

Salmon Slicing

Equipment, systems, and software for the salmon industry



- Capacities of 55-300 kg/hr
- Fixed weight products
- Optimum product utilization
- Automated systems
- User-friendly operation

Salmon slicing expertise

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The range and technology of Marel salmon slicing equipment is second to none. Marel CP and GEBA slicers have been operating successfully throughout the world for nearly three decades. During this time, our slicers have undergone constant development to meet our customers' increasing demands for better quality, yield, and capacity, and we have moved from basic electric and pneumatic machines to advanced models with servo drives, computers, touchscreens, weighing units, and vision systems.

All Marel slicing equipment meets modern salmon processing facility requirements in terms of reliability, safety, ergonomics, maintenance, hygiene, and cleaning. Key features and benefits of our slicing range include:

- High capacity
- High yield – with yield monitoring software
- Wide cutting range interval
- Flexibility – with many product options
- Quality end products – with superb presentation
- Easy to operate & easy to clean
- Foreign language support

Our exceptional variety of fresh slicing equipment is designed to match all requirements, high or low capacity, ranging from standard single units to large-scale production systems.

Furthermore, our salmon slicers can slice other fish such as trout, halibut, and tuna, that share a similar structure.

Let us put our expertise to work for you

Marel slicing equipment is designed to give you the best results, but we also recognize that slicing quality, yield, and efficiency can be greatly affected by other processes such as filleting and skinning, as well as storage and refrigeration. Our salmon slicing experts are happy to sit down and discuss your specific needs; to find the most suitable slicer for your purposes, and to ensure you will get the most out of your equipment.

Silk Cut slicers - Third generation

Marel Silk Cut slicers are the most successful electric salmon slicers on the market. The slicers are available in three configurations:

MSC 50

A compact, single-lane machine based on the same slicing and cleaning principles as the larger machines, and with the same corresponding benefits. Its slicing capacity is 50 slices/min, or around 55 kg/hr. Slice thickness and slicing angles are set manually and are infinitely variable. The MSC 50 is a low-cost investment for small businesses with limited slicing needs.

MSC 90

A single-lane machine with a capacity of up to 90 slices/min, or around 100 kg/hr. The MSC 90 is the ideal choice for a small business that needs extra slicing capacity.

MSC 180

A dual-lane machine with a slicing capacity of up to 200 kg/hr for maximum throughput.

The MSC 90 and MSC 180 are equipped with a user interface that makes operation very safe and easy for employees at all levels. All operations are accessed by a color touchscreen, including multiple language selection. The unique design of the cutting table and the infeed/outfeed conveyors ensure a very high slicing quality.

Optional software app

Additional software can be installed in the MSC 90 and MSC 180 for advanced variable slicing. The app enables you to make and store slicing programs where the fillet is divided into three sections. The app can be retrofitted and includes a fish sensor setup.

Slice angle options

The standard slicing angle is 8°-20° on the D-cut models. Other 12-degree intervals from 8° to 40° are available. The slice thickness can be varied from 2-10 mm on the MSC 50 and from 2-20 mm on the MSC 90 and MSC 180. The maximum cutting width is 205 mm on all three models.



Product info			
Standard Cold Smoked			
8 MM	30%	50%	20 MM
2.8 MM	2.8 MM	2.8 MM	2.8 MM
12.0°	16.0°	16.0°	10.0°

User-friendly touchscreen



Wide slicing angle - Range 8° to 70°

Multi angle

Marel Silk Cut slicers are available in a multi-angle edition as a single-lane MSC 90 MA with up to 90 cuts/min, or a dual-lane MSC 180 MA with up to 180 cuts/min. They are designed using high quality components to ensure easy operation, optimum slicing, and fast and efficient cleaning.

Maximum flexibility

The multi-angle machines are the most versatile slicers on the market with a slice angle interval of 8°-70° and can be used for:

- Standard D-cut slicing
- Bacon cut slicing
- Sushi product slicing
- Portion cutting of hot smoked, cold smoked & raw fish

Thickness is adjustable from 2-250 mm, making the slicers suitable for most applications in existing productions.

The produced weight will depend on fillet size and slice/portion weight.



