

Success Story: Piekarnia Familijna Kowalczyk, Krosnice, Polen

Entire technological manufacturing process from one source

Special challenges - Special solutions

The main challenge associated with the project was the existing building situation. A radical new (constructive) approach, which would have permitted the use of an even more efficient conveyor oven was in fact discussed, but rejected in the end by the customer due to the difficult building situation, which is also affected by the proximity of the production plant to a conservation area. That resulted in the strict environmental regulations and the requirements for energy efficiency of the operation which were to be implemented in the concept. As an alternative, the concept of partial manufacturing in islands was considered. The main process was largely automated. This solution gives the customers a high degree of flexibility in their products and the organisation of production. It rendered the previously required transportation of products through many halls and long distances unnecessary. The main products are bread and hard rolls. The special form of a combined two-stage proofing (processing – 30 min in a basket in the proofing cabinet – automatic cutting after half the proofing time – depositing on boards and in trolleys – a further 30 min proofing exposed on the board) was to be maintained. This allows the cut bread loaves to develop more freely on the cut sides and rise better – a characteristic that customers value just as much as the typical thin crust of wheat breads, which account for the bulk of production.

The first proofing station was designed as a trough-type proofing station. Steam is added via a steam distributor from an external steam generator, and heating is provided by a MIWE eco:recover using recovered thermal energy. Via a no-drop removal the products are transported to the cutting device, and from there on



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Product range: bread, hard rolls, (whole wheat and rye), seasoned snacks, cake, French baked products. Total of about 200 extremely high-quality products. Daily output: 12 tons of hard rolls, 28 tons of bread and 5 – 7 tons of fine baker's wares. The company supplies about 1,000 branch outlets and sales outlets (franchise concept) in the market for premium products, as well as large sales chains.

■ The project: Expand a production facility that has grown in several successive stages (including building extensions). By extending the production facility, the company will shorten distances as well as simplify workflows, while retaining the character and high quality of its baked products. At the same time, energy costs were to be reduced dramatically.

to a depositing device, where three boards (200 x 70 cm) are always deposited in trolleys beside one another in three levels above one another. The products undergo the second proofing stage in these trolleys. At the double docking station, the boards are cleared level by level by a MIWE butler and pushed together to an oven (2.0 x 2.1 m). The product spacing required by the customer is maintained. The actual loading process is implemented by a redundantly, i.e. double MIWE athlete – for optimal availability – which automatically loads four MIWE thermo-express units which each feature 12 ovens. The entire system is designed to output 2,700 loaves per hour. This entire

process runs in a fixed cycle, i.e. like an automated production line. Flexible batch operation is also possible at any time outside the main working program.

The MIWE athlet also unloads the ovens. After spraying, the goods are deposited on a deposit conveyor, and transported to the dispatch area via

a cooling spiral. One shift produces fresh goods, and a second produces packaged goods.

The energy efficiency of the entire system was particularly important for the customer, as they had to fulfil very strict conditions due to the location of the bakery in a conservation area. In addition to the heat recovery systems



(4 x MIWE eco:nova on the ovens and the central heating boiler), the MIWE thermal system uses a MIWE eco:recover to heat the proofing system and 2 absorption refrigerating plants for air conditioning. This system meets virtually the entire hot water requirements of the bakery. In addition to heating the proofing chambers and the building, excess heat can be used to operate the absorption refrigerating plants planned by MIWE and therefore be used for air conditioning in the summer. The heating systems alone require an amazing 5,000 kWh per day in winter. With MIWE energy, the customer reduces their carbon footprint by an equivalent of roughly 450 tons of CO₂ per annum. The increased investment for intelligent energy efficiency will already pay off for the customer in 4.5 to 6 years.



The scope of supply

MIWE is responsible for the entire manufacturing process from the proofing station i.e. for all proofing equipment, loading and transport, as well as the cooling and baking technology. The following MIWE systems are currently operational in Krosnice:

- ▶ 4 x 12-oven MIWE thermo-express
- ▶ 2 x MIWE athlet, fully-automatic loading and removal
- ▶ 4 x triple deep MIWE thermo-static (with separate MIWE eco:nova)

- ▶ 4 x MIWE roll-in
- ▶ MIWE HKZ with a total connected power of 1,400 kW
- ▶ MIWE suspended proofing system with supply (2,700 long loaves per hour)
- ▶ MIWE spiral cooler (2,700 long loaves per hour)

The complete combined energy system was also produced by MIWE.

- ▶ 4 x MIWE eco:nova (for flue gas or steam)





- ▶ MIWE eco:recover for heating the proofing system
- ▶ 2 x absorption refrigerating plant for air conditioning (overall performance 105 kW)
- ▶ Buffer tanks (15,000 l) and heating system control

What convinced the customer?

- ▶ The concept and technology for the entire technological manufacturing process from a single source
- ▶ Consultation and system quality
Made in Germany
- ▶ Technical implementation
- ▶ Impressive overall energy concept for a powerful combined heating system, dramatically lower energy costs