



# Rademaker

*Specialists in food processing equipment*

*We have a Worldwide presence. Feel free to contact us!*

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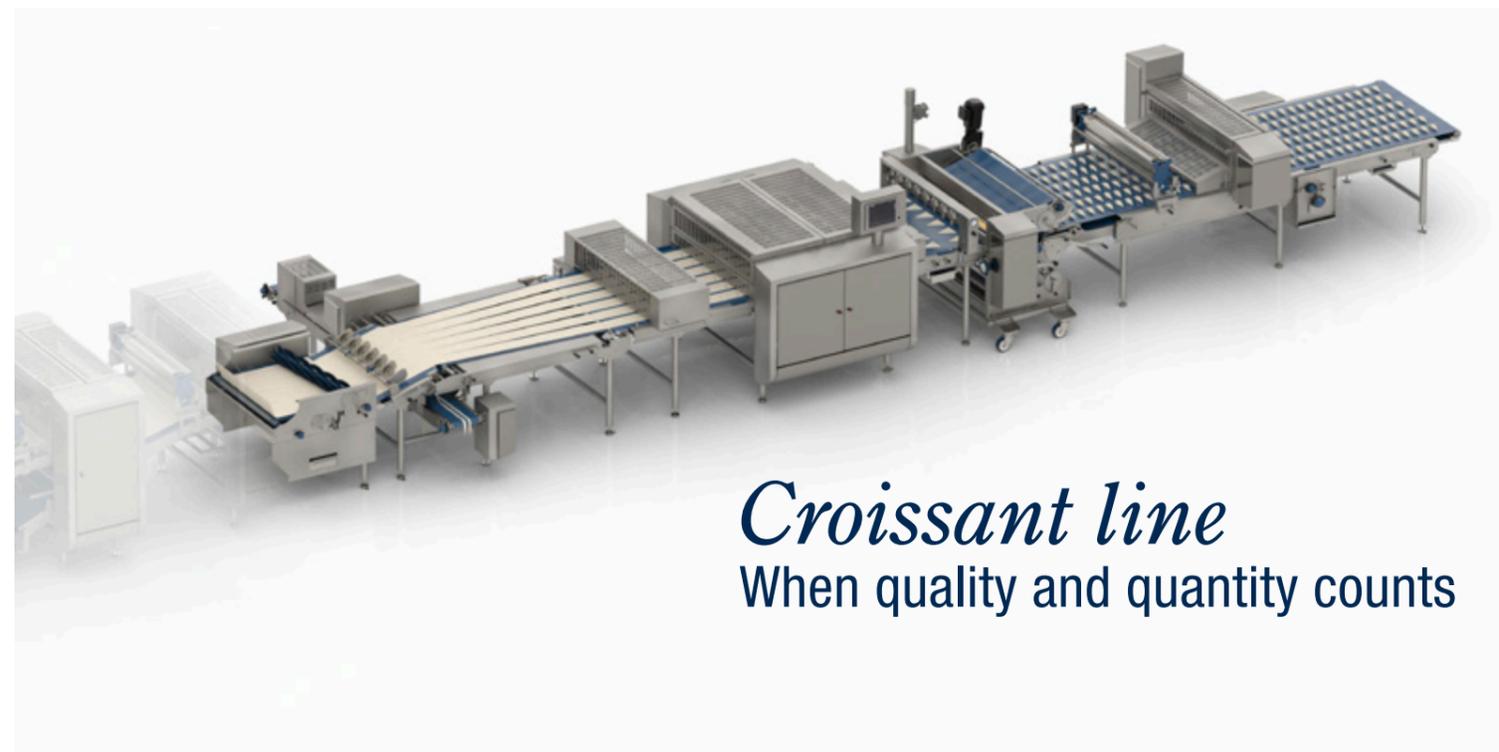
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## Rademaker

*Specialists in food processing equipment*



*Croissant line*  
When quality and quantity counts

# Four decades of experience

Our croissant production line journey began over four decades ago, marking our initiation as pioneers in this field. Our distinction lies in delivering substantial quantities and impressive returns on investment while upholding uncompromised product quality. Our experience shines through in the exceptional dough quality that we achieve. Straight or C-shaped, Plain or filled croissants with the finest fillings types, all croissants can be made using the same, flexible production line with capacities and quality that will exceed your requirements.

