

At Görtz, the three Fortuna roll-making lines, set up in parallel, are embedded in an automatic tray management system from DMA, including intermediate storage and washing system.



# Triple continuous operation

With three **Profiline lines**, **Bäcker Görtz** in Ludwigshafen is able to ensure for **bread rolls processing** high quantities and simultaneously **better quality**.

**B**read-Roll-Lines by Fortuna have been a part of the inventory of Bäckerei Görtz for more than 25 years now. “First, my father purchased a four-row model in Bad Staffelstein. In the end, our old production site at Neuhofen had two six-row systems”, Managing Director Frank Görtz remembers. One of these lines was moved to the new site in Ludwigshafen in 2012, and a new Profiline was added. In addition, the rolls processing system in the new building was supplemented by a shock tunnel and an automatic tray management facility. As early as in 2014, another Profiline followed. Since 2019, the tray management system has an inkjet printer that

labels every tray with a code, which is washed off again during rinsing. Thus the shop assistant knows that the tray with the label “BA” contains Backis dough pieces. “We need high quantities day after day, not only of our ‘Backis’ cut rolls. This is why our lines simply have to keep running”, Görtz explains. The three Fortuna lines, for instance, are in use ten to twelve hours a day, 365 days a year. “Bread processing is one of the most important departments of the whole bakery. Downtimes are simply out of the question, so the Profiline is designed for three-shift operation. Another advantage is that we have three lines running in parallel.” In the event that one of them has an



outage, two-thirds of the production capacity continues to be available. Moreover, the in-house technicians don't have to be trained on different systems, and there's only one spare parts warehouse for everything.

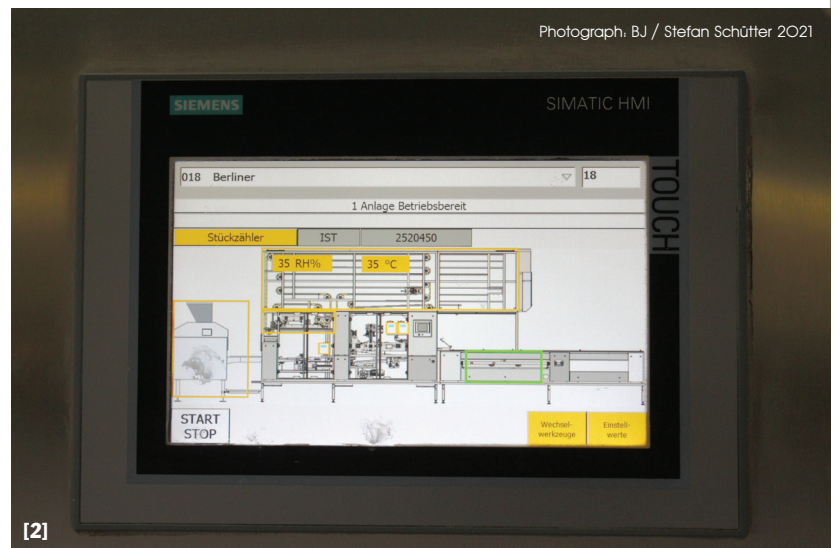
**Flexible divider-rounder.** The latest Profiline mainly produces Backis. It's busy for nine hours a day doing this alone. The directly proofed, somewhat firmer wheat dough is given only five minutes of rest after kneading; then it is put by the lifting tipper into the dough hopper of the Magnus divider-rounder. The Magnus pressing piston and the chamber have been designed very precisely. Together with the applied vacuum that ensures that the dough is portioned into pieces of exactly the same weight. Due to the defined batch size of 120 kilograms – which corresponds exactly to two full double trolleys with trays – the dough doesn't rise too much. So the Magnus at Görtz can run for many hours without having to be readjusted. With only one piston, it manages a weight range of 30 to 140 grams without any retooling required. Thanks to replaceable pistons and rounding drums, the divider-rounder even covers a total weight range of 15 to 380 grams. The doughs at Görtz are comparatively firm, but the Magnus can process softer doughs as well. To prevent the dough pieces from sticking, the Profiline can then dust the dough pieces but also the empty troughs. This can be supplemented by a retrofittable chamber drum flour duster in the divider-rounder, which makes it possible, for example, to process dough with a dough yield of 175 and one hour of bowl proofing. Görtz has such a flour duster in storage, but it never had to be used up till now.

**Versatile applications.** For the production of further types of rolls, a seeding module with wiremesh belt can be integrated in the latest Profiline. It sprays the dough pieces neatly with water and simultaneously gives them a decoration on the top and, if desired, also the bottom. The second Profiline also produces Backis as well as various sorts of round rolls, some of which are stamped. The revolving head with the stamping station that includes a Houska or plait stamp, a heart stamp and a double cross stamp, allows for a quick change of product. Furthermore, the stamping station works with a continuously running eccentric disc that is more wear-resistant than a start/stop compressed air system. The oldest Fortuna line (11 years) is predominantly used for the various pretzel rolls. The pretzel dough pieces run through the proofing cabinet and are sent to the winder via a transverse outfeed. The employees then form the pre-cut dough strands into pretzel rings by hand, for example. Alongside the A product, the Backis, the three lines also process sweet rolls, raisin rolls and pretzel rolls as well as donuts and streusel cookies. Even the dough pieces for the donuts, which are soft and weigh only 50 grams, have a perfect rounding result; they run on a bypass directly to the set-down station. For the processing of the streusel cookies, a roll-out machine is placed behind the set-down station of the roll-making line, which takes the round dough pieces and flattens them.



