

Bäckerei Jägers, Borken, Germany

Optimum baking results and outstanding energy efficiency

Bäckerei Jägers stands out immediately, at least if you're driving into Borken, Germany, on the B 67. This heavily trafficked road is home to the company's new production location, which includes a store and a drive-in. Master baker Josef Jägers' concept is also going to stand out in the baking industry and get people talking.

Thanks to this new location, the company is now well prepared for the future. MIWE baking ovens, refrigeration systems and heat recovery systems certainly improve energy efficiency, but they're also important components in the company's quality concept. The bakery is also using an innovative new feature in its wagon ovens that has improved the quality of baking results even further.

"We had a complete shortage of space, and that was what motivated us to build the new building," recalls Josef Jä-

gers. Founded in 1890, the family business has continued to expand during the last decade, despite increasing competition. The quality of the company's products is definitely one reason for this. Josef Jägers is using nothing but thermal oil baking ovens at his new production location. At branch locations, products are baked in small deck ovens. "The products are clear proof of what a good decision this was," he says in an assured tone, explaining why he decided to choose thermal oil for the production location and deck ovens in the stores.

The new building, which was built on the former site of a military barracks, was designed to carry on the company's quality philosophy. Like all the company's locations, this one would have to meet several requirements: enough space to work, sufficient refrigeration space, and of course thermal baking ovens. These requirements have been more than met. The production spaces for the bakery and pastry shop have been generously designed. Machinery and systems have been arranged so that workflows can be optimally configured. →



The Jägers building is located directly on a popular main road through town. It really stands out, just like the company's energy concept.



The two MIWE thermo-static are used for baking tin loaves and especially hard rolls.

Refrigeration systems and baking ovens face each other in the middle of the production space. A MIWE TLK dough preservation unit is complemented by two MIWE GU proofing interrupters that allow for cooling and proofing curves from -20 to $+15^{\circ}$ Celsius. These interrupters produce the dough pieces that are baked in the adjacent ovens.

Thermal oil improves quality

“The original reason for choosing thermal oil was the large baking capacity,” recalls master baker Jägers. Batch-after-batch baking and baking very tightly arranged bread are only possible with thermal oil, he says. When he started using thermal oil in 1995, he was immediately impressed with the results. “You’d never get hard rolls like this in a rack oven.” Right from the beginning, Jägers trusted in MIWE as his partner for thermal oil baking.

MIWE thermal oil baking ovens are also in use at the new facility. Two MIWE thermo-express deck ovens are used primarily for baking bread. One is a double-wide oven. The other is triple-wide. Each has five decks, and the lowest deck of the largest oven is a pull-out deck. This allows for easy loading and removal of products like tin loaves.

Two MIWE thermo-static wagon ovens are arranged next to the deck ovens. Yeast baked goods, and especially bread and hard rolls, are the main products baked in these ovens, each of which features two trolleys. Each roll is evenly browned. Crusts come out tender and crisp. The crumb stays juicy and aromatic even after several hours – that’s how an expert would describe the bread at Jägers. “They’re the best,” says a customer in the store, letting Josef Jägers know he’s on the right track when it comes to meeting his quality goals.



Hard rolls from the thermal oil wagon oven: crusts are tender and crisp, with a juicy crumb.

MIWE thermal oil baking ovens are now firmly established on the market, just like the legendary MIWE ideal and roll-in baking ovens. Nevertheless, MIWE engineers continue to tweak the technology and try to optimise energy efficiency and baking results even further.

Full steam ahead

Optimising the steam technology was one approach they took. Every baker knows how important it is to have enough steam, i.e., hot water vapour, for baking. However, hardly anyone in the baking business knows that not all steam is the same. Saturated steam is what bakers need because it immediately condenses into tiny droplets on cold surfaces such as dough pieces. To create this type of steam, water is heated to the boiling point and then more energy is added until the point of evaporation.

However, with thermal oil baking ovens, the steam actually overheats. This is because thermal oil stores large amounts of energy, which is generally very good for baking, but can cause problems when steam is generated. The steam literally overheats, creating a gas. This kind of steam condenses very slowly and quickly applies too much energy to the product.

Thanks to MIWE atmo-jet, bakers can always apply high-quality saturated steam to the baking chambers of the MIWE thermo-static. Using compressed air, the water vapour is condensed into tiny droplets via a jet system as it enters the steam generator. This fine mist settles across the surface of the steam generator.