## Continuous improvement and innovation

Our continuous pursuit of equipment perfection propels us to consistently elevate equipment performance. Therefore, we have refined our existing Croissant production lines and enhanced them to new heights. Aligned with the latest hygiene and design standards, the Rademaker Croissant machine embodies state-of-the-art excellence. In Culemborg, our dedicated Croissant Product Team is entrusted with the mission of maintaining the excellence of our Croissant production line. At the Rademaker Technology Centre, they have access to a dedicated Croissant production line for testing and innovation. This continuous commitment empowers us to enhance performance, elevate product quality, and stay aligned with the latest technological standards in the market, ensuring our customers receive nothing but the best. Our continuous improvement program, coupled with attentive client feedback, fuels a drive to enhance machine performance during operation, simplifying product change-overs, cleaning, sanitation, and maintenance.

## Highest efficiency and yield:

- ✓ Flexible product range and capacities
- ✓ Full product change-over within 15 minutes
- ✓ Light weight tooling to ensure ergonomics
- ✓ Hygienic design living up to the highest market requirements
- ✓ Ultimate product variety can be produced on one system

## Whatever production process you need

Crafting the perfect croissant entails a variety of methods. At our end, your preferred production process holds significance above all else. Be it Proofed-frozen, Unproofed frozen, Direct baking, Long shelf life, or Gluten-free, we possess the expertise and know-how to tailor the ideal solution for each of these production processes.

In the Proofed-Frozen production method, production processes may follow after proofing. This may include applying egg yolk and/or adding delightful decorations such as sugar or chocolate drops onto the croissants. Our production range also includes streamlined modules that handle these tasks efficiently on your behalf.



# Unleash croissant versatility

Every region of the world has its own croissant products and therefore unique characteristics. Drawing from our extensive experience, Rademaker excels in crafting these diverse croissant variations to align with the dynamic demands of our clients. This technological expertise find expression through our various patented production solutions.

The Rademaker Croissant line can handle all croissant dough types, even gluten-free dough. This leads to the ability to produce a wide range of products, including producing mini croissants of 9 gram dough weight. Therefore we can assure that we will deliver the taste, texture, shape and capacity that you and your customer expect.

Straight, unfilled	Bend, unfilled	Pinched, unfilled
 <p><b>Dough weight:</b> 9 - 150 gram <b>Max. capacity:</b> 168.000 pcs/hr* *50 x70 mm / 10 gram dough</p>	 <p><b>Dough weight:</b> 30 - 150 gram <b>Max. capacity:</b> 96.000 pcs/hr* *130 x 120 mm / 40 gram dough</p>	 <p><b>Dough weight:</b> 30 - 150 gram <b>Max. capacity:</b> 50.400 pcs/hr* *130 x 120 mm / 40 gram dough</p>
Straight, filled	Bend, filled	Pinched, filled
 <p><b>Dough weight:</b> 20 - 150 gram <b>Max. capacity:</b> 65.000 pcs/hr* *70 x 90 mm / 20 gram dough / 3 gram filling</p>	 <p><b>Dough weight:</b> 25 - 150 gram <b>Max. capacity:</b> 43.200 pcs/hr* *130 x 115 mm / 25 gram dough / 6 gram filling</p>	 <p><b>Dough weight:</b> 25 - 150 gram <b>Max. capacity:</b> 42.000 pcs/hr* *130 x 115 mm / 25 gram dough / 6 gram filling</p>
Artisan straigh	Artisan bend	Filled & Topped
 <p><b>Dough weight:</b> 20 - 150 gram <b>Max. capacity:</b> 54.000 pcs/hr* *75 x 90 mm / 20 gram dough / 3 gram filling</p>	 <p><b>Dough weight:</b> 35 - 150 gram <b>Max. capacity:</b> 36.000 pcs/hr* *130 x 150 mm / 35 gram dough / 7 gram filling</p>	