Features

- Capacity up to 200 kg/hr
- Multiple slicing intervals
- Easy-to-clean design
- Safe & easy operation
- Gentle handling of fillets
- Site manager support system
- Software app for advanced variable slicing



Features

- Capacity of 90 or 180 cuts/min
- Wide slicing angle interval 8°-70°
- Easy-to-clean design
- Safe & easy operation
- Gentle handling of fillets
- Site manager support system
- Software app for advanced variable slicing



High-speed slicers

SC 250 series

The SC 250 high-speed slicer is the fastest on the market for fresh salmon slicing.

This slicer performs with an impressive capacity of up to 250 slices/min, or about 300 kg/hr. This exceptionally high throughput is achieved without compromising the slice quality, making it an ideal solution for high-volume slicing.

User-friendly operation

The SC 250 user interface has set new standards for user-friendliness and employee safety.

The operator uses a color touchscreen to enter different slicing programs for angle intervals and slice thickness. When a command is selected, an explanation on the screen tells the operator exactly which operation will be carried out. The operator only sees the information needed for operating the machine, which makes it easy to understand.

Unique cutting concept

The SC 250 slicer's synchronized cutting action ensures the slicing angle and cutting edge are always perfectly aligned. Fillet profiles are measured at the infeed conveyor so that the slicing program and knife movement can both be optimized. A pre-weighing scale can be added as a valuable optional equipment to register the weight of the fillets, for exact yield calculation and monitoring of the raw material being processed. Furthermore the pre-weighing scale offers a buffer function making it easier for the operator to line up the filets correctly and maintain full capacity.

Standard or multi angle

There are two editions of the SC 250: one with a cutting angle interval of 8-45°, providing greater flexibility than any standard slicing machine; and the other a multi-angle version with a cutting angle interval of 10°-68°, enabling the production of many different end products such as standard D-cut slices, sushi



The user interface is easy to operate

slices, sashimi cut, bacon cut, and raw or hot smoked salmon portions or escalopes.

Improved product yield

Using the easy set-up procedures for programming slicing profiles improves yield by ensuring there are more usable slices. Slice thickness and slicing angle can both be varied throughout the fillet, normally resulting in 10-20% higher yield. This also minimizes any problems with small slices at the tail and head of the fillet.

Fixed-weight slicers

I-Slice 135

The I-Slice 135 makes fixed-weight slices or portions, and features outstanding accuracy and stability.



Measuring for the best cutting profile

At the infeed, the fillet is weighed and then its volume is measured using a camera with the latest vision technology. This data is used to determine a cutting profile that meets the specifications of the final product and ensures maximum utilization of the raw material. The result is high-quality products within the target weight.

The cutting table's specially designed cutting belts keep the product stable to ensure precise cutting. For extra support, a product holder fixes the end of the fillet on the spike belt to keep it stable during the final cuts.

Great software features

The I-Slice is easy and safe to use, and all settings are easy to control using the multilingual color touchscreen. Programs for specific product types can be stored, making it fast and easy to switch from one product to another.

The software package enables the machine to create space between each slice/portion, making it easier to handle slices when building boards of e.g. 100 g. It is also possible to run the machine with automatic product length, to ensure end products with uniform length.

Maximum flexibility

The increased height of the I-Slice 135 product inlet facilitates cutting of special products. There are two versions of the slicer: a standard slicer with a slicing angle interval of 8°-45°; and a multi-angle edition with a slicing range of 10°-68° or 8°-66°.



For extra support, a product holder fixes the end of the fillet on the spike belt to keep it stable during the final cuts

Marel can offer a complete system with one, two, or more slicing units, packing stations, and check weighing set-ups, customized to meeting your exact requirements.

Features

- High capacity of up to 250 slices/min
- High-quality slices or portions
- Several software apps included
- User-friendly touchscreen
- Easy-to-clean design
- Two-way line control
- Spacing between products
- Flexible cutting: 8°-45° or 10°-68°
- Online support



Features

- Fixed weight slices or fixed length and thickness
- Minimum handling at retail packing
- Maximum stability product holder
- Extreme accuracy with vision camera
- Flexible cutting: 8°-45° or 10°-68°/8°-66°
- High product infeed for special products
- Easy & safe to operate by touchscreen
- Spacing between products
- Two-way line control
- Online support





Retail pack slicer

I-Slice 3300

The I-Slice 3300 takes the production of salmon retail packs a step further when it comes to flexibility and efficiency, delivering batches of sliced salmon ready for packing with almost no manual handling needed.

Marel can offer a complete system with up to 3 slicing units, checkweighing, and lines for final inspection customized to your needs.

