marelec

A DURAVANT COMPANY

# PORTIO

## Intelligent Portion Cutter

www.marelec.com

# Contents





# Introduction

When MARELEC launched its first PORTIO back in 2008, it answered a growing demand in the food-processing market. The machine was initially introduced for fish processing, but soon after, the three-camera version was developed for the meat industry. This was the start of a successful product line that quickly developed into dedicated versions that would soon be used worldwide in all segments of the fish, meat and poultry processing industries.

Today, we are proud to present a complete range of intelligent portion cutters, from the high-capacity PORTIO 1DAP for small products to the massive PORTIO 3-400 for the biggest pieces of meat. All models have been created with a customer-centric focus and are built using the extensive expertise we have in food processing since the early nineties.

We kindly invite you to browse through our brochure to find out more about the different models, applications and our unique selling points. Our 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 which PORTIO 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!

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# Unique Selling Points

**The PORTIO combines state-of-the-art technology to create a high-precision yet economical portion-cutting machine.**

## 1 // OPTIMIZED YIELD

With our highly intelligent cutting algorithm and ability to scan to the highest accuracy, all portions are within margins and with less trim. The PORTIO software always calculates how to leave zero waste on the primals, to maximize the yields. The easy fine-tuning interface allows you to make conditional programs resulting in increased yields. Fixed weight, fixed thickness or a combination of variable weight and thickness enable easy portioning of the primals to a maximum yield.

## 2 // UNMATCHED ACCURACY

The latest laser-vision technology, featuring a 400Hz camera, ensures unparalleled accuracy. A top-mounted camera perfectly scans flat products such as fillets, while three cameras (one from above and two from the sides) scan the contours of more rounded products such as meat primals or whole fish. This will transform the shape of the product into a 3D model. Knowing the density of the product, the intelligent software will then calculate where to cut to achieve the target weights.

## 3 // MODULAR BELT

The uniquely designed MARELEC modular belt combines perfect synchronization with an unrivaled lifetime. Automatic stretch compensation guarantees optimal accuracy over the years despite using the same belt. If a small part of the modular belt is damaged, only this small part needs replacing. The unique belt surface keeps the products in place and prevents them from moving during portioning. A quick-release on the belts allows for their swift removal, without the need for tools.

## 4 // USER FRIENDLY SOFTWARE INTERFACE

Setting up cutting programs is very intuitive and user-friendly. Each program shows the cutting pattern of the product on the screen along with the indication of the thickness and the weight of every portion. This enables very fast and easy fine-tuning of the programs to achieve maximum yields.

## 5 // EXTREMELY HYGIENIC, EASY TO CLEAN

The PORTIO is designed and built to comply with the most stringent hygiene standards. A CIP (cleaning in place) rinses the belts both from the top and the bottom to guarantee a fast and thorough cleaning in-between shifts or when different products are portioned after each other. All doors can be opened or removed, leaving a completely open structure that simplifies pressure washing and disinfecting of the entire interior and exterior. All electrics and electronics are in completely sealed cabinets, with heaters, fans and a unique drying system inside to prevent the build-up of condensation.

## 6 // MAINTENANCE

MARELEC has opted to use highly reputed international brands for electrical, pneumatic and other components. All motors and encoders are situated away from the wet area, which ensures a long lifetime. There are limited lubrication points. This results in the lowest operational cost.

## 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 machines 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 offer you on-the-spot assistance.

## 8 // LOW NOISE

The PORTIO is praised in the industry for its low noise level during operation, creating a pleasant environment for the operators.



