

Bakery Staib, Ulm, Germany

Everything from a single source, everything under control

Bäckerei Staib chose to partner with MIWE because MIWE was able to provide everything from refrigeration and oven technologies to heat recovery systems from a single source. And thanks to MIWE remote, the bakery now has access to a sophisticated service system.

"We wanted to have as few interfaces as possible in our system", says master baker and pastry chef Marcus Staib, recalling the design phase for his new production facility. For him, interfaces are potential sources of inefficiency that would mean more work and higher costs. That's why Staib opted for a turnkey facility delivered by a single supplier.

He took a similar approach in choosing the equipment for the new bakehouse. "MIWE offered us the best all-in-one package for our core components, which included refrigeration and oven technologies as well as heat recovery systems", says Staib. MIWE is able to provide a comprehensive range of products for these applications from a single

source, and even develops, designs and manufactures the products in-house. As a result, interfaces are seamless, allowing all systems to work in perfect harmony.

Marcus Staib is happy with his decision. "I'm really impressed with the TC control system, which we're using for our ovens as well as our refrigeration and heat recovery systems", says Staib, raving about his new MIWE systems. He's also impressed with the simple and intuitive interface of the colour touch screen. All key parameters can be easily viewed and modified as necessary.

MIWE Remote Service is yet another feature that has fully met Marcus Staib's expectations. Refrigeration and heat recovery systems are connected to this remote control system. Actually, the system does much more than remote monitoring. MIWE remote is a tool that not only monitors systems and reports faults, it also continuously optimises system parameters. The tool ensures rapid troubleshooting if something goes wrong.

This includes everything from reporting the problem to the appropriate employee at Bäckerei Staib, enabling →



Marcus Staib wanted as few interfaces as possible at his new facility. The fact that the oven uses the same control system for the oven, refrigeration and heat recovery systems is an added advantage for Staib.



The combined systems in the bakehouse are especially fail-safe thanks to a second set of evaporators that is activated if the first one fails.

direct system access for specialists at the remote centre in Arnstein or alerting a service technician. The tool gives technicians a very detailed picture of the problem including different troubleshooting options.

“It’s a form of extra reassurance for us”, says Marcus Staib. Traditional monitoring systems often take too long to get a problem under control, but with MIWE remote, troubleshooting measures are initiated in just a few minutes.

A safety thermostat in a MIWE eco:nova heat recovery system was the recent source of a fault at Staib’s bakehouse. The fault was eliminated with the press of a button. “But you still have to know where the fault lies”, says master baker and pastry chef Staib. He knew exactly what to do because he had received an e-mail from MIWE remote that contained instructions, complete with pictures, for switching on the fuse of the thermostat.

Staib is using two MIWE eco:nova heat recovery systems. One system recovers heat from steam and flue gas from two MIWE ideal M deck ovens with a total of 18 decks. The second MIWE eco:nova is connected to two 5-deck MIWE ideal models that are used as pretzel ovens. The system also includes third-party rack ovens that were relocated from Staib’s former bakehouse.

The advantage of the MIWE eco:nova is that flue gas and steam are sent separately to the heat recovery system. This allows for more effective use of the two media, which have different energy densities. Marcus Staib: “Whenever you have a new facility, you have to think about heat recovery if you want your business to remain energy-efficient well



Recovered energy in the MIWE eco:defrost system is used to defrost the evaporators in the freezer cabinets.

into the future.” Staib also mentions the low-cost financing options available when such heat recovery systems are implemented.

Further thermal energy is recovered by a MIWE eco:box and used for powering building utility systems. As the name implies, the eco:box is a compact exhaust gas heat exchanger. It is installed between the central heating boiler of the three MIWE thermo-static wagon ovens and their exhaust flue. In this way, approximately 70 per cent of the flue gas from these ovens can be recovered as thermal energy.

Energy is also recovered from refrigeration systems and reused in refrigeration and proofing processes. “Continuous monitoring and optimisation is absolutely essential for us”, says Marcus Staib. A fall-back configuration was included in the original system design.

As a result, there are two system units for bread/rolls and pastries. However, the term “system unit” means that there is more than just a structural relationship between the individual cooling cells. The systems also operate in a network and are connected to a refrigeration system.

This boosts energy efficiency because sophisticated activation and deactivation logic ensures that only the exact power required is delivered at all times. Infinitely variable and precise control is made possible thanks to the frequency converter in ‘master machine 1’. The other two machines are activated according to defined rules if the power of the first machine or the first two machines is not sufficient. “Compared to a solution with many separate refrigeration

units, this configuration significantly reduces rated power requirements”, says Marcus Staib, explaining the system.

However, the drawback of combined systems is that a malfunction can cause the entire system block to fail. Therefore, Staib implemented a second integrated system for the bread/bread rolls refrigeration section. In this way, each of the two combined systems can activate each chamber on a dedicated set of evaporators. “Even if one combined system fails, the other can still provide refrigeration”, says Staib. This makes the system extremely fail-safe.

Another incidental advantage of combined systems is that they allow for easier heat recovery than individual systems because only one MIWE eco:recover is required for each combined system. This plate heat exchanger recovers the heat from the refrigeration systems for use in other nearby processes. For example, water can be heated to 45° Celsius.

At Staib’s, the recovered energy is transferred to the company’s seven fully automatic proofing units. As a result, they do not require an electric heating system to produce the warm and humid proofing atmosphere. The heat generated in this way is also gentler and has a positive effect on the development and thus the final quality of the baked product.

Recovered energy is also used by the freezer cabinets. MIWE eco:defrost uses the evaporator for defrosting. At the heart of this system is a glycol circuit in the evaporators. The glycol is heated using the recovered energy, which melts the ice in the evaporators. “This reduces the connected load and our energy costs”, explains Marcus Staib.



The refrigeration units are situated in a separate engineering room.

All system data, including history, are also monitored by MIWE technicians. The systems were continually fine-tuned, a crucial part of commissioning such a complex solution. “We also take advantage of MIWE’s expertise when we implement new products or during quality assurance”, continues Marcus Staib. For example, the parameters for a proofing program in the fully automatic proofing unit were adjusted directly from Arnstein.

The result: Thanks to the intuitive TC control system, authorised employees at Staib can change many parameters in the proofing programs, while MIWE can assist with fine-tuning using their wealth of experience. Given all these →



The freezer cabinets and fully automatic proofing block are installed as a compact system unit in the bakery.



Plate heat exchangers recover heat from the refrigeration units and transfer it to buffer storage tanks for other uses.



Serving food is important business at the new location since so many customers come from nearby companies.

benefits, Marcus Staib's positive review comes as no surprise: "Carefully designed technology, comprehensive monitoring and fast service ensure that our production is high-quality, cost-effective and environmentally friendly."

A brief overview of Bakery Konditorei Staib GmbH & Co. KG

Managing Directors: Marcus Staib
Eiselauer Weg 6
89081 Ulm

Branch outlets: 49

Employees:

Production: 58, of which 6 are apprentices

Sales: 270, of which 18 are apprentices

Shipping department/logistics: 18

Administration: 11

Sample prices:

Soft roll 0,35 Euro

Special rolls 0,55 – 1,10 Euro

Seele (braided pastry) 1,10 Euro

Wheat bread, 1,000 g 2,90 Euro

Special bread, 500 g 2,95 Euro