The slicer both scans and pre-weighs the fillets to produce packs (batches) of slices with a very high level of accuracy. A new application offers automatic sorting of head and tail slices, which reduces board wastage.

The slicer can produce fixed weight packs with fixed numbers of slices e.g. 4 x 25 g, or fixed weight packs with a variable number of slices. With no manual handling of the slices, the risk of bacterial contamination is significantly reduced.

The I-Slice is easy and safe to operate, with all settings easily made via the multilingual color touch screen. The benefits of such a high level of automation include: a reduced need for manual labor, increased product quality, excellent presentation in the packaging, and less giveaway.



Features

- Fixed weight or fixed count of slices
- Automatic sorting of head & tail pieces
- Batch delivery; on boards, trays, or directly onto belt
- Very accurate product placement
- Minimum handling of slices
- Foreign language support
- Easy & safe to operate
- Online support



Horizontal slicers

A horizontal slicing machine is perfect for making long slices of fresh, cold smoked salmon and similar fish species.

The machine produces long slices that are ideal for customers in the food service industry; making value-added products like canapes, creating new dishes for menus, or creating retail packs with a different appearance.

The two models available for horizontal slicing – the MSC 650-45 and MSC 240 – basically make the same end product, but differ in terms of operation, features, capacity, and investment.

The MSC 650-45 features automatic infeed and tail clamping and can slice up to 120 kg/hr (for 1 kg fillets with a slice thickness of 2.4 mm), while the MSC 240 is loaded manually and can produce 60 kg/hr.

The slicing process

The operator feeds the machine with fillets (skin on) and the tail is clamped. The fillet is sliced horizontally from the top and down to the skin. After slicing, the fillet is ready for vacuum-packing or further handling.

For best slicing results, we recommend the fillet be between -2° and $+4^{\circ}$ C, depending on texture.



Features

- High-quality slicing
- Automatic in-feed and out-feed
- Minimum waste
- User-friendly operation
- Easy-to-clean design





Sushi slicing: 68° – short slices



D-cut slicing: 18° – standard slices

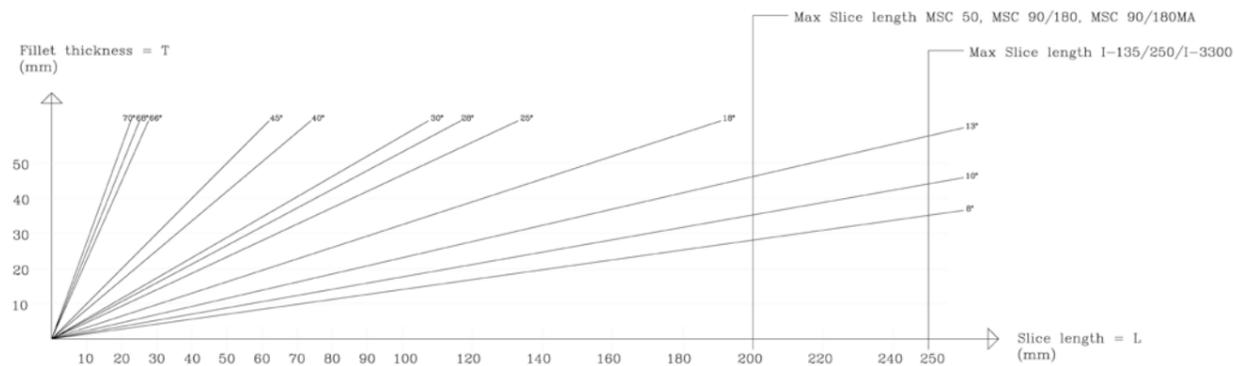


D-cut slicing: 10° – longer slices

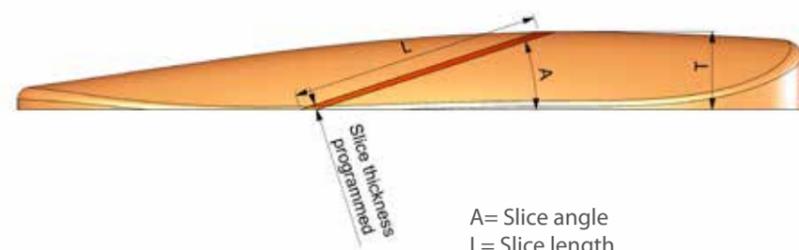
Slice angle & thickness

The slice angle and thickness are key factors when producing slices or portions of salmon. The settings of the machine decide how the end-product will turn out. Marel salmon slicers operate in various angle intervals and the slice thickness can be defined to meet your end-product specifications to achieve

the best quality, while also ensuring optimum yield. For most of our machines, software is available that enables you to store programs with different settings and easily change your production from one product to another.

