

# Maximum flexibility in a minimum of space

A new **laminating line from Rademaker** has enabled the company **Kamps GmbH to produce 70 different bakery products in larger quantities** at its production facility in Schwalmthal.

Stefan Schütter

Since the first Kamps bakery was opened in Düsseldorf in 1982, a lot has happened over the company's almost 40-year history. At its "highest level of expansion", Kamps had around 1,000 branches and nine production sites across Germany. Nowadays, production is concentrated at the Schwalmthal site alone, which currently supplies all 400 sales out-

lets. The current owner is the Le Duff Group, a French bakery and restaurant conglomerate, which took over Kamps GmbH in 2015.

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remained relatively stable, whereas catering sales really have not. So in future we'll be focusing more on the bakery sector again." The goal is also to further reduce the complexity of the sales outlets as far as possible. "The aim of the Kamps bakery invention was to break the link between production and sales. The supply of all dough pieces in the form of frozen goods was also a step in the right direction. However, the concept of producing as much as possible locally was not as well received by customers as we had hoped."

## An exceptional year

"Corona may have made 2020 a lost year for us, but we have dealt with the situation as best we could, despite the fact that our annual results won't be up to par. The situation at our transport hubs was particularly disastrous, while our food retail outlets have come through the crisis best," explained Thomas Prange-meier, CFO at Kamps. However, he would like to start expanding again in 2021. In this context, Kamps will, of course, continue to deliver on its brand promise and customers will receive the products that they have come to expect from the Kamps brand. The corona pandemic has also prompted management to rethink its corporate strategy. "Before the virus, our focus was clearly on the catering sector. However, we've noticed that in recent months bakery sales have

## New laminating line

Production in Schwalmthal runs in two shifts, six days a week. In 2019, 27,000 tonnes of bakery products were produced in total. "At these quantities, too much waste costs real money, so you really need to work efficiently and reliably. Our previous laminating line served us faithfully for a good 20 years. However, due to its age, eventually it was no longer able to meet our high standards of product variety, efficiency and, most notably, the quality of the results." In order to stay up-to-date and not only to be able to work efficiently, but also to produce the best quality, the Kamps management therefore decided to invest in a new laminating line



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1 From the service bridge of the pre-portioner, there's a good view of the new Rademaker laminating line, consisting of three sections in a U arrangement.

2 The line's pre-portioner is fed by elevator tipper from the central dough preparation section with kneading vessels with a capacity of 240 kg.



**3** Via a belt diverter, the pre-portioner can either supply the sheeting section (right) with dough or an inserted shortcrust pastry sheeting (left). **4** The first section with a yeast dough sheeting uses a gentle process to produce a dough sheet, roll it out and laminate it. **5** The yeast dough sheeting and a Quick Reductor (sheeting roller) or satellite head are followed on the line by a sheet module with selectable fat pump and folding belts. **6** Behind a second Quick Reductor is the first lamination module with a folding channel, which can produce 4, 6, 8, 10 or 12 layers, and another Reductor. **7** The second lamination module works with a retractable belt. Due to the lower drop height, it can produce a wider dough sheet consisting of 4, 6, 8, 10 or 12 layers.



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Photo: BT / Stefan Schütter 2020



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Photo: BT / Stefan Schütter 2020



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**8** This feeder belt can feed a retractable sheeter for shortcrust pastry. Since shortcrust pastry is always very crumbly, it should only be rolled out as gently as possible. **9** Here, behind the Quick Reductor and the cross-roller, the shortcrust pastry sheeter can stand in place of the two sizing units which work the dough sheet to its final thickness. **10** The U-shaped line is operated from the inside to make best use of the enclosed area. **11** The longitudinal cutting module with a flour brush divides the dough sheet into the required number of rows. A spiked roller and various decorating rollers can also be selected.

and put a relevant project out for tender in 2019. Ultimately, three quotations from different manufacturers were submitted for the new line. However, the requirement to produce 70 products in all with the new line, some of which varied widely, was no simple matter. “The technology also needs to be capable of managing that degree of flexibility. However, we had a good feeling about Rade-

maker right from the outset. In the end, the company won us over with a top-quality solution that was good value for money and was therefore successful with the tender.” In addition to the basic requirement that our diverse product range could be manufactured and reproduced in high quality, the system’s high availability was also a key factor in our decision to award the tender. Moreover,

the line needed to enable short set-up times and to meet the highest standards of hygiene. Since Kamps itself manufactures every single product offered by the branch stores, they needed to look exactly the same as before with the new line. “However, we had a certain range of tolerance to work with. For example, we asked the sales department whether it was OK if a pastry was 2 mm wider in future. So that wasn’t a problem. On the other hand, if we were supplying the retail trade, we would have had to keep the products exactly 1:1. That could have been an extremely complex process.”

