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PORTIO

Intelligent Portion Cutter

www.marelec.com

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Introduction

When MARELEC launched its first PORTIO back in 2008, it answered a growing demand in the food processing market. The machine was first introduced for fish processing, but soon after, the 3-camera version was developed for the meat industry. This was the start of a successful product line that quickly developed into dedicated versions, to 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 built based on our expertise 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 for your needs and products. Our sales team is ready to answer any questions you may have.

As we are a worldwide leader with this technology and regardless of the PORTIO that you need, your choice of MARELEC will ensure that you are working with a service oriented company, one that listens to your specific needs and a flexible partner with a human approach. We look forward to our cooperation!

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Unique Selling Points

The PORTIO combines state of the art technology for creating a high precision yet economic portion cutting machine.

1 // OPTIMIZED YIELD

Due to our ability to scan to the highest accuracy and our highly intelligent cutting algorithm all portions are within margins and with less trim. The PORTIO software always calculates 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. Combinations of fixed thickness and various fixed weights allow to portion the primals to a maximum yield.

2 // UNMATCHED ACCURACY

The latest laser vision technology, featuring a 400Hz camera, ensures unparalleled accuracy. 1 laser camera from the top perfectly scans flat products such as fillets, where the 3 laser cameras (from the top and 2 from the sides) scan the contour 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 get the target weights.

3 // MODULAR BELT

The uniquely designed MARELEC modular belt combines perfect synchronisation with an unrivalled lifetime. Automatic stretch compensation guarantees optimal accuracy over the years, using the same belt. If a small part of the modular belt gets damaged, only this small part needs replacement. The unique belt surface keeps the products in place and prevents them from moving during portioning.

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 allows very fast and easy fine-tuning of the programs to get the 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 to pressure wash and disinfect the entire in- and outside. All electrics and electronics are in completely sealed cabinets, with heaters, fans and a unique drying system inside to prevent condensation building up. A quick release on the belts allows swift removal of the belts, without the need for tools.

6 // MAINTENANCE

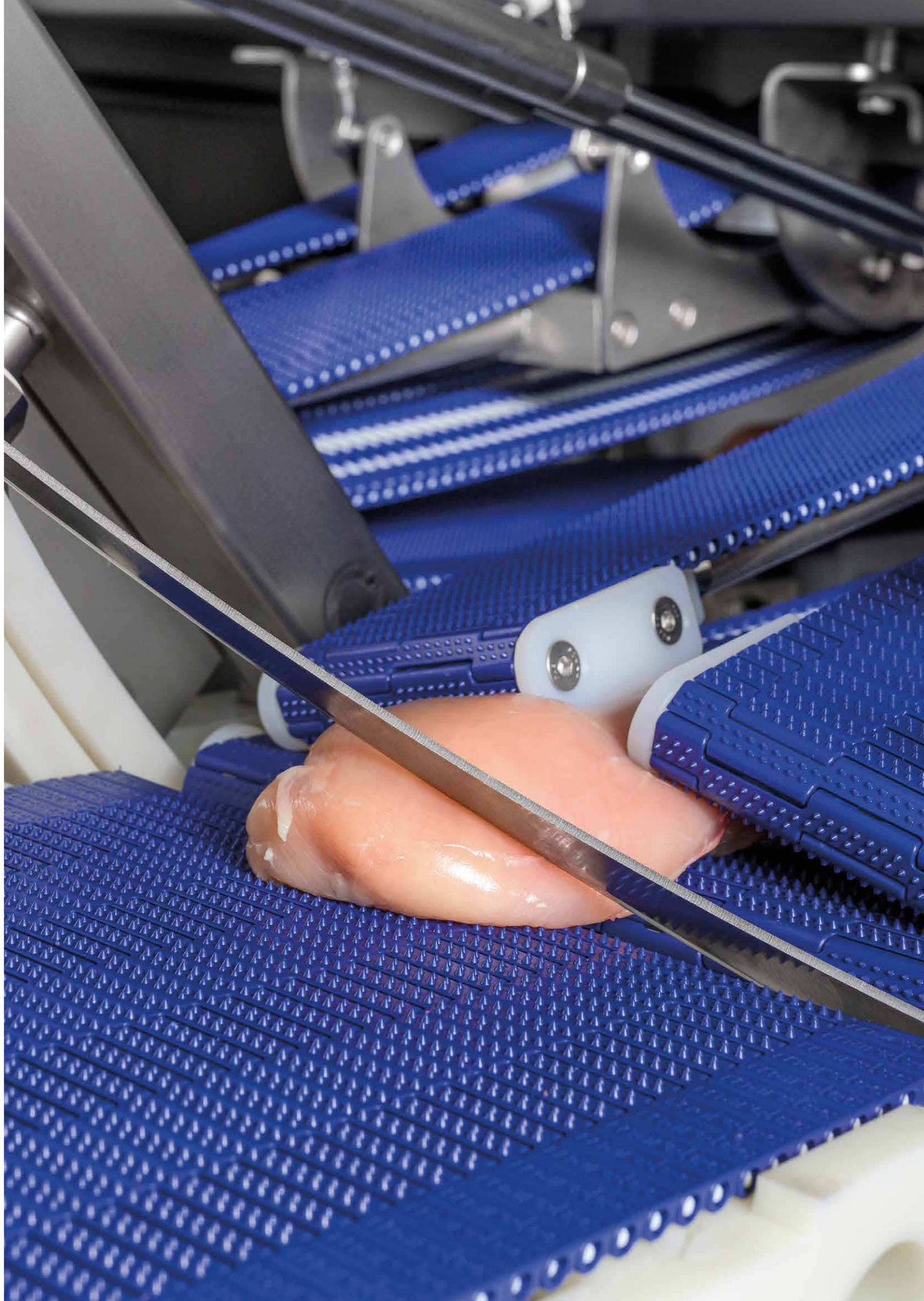
MARELEC has opted to use well reputed international brands for electrical, pneumatic and other components, which can easily be found worldwide. All motors and encoders are situated away from the wet area, which ensures a long lasting lifetime. There are limited lubrication points. This results in the 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. The machine 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 PORTIO is praised in the industry for its low noise level during operation, creating a pleasant environment for the operators.



