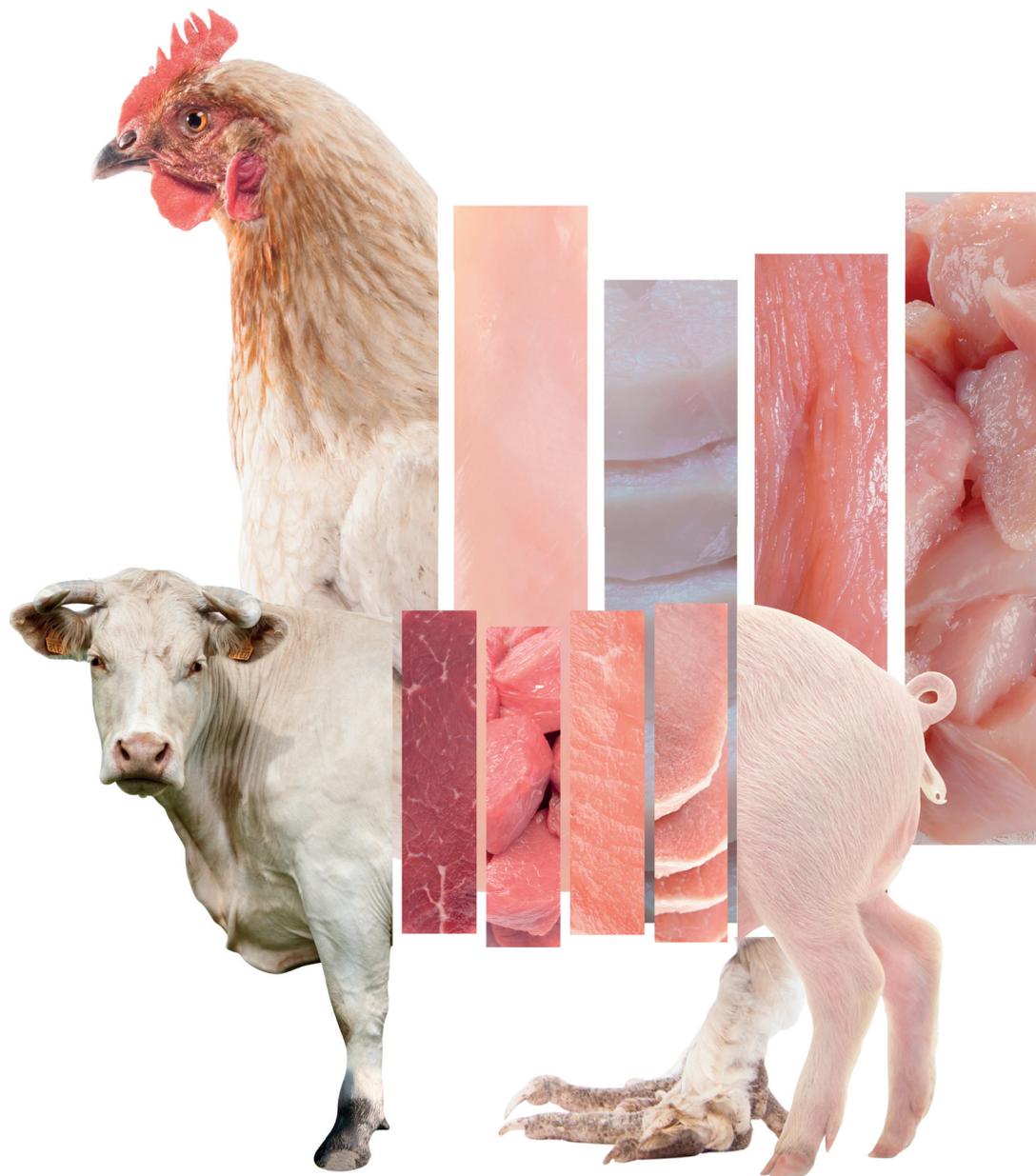




GRADING SOLUTIONS



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Introduction

MARELEC Food Technologies started with MARine ELECtronics it created for the trawler industry in 1983. Soon after, robust and reliable weighing and sorting systems for the fish industry were developed for use on shore as well as at sea. Their unique features, including high speed, precision and custom design were then integrated into solutions for the meat and poultry industry.