### More efficient processes

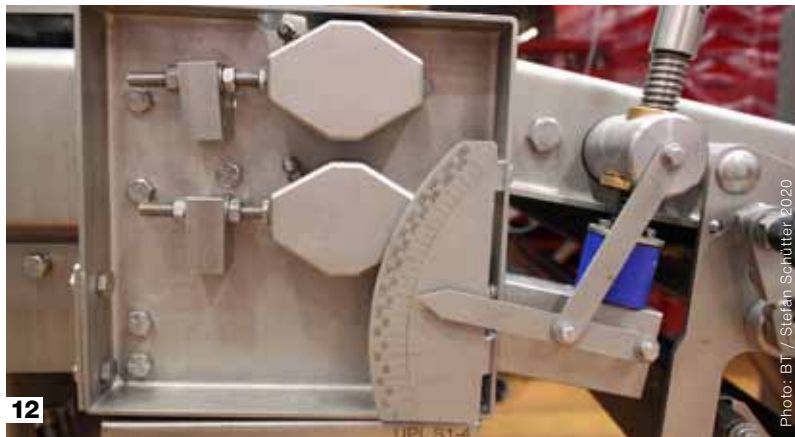
“If you’re looking to develop your business, it’s important to think in terms of processes. Which is why we didn’t just look at the laminating



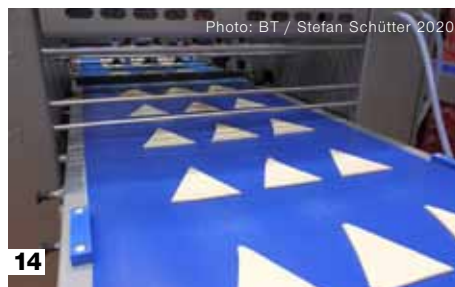
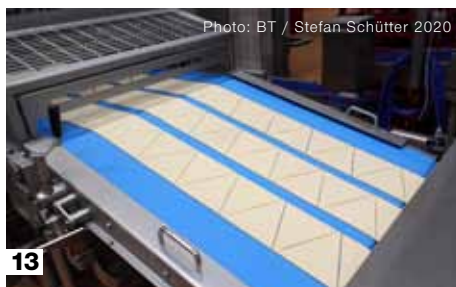
*Before entering the guillotine, a spreader belt takes the individual strands of dough to their preset spacing. The segregated marginal strips are collected up as rework dough.*

Photo: Rademaker 2020





**12** Via this scale, the height adjustment of the guillotine can be changed with a great degree of precision, for example to create a flip edge. **13** The guillotine, which the cleanly punched-out dough triangles travel out of, works much more quietly than the guillotine on the old system. Which is much more pleasant for the employees. **14** Downstream of the guillotine, the dough triangles are turned and aligned. They are also sprayed extremely thinly with water with a selectable humidifier. **15** The accurately coiled dough pieces for the cream horns all travel, with the seam facing downwards, from the line directly into the spiral freezer.



line for this project, but at the whole department.” The initial set-up there consisted of a bread roll line and a laminating line, which shared a spiral freezer with downstream packaging lines. Complex conversion work and additional investments were necessary to eliminate this bottleneck. First, the roll line had to be relocat-



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Photo: BT / Stefan Schütter 2020



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Photo: BT / Stefan Schütter 2020



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Photo: Rademaker 2020



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Photo: BT / Stefan Schütter 2020

ed and the old laminating line dismantled. The packaging technology behind the old spiral freezer also needed to be modified and upgraded. Also on the agenda was installation of the new Rademaker line with a second spiral freezer and a second packaging area, both adapted to the higher output of the line. In addition, the dough preparation section was upgraded with new extendable kneaders for 240 kg of dough each. The three Kemper Kronos digital kneaders are equipped with extensive sensor technology for automatic control of the kneading process. As part of the project, the building technology also got an overall upgrade. “However, thanks to our close collaboration with Rademaker and the planning expertise of FactoryXperts from Switzerland, who also supported us, it all worked out really well. So it was a very pleasant project. Despite good supplier interface coordination, sometimes the devil was in the detail. But in this context, I can happily confirm that Rademaker irons out all the issues, even those that turn out to be not so straightforward.” The roll line and the laminating line can now work independently of each other. This enables better planning capability and therefore more efficient use of personnel. Moreover, the higher output of the line is an important factor in achieving more cost-efficient production.