Overview

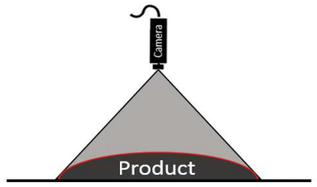
Model	Applications	Lanes	Cameras	Cutting angle	Belt width (mm)	
				(°)	(mm)	(inch)
PORTIO 1		1	1	0	254	10
PORTIO 3		1	3	0	254	10
PORTIO 1A		1	1	0/30/45	254	10
PORTIO 3A		1	3	0/30/45	254	10
PORTIO 1F		1	1	0	254	10
PORTIO 3 - 300		1	3	0	305	12
PORTIO 3 - 350		1	3	0	356	14
PORTIO 3 - 400		1	3	0	406	16
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
700 x 240 x 100	27,5 x 9,5 x 4	17					X			16
800 x 290 x 150	31,5 x 11,5 x 6	14	X	X	X		X	X		17
800 x 340 x 150	31,5 x 13,5 x 6	12	X	X	X		X	X		17
800 x 380 x 180	31,5 x 15,5 x 7	13	X	X	X		X	X		17
800 x 280 x 150	31,5 x 11 x 6	14	X	X	X		X	X		18
950 x 210 x 60	37,5 x 8,5 x 2,5	25	X	X			X		X	19

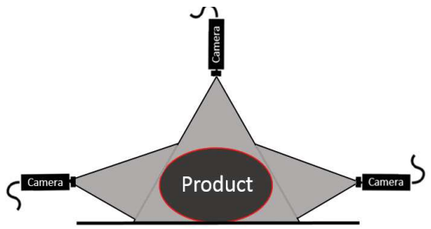
PORTIO features

1 // PORTIO 1 VS PORTIO 3

The PORTIO 1 uses 1 camera from the top. This is perfect to scan the laser line that follows the contour 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 2 cameras from the side. This allows scanning the contour 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 natural look on sliced portions, mainly used on chicken fillets, or to have a bigger plate coverage, products are cut at an angle. MARELEC has a range of PORTIOs A, where the angle of the knife versus 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 belt to the optimum spacing.