In 2023, Duravant, a worldwide supplier of custom equipment and automation solutions for the food processing, packaging and material handling industries, acquired MARELEC Food Technologies. Leveraging its expertise in engineering, integration, project management and operational excellence, Duravant delivers comprehensive process solutions to customers and collaborators through its extensive global sales, distribution and service networks. Duravant's market-leading trademarks are known for their innovation, durability and reliability, aligning seamlessly with MARELEC's values.

We kindly invite you to browse through our brochure to find out more about the different models, applications and our unique selling points. This brochure will also identify which model is most suited to your needs and products. Our sales team is ready to answer any questions you may have.

Regardless of the grader you need, choosing MARELEC - a worldwide leader in this technology - will ensure that you are working with a service-oriented company, one that listens to your specific needs and is a flexible partner with a human approach. We look forward to a mutually profitable cooperation!



Unique Selling Points

MARELEC's Grading Solutions combine state-of-the-art technology creating fast, accurate and highly advanced grading solutions.

1 // INTELLIGENT BATCHING ALGORITHM

The MARELEC intelligent batching algorithm keeps track and makes combinations of all the different weights to fill the stations to the target batch weight, with the absolute minimum giveaway. MARELEC will gladly run a simulation to determine the optimal number of stations for your application.

2 // MODULAR CONCEPT

MARELEC grading systems are built with modular key component parts. This reduces the amount of spare parts required and guarantees swift maintenance with minimal downtime.

3 // USER-FRIENDLY SOFTWARE INTERFACE

The interface allows quick, user-friendly and intuitive programming. Over 100 programs can be stored.

4 // HYGIENIC DESIGN

The graders have a completely open structure, non-tubular design without hidden corners, for complete cleaning and disinfecting. Horizontal surfaces have been avoided. Batching stations can easily be opened. All electrics and electronics are in a completely sealed cabinet with a unique hygienic labyrinth double sealing. All materials used are FDA approved.

5 // WIDE RANGE OF SEPARATION METHODS

Speed, type and state of the product are crucial factors for choosing the most suitable separation method. MARELEC offers a complete range of separation methods: pull arms, kick arms, tilting conveyors, pushbars, retract conveyors, etc.

6 // STAINLESS STEEL DRUM MOTORS

To avoid the need for housings and reduction gears, all motors used are silent stainless steel drum motors with IP 66 or higher protection.

7 // SERVICE

MARELEC has built a very strong reputation for its after sales service. A team of service engineers is available 24/7 to reply to your queries. All MARELEC grading systems can be connected to the internet, which allows our service team to diagnose the status of the machine from our head office. This puts us in a position to react on the spot to assist you.

8 // LOW NOISE

The grading machines have a very low noise level during operation. This creates a pleasant environment for the operators.

9 // FLEXIBLE DESIGN

Our team of experienced engineers translates the requirements and specific needs of the customer into a grading system that is custom designed and built. This flexible approach guarantees the exact solution for the application, keeping the maximum throughput from the minimum footprint as priority.

10 // WORLDWIDE SUPPORT

MARELEC has a network of exclusive distributors throughout the world, with fully trained and qualified engineers ready to assist our customers whenever needed.

11 // PRODUCTION REPORTS

Production data can be viewed on the grader HMI. The user-friendly MATRIX program stores processing data on an office PC for traceability. MATRIX also allows for remote control of the grader.

Overview

1 // INFEEED

Various infeed systems are available to suit your application and capacity. For a complete overview go to page 10.

2 // SEPARATION METHOD

Speed, type and state of the products determine the ideal separation method: pull arms, kick arms, tilting conveyors, pushbars or retract conveyors.