# Overview

| Model | Applications | Lanes | Cameras | Cutting angle | Belt width (mm) | |
|---|---|---|---|---|---|---|
| | | | | (°) | (mm) | (inch) |
| PORTIO 1 | | 1 | 1 | 0 | 254 | 10 |
| PORTIO 3 | | 1 | 3 | 0 | 254 | 10 |
| PORTIO 1A | | 1 | 1 | 0/30/45 | 254 | 10 |
| PORTIO 3A | | 1 | 3 | 0/30/45 | 254 | 10 |
| PORTIO 3 - 300 | | 1 | 3 | 0 | 305 | 12 |
| PORTIO 3 - 350 | | 1 | 3 | 0 | 356 | 14 |
| PORTIO 3 - 400 | | 1 | 3 | 0 | 406 | 16 |
| PORTIO 3D | | 2 | 2 x 3 | 0 | 305 | 12 |
| PORTIO 1DAP | | 2 | 2 x 1 | 0/15/30/45/50 | 229 | 9 |

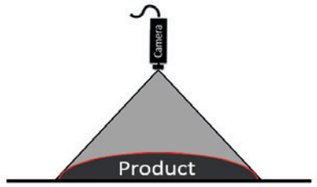
| Max product dimensions (l x w x h) | | Max cutting rate | Available options | | | | | | | Page |
|---|---|---|---|---|---|---|---|---|---|---|
| (mm) | (inch) | (cuts/s) | APH | OPH | BH | RO | DS/DIW | FH | HSC | |
| 950 x 240 x 150 | 37,5 x 9,5 x 6 | 17 | X | X | X | X | X | X | | 12 |
| 800 x 240 x 150 | 31,5 x 9,5 x 6 | 17 | X | X | X | X | X | X | | 13 |
| 950 x 240 x 150 | 37,5 x 9,5 x 6 | 17 | X | X | X | X | X | | X | 14 |
| 800 x 240 x 150 | 31,5 x 9,5 x 6 | 17 | X | X | X | X | X | | X | 15 |
| 800 x 290 x 150 | 31,5 x 11,5 x 6 | 14 | X | X | X | X | X | X | | 16 |
| 800 x 340 x 150 | 31,5 x 13,5 x 6 | 12 | X | X | X | X | X | X | | 16 |
| 800 x 380 x 180 | 31,5 x 15,5 x 7 | 13 | X | X | X | X | X | X | | 16 |
| 800 x 280 x 150 | 31,5 x 11 x 6 | 14 | X | X | X | X | X | X | | 17 |
| 950 x 210 x 60 | 37,5 x 8,5 x 2,5 | 25 | X | X | | | X | | X | 18 |

Subject to modifications for technical progress.

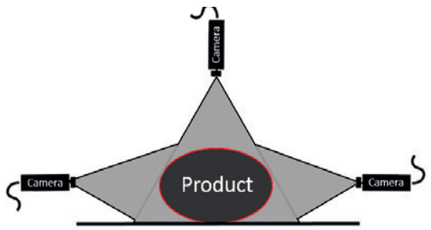
# PORTIO features

## 1 // PORTIO 1 VS PORTIO 3

The PORTIO 1 uses one camera from the top. This is perfect for scanning the laser line that follows the contours of flat products passing through the laser light. Typical products are flat fillets or products where only fixed thickness is required.

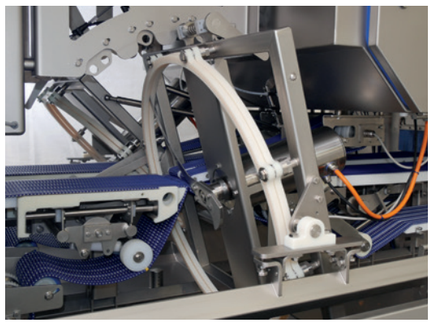



The PORTIO 3 uses the same top camera in combination with two cameras from the side. This allows for scanning the contours of more rounded products, to prevent blind spots on the edges. Typical products are meat, sausages or whole fish.




## 2 // PORTIONING AT AN ANGLE (A)

To give a more natural look on sliced portions (mainly used on chicken fillets) or to produce a bigger plate coverage, products are cut at an angle. MARELEC has a range of PORTIOs A, where the angle of the knife to the vertical position can be changed from 0° to 45°/50°. This can be made without any compromise on accuracy or capacity. The adjustment of the cutting angle is done without the need for tools and comes with the patented system that automatically adjusts the gap between the in- and outfeed belts to the optimum spacing.