Unfilled overlap pinched Croissant	Duo color	Bread Croissant types
 <p><b>Dough weight:</b> 30 - 150 gram <b>Max. capacity:</b> 48.000 pcs/hr* *50 x70 mm / 10 gram dough</p>	 <p>Dough weight &amp; capacity depending on customer requirement.</p>	 <p>Dough weight &amp; capacity depending on customer requirement.</p>
Open end filled Croissant	Long shelf life Croissant	Size variety
 <p><b>Dough weight:</b> 20 - 150 gram <b>Max. capacity:</b> 36.000 pcs/hr* *70x90 mm / 20 gram dough / 4 gram filling</p>	 <p>Dough weight &amp; capacity depending on customer requirement.</p>	 <p>Ranging down to 6 gram.</p>

## Enhancing croissant varieties worldwide

The physical appearance of croissants varies across regions, each boasting its unique characteristics. Drawing upon our extensive expertise, Rademaker excels in crafting these diverse croissant variations to meet the evolving demands of our clients. Our technological expertise is reflected in our range of patented production solutions.

In response to the growing market demand for distinctive croissants, we recognize the need for specialized knowledge in crafting 'new-age' or modern croissants. Leveraging our years of experience and recent research in this area, we are your ideal partner for creating the perfect croissant. Our focus extends to enhancing the staircase effect, layer distinction, and overall structure, ensuring your croissants stand out and satisfy discerning tastes.

## Different layering structures



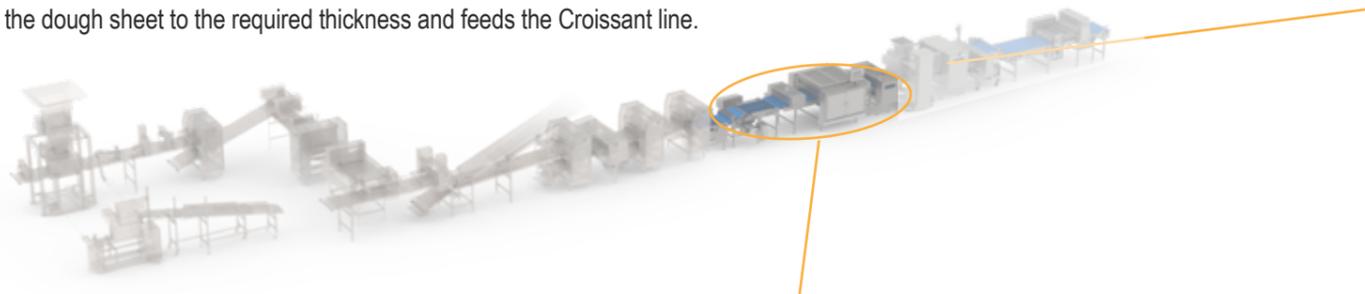
Croissant with a more open structure

Croissant with thigh structure

# Flexible layouts and capacities

Rademaker Croissant lines are designed to produce the widest assortment of croissants: from mid-sized to industrial bakeries and from fully baked to pre-proofed and frozen croissants. Resulting from this market demand, we have numerous system configurations and product throughputs available.

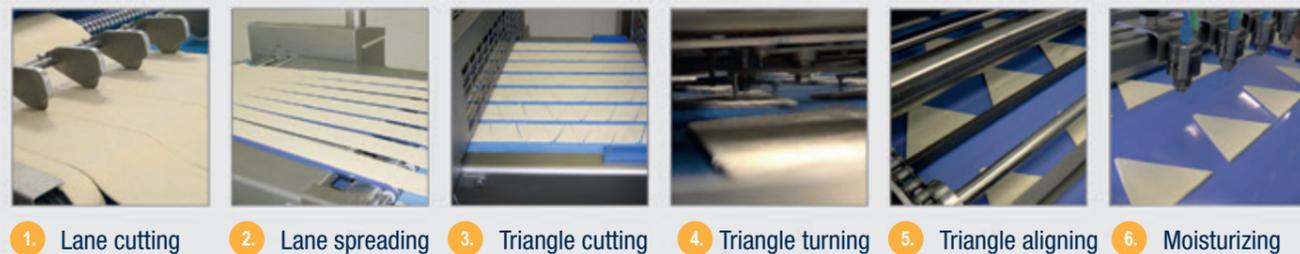
This total layout shows the Croissant production process which includes the Laminator. The Laminator creates the laminated dough, reduces the dough sheet to the required thickness and feeds the Croissant line.