3 // OUTPUT

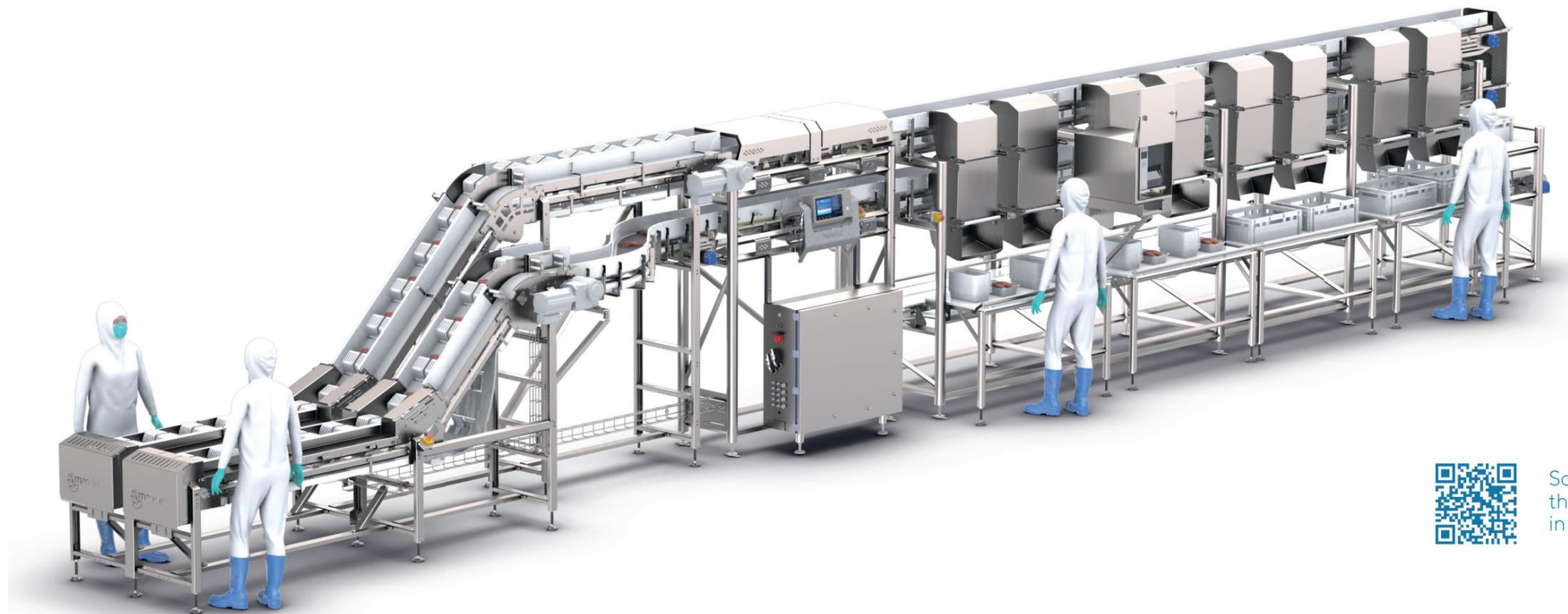
The graded products can be sorted straight into boxes or via various types of batching bins, presentation trays, bag holders or the take away conveyor system.

4 // HYGIENIC DESIGN

All grading systems have a completely open structure, without hidden corners, for thorough cleaning and disinfecting. Horizontal surfaces have been avoided. Batching stations can easily be opened to clean while being mounted on the grader.

5 // TAKE-AWAY

A take-away conveyor underneath the grading stations transports the batches from the grader towards a dedicated packing area.



Scan to see the machine in action

6 // REMOTE SERVICE

The grader can be connected to the internet, which allows the service team to diagnose the status of the machine. This on a 24/7 service.

7 // PROTECTION COVER

The sensitive weighing section is protected by a cover to prevent the wind or drafts from affecting the measurement. This cover also protects the weighing platform from mechanical overload.

8 // TABLES

Tables can be mounted underneath the stations to hold the trays or containers. Elevation systems are available to bring the tables to an ergonomic height for the operators. There are options to swing the tables away, to be replaced by a trolley or tub.

9 // LABEL PRINTER

Label printers can be mounted in between the stations or at the end of the take away conveyor to print labels with traceability information such as processing data "best before" or batch weight for each batch.

10 // MATRIX

MATRIX software is a tool to optimize processing performances and profits. This includes a cockpit view on real-time parameters: yield, throughput, give-away, stock movement, profitability and user programmable KPIs.

Infeed Systems

Infeed system *		Application	Capacity ** (pieces/min)
In-line		Poultry cut-up parts	120
		Whole birds	80
		Beef primals	60
Slotted in-line		Fresh poultry parts (fillets, drums, thighs, ...)	140
Circular		Frozen products	120
Perpendicular z-conveyor		Pork ribs / loins	100

Infeed system *		Application	Capacity ** (pieces/min)
High-speed infeed (short)		Poultry cut-up parts	180
High-speed infeed		Poultry cut-up parts	200
Kickfeeder		Chicken fillets	200

* Please contact MARELEC sales department with your product specifications. We will be pleased to help you select and design the optimal infeed system.