## 3 // DUAL LANE (D)

The highest-possible throughput from the smallest footprint can be achieved with a dual-lane PORTIO. Two lanes are integrated into one machine which run completely independent from each other, each with their own control panel. Certain models also have the option of changing the cutting angle.

Advantages of the dual-lane PORTIO:

- Highest throughput per sqm/sqft
- Two independent programs
- Optimal throughput / cost ratio
- Accurate cutting at high speed

## 4 // PRECISION & CAPACITIES

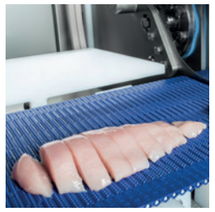
| Product | Weight | Capacity* | Precision ** |
|---|---|---|---|
| | 55 - 150 g<br>2 - 5 oz<br>150 g and larger<br>5 oz and larger | up to 1200 kg/hour<br>up to 2700 lb/hour<br>up to 1600 kg/hour<br>up to 3300 lb/hour | 2 g/<br>0,07 oz<br>2% |
| | 55 - 150 g<br>2 - 5 oz<br>150 g and larger<br>5 oz and larger | up to 1000 kg/hour<br>up to 2200 lb/hour<br>up to 1400 kg/hour<br>up to 3000 lb/hour | 1,5 g/<br>0,05 oz<br>1,5 % |
| | 55 - 150 g<br>2 - 5 oz<br>150 g and larger<br>5 oz and larger | up to 1000 kg/hour<br>up to 2200 lb/hour<br>up to 1400 kg/hour<br>up to 3000 lb/hour | 2 g/<br>0,05 oz<br>1,5 % |

* Actual capacity depends on raw material and cutting pattern
** Standard deviation. Precision is product- and application-dependent

# PORTIO 1


This machine is used to portion flat products vertically to a fixed weight, such as fish or chicken fillets, or when only cutting to a fixed thickness is required. The PORTIO 1 is the basis for all models. The machine can be upgraded with two additional side cameras and all of the bolt-on options described on page 20. This allows modifications to the PORTIO according to your evolving products and applications over the lifetime of the machine.

| | |
|---|---|
| **L x W x H** | 135 x 52 x 62 inch |
| | 3425 x 1307 x 1569 mm |
| **Net weight** | 2095 lb |
| | 950 kg |





# PORTIO 3

A PORTIO 3 adds two lateral cameras to the PORTIO 1. This allows the machine to improve the scanning and cover blind spots at the side of the product that cannot be detected by the top camera only. It is used for accurately portioning red meat, whole fish or any product with an irregular shape, in a vertical way. The machine can be equipped with the options mentioned on page 20.

| | |
|---|---|
| **L x W x H** | 135 x 52 x 62 inch |
| | 3425 x 1307 x 1569 mm |
| **net weight** | 2315 lb |
| | 1050 kg |

# PORTIO 1A


Cutting at an angle gives a more natural look to sliced portions or a bigger plate coverage. The PORTIO 1A has the ability to alter the angle of the knife from the perpendicular to 30° or 45° in just a few seconds. The PORTIO 1A uses the top-mounted camera. A typical application for the PORTIO 1A is  chicken fillets that are portioned to a target weight, yet look as though they have been cut by hand from the breast caps. The adjustment of the cutting angle is done without the need for tools and comes with the patented system that automatically adjusts the gap between the in- and outfeed belts to the optimum spacing.