3 // DUAL LANE (D)

The highest possible throughput on 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 througput 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 2 - 5 oz 150 g and larger 5 oz and larger	up to 1200 kg/hour up to 2700 lb/hour up to 1600 kg/hour up to 3300 lb/hour	2 g/ 0,07 oz 2%
	55 - 150 g 2 - 5 oz 150 g and larger 5 oz and larger	up to 1000 kg/hour up to 2200 lb/hour up to 1400 kg/hour up to 3000 lb/hour	1,5 g/ 0,05 oz 1,5 %
	55 - 150 g 2 - 5 oz 150 g and larger 5 oz and larger	up to 1000 kg/hour up to 2200 lb/hour up to 1400 kg/hour up to 3000 lb/hour	2 g/ 0,05 oz 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 on 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 2 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 life time 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

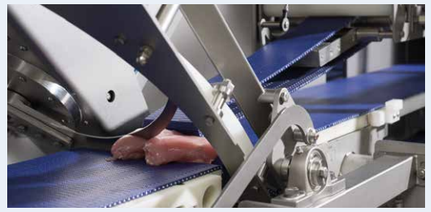
A PORTIO 3 adds two lateral cameras to the PORTIO 1. This allows the machine to improve the scanning and cover blind spots at the side of the product that cannot be detected by the top camera only. It is used for accurate portioning red meat or whole fish or any product with an irregular shape, in a 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 natural look on sliced portions or a bigger plate coverage. The PORTIO 1A has the ability to alter the angle of the knife versus the vertical position from 0° to 30° or 45° in just a few seconds. The PORTIO 1A uses the laser camera from the top. A typical application for the PORTIO 1A is chicken fillets that are portioned to a target weight and 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 belt to the optimum.

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 natural look on sliced portions or a bigger plate coverage. The PORTIO 3A has, next to the top camera, the additional 2 lateral cameras for more rounded products as well as the feature to alter the angle of the knife versus the vertical position from 0° to 30° or 45°. Typical applications for the PORTIO 3A are large chicken fillets that are portioned to a target weight and 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 belt 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 1F

The PORTIO 1F combines the proven scanning and cutting technology from the PORTIO 1, with a compact design, when product lengths are less then 700 mm. Typical applications are flat chicken or fish fillets that are portioned to fixed weights or thickness at a vertical cut, when the option of a product holder is not required.

L x W x H	122 x 42 x 65 inch
	3099 x 1053 x 1643 mm
net weight	1630 lb
	740 kg

PORTIO 3-300

For the larger pieces of meat that exceed the width of 240 mm, MARELEC has added 3 wider PORTIO models to its product range, with a possible belt width of **300mm, 350 mm or 400 mm**. These PORTIOs, all equipped with 3 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. The belt support is made stiffer. The 400mm version has a doubled power servo motor 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 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 300mm belts and lateral cameras for maximal scanning precision. As 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, are described 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, allowing to process products with a width up to 210 mm. The cutting rate is standard increased to 25 cuts per second. Both lanes can independently adjust their cutting angle in 5 positions (0/15/30/45/50), equally featuring 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 rotaded to the operators 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

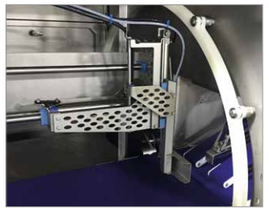
The **Automatic Product Holder** consists of one or multiple pneumatic controlled arms with conveyor belts. These arms will prevent rounder, slippery or crust frozen products from moving during the cutting. Also recommended when multiple cuts are done at an angle.

3 // BH

The **Back Holder** combines 2 wide arms of the APH with a fork on a linear guiding in between. The outer arms with conveyors prevent the products from moving during the cutting, where the fork keeps the last portion upwards and prevents it from tipping over before the last cut is made.

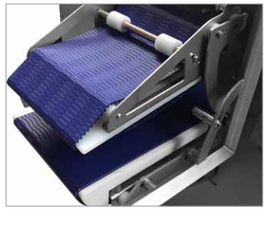
4 // FH

The **Front Holder** is a movable arm with a plate positioned above the outfeed belt. It supports the largest muscles 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 to avoid that multiple portions are passing over the weighing unit at the same time.



6 // RO

The **Retractable Outfeed** allows to separate 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 help the separation of the trim from the portions, a pneumatic nozzle blows from the top or from te 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 optimise 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 and acceleration conveyor of the grader provides the correct distance between the portions to optimise the maximum capacity by consistent feeding to the weighing unit.

10 // MATRIX CP

The MATRIX CP software collects all production data from the PORTIO and allows it to generate production reports per shift or program and to trace changes on machine level. MATRIX CP enables users to remotely make programs offline and monitor the machine status through an event log.

11 // MARELEC SHARPENING DEVICE

A sharp knife is crucial when it comes down 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 a state of the art demonstration room where customers are welcome to test the PORTIO with their own products. We strongly believe this is the best way to convince our dear customers of the quality of the cut, the accuracy, capacity and the obtained yields, gains and fast return on investment, using the MARELEC PORTIO.

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

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