**16** After baking, the cream horns are filled using injecting needles. This makes the filling loose and airy, since it does not have to be bake-proof, and it can be dispensed very generously. **17** The employees have to log into the control system via chip. Depending on their access rights, they are then shown the individual user interface of the respective access level. **18** Dough tension is not controlled using any light barriers, which can gather dust, but mechanical dancer rollers are used as contact points. **19** The dosing frame of the filling module is provided with scales for the height and distance of the spray nozzles in order to be able to attach them with precision.

“The line now also takes over some monotonous work steps that are not much fun, but still need to be carried out accurately over several hours. This lightens the workload for our permanent staff and makes it easier for us to find good new employees, which is also becoming more difficult for us.”

## Optimal use of space

The project planning also had to take into account the fact that the entire line needed to fit into the available floor space in the building. To minimise the length of the Rademaker line, therefore, it is equipped with mobile modules that can be inserted or removed depending on the product. However, because the floor space was limited, there are no buffer sections. If one module stops, the entire line comes to a standstill. So high, dependable availability of the line was a very important criterion. To make optimum use of the available space, the new packaging section is even divided into two levels. The outlet of the spiral freezer is located on the upper level, where the dough pieces are automatically counted, bagged and the bags are sealed. On the lower level, the bags are then packed in boxes with uniform multilingual labelling. “In the past, we only had our own rotary system with reusable boxes for our branches in North Rhine-Westphalia. In the long run, however, two packaging lines would have been too costly, which is why we now only work with boxes.”

## Successful changeover

“Establishing the Rademaker lamination line posed a big challenge. After all, it was replacing an old line that was considerably smaller. The new line featured completely different dimensions, and involved major changes in many areas.” For exam-

ple, the look and feel of the old line that the employees had very much gotten used to no longer had any relevance. The new line operates more gently than the old one, so the doughs can now be kept softer in general. Prior to the installation of the line, a factory acceptance test was carried out at Rademaker by Kamps managers. The on-site visit was immediately combined with a training session on the new line. "It's very important to include the employees in this kind of visit and also not to overwhelm them. I think we succeeded in doing both very well." To facilitate the changeover, the shift managers also went to the Netherlands for initial training several weeks before the factory acceptance test. "That was something special for the people involved. They thought it was great and their reports delighted their colleagues back home." The differences in the feel of the old and the new system are tangible in the truest sense of the word. "The Rademaker line is top quality and really shows that it's simply not true that in the past everything was built more solidly than it is today." The hygiene concept of the line is also very good, with all critical points easily accessible. For example, the belt drive rollers can be removed for cleaning in one easy step. Moreover, the line itself is designed for wet cleaning. Because there are no flat surfaces and the water can run off easily, the line dries quickly afterwards. "Hygiene requirements are not debatable. These days, a modern line has to be easy to clean efficiently." The control system assists the employees in cleaning the line with a dedicated cleaning program. This program shows all the work steps on the display, such as lifting up protective covers or releasing belts. Since the operator has to acknowledge each program item, the cleaning process is also documented straight away.

### Flexible application options

At present, 68 different products run along the multifunctional line, which achieves an hourly output of 2,000 to 25,000 dough pieces depending on the product. For example, the cream horns travel along the line at an hourly output of 10,000-12,000 units. They are only injected with the filling after baking. "There's so much filling in there that it would not even fit into the green dough pieces. Also, this way we don't have to use a comparatively solid, bake-proof filling, but can work with an airy, light custard cream." The hourly output for the multi-seed rolls is an impressive 25,000 units. By contrast, only 2,000 of the significantly larger Riemchenkuchen (lattice apple pies) travel along the line per hour. This line could even produce 3,000 pieces per hour, but the cooling capacity of the downstream spiral freezer is not designed for these quantities of products with comparatively high unit weights. The increase in hourly output achieved by the new line also