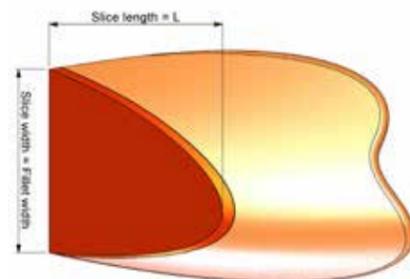


Slice length depends on fillet thickness and slice angle



A= Slice angle
L= Slice length
T= Fillet thickness

Slice thickness is measured at the bottom of the slice



Monitor & optimize The slicing process with Innova

INNOVA
Food Processing Software

Total overview & reporting

It is vital for salmon processors to track operational performance and optimize the production flow of their slicing process. Innova provides reliable data collection for statistical analysis and real-time monitoring of key performance indicators. These valuable insights enable salmon processors to monitor and optimize the performance of every slicer and the efficiency of the whole production line.

Key features

- Data collection:
 - Registration of fillets – pieces, total & average weight from pre-weighing scales on the slicers
 - Registration of all data from checkweighers
 - Yield – primary product, trim & waste
 - Giveaway – product, pieces, total & average weight
 - Registration of individual work station performance

- Detailed production reporting with static reports
- Production optimization reports
- Real-time monitoring via live dashboards
- Device status alarms & notifications
- Traceability by logging historical data
- Easy, central control of the whole line
- Overall Equipment Effectiveness (OEE) module available as an add-on

Key benefits

- Gain a complete overview of KPIs
- Use reports to undertake historical analysis of performance results
- Monitor in real time to intervene immediately in the event of performance deviation

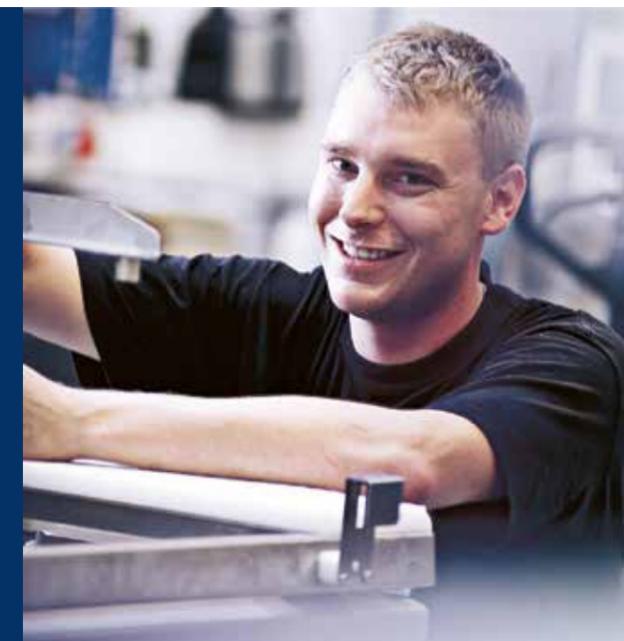
Service & support

Marel at your service

We provide professional service solutions to the salmon processing industry worldwide. The Marel Service Organization spans 30 countries and performs an average of 1,000 customer visits daily.

Our service departments are always available to provide any troubleshooting and assistance you may need. This includes sending a service engineer to deal with any technical issues related to your Marel equipment.

A Marel service level agreement gives you easy access to regular service support. Our service engineers will check your equipment thoroughly and make sure it is properly set up for optimum performance, changing any parts if necessary.



Automatic Retail Pack systems

Marel has extensive experience in designing slicing line systems adapted to fit your individual needs and facilities. We offer integrated systems with slicing units, along with packing stations and checkweighing equipment. Our consultants are ready to assist with advice and guidance to find the best solution for your factory.

For the Retail Pack Slicer we have solutions with automatic checkweighing of each batch before distribution to the packing area. Batches that need re-working are automatically separated for manual handling, while batches within the target weight proceed to the packing machine at the end of the line. We offer solutions with 2-4 height-adjustable workstations with integrated packing scales.



