

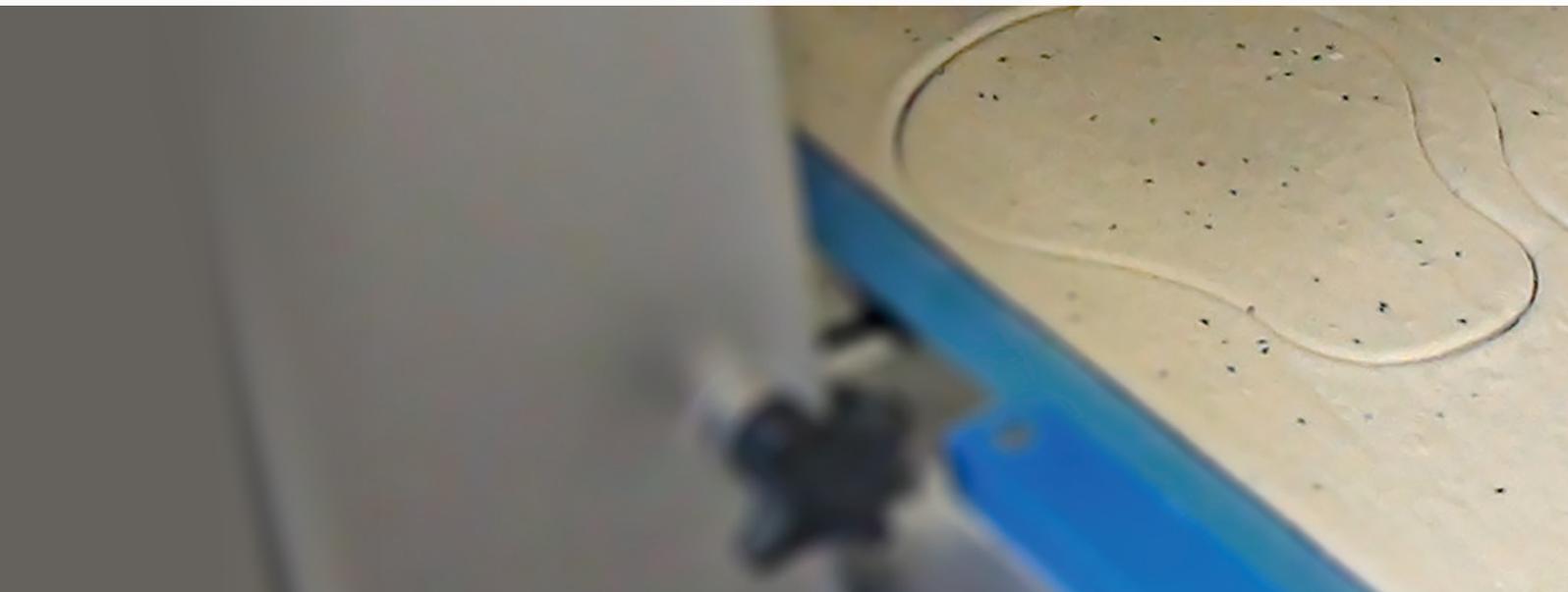


Rademaker

Specialists in food processing equipment

Flatbread sheeting line

Where tradition and innovation meet



Traditions transferred into efficient production

Flatbreads go centuries back in time and are getting more and more popular worldwide because of the healthy image and the large variety of consumption. The need for high capacity Flatbread production lines has therefore increased. We have transformed the traditions of the past into a state-of-the-art production line. The development of Flatbread Sheeting lines is one of the core expertise's of Rademaker. The lines generate a consistent and stress-free dough sheet by means of the Rademaker sheeting technology.

The production line is designed to meet your specifications and capable of handling a broad range of dough types, different shapes and sizes so that every unique product can be made. The flexibility offered by the high-volume Flatbread lines enables production of any style of authentic and unique bread, exactly to your requirements. Rademaker Flatbread Sheeting lines can process all kinds of dough's, from green to strongly hydrated. Dough thickness can range from less than one millimetre to a few centimetres thick. Therefore, a wide variety of products and the market leading quality our customers can expect. The working widths range from 600mm – 1,600mm, with a production capacity of up to 12,000kg of dough per hour.

Why sheeting technology?

Rademaker is a specialist in sheeting technology. Sheeting technology is preferred above the traditional system because sheeting provides important benefits. Sheeting makes it possible to handle a wide variety of dough types, from 'green' to pre-fermented dough, all at high capacities. There is great flexibility in product shapes that can be made. By using stress-free dough sheeters and laminating technology, you can achieve basically any dough and bread structure desired. The Flatbread line concept enables the combination of flatbread types with artisan bread types, all produced on one sheeting system.