** Actual capacity depends on dimensions and condition of the product

Compact grader

Compact graders incorporate infeed, weighing and grading on one belt and one frame. The MARELEC M3 compact grader is an easy to use, simple and robust solution. All of this with the same precision as the classic graders.

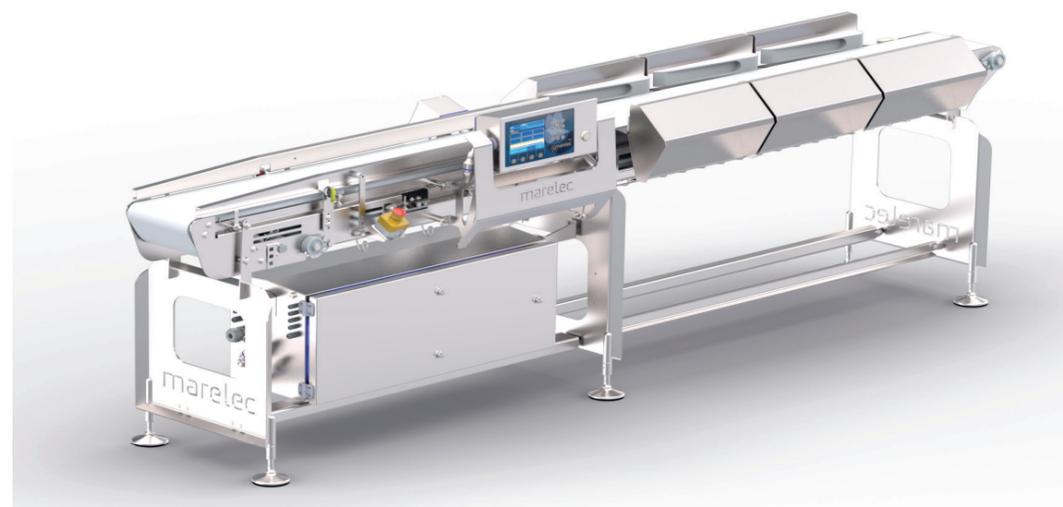
With the MARELEC M3 compact grader, MARELEC sets the new standard for smaller versatile grading systems using pull arms featuring six or eight stations, combined left and right. Options such as batching are available on request.

1 // MARELEC M3/6P-6025-D

Equipped with a 250 mm-wide belt and six stations, for smaller products.

2 // MARELEC M3/8P-6030-D

Equipped with a 300 mm-wide belt, eight stations and higher flippers for larger products.



	M3/6	M3/8
Gates	6	8
L x W x H(belt)	3235 x 643 x 825 mm	4185 x 693 x 825 mm
Product dimensions W x L	240 x 400 mm	290 x 400 mm
Capacity	150 pieces/min	120 pieces/min
Product weight	15 gr - 1,5 kg	100 gr - 3 kg
Options	<ul style="list-style-type: none"> • MATRIX G • Label printer: MARELEC PR1 or PR2 • Stainless steel 316 • Infeed belt • Batching 	

Flowscale

MARELEC offers the best equipment for flow weighing. These systems are able to accurately weigh a flow of products, e.g. chicken fillets or breast caps, over a certain period of time. This eliminates the need for collecting raw material in trays or tubs for weighing and gives a continuous raw material throughput.

The MARELEC M1-F10 has a capacity of minimum 2 ton/hour to 10 ton/hour.

The flow of raw material is continuously weighed with the conveyor belt running, all of which is added up to a grand total.

The flowscale is used in combination with the MATRIX software (page 18) for yield control, by weighing the amount of raw material coming in and comparing this with the weight of the processed meat going out.



Grading after portioning

MARELEC has become the world leader in meat processing with the intelligent portion cutter PORTIO. The PORTIO scans the fillets or whole primals using advanced laser and camera technology. With the exact shape, volume and density known, the software instantly calculates where to cut to obtain a portion of the desired programmed fixed weight.