The heart of a Rademaker Croissant line is the cutting and turning unit because these production steps are needed to produce every croissant type. It allows you to produce capacities from 50 strokes per minute for unfilled croissants, up to 200 strokes per minute at consistencies and yields much higher than other machines available on the market. Depending on the croissant type that you want to produce, additional modules will be added to complete your production line.

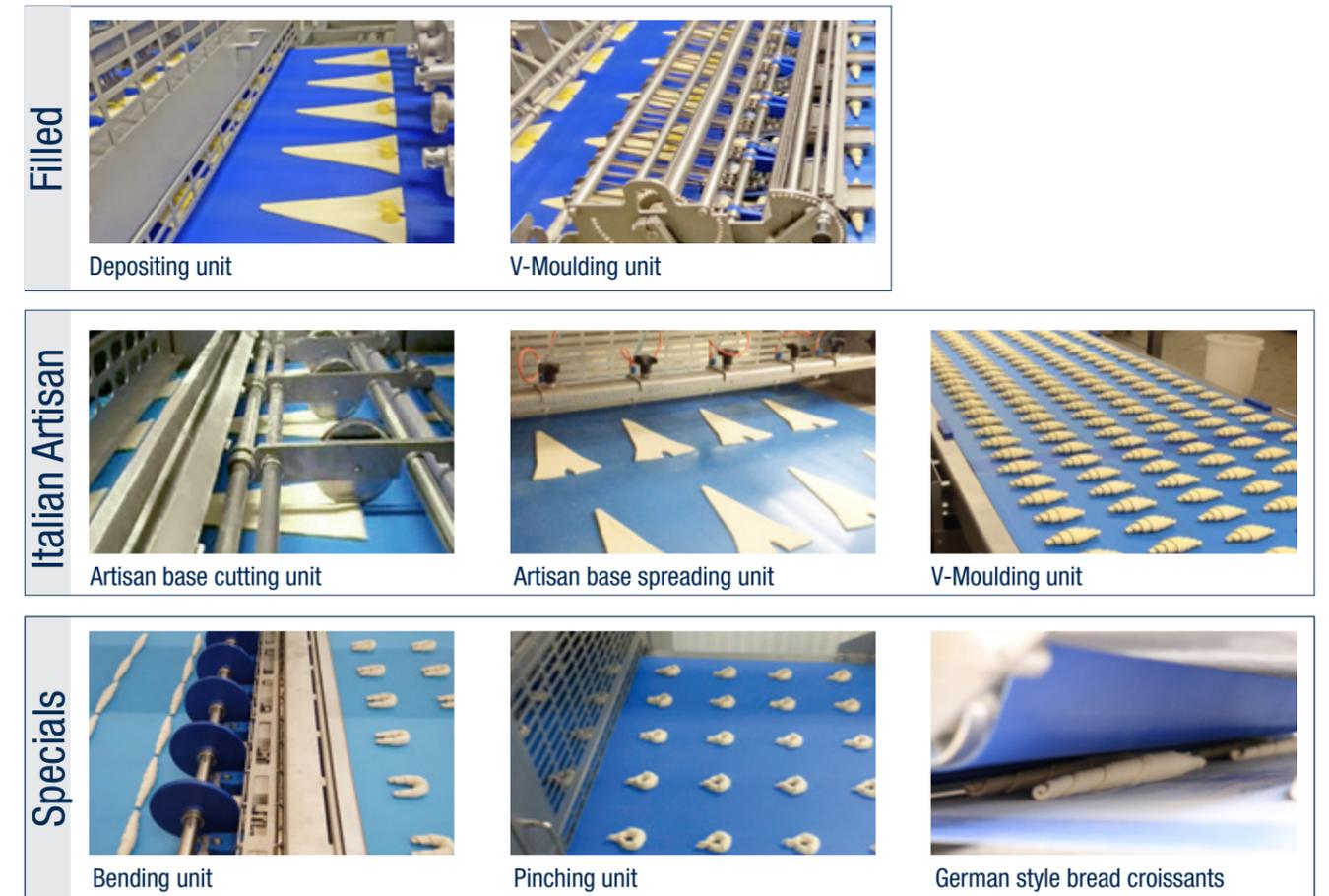


## Cutting & turning production process:



## Additional process units

The various modular process units below can be applied in combination with the Rademaker cutting and turning section to shape the required croissant type.



## Unmatched croissant moulding

Moulding the dough triangles into perfectly and consistently shaped croissants is essential for an efficient production. Because there is a big difference in rolling up filled and unfilled croissant products, we have designed two state-of-the-art croissant moulding systems:

**R-Moulding unit:** the dedicated moulder for unfilled croissants and has the highest speed in the market: up to 200 strokes per minute.

**V-Moulding unit:** the one-stop solution when you want to produce unfilled and filled croissants. Capacities:  
 - Filled croissants: up to 150 strokes per minute  
 - Unfilled croissants: up to 180 strokes per minute



# Quality, efficiency & functionality

Every tool and changeover parts have undergone a comprehensive redesign, with a focus on safety and ergonomics. The outcome is an impressive average reduction in tool weight of over 30%\*. By seamlessly integrating lightweight, state-of-the-art Unique-Fit-Tooling® into our machines, we ensure repeatable, fast, accurate, and secure positioning of tooling.

## High production capacity

The Rademaker Croissant line can achieve capacities of up to 168.000 pieces per hour, running unfilled croissants of 10 gram in 14 row production at an outfeed working width of 1200 mm. This output is achieved and proven in many industrial production facilities. Scaling up to higher speeds of over 240.000 pieces per hour is possible in special cases, for instance with increased working width or integrating a specialized rotation unit tailored for small croissants.