Added value

- ✓ High flexibility resulting in a wide product range
- ✓ Exceptionally thin dough thickness and accuracy
- ✓ Perfect product shape due to lowest dough tension
- ✓ Consistent dough quality
- ✓ Efficient production due to fast maintenance, cleaning and change-overs
- ✓ Hygienic design upgrade

All these aspects result in a proven lowest cost of ownership.



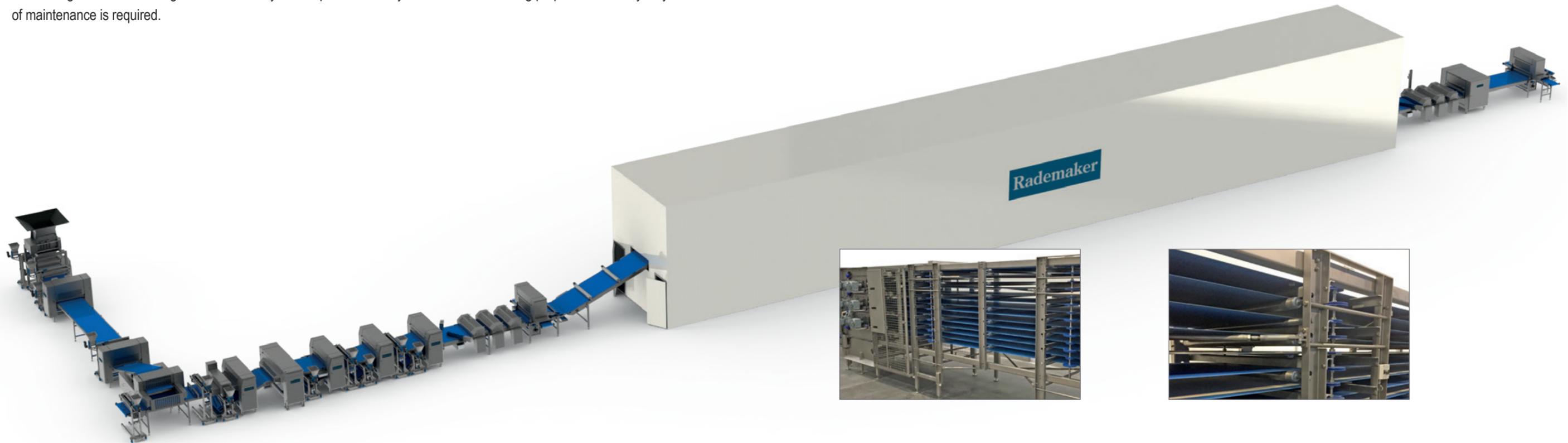
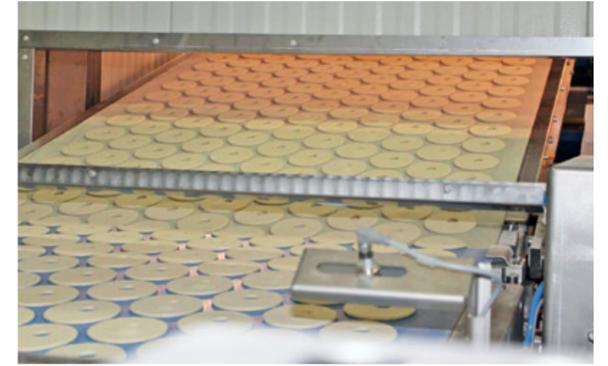
Variation and versatility

The Rademaker Flatbread line consists of a number of modules, designed to flexibly meet your requirements. Flatbreads in any shape or form can be generated and 100% of trim dough can be reused. Mono-production or multi-production, mid-range or industrial volumes, it is up to you. In a partnership relation with you, Rademaker can configure the Flatbread line that best meets your needs, based on all demands and requirements.

The Flatbread line has a working width that varies from 600 to 1,600 mm, with capacities that depend on the product and the thickness of the dough. The line is designed in such a way that all parts are easily accessible for cleaning purposes. This way only a minimum of maintenance is required.

In Line dough resting

In Line dough resting enables the dough to develop its cell structure and to develop the taste of the final product. A Proofing system can be placed inline (to proof continuous dough sheets prior to the product stamping and/or cutting) and it can also proof individual dough products after cutting out the products. The line's flexibility allows the customer to decide, depending on the product. Both variants can be offered by using the bypass stations. Together we can determine what solution best suits you and your products.



