



Rademaker

*Specialists in food processing equipment*



*Laminator*

The magic of stress-free dough



# The sweet taste of laminated delicacies

Close your eyes and visualize a little bakery. Smell the delicious aroma of croissants and refined pastries. Wouldn't you like to produce such delicacies?

The secret of quality pastry and croissant products originates in the lamination process. The lamination process is also usable for the production of bread products and pizzas. The traditional lamination consists of sheeting the dough and adding a continuous fat layer which is folded into the dough sheet, after which the folded dough sheet is repeatedly laminated and sheeted to build up the required number of dough and fat layers. Rademaker uses its experience in sheeting technology to develop innovative, stress-free dough sheeting and handling processes, capable of handling a broad range of dough, butter and fat types. Laminated dough can be produced according to the All-In and the French method. Market-driven research and development are the basis of the three different laminator methods Rademaker developed (lapping, retracting laminating and cutting & stacking). The one that best suits your application depends on the required capacity and the type of dough used.

# Continuous improvement and innovation

When you choose Rademaker as your partner in Laminators, you choose the very best. We listen to customers, keep close track of market developments and value the feedback of our service engineers. This enables our Research & Development department to develop innovations you can face the future with. Our robust and durable production lines are built from first-class materials by qualified suppliers. Special components are sourced from selected third party suppliers with a proven track record. Rademaker equipment meets international food processing standards and is designed for wet cleaning. Hygiene and safety are top priorities. The quality that results from all of this and of which we are very proud of, is reflected in every single component, of every production line we make, and, in every service, we provide. A continuous improvement program ensures that this high quality is maintained at all times.

## Added value

- ✓ Hygienic design adapted to exceed future standards
- ✓ Fast and Easy cleaning
- ✓ Cost reduction due to service and maintainability improvement
- ✓ Efficiency improvement due to advanced intuitive process control and increase process widths
- ✓ Best possible level of user friendliness
- ✓ Strongly reduced energy usage