## Safety & easy maintenance

Essential parts can be easily and manually removed without the need for tools. This allows for easy access during cleaning and maintenance actions. All moving parts are designed according to the ergonomic Rademaker Sigma® guidelines, with special focus on rounded edges and process visibility. Also the access to various key parts of the unit is controlled by sensors to guarantee the best possible operator safety.



## Accurate, consistent & durable

Accurate cutting and rotating leads to consistent positioning of the triangle shaped dough pieces. This results in accurate and consistent make up of the croissants without the requirement of a vision system. The usage of timing belts instead of chains is preferred which also results in improved production consistency, reliability and system durability.



## Robustness & Stability

Focus on robustness during equipment design results in highly reliable industrial production and extreme durability. Furthermore by using a servo driven rotate unit, high stability interaction with the cutting roller is achieved. With the Fully CAM driven process we are able to obtain the most exact and precise positioning possible. Due to the high amount of pick devices, the rotating unit is running at a relatively slow and controlled movement.



## Increased efficiency

The new Croissant line is developed to be the most efficient Croissant production machine in the industry. This is achieved by a combination of faster change-over and reduced cleaning & maintenance requirements. Improving process functionality leads to even higher product efficiency. For example:

- The dough release sensor, which is placed on the rotary cutter, prevents pollution to occur. It stops the line when pollution is detected so the cutter can be cleaned and damage is prevented. Result is less downtime and higher efficiency. (The Rademaker Croissant line can handle all dough types, from the most rigid up to the pre-fermented and sticky doughs.)
- Non-driven knives are developed for the scrap removal system. With this improvement, cleaning can take place without stopping the production process, leading to 6.6%\* increased efficiency.

In total a production efficiency increase of 11%\* is achieved compared to the previous generation Rademaker croissant systems.

\*Calculations based on internal trials and operational data.