The line configuration shown on this page is an example of the many possibilities that our line offers. In addition to industrial production lines, we also provide a solution for semi-industrial production. Our specialists will be happy helping you determine to the solution that best suits you and your products.

Example of a Flatbread production process:



1. Dough pre sheeters: generate stress-free dough sheets of any type with excellent weight control at the highest quality. The dough structure is untouched because of the dough friendly handling.



2. Quick Reductor: the first reduction of the dough sheet's thickness is done by a Quick Reductor. Due to our unique non sticking rollers, we are able to process dough types with high water percentage.



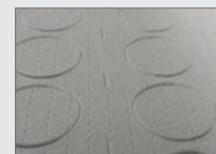
3. Laminating: to obtain a finer and more regular cell-structure and a stronger dough.



4. Cross roller: to compensate the one-sided reduction of the reduction stations and to adjust the dough sheet in thickness. The dough sheet will reduce in thickness and increase in width.



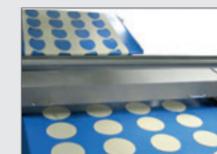
5. Reduction station: the thickness of the dough sheet is reduced while passing through the rollers.



6. Product cutting and docking: products are cut out of the dough sheet. Docking ensures that the products develop their typical surface and makes sure that there is no bubbling on the product surface during baking.



7. Proofing: the dough sheet or products can be proofed, depending on the type of products and production process.



8. Rework station: the rework dough is transported back to the pre-sheeter. This brings our Pizza Base line to a highly effective and cost saving level.



9. Topping station: a module for seeding the baked products, e.g. with sesame or other seeds, can also be integrated into the plant



10. Transportation toward oven or freezer.

Producing the variety of your choice

People have been making flatbreads for over 6,000 years. Traditionally they were made by hand by artisan bakers. Flatbreads have conquered the world the last couple of years and we think that it is mainly because of their healthy image. That is why they fit into a modern and healthy diet. Because of advanced processing and packaging technologies, we can produce flatbreads on an industrial scale. Thanks to the versatile and flexible set-up any style of flatbread can be produced. With the thickness ranging from 20 mm to, for example, 0,6 mm for Lavash. Flatbreads such as pita, lavash, barbari, sangak, taftoun, naan, tortilla, roti, chapati, focaccia, bagel, thin sandwich, tunnbröd, wraps and pizza bases; can be sheeted or pressed in any shape or size. Even gluten-free flatbreads can be produced on the Rademaker Flatbread Sheeting line.