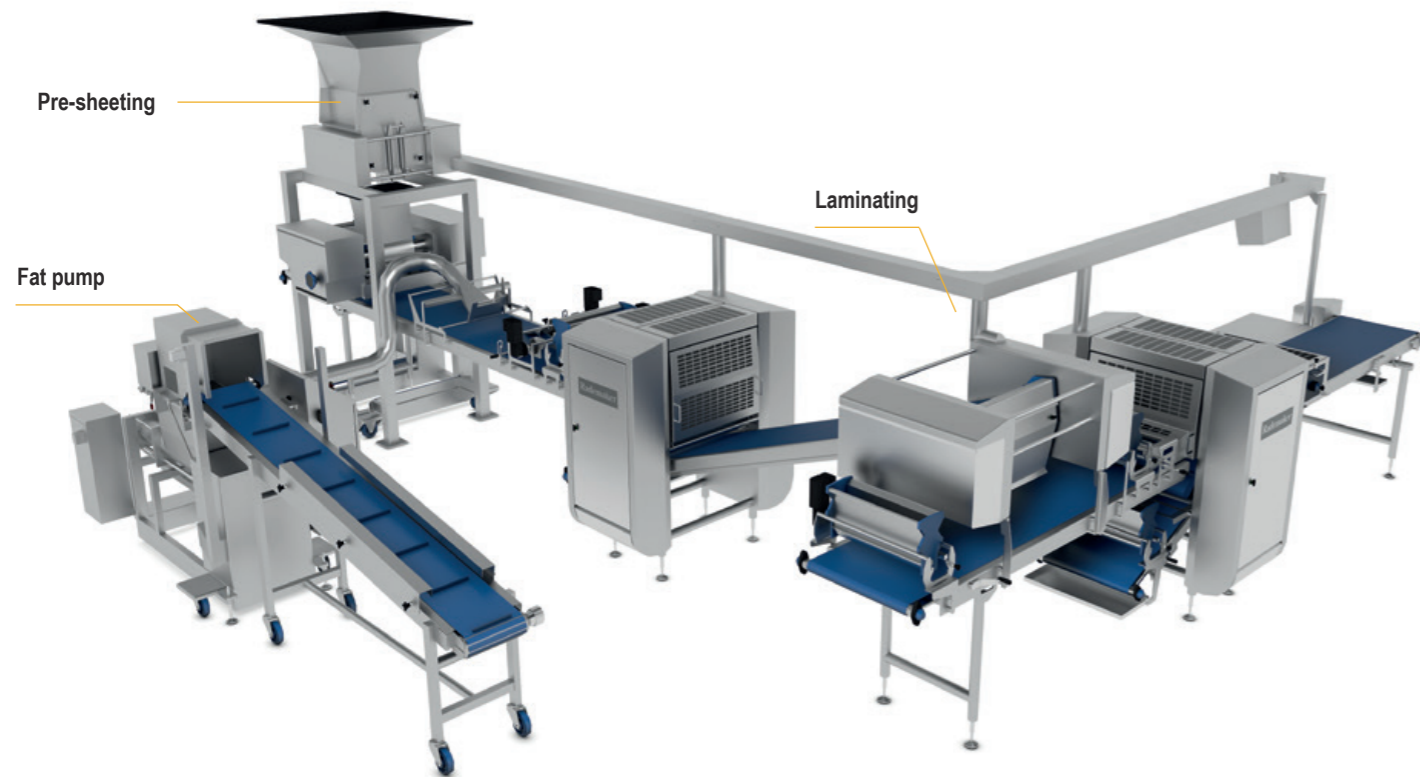


# Tailor-made design is key

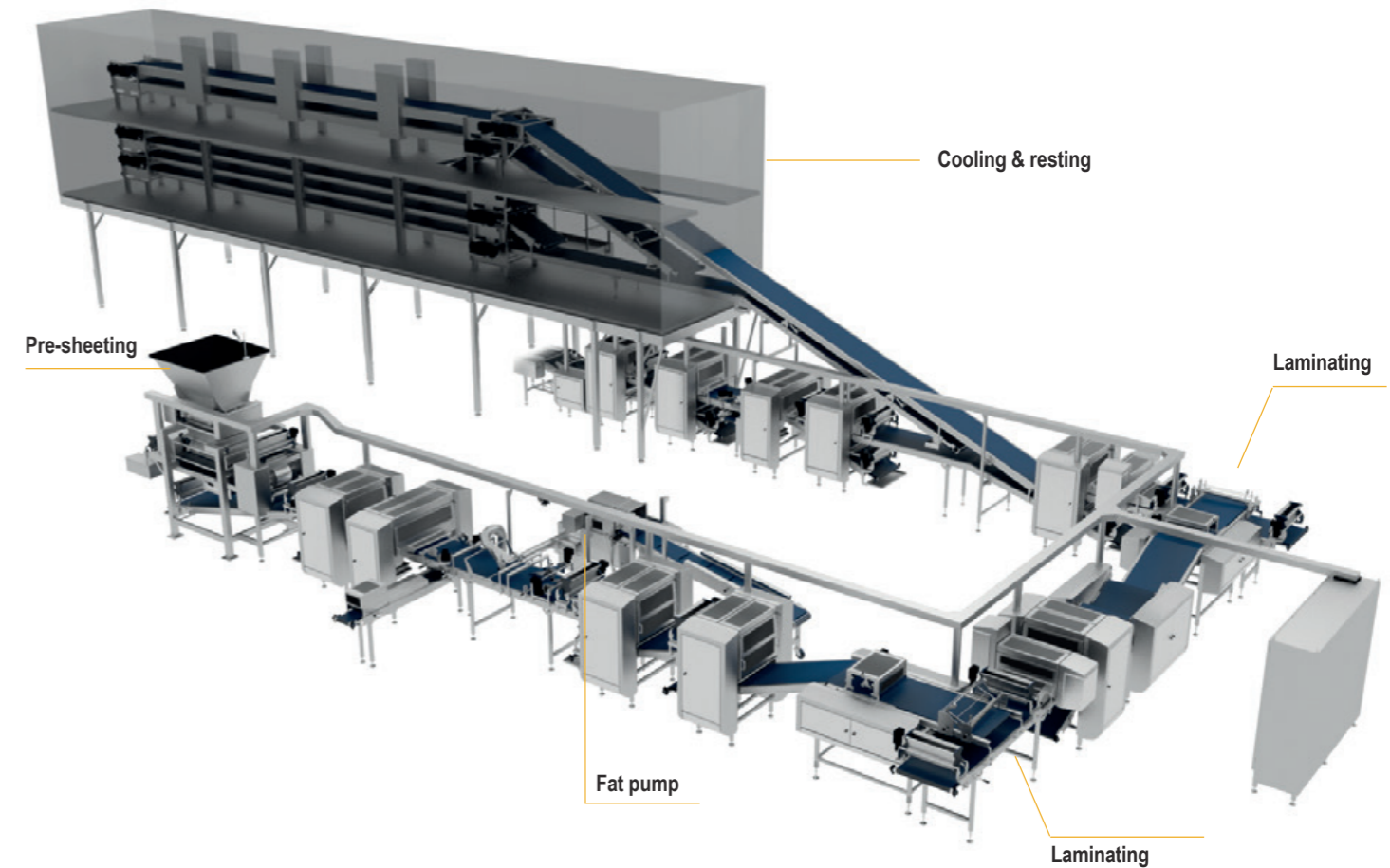
Rademaker Laminators are developed to produce a wide assortment of laminated dough for mid-sized to industrial bakeries. Each line is tailor-made using standard components. This flexibility allows for a wide variety of configurations, from a block processor to a fully automated laminator, with working widths varying from 600 - 1.600 mm, and resulting in the capacity you need. The Laminators meet international hygienic standards and can be designed in different shapes (L-shape, U-shape, Z-shape etc.). A laminating belt can