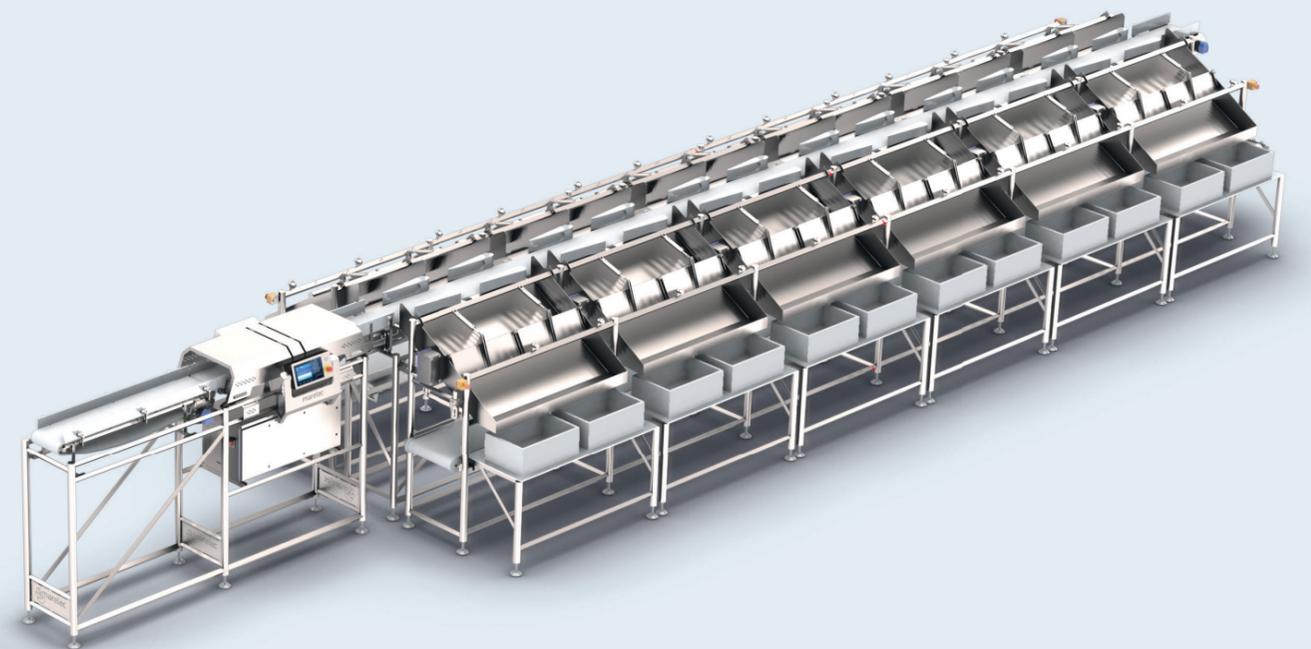
To optimize yields, multiple target weights can be programmed on the PORTIO. To group the different weights together, a grader is put inline with the PORTIO. The Outfeed Product Holder on the PORTIO separates the portions while the acceleration conveyor of the grader provides the correct distance between the portions to optimize the maximum capacity via consistent feeding to the weighing unit.

The graders inline with PORTIO comprise a wide range of designs. Customized solutions for special applications, e.g. trim tables, storage of boxes etc. can be designed according to your specific needs.



Whole bird

In many slaughterhouses, whole birds are scanned and given a certain quality which will determine whether the bird will be cut into parts or if it will be processed as a whole. In other markets, whole birds are separated into tight weight ranges. Whether the birds are already in a bag, tied up or loose, the MARELEC grader will grade accurately at high speed. The grader can be configured in many ways: number of stations; single, double or triple lines with common batching; customized batching bins... MARELEC has built up a lot of knowledge and experience over the years to offer the perfect solution.



Chicken parts

Value is added by cutting up the chicken into parts. The volumes of processed chicken in today's slaughterhouses require high-performance, intelligent Grading Solutions with high capacity to optimize production and yields with an absolute minimum of giveaway. MARELEC has designed a wide range of options on infeed systems, weighing and sorting methods for all different kind of cut-ups that will meet the high demands of actual production requirements.

To ensure the maximum output from the smallest possible footprint, MARELEC designs dual-lane graders. Common batching bins bring the parts within the same weight range from both the upper and the lower lane into presentation trays or directly into boxes.

Printers can be installed in-between the stations to print labels with the production data. An exit conveyor delivers the boxes towards the end of the line.



Scan to see
the machine
in action

Autodrop

The MARELEC Autodrop seamlessly delivers the batches produced by a grading system into a packing machine without any labor being required.