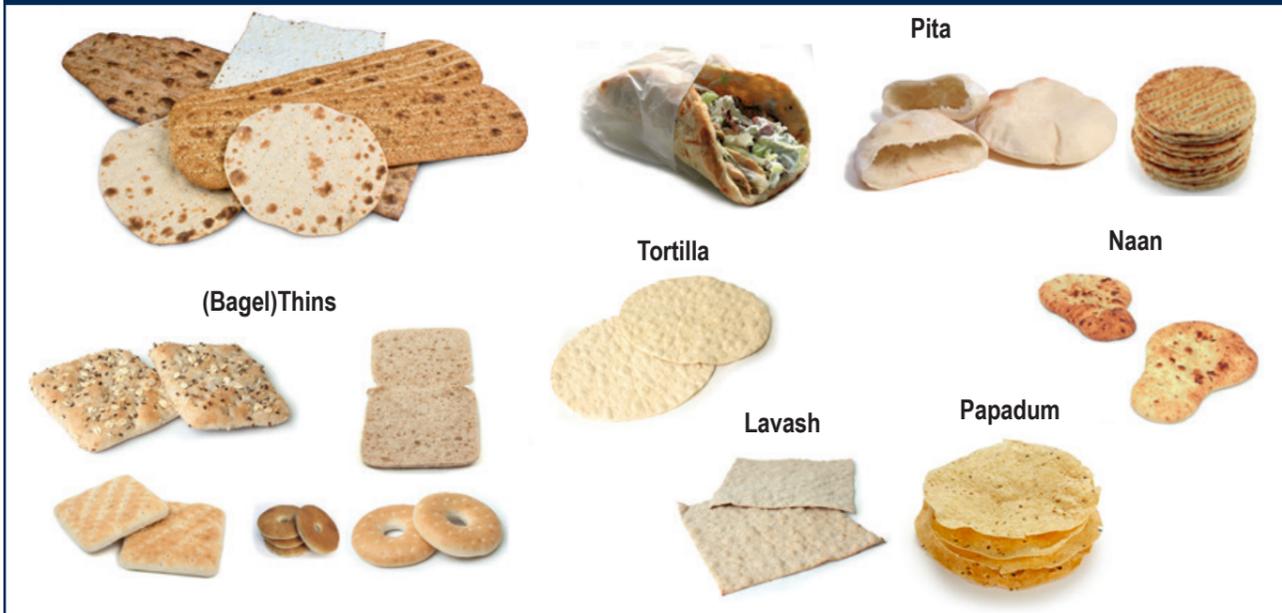
Crackers



Open structure flatbreads



Thin flatbreads



Efficiency & Functionality

The overall set-up of the Flatbread line is designed for high production efficiency. This is enabled by fast and easy removable tools, reduced change parts, exchangeable scrapers & bins and various options to minimize required cleaning efforts.



Efficient, error free operation and tool change-over is realized by applying Unique Fit Tooling. Because of the lightweight and more compact tooling, handling and detaching the tools is as easy as possible and can be done by one person. No other devices are needed to help the operator change the tools.

Dough recycling system

Rework dough is created when the dough sheet is cut to its final width. This rework dough is directly transferred back into the pre-sheeter by the new Rademaker dough recycling system. After detailed testing and analyzing this new recycling system was developed. To achieve the highest dough quality, it is of huge importance that the rework dough is placed exactly underneath the new dough batch. The dough recycling option brings the Rademaker Bread line to a highly effective and cost saving level.



Lane cutting & spreading

Cutting the dough sheet in lanes and spreading these dough lanes is now done by one module. It consists out of light weight, unique fit tooling. One set of cutting knives is developed to seal and cut the dough. Due to the light weight of the cutting knives, lower pressure on the conveyor belt life is applied and the life time is increased. Change over time is reduced by applying the spreading tools in a different manner.



Sanitary operation

Sanitary operation is achieved by using lifetime- or non-lubricated bearings throughout the direct product zone. Direct-drive motors are positioned outside the product zone as much as possible. All motors contain food approved H1 lubricants, which results in zero risk for lubrication contamination. Outside the direct product zone, sealed bearings are applied and can be lubricated during or after the production run.

To keep the rollers of the reduction stations as clean as possible they are fitted with wear resistant roller scrapers which are selected after extensive testing.

To achieve an easy to clean surface the machine is executed with round edges, tubes, ducts, angled surfaces and a smooth surface finishing (Ra <0.8) in the production zone.



Functionality

Rounded edges and fully opening covers on both sides of each unit are applied throughout the system. The best possible accessibility and visibility of the process is achieved by optimizing the space between the working stations. Tools that are attached to the machine are mounted with standoffs. A minimal distance of 1 inch is applied to optimize cleaning activities. Overall safety is guaranteed by the application of safety locks. Lightweight safety covers with extra handles enable ergonomic operation.



Elimination of falling heights: by minimizing the transportation height throughout the production line, it results in a stable and relaxed dough sheet.



An open design with high visibility on the process results in fast product set-up and procedure optimization.

Hygienic Design

Our Flatbread line is designed according to the highest Rademaker Sigma hygienic design standards. These guidelines are directly derived from various high-end requirements for hygiene & cleanability such as the GMA standard and EHEDG recommendations. Elimination of recesses, cavities and dead corners is achieved. An open design enables easy cleaning without reducing the operator's safety. Belt lifters and retractable belt tensioners achieve

accessibility for cleaning and inspection. The improvements result in reduced cleaning time, increased production time and strongly reduced maintenance.

Sanitary operation is achieved by using lifetime- or non-lubricated bearings throughout the direct product zone. All motors contain food approved H1 lubricants, this results in zero risk of lubrication contamination. To keep the rollers of the reduction stations as clean as possible, they are fitted with wear resistant roller scrapers. To achieve an easy to clean surface, the machine is executed with round edges, tubes, ducts, angled surfaces and a smooth surface finishing in the production zone.



Accumulation of dirt and dust is reduced due to the application of stand-offs.



Wear resistant roller scrapers to keep the rollers of the reduction stations as clean as possible



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 & 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 & 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.



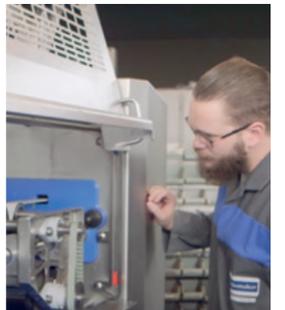
User Friendliness

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

Rademaker is experienced as a system integrator. 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. Our System Integration Division is located in two locations; The Netherlands and the USA. They work closely together and guarantee a worldwide coverage of System Integration services for Rademaker's worldwide customer base.





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