also be set up straight in-line. Thanks to this superb flexibility, the line can be optimally configured to meet your specific application, resulting in the best possible production efficiency. The line configurations shown on this page are only two examples of the many possibilities that we can offer. Our specialists will be happy to apply their knowledge and experience in helping you determine the solution that best suits you and your products.

## Semi-industrial Laminator



## Fully industrial Laminator



Rademaker Laminators guarantee a perfectly laminated dough sheet. We offer modules for the following processes:

### Pre-sheeting



Generates dough sheets of any type at the highest quality. A range of different pre-sheeters are available, depending on dough type and required dough quality.

### Fat encapsulation



The fat-pump turns blocks of butter, margarine or zero-trans fats into a continuous fat sheet. The pump is mobile and can be fully dismantled for fast and easy cleaning. After the fat sheet is placed on the dough, the dough and fat are encapsulated.

### Sheeting and Thickness reduction



Reduction steps are applied for a consistent, quality dough sheet (width and thickness).

### Laminating



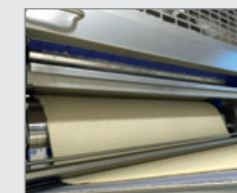
Rademaker developed three different laminating methods that can laminate the dough sheet up to 512 layers, depending on the line concept, dough type and capacities..

### Cooling and Resting



A cooling and/or resting cabinet can be applied for a better dough workability and improves/develops taste, resulting in the highest laminated dough quality.

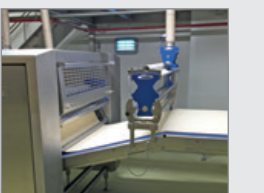
### Thickness calibration



Reduction steps for a consistent, quality dough sheet (width and thickness).



Cross-rolling to achieve the optimal working width of the dough sheet.



Final reduction step, the dough has now reached its final thickness.

# The Baker's secret

When fat is folded into the dough and layers are created, you get the light and crispy taste that croissants are famous for and that earns pastries their reputation. The development of Laminators is a core activity of Rademaker. The experience and expertise gained throughout the years is what makes us the global market leader in laminating systems. Our know-how is put to use when we develop the production equipment that meets and exceeds our customers' requirements worldwide. Whether it is a bended croissant, a swirl, maple pecan or any other pastry you want to produce, we will apply our dough and laminating know-how to benefit you.

## Layering

Your product requirements and the desired production process determine which type of fat should be used: butter, margarine, shortening, low-trans or non-trans margarine. To acquire the highest quality dough layers, it may be necessary to cool and/or rest the dough sheets in a cooling and/or resting cabinet. Within the laminating process, the layers of dough and fat are essential for the baking structure of the final product. In a co-development relationship with you, we translate your requirements into a tailor-made laminating solution and thus offer a range of Croissant and Pastry lines to shape the dough in any product desired. The laminating technology (without fat folding) can also be applied in our Bread, Pizza Base lines and Flatbread lines.