[1]

Photograph: BJ / Stefan Schütter 2021



[2]

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[3]

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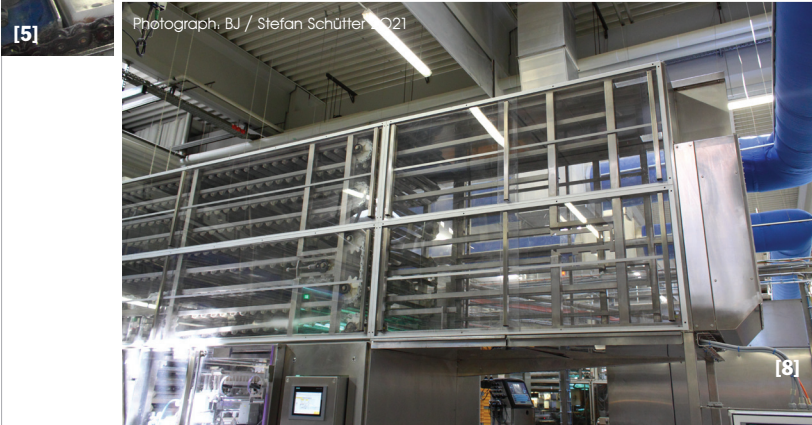
[1] The heart of the Profiline is the pre-proofing unit with forming station. More modules for the expandable system are optional; e.g. upper belt long rolling unit, seeder or winder. [2] Operation of the Profiline is easy thanks to touch control. The Fortuna PLC Manager can also transmit all data from the system to a PC in seconds. [3] The six-row Magnus divider-rounder with a weight range of 30 to 140 grams is loaded directly by a lifting tipper without preportioning. [4] For the even proofing of the dough pieces, dough batches of 120 kilograms, always ready in time, have proven to be optimal for the Backis.



[4]

Photograph: BJ / Stefan Schütter 2021





### > The problem

*In the end, two six-row Fortuna roll-making systems were already in use at the old production site of Bäckerei Görtz. Owing to the growing size of the company and the increasing quantities needed, the capacity for the processing of small baked goods was finally exhausted. Since management was quite happy with Fortuna, it decided against lines with a higher hourly output from another manufacturer.*

### > The solution

*Instead, three Fortuna lines are now in use for efficient processing, combined with an automatic tray management system and a shock tunnel. Since the overall system has been running for several years now and is operated by experienced employees, everything works smoothly. It is likely that 1-2 more roll-making lines will be added in the future. An expansion of the bakery is already being planned.*

### > Technology

- The Profiline works in the weight range of 40 to 120 grams, with an hourly output of 14,400 dough pieces and 40 cycles per minute.
- The line includes the six-row Magnus divider-rounder with a continuously adjustable piece weight of 30 to 140 grams.
- The pre-proofing unit is fully air-conditioned and can be retrofitted from 25 to 40 cycles per minute.
- The stamping/cutting station has a revolving head for quick re-tooling.
- At Görtz, the automatic sheet feed and sheet assignment with set-down station is connected to a shock tunnel.
- Display of the maintenance and service interval in the operator panel of the control unit and integrated Fortuna hygiene concept.
- The Fortuna PLC Manager can transmit all data of the system to a PC in the office, e.g. production lists, programs, recipes or fault messages.

### > Alternatives

*Currently, there are various manufacturers in the field of small baked goods processing such as König, Rondo, Eberhardt, Kövy, WP, Fritsch, Jac and others.*

[5] The stamping/cutting station is integrated in the pre-proofing unit and is standard on every Profiline. Additional modules are available as an optional supplement. [6] Since UV lamps don't emit any UV light after approx. 8,000 operating hours, the lamps for the UV sterilisation for all proofing troughs are replaced every six months at Görtz. [7] At this point, the intermediate belt can be replaced for other types of bread rolls by a seeding module with humidification, wiremesh belt and two seeders. [8] The pre-proofing unit has room for additional troughs. In the full-expansion stage, it is then possible to stick to the required twelve-minute pre-proofing time even with 40 cycles per minute. [9] This alignment flap for the inclined set-down of the dough pieces at the outfeed of the Profiline provides for an optimum pattern on the proofing trays.

