei Wagner:

- ▶ 5 rack ovens MIWE roll-in e+

- ▶ 2 blast freezers, 1 x MIWE SF for 3 blast freezers
- ▶ 4 x automatic proofing machines MIWE GVA for 15 rack trolleys each
- ▶ Packaging and storage chamber with refrigeration system
- ▶ Dough preservation unit MIWE TKL for approx. 40 rack trolleys
- ▶ Proofing chamber MIWE GR for 4 rack trolleys
- ▶ Combined cooling system with integrated combined heating system, consisting of multiple recovery units MIWE eco:recover, MIWE eco:proof and MIWE eco:defrost

What convinced the customer?

- ▶ Comprehensive process mastery, combination of top dough technology and energy expertise
- ▶ Professionalism from the first contact through the entire planning process to commissioning
- ▶ The implementation: „It was the only correct decision“