## Hygienic design

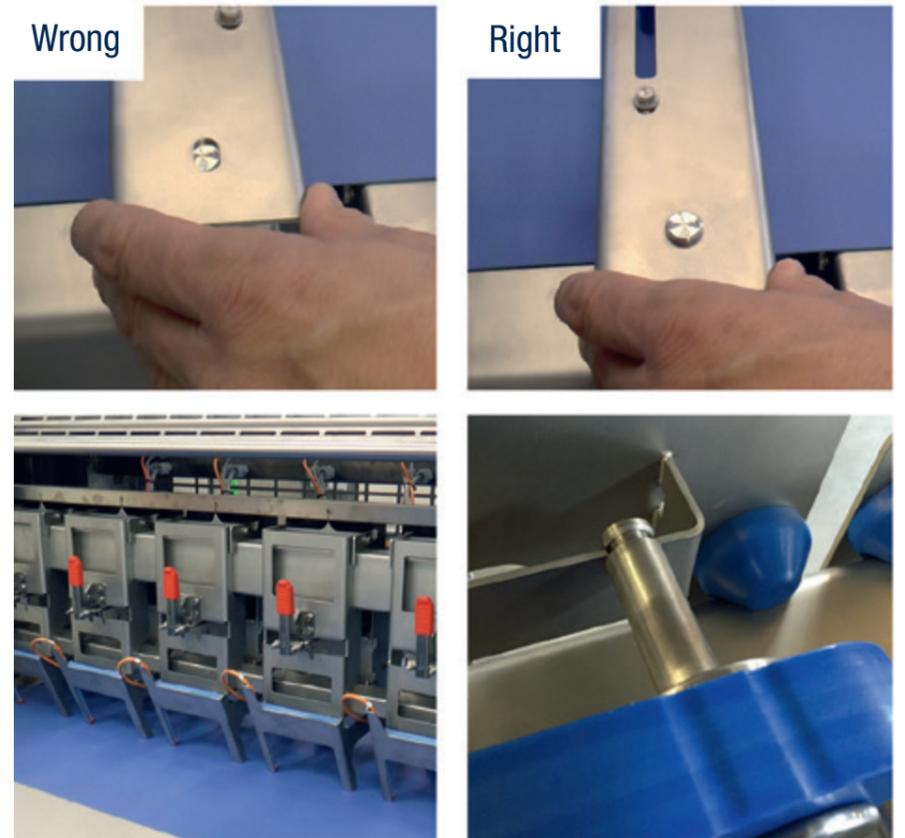
The system is designed according to the Rademaker Sigma® design guidelines. These guidelines are directly derived from various highend requirements for hygiene & cleanability such as the GMA standard and EHEDG recommendation. With excellent machine surface finishing, tilted upper surfaces, rounded frames, food approved blue plastic parts and eliminated hinges and bolts, the unit will meet the highest industrial expectations for hygiene. For more information about the hygienic design executions, you can download our hygienic design brochure.



## Unique Fit Tooling®

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.

Each tool and machine part is given a name and unique identification number. This way the person responsible for the change-over can clearly see what tool to use.