## Three laminating methods

Rademaker developed three different laminating methods. Together we can determine the solution that suits you best, depending on your type of dough and capacities. Every dough type and end product ask for a specific application and laminating method. It is also possible to apply inline laminating. In-line lamination knows no restrictions regarding laminating widths up to 1600 mm.

### Lapping



The dough sheet runs vertically between a guiding system that moves back and forth. This symmetric lamination method is unsuitable for soft dough and has a maximum lamination width of 600 mm.

### Horizontal laminating



The belt with the dough sheet moves back and forth above the next conveying belt. This is an asymmetric lamination system suitable for soft dough with no restrictions regarding laminating width.

### Cutting and stacking



A guillotine cuts the dough sheet into regular rectangular sheets which are then stacked on top of each other. This flexible symmetric system lays even and uneven layers. Suitable for soft doughs with no restrictions regarding laminating width.

### Symmetric lamination method specs:



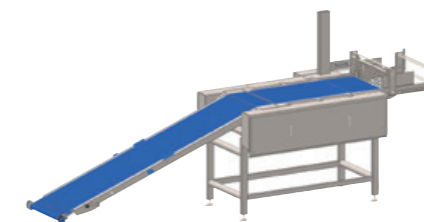
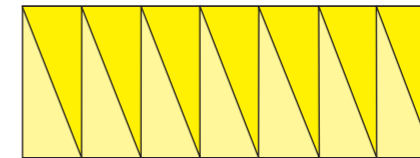
#### Specs:

- No. of layers: 4-6-8-10 (12 with extra reduction step)
- Max. lamination width 600 mm

#### Benefits:

- Fits small surfaces
- Low cost solution

### Asymmetric lamination method specs:



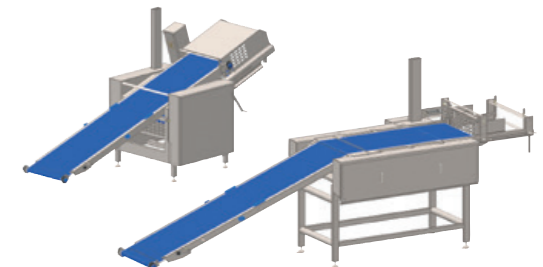
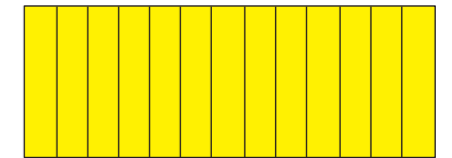
#### Specs:

- No. of layers: 4-6-8-10 (12 with extra reduction step)
- Max. lamination width 600 - 1600 mm

#### Benefits:

- Wide range of lamination widths
- High speed solution

### Symmetric system specs:



#### Specs:

- No. of layers: 3-4-5-6-7-8-9-10-11 (12 with extra reduction step)
- Max. lamination width 600 - 1600 mm

#### Benefits:

- Best similarity
- High quality solution
- Wide range of lamination widths
- Flexible system: even and uneven layering possible

# 40 Years of expertise

Rademaker Laminators are well known for the unmatched quality of your laminated dough products. Being first in the industry, the previous generation was already designed for wet cleaning. On top of this the new generation brings you an even higher level of hygiene. Meanwhile numerous improvements such as enhanced process control, low maintenance and a simplified operation, result in a serious reduction of your cost of ownership!

## Hygienic Design

The Laminator is designed according to the Rademaker Sigma® design guidelines. These guidelines are directly derived from various high-end requirements for hygiene & clean ability such as the GMA standard and Ehedg recommendations. With excellent machine surface finishing, tilted surfaces, rounded frames, FDA approved materials, minimized hinges and bolts and numerous other items, the line is living up to the highest industrial expectations. Total elimination of recesses, cavities and dead corners is achieved. An open design enables easy cleaning without lowering the operator's safety. Accessibility for cleaning and inspection is achieved by opening covers on both sides of the machine, retractable belt tensioners and knife transfers. Accumulation of dirt and dust is strongly reduced due to the application of stand-offs and pollution with dough parts, is prevented by using wider conveyor belts. A new standard feature is the application of life-time lubricated bearings in the product-zone. Needless to say, this new Rademaker line is fully designed and approved for wet cleaning which was introduced in the industry by Rademaker many years ago.