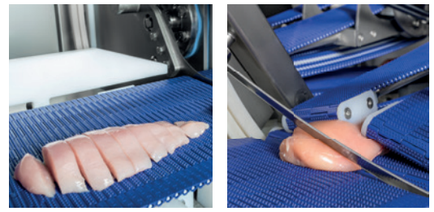
| | |
|---|---|
| **L x W x H** | 138 x 57 x 62 inch |
| | 3502 x 1442 x 1569 mm |
| **net weight** | 2284 lb |
| | 1036 kg |



# PORTIO 3A

Cutting at an angle gives a more natural look to sliced portions or a bigger plate coverage. The PORTIO 3A has, in addition to the top camera, the additional two lateral cameras for more rounded products, as well as the feature to alter the angle of the knife from the perpendicular to 30° or 45°. Typical applications for the PORTIO 3A are large chicken fillets that are portioned to a target weight, yet look as though they have been cut by hand from the breast caps. The PORTIO 3A is the most versatile machine for those who process both poultry and red meat. The adjustment of the cutting angle is done in seconds without the need for tools and comes with the patented system that automatically adjusts the gap between the in- and outfeed belts to the optimum spacing.

| | |
|---|---|
| **L x W x H** | 138 x 57 x 62 inch |
| | 3502 x 1442 x 1569 mm |
| **net weight** | 2505 lb |
| | 1136 kg |

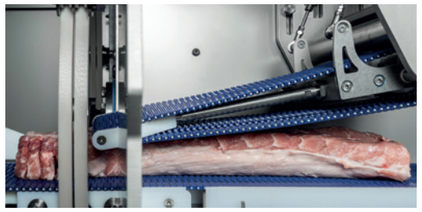


# PORTIO 3-300

For larger pieces of meat that exceed 240 mm in width, MARELEC has added three wider PORTIO models to its product range, with a possible belt width of **300 mm, 350 mm or 400 mm**. These PORTIOs, all equipped with three cameras, feature a robust execution to make perpendicular cuts with ease. The infeed consists of two seperate infeed conveyors to reduce the impact of placing a heavier piece of meat while still scanning the previous piece, while the belt support is made stiffer. The 400 mm version has a servo motor with twice the power to drive the knife through the toughest pieces of meat.

| | |
|---|---|
| **L x W x H** | 135 x 58 x 67 inch |
| | 3435 x 1475 x 1711 mm |
| **net weight** | 2799 lb |
| | 1270 kg |

* Dimensions above are identical for PORTIO 3-350.
Dimensions of PORTIO 3-400 upon request.





# PORTIO 3D

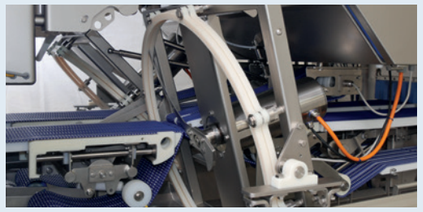
Designed to comply with the demand for high capacities in the meat-processing industry, the PORTIO 3D is a dual-lane machine featuring 300 mm belts and lateral cameras for maximum scanning precision. The two lanes are integrated into one machine but run completely independently of each other, each with their own control panel. Like other typical meat machines, it has separate infeed conveyors to reduce the impact of placing a heavier piece of meat while still scanning the previous piece. A variety of options, typically designed for meat processing, can be seen on page 20.

| | |
|---|---|
| **L x W x H** | 144 x 83 x 64 inch |
| | 3653 x 2091 x 1616 mm |
| **net weight** | 5027 lb |
| | 2280 kg |

# PORTIO 1DAP

For the highest capacity on poultry and smaller fish fillets, MARELEC has developed a dual-lane PORTIO with 229 mm belts, enabling the processing of products with a width up to 210 mm. The two lanes are integrated into one machine but run completely independently of each other, each with their own control panel. The cutting rate is standard increased to 25 cuts per second. Both lanes can independently adjust their cutting angle in five positions (0/15/30/45/50°), and both feature the patented auto-adjusting outfeed belt. A fully stainless steel servo motor drives the knife, making the PORTIO 1DAP the most hygienic model on the market. Both lanes can be operated individually from one single touchscreen interface, which can be rotated to the operator's most ergonomic positions.

| | |
|---|---|
| **L x W x H** | 144 x 76 x 65 inch |
| | 3655 x 1922 x 1663 mm |
| **net weight** | 3970 lb |
| | 1800 kg |





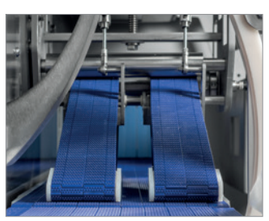
# Options

## 1 // DENSITY SCALE OR DYNAMIC INFEED WEIGHER

When the density of the products varies, the expected accuracy can be obtained using a Density Scale or Dynamic Infeed Weigher (DIW) before the PORTIO. The weight of each individual product is communicated to the PORTIO which will calculate the correct density automatically, for each separate product.