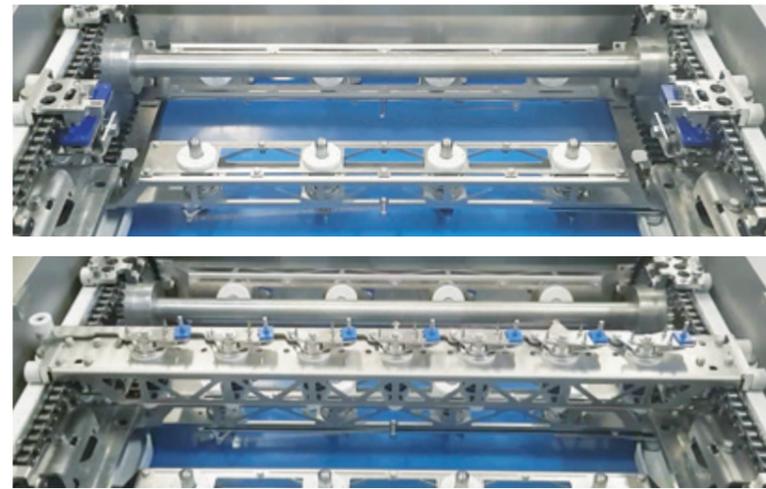
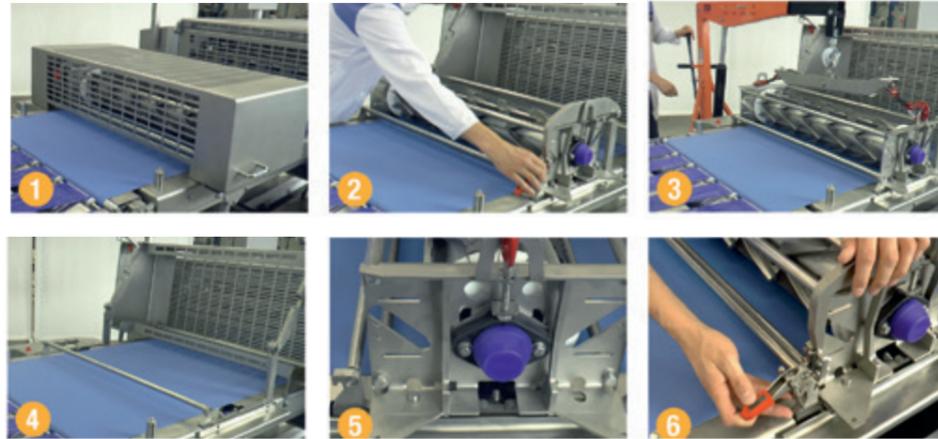
### Reduced change-over times

Our commitment to reducing change-over times is embodied in the lightweight and compact design of our tooling. Effortlessly handling and detaching tools becomes a seamless process, enhancing both speed and convenience. Cleaning and change-over activities are significantly faster, achieving a notable enhancement of up to 50% compared to rival machines.

Below, we illustrate three change-over instances from our Croissant line:

#### Rotary cutter change-over

(1 person: 2 minutes)



#### Product panels/ Rotate Aligning unit

Due to the design of the unit and the lightweight tooling, the change over process can be handled by the operator(s). Contributing to it's user-friendliness, the concept also prevents wrong placement of the panels.

\*Calculations bases on internal trails and operational data.

### Advanced and user-friendly control system

Great care is given to the user interface of the 22-inch touch screen. Its position can be effortlessly tailored to the preferred working height. The control platform facilitates seamless OMAC-based data exchange with neighboring third-party equipment. Advanced data processing empowers real-time monitoring and the fine-tuning of equipment efficiency.

Swift start-up and minimized flour consumption are achieved through a fusion of process and recipe information. The existing cascade system, along with automatic belt speed adjustment (DDIC/Dough loop), is integrated in the overall machine design. The advanced control system features fully automated speed adjustments, allowing the different sections to operate independently. While the last dough part of the production run is processed towards the end of the line, the beginning of the line is ready for cleaning or for a next production run. For utmost convenience, an optional iPad control is available, enabling remote operation from any point along the production line.



# Customer satisfaction is key

Based on over 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 equipment. 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 by our Technology Centre



The development process begins at the Rademaker Technology Centre (RTC) where product concepts are transformed into a Rademaker production line. It is equipped with multiple pilot lines capable of handling a wide range of bakery products, including bread, puff pastries, croissants, pizzas, flatbreads, donuts, gluten-free options, and specialty items. The RTC in a nutshell:

- Testing, Product development & Demonstrations
- Worldwide experience and knowledge available for you
- Dedicated Technologists available to assist you
- Climate controlled testing rooms

## Inhouse production

Our equipment undergoes a comprehensive production process within two cutting-edge facilities. Our commitment to quality is evident through the expertise of our highly skilled craftsmen and our dedication to using premium materials in every aspect of our production lines.



## Discover the Rademaker Academy

Efficient production and profitability depends on qualified and trained operators. We understand the importance of this. For this reason, Rademaker started the Rademaker Academy – a comprehensive resource of ongoing training to support our customer's Rademaker process for a lifetime. The training is conducted by qualified training personnel – each with a customizable program tailor-made to your expectations, needs, and Rademaker system.