## Functionality

An open design with best possible visibility of the process has been the focus for the system design. Rounded edges and

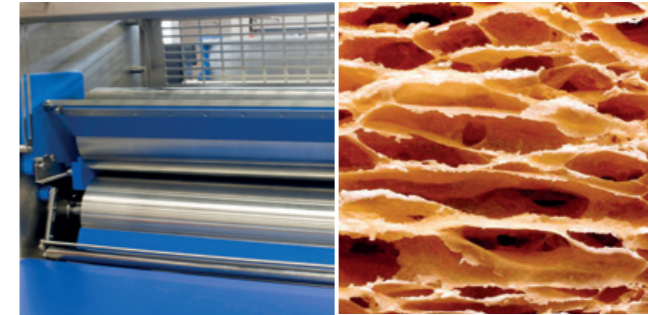
fully opening covers on both sides of each unit are applied throughout the system. The best possible accessibility of the process is achieved by optimizing the space between the working stations and the application of horizontal conveyor belts. Smaller units are also designed with open housing. Lightweight safety covers with extra handles enable ergonomic operation. Overall safety is guaranteed by the application of safety locks.

## Process

The Rademaker Laminator is designed with wider rollers (+50 mm) and belts (+100 mm). Apart from a higher output that results in improved dough support, reduced risk for microdamage and stress in the outer dough edges. This results in an even less thickness variation and improved consistency of the layers than before.



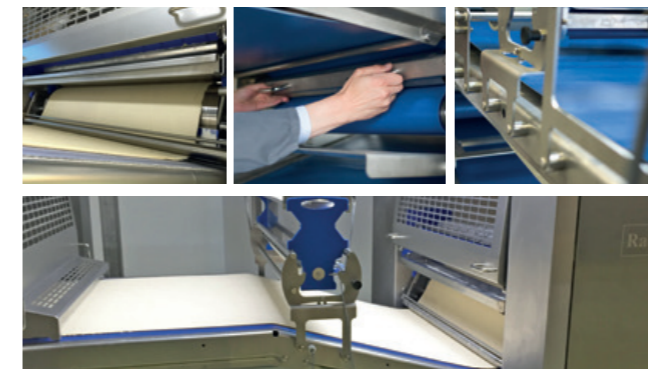
## Efficiency



The overall set-up of the Rademaker Laminator is designed for high production efficiency. Operation is made as easy as possible. This is enabled by easy to remove tools, reduced change parts, exchangeable scrapers and bins and various options to minimize required cleaning efforts and increase uptime. Furthermore, the system is equipped with automatic settings allowing for a "one-button" action bringing the total machine in the perfect cleaning or drying status. After cleaning the operator will be warned if belts are not tensioned properly.

## Service & Maintenance

Accessibility of the system is strongly improved in order to allow for easy service and maintenance. The service and maintenance requirements are reduced by optimal material



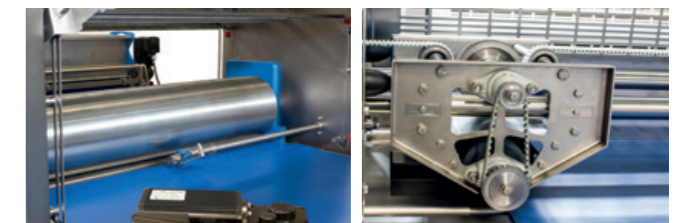
selection. This results in minimal wear and increased lifetime of all sensitive items, in combination with a minimized variance of spare parts. Lifetime lubricated bearings in the product zone and clear, comprehensive lubrication locations for bearings outside product zone are resulting in minimal downtime. Parts that require regular maintenance are located in easily accessible places outside the production zone. All conveyor belts are equipped with quick belt release mechanisms to reduce downtime during cleaning and to keep maintenance to a minimum. Cleaning and maintenance require less time

and production can go on without interruption. Data gathered by the PLC can be used to improve maintenance (e.g. motor loadings, running stops and stop causes).