**Output reserves available.** Originally the Profilines were to run with an output of 10,000 dough pieces an hour. An increase to 12,600 soon became necessary. But the lines still don't work at their maximum speed. The maximum speed is 40 cycles per minute and 14,400 dough pieces an hour. "It's better for the machinery if it isn't running full load day after day. And the shock tunnel must be able to cool down the dough pieces sufficiently, especially in summer. This is still just possible with 33 cycles per minute." In the event that 40 cycles will be needed at Görtz in the future, the pre-proofing unit of the Profiline has enough space for the installation of additional troughs, thus keeping to the through-put time of twelve minutes, despite faster clock cycles. With 33 cycles per minute, manual operation of the set-down station is no longer

#### IN BRIEF

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Managing Directors: Peter Görtz and Frank Görtz  
Points of sale: 186

Employees: approx. 1,800  
Production: 320  
Sale: approx. 1,300  
Drivers/administration: 55/80

Range of products/number of varieties: 14  
Bread 14  
Rolls 14



Fine baked goods 14  
Pastry 15  
Snacks/kitchen 15

Prices of the selected products:  
Rolls: 0.35 euros  
Mixed wheat and rye bread (1 kg): 3.20 euros  
Special bread (750 g): 3.95 euros  
Donuts: 1.25 euros  
Cup of coffee: 1.80 euros  
Open sandwich: 2.10 euros



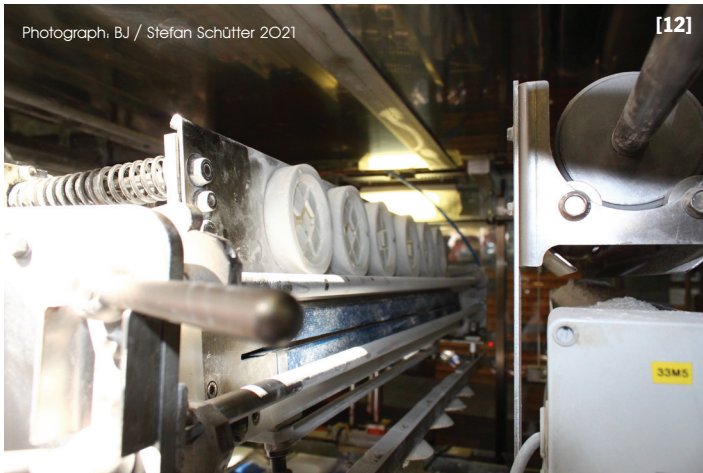


Photograph: BJ / Stefan Schütter 2021



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[10] The automatic paper inserter of the tray management system has enough space between the Profiline and the switch cabinet of the modular roll-making line. [11] Two by two trays run from the set-down station of the Profiline onto a wide collection belt. Regrouped into six rows, they run from there into the shock tunnel. [12] The stamping/cutting station has a revolving head with firmly attached stamping and cutting tools and two replaceable tools with quick release. [13] The seeder module with a transverse outfeed, wiremesh belt with humidification and decoration ring is used at Görtz, among other things, for the production of cheese rolls.



Photograph: BJ / Stefan Schütter 2021



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possible. One employee alone would be busy with taking away the full trays and providing enough empty trays. Based on the experience with the Fortuna lines, the limit for manual removal is a maximum of 25 to 28 cycles. If the roll-making line runs any faster, automation is indispensable, which also makes it possible for the entire system to be operated by relatively few people. At Görtz, the Backis and other small baked goods are automatically transferred from the Profiline to a collecting belt with the aid of a tray management system after the set-down onto 60 by 40 proofing trays. From there, six trays run side by side to the downstream shock tunnel with an internal temperature of minus eleven degrees Celsius. After a throughput time of a few minutes, the dough pieces have a core temperature of 15 to 16 degrees Celsius at the outfeed of the tunnel. They are then stacked in semi-automatic machines where they are proofed longer at around five degrees Celsius until delivery the next day. Because the

cold from the shock tunnel is still having an effect, the dough pieces have a core temperature of five to six degrees Celsius after just one hour.

**Sophisticated maintenance and hygiene concept.**

Stefan Nolte, the technical manager of Bäckerei Görtz, lubricates the divider-rounders of the roll-making lines completely once a week. The Magnus is equipped with a centralised lubrication system, which makes maintenance easy. The cutting station, the module of the Profiline that performs the most movements, is also lubricated by Nolte every week. He does maintenance on all other parts only every four months. It includes checking the chains of the proofing cabinets and the tension of the conveyor belts. “Although the systems by Fortuna are slightly larger than those of other manufacturers, their large-area enclosure with sliding Makrolon windows makes it easy to gain access everywhere on the system. This facilitates cleaning and possible repairs”, Nolte explains. He also praises the robust design of Fortuna’s technology with its long service life and comparative ruggedness. For optimal hygiene, the stainless steel proofing troughs of the Profiline can be cleaned in the dishwasher. In addition, the pre-proofing unit is equipped with high-performance drying, including UV sterilisation. Since the line itself is placed on supports with a height of 30 cm, any dirt on the floor below can be spotted immediately and easily removed. The motors of the Profiline do not come in contact with flour and dough in the first place, since they are not located underneath the belts but are installed outside of them. “We are quite satisfied with Fortuna’s technology and their service. This is why for many years we have been glad to be at Fortuna’s disposal as the largest reference company for visits together with prospective customers”, says Görtz.

Stefan Schütter, Master Baker



The trays of the second Profiline can run directly into the shock tunnel, if needed, via the belt bridge (folded up in the picture).

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