This rapid evaporation generates saturated steam with much higher pressure in the baking chamber. Josef Jägers:

"We've noticed better sheen on the crust." He can make this comparison because he is using the innovative new system and other ovens with conventional steam technology. If MIWE atmo-jet proves successful, it can be added to other ovens, even old models, at any time.

Another advantage of MIWE atmo-jet is that steam can be quickly removed from the baking chamber using compressed air when the flue is open. Depending on the current weather conditions and external pressure conditions, this can otherwise take a long time. In addition, less water is required for generating steam thanks to the MIWE atmo-jet.

Optimising energy

In planning his new facility, an even more important goal for Josef Jägers was to optimise the overall energy efficiency of his business. "Obviously, heat recovery is an important factor here." MIWE offers heat recovery solutions from a single source. At Jägers, residual energy from the flue gas of the central heating boiler as well as from the steam of the ovens is supplied to the MIWE eco:nova in two separate circuits.

This oven is located directly in the bakehouse. The energy recovered is stored in large accumulators. Further energy comes from the refrigeration systems. This is where Josef Jägers uses a MIWE eco:recover. Unlike conventional refrigeration systems, the eco:recover does not simply remove the heat from the refrigeration systems and release it into the environment, it transfers it to the medium of water and stores it in accumulators.

"We can produce a lot of hot water through heat recovery," says Josef Jägers with a somewhat self-critical tone. "You always have to consider how you can use this hot water



The pull-out deck of the MIWE thermo-express allows for easy loading and removal of tin loaves. Baking quality is just right, even with a tightly arranged load.

efficiently." MIWE wouldn't be MIWE if the company didn't offer solutions for this as well.

After all, heat is required in many different areas of baked goods production. This is why Bäckerei Jägers is now heating its proofing chamber using MIWE eco:proof. This is a hot water heat exchanger that obtains its energy from the accumulators mentioned above. The eco:proof is much gentler than conventional proofing chamber heaters and uses much less energy to ensure the right climate in the proofing chamber.

Defrosting of refrigeration systems also guzzles electricity. In addition, the extreme heating process also releases heat back into the room, where it is absolutely unneeded. Thanks to MIWE eco:defrost, Josef Jägers eliminated both of these problems. →



Only one exhaust flue to the roof is required since exhaust is routed from the baking ovens and the central boiler unit to the MIWE eco:nova.



The cooling cells are situated across from the row of ovens. If heat is required, for example for defrosting or proofing, it is generated through a heat recovery process.

The MIWE eco:defrost also uses recovered energy for defrosting. As the energy source, glycol is supplied to the cooling or refrigeration exchangers and defrosts them gently. Master baker Jägers also doesn't have to think about this process because it all happens automatically via the system controls.

However, he has thought of ways of using the rest of the available energy, as there is still enough of it left over. For example, he purchased a crate washing machine for the new facility. The originally planned connected load of 25 kW was significantly reduced because hot water is supplied from the heat recovery process.

Even the building systems use recovered heat. The hot water generated is used to heat the floor heating system. "Just to be on the safe side, we installed another gas boiler for heating the building," says Jägers. According to the company's calculations, the boiler is not used during normal operations and therefore no gas is used.

"We're expecting that our investment in heat recovery will have paid for itself in about eight years," says Josef Jägers, looking toward the future. However, he's also confident the



Master baker Josef Jägers swears by thermal oil and MIWE.

overall investment has prepared his business for the future. MIWE was happy to help him in the process.

Josef Jägers sums up:

"We have repeatedly chosen thermal oil baking ovens as they allow us to produce the highest quality baked goods. Since 1995, MIWE has always been the one we go to first. When you build a new bakery, you always have to think about incorporating heat recovery. Over the long term this saves us energy and therefore money."

A brief overview of Bäckerei Jägers

Owner: Josef Jägers
Landwehr 83
46325 Borken

Branch outlets: 12

Employees:

Production: 12, of whom 3 are apprentices

Sales: 80

Shipping department/logistics 5

Administration: 2

Sample prices:

Hard roll 0.30 Euro

Mixed flour bread 1.000 g 2.95 Euro

Special bread 500 g 2.20 Euro

Danish-style pastries 1.35 Euro