## Control



Process control by means of intensive data handling and communication is becoming increasingly more important in industrial production processes. Our control platform enables OMAC based data exchange with neighbouring (third party) equipment as well as LMS, MES or ERP systems. Furthermore, advanced data processing enables on-line monitoring and optimization of equipment efficiency. The smart use of the combination of process and recipe information allows easy and fast start-up and reduction of flour usage. The existing cascade system and automatic belt speed adaptation (DDIC / Dough loop) is adapted to fit the increased hygiene level. The advanced control system features fully automatic speed



adjustment and enables the different sections to operate independently. While the last dough part of the production run is processed towards the last section of the line, the first section of the line is ready for cleaning or for the production of another product. The operator will be advised when the next recipe can be started on the machine. Finally, the number of sensors is reduced to guarantee optimal control with minimal risk of downtime due to malfunction.

# Customer satisfaction is key

Based on 40 years of Rademaker expertise, our production lines are considered as a sublimation of technological excellence gathered over time resulting with high product quality at the lowest possible cost of ownership!

## Unmatched 24/7 Service

Rademaker supports your production process every way we can, 24 hours a day, 365 days a year. Our service doesn't stop after the delivery and installation of your Laminator. We can provide a full range of services to cover all system and process related issues through the operational lifetime of the machinery.

- ✔ 24/7 Service Helpdesk
- ✔ Customer Training
- ✔ Preventive and corrective maintenance
- ✔ Spare parts
- ✔ Upgrades, refurbishing and optimising

## Technological support

To be your partner for new product development and consultancy, we have, since 2006, opened the Rademaker Technology Centre (RTC). Here, the development process of a Rademaker production line starts. It features several pilot lines for any bakery product. The testing rooms are climate controlled, so the customer's production situation can be created. Rademaker technologists develop the products that the customers demand. Eventually, these products are translated into a Rademaker production line.



## Rademaker Academy: training and sharing know-how

Technology know-how is one of the key items that is required when a production line is installed, and the production process starts. More specifically the detailed know-how on sheeting processes, production line operation and dough processing are often lacking. This lack of know-how can result in problems affecting the overall cost and time to market. But also, raw material suppliers who see the traditional bakery industry shift more and more towards sheeting technology require more knowledge. This is why the Rademaker Academy started; to preserve and share bakery knowledge through education and training.



## User Friendliness



Great care is given to the new user interface of our production equipment. The central interface size is increased to 22". The touch panel position can be easily adjusted to the proper working height. An iPad control is available to enable remote operation at any position in the line. Making it a timesaving and user-friendly operational tool. Optionally tablets or phones can be used to take over control from the centralized HMI.B1 Wi-Fi network.



## Continuous innovation and innovation

10 Years after the formal start of the Rademaker Research & Development (R&D) Department, it moved to its own building; the Rademaker R&D Centre. It contains a dedicated working space for R&D, where modules, lines and processes are tested. The R&D Centre underlines the leading position that Rademaker occupies in the market in the field of innovation. Besides the fact that it expresses our dedication to development and innovation, it is also a promise. A promise to keep working on improving the machine performance and finding innovative, effective production solutions. To prepare ourselves for the future, setting up our independent R&D department is an important impulse. This way we can pro-actively approach the market and give founded advice towards our customers.



## Inhouse production

The complete production process of our equipment takes place in two state-of-the-art production facilities, covering a total of 20.000m2. The quality of our production lines is derived because the production team consists of our highly qualified craftsman and no concessions are made regarding materials used in our production lines.

## Turn-key solutions

The Rademaker Handling System is developed to process a wide variety of (artisan) bread products for mid-sized to full industrial bakeries. Gentle product handling is achieved at high output and great flexibility is offered to handle many different bread products on one system. We can also deliver a complete bread production solution. Our Systems Integration Division is the result of our client's desire to have Rademaker take control and responsibility for a part or the complete bakery system. The benefit being our clients can leverage Rademaker's decades of international bakery experience while focusing on their day to day operations and core business. Additional advantages being one point of responsibility, innovation of system design using tier one equipment suppliers, and efficiency of communication.





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