Once the MARELEC grading system completes a batch, it drops the products onto a free spot on the take away conveyor. Each batch is tracked with our MATRIX batch-tracking software as it heads towards the MARELEC Autodrop. All information provided by the grader is kept within the batch tracker. Multiple graders can deliver batches to the same packaging machine or send them to different packing stations. The MARELEC Autodrop will queue the batches and hold them until it's possible to drop them into the packaging machine. These packed products can be tracked further into the process, so that the final package receives the correct QR-code or barcode referring to the initial batch and primary products. This ensures full traceability throughout the process.

The Autodrop can deliver up to 25 batches per minute into a packing machine (depending on batch size and product type) for placement into trays or vacuum packs. The Autodrop system can be configured to your precise needs, such as the size of your batches, or the packing configuration in your packing machine, etc. Technical specifications such as dimensions of the equipment and capacities are therefore subject to change.

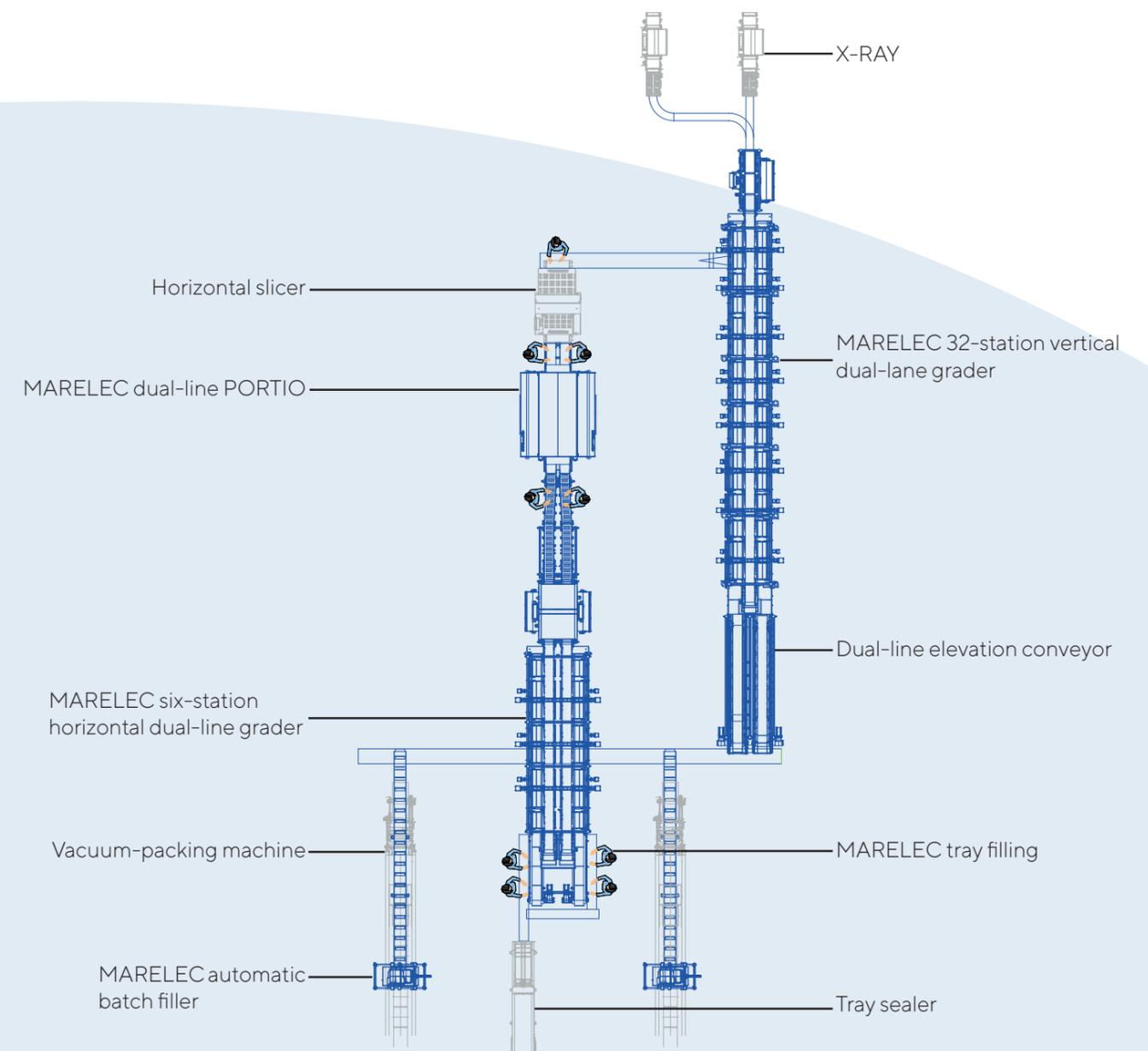




Turnkey solutions

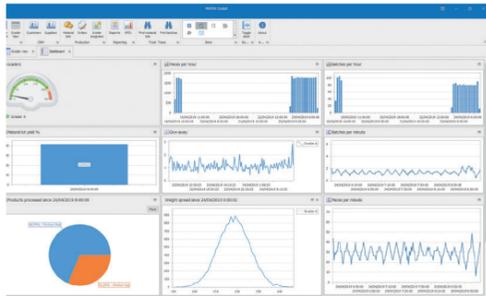
MARELEC has become a highly respected player when it comes to integrating world-class MARELEC grading and portioning solutions in total wall-to-wall projects.

We will gladly assist you to analyze the total scope and goal of your project. The MARELEC solutions can be integrated with X-ray machines, slicers, tray sealers, packing machines etc. The MATRIX software keeps track of every single product that is being weighed and put into batches. The batches are tracked and traced throughout the entire process. At all times, the software knows exactly which batch is where, with identification of each individual product.



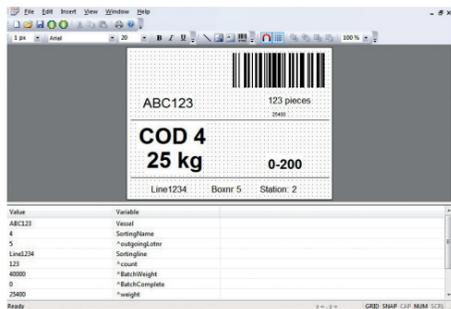
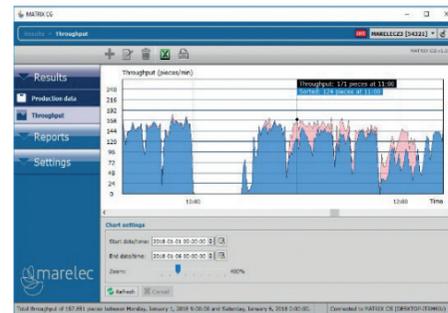
MATRIX

Food processors continuously search for ways to stay competitive in a rapidly changing market. The food-processing industry is driven by digital transformation. Processors rely on data analyzing to define where to make improvements in their processes. MATRIX is a tool that not only gathers production data but also allows for the remote control of devices on the work floor.