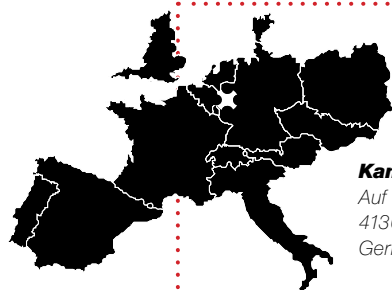


varies greatly depending on the product. For example, the number of units of Riemchenkuchen has scarcely changed. On the other hand, the quality has become much more consistent thanks to automatic placement of the dough lattice and automatic dosing of

the filling. In addition, the automation of these previously manual process steps has also saved hours of work. Prangemeier estimates that the increase in productivity for speciality breads is around 10% and has registered a visible increase in volume. Moreover, the automatic seed return is now helping to save a five-figure sum in the annual cost of goods sold for pumpkin seeds and other expensive decorative finishes. A significant increase in efficiency was achieved with the apple turnovers. One small change in the shape of the pastry has at least doubled the hourly output on the new line. "If we run a product along the line for a whole 8-hour shift, the quantities are also always higher than our daily requirements and we can freeze the surplus dough pieces to keep in stock." The line now mainly produces a variety of small baked goods and pastries, such as croissants and speciality breads or laminated dough pastries. "Some of these we weren't able to produce with the old line, and there's still untapped potential here." Kamps has now also brought back products in-house that were previously bought in, and the quality is just as good.

laminating line, because in his experience this is simply the most flexible. The new line from Rademaker, in combination with the downstream spiral freezer and the packaging machines, is also the most complex line that now exists in Schwalmtal. "With laminated doughs, the choicest fillings and attractive toppings, the added value of the products made using it, of course, increases proportionately. However, due to the comparatively high cost of goods sold, the line needs to run exceptionally smoothly." The cascade control, which monitors the infeed and outfeed of the dough sheet at each sheeter module, helps to guarantee this. To ensure tension-free processing, the control system adjusts to more or less dough as required. This automatic correction function relieves the pressure on the line operator. One of the factors responsible for the comparatively short set-up times of the new line is Rademaker's "Tool Assistant". This system, which is built into the controller, shows exactly which tools are to be used at which positions and with which settings on the large touch displays at each program change. In this way, the respective operator is guided step by step through the set-up. "This is a particularly big advantage when it comes to seasonal products, because no employee has to remember the exact settings from the previous year." Product changeover is also accelerated via the possibility of section by section shutdown of the line. This means it is possible to preload the next program and change over the front modules even while the last current products are still running off the belt further back. "In order to be able to work through tight production schedules, the line operators need to always think ahead. Work preparation is very important in order to optimise product changeovers." It's possible to change the settings with-

### At a glance



#### Kamps GmbH

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Internet: <https://kamps.de>

**Managing Directors:** Hans Fux,  
Thomas Prangemeier  
**Technical Director:** Klaus Hagen

**Revenue 2019:** 226 Mio. Euro  
**Employees:** approx. 4,200  
**Flour consumption/year:** ca. 10.000 t  
**Export:** 2 Locations in NL  
**Own sales outlets:** 400  
**Certifications:** ISO 9001, HACCP,  
SGS Fresenius, ISO 50001 Energie-  
Management



### Fast product changeovers

If Prangemeier had to opt for just one single line in production, it would be a

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Photo: BT / Stefan Schütter 2020

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Photo: BT / Stefan Schütter 2020

**20** On this board for recording the key parameters for each product batch, the employees have also documented their enthusiasm for the line.  
**21** Klaus Hagen, Technical Director at Kamps, Area Sales Manager Ewald Kümmel from Rademaker and Thomas Prangemeier, CFO at Kamps (left to right), implemented the project together.

out any tools. Also, clearly visible scales help to adjust the respective parameters with accuracy. “For example, it’s no longer necessary to fiddle around with the belt using a 13 mm spanner.” The intuitive control system, with self-explanatory

schematic representation of all modules on the line, makes set-up even easier. “There is also no longer any need to master knowledge for the sake of mastery itself, because all the information is available to all the employees via the control sys-

tem. This enables us to ensure reproducible product quality which is no longer dependent on the respective operators.” This also means that the flour dusters or other elements are no longer simply adjusted when changing shifts.