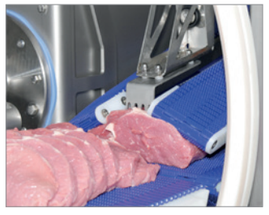
## 2 // APH

The **Automatic Product Holder** consists of one or multiple pneumatically controlled arms with conveyor belts. These arms will prevent rounder, slippery or crust-frozen products from moving during the cutting. Also recommended when multiple cuts are done at an angle.



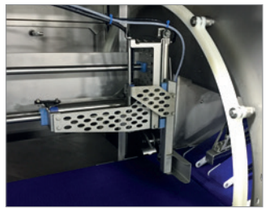
## 3 // BH

The **Back Holder** combines a fork on a linear guide in-between two wide arms of the APH. The outer arms with conveyors prevent the products from moving during the cutting, where the fork keeps the last portion upright and prevents it from tipping over before the last cut is made.



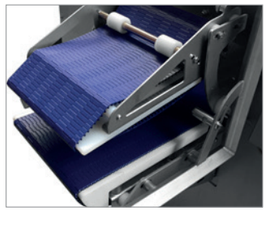
## 4 // FH

The **Front Holder** is a movable arm with a plate positioned above the outfeed belt. It supports the product from the front in combination with the BH, which is supporting the product from the back. This prevents the product from deforming to a wider shape during the cutting.



## 5 // OPH

The unique **Outfeed Product Holder** is a conveyor belt at the outfeed of the machine. This option is recommended when a grader is placed in-line with the PORTIO, in order to separate the portions. This removes the risk of multiple portions passing over the weighing unit at the same time.



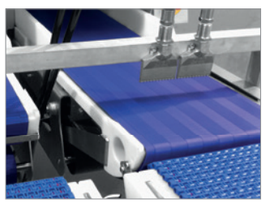


## 6 // RO

The **Retractable Outfeed** enables separation of the head and/or tail trim from the product. At the end of the outfeed, the belt will retract under the product to drop the trim into a crate underneath. The rest of the portions will be separated by a conveyor behind the RO.

## 7 // BLOW OFF

To aid the separation of the trim from the portions, a pneumatic nozzle blows from the top or from the side at the end of the outfeed conveyor.



## 8 // HIGH-SPEED CUTTING

To reach the highest capacity of the PORTIO 1A and PORTIO 3A, the cutting speed can be increased to 25 cuts per second.

## 9 // GRADER IN-LINE WITH PORTIO

To optimize yields, multiple target weights can be programmed on the PORTIO. To group the different weights together, a grader is put in-line with the PORTIO. The OPH on the PORTIO will separate the portions while acceleration conveyors on the grader provides the correct distance between the portions to optimize the maximum capacity via consistent feeding to the weighing unit.

## 10 // MATRIX P

The MATRIX P software collects all production data from the PORTIO and uses it to generate production reports per shift or program and to trace changes at a machine level. MATRIX P enables users to remotely create programs and monitor the machine status through an event log.

MATRIX

## 11 // MARELEC SHARPENING DEVICE

A sharp knife is crucial when it comes to cutting fresh products. The MARELEC Sharpening Device guarantees the correct angle on the edge of the knife to ensure a clean cut, the best performance and lowest cutting loss.

# 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 the PORTIO with their own products. Another possibility is for MARELEC experts to undertake trials in the production facilities of our customers.

We strongly believe this is the best way to convice our valued customers of the quality of the cut, as well as the accuracy, apacity and the obtained yields, gains and fast return on investment that results from using the MARELEC PORTIO.

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