The well-known KPIs such as yield, throughput, giveaway and quality have a huge effect on competitiveness and profitability. The consequences of a process adjustment can go both ways so real-time feedback is very important. MATRIX enables users to visualize those KPIs in a real-time dashboard view. With this tool, crucial decisions can be made on the spot and be evaluated immediately after implementation.

MATRIX shows the Overall Equipment Effectiveness. Uptime or availability of a processing line is one of the key factors that can be improved with MATRIX. Changes in machine settings will be stored in an event log that will inform the user of any downtime so preventive maintenance can be planned accordingly. All production data collected by MATRIX is stored in production reports that will help management to make strategic decisions.



Traceability is crucial when grading and packing. When the raw material information is entered at the start of the line and is tracked and traced through production, the appropriate label can be applied on the customer package. MATRIX includes a user-friendly label design program to customize labels. MATRIX allows the tracing of products from finished packages back to the origin of the incoming raw material.

MATRIX can monitor a single device by the use of MATRIX G program or control a whole processing facility containing both MARELEC and third-party machines by the use of the MATRIX. MATRIX is a modular system that is customized according to your needs.

Demo

// SEEING IS BELIEVING

MARELEC Food Technologies has created a state-of-the-art demonstration room, fitting it with all the equipment necessary to film and stream online live demonstrations. Of course, customers are very welcome to visit the MARELEC headquarters in Nieuwpoort, Belgium, to test our Grading Solutions with their own products. We strongly believe this is the best way to convince our valued customers of the superb accuracy and capacity, as well as the obtained yields, gains and fast return on investment.

Please contact the MARELEC sales team to make an appointment. We will make sure to have the ideal machine for your application available for a successful demonstration.





MARELEC Food Technologies

Redanweg 15 - 8620 Nieuwpoort - Belgium - T +32 58 222 111 - sales@marelec.com