Slicing line with 1 Retail Pack Slicer for manual bagging



Slicing line with 3 Retail Pack Slicers with packing line for thermoforming

Dynamic Packing Lines

The DPL concept is based on Dynamic Packing Lines, where operators pick the sliced salmon directly from the moving feed belt and build the packs on the scales, fully integrated with the slicers and designed for producing retail packs. The speed sync system ensures the speed of the line infeed conveyor matches the slicer outfeed speed and optimizes the

slice spacing feature. Slices are spread out on the line to make it easy and quick for operators to count and grab the slices in bundles fitting the packing format. To achieve the most ergonomic work position, operators are placed next to the feed belt at height-adjustable workstations with integrated packing scales.



Slicing line with 2 x fixed weight slicers and dynamic packing line



Slicing line with 1 single-lane slicer and a packing line for 4 operators

Product specification

	MSC 50	MSC 90	MSC 90 MA	MSC 180	MSC 180 MA	SC 250	SC 250 MA	I-Slice 135	I-Slice 135 MA	I-Slice 3300	MSC 240	MSC 650-45
Number of Lanes	1	1	1	2	2	2	2	1	1	1	1	1
Capacity – max slices/min	50	90	90	180	180	250	250	125	125			
Capacity – kg/hr*	50	100	100	200	200	300	300	130 f. w. slices	130 f. w. slices	90	60	120
Standard Cutting Angle Interval	8-20°	8-20°	8-70°	8-20°	8-70°	8-45°	10-68°	8-45°	10-68°	8-40°	0	0
Optional Cutting Angle Interval	.**	.**		.**								
Slice Thickness mm	2-10	2-20	2-600	2-20	2-600	2-99	2-600	2-300	2-300	2-10	1.8-5	Std. 1.8 - 10, (Adv. 1.8 - 45)
Max Slice Length mm***	200	200	200	200	200	250	250	250	250	250	600	650
Max Product Height mm	40	45	45	45	45	50	50	80	80	50	48	45
Max Product Length mm	700	700	700	700	700	750	750	750	750	750	600	650
Max Cutting Width mm	205	205	205	2x205	2x205	2x220	2x220	250	250	250	240	230
Fixed Weight Products								1	1	1		
Type of slicing	D-Cut	D-Cut	D-Cut Multi Angle	D-Cut	D-Cut Multi Angle	D-Cut	D-Cut Multi Angle	D-Cut	D-Cut Multi Angle	D-Cut only retail packs	Horizontal	Horizontal
Recommended Temperature Interval	-4° to +4° C	-4° to +4° C	-4° to +4° C	-4° to +4° C	-4° to +4° C	-4° to +4° C	-4° to +4° C	-4° to +4° C	-4° to +4° C	-4° to +4° C	-2° to +4° C	-2° to +4° C
Site Manager System		.	.	.	.	.	.	.	.	.	.	.
Packing Line Systems Available		.	.	.	.	.	.	.	.	.	.	.
Electricity – Standard	1x230V +N+PE	3x400V +N+PE	3x400V +N+PE	3x400V +N+PE	3x400V +N+PE	3x400V +N+PE	3x400V +N+PE	3x400V +N+PE	3x400V +N+PE	3x400V +N+PE	1x230V +N+PE	3x400V +N+PE
Electricity – Optional	3x400V +N+PE 3x220V +PE	3x220V +PE	3x220V +PE	3x220V +PE	3x220V +PE	3x220V +PE	3x220V +PE	3x220V +PE	3x220V +PE	3x220V +PE		3x220V +PE
Power Consumption kW	0.8	1.6	1.6	1.6	1.6	1.6	1.6	1.8	1.8	3.1	0.9	1.3
Compressed Air								10 l/min., 8 bar	10 l/min., 8 bar	50 l/min., 8 bar	400 l/min., 8 bar	
Dimensions mm (L x W x H)	2090x780x1530	2090x780x1530	2090x780x1440	2090x1030x1540	2090x1030x1440	2950x1180x1500	2950x1180x1500	3650x1000x1610	3650x1000x1610	3320x1400x1550	1570x770x1230	2680x880x1230
Weight kg	270	270	305	295	330	750	750	775	775	970	250	340

Software Packages Available****												
Variable Slicing	n/a	Optional	n/a	Optional	n/a	Standard	Standard	Standard	Standard	Standard	n/a	Optional
Variable Slicing & Portion Length Control	n/a	n/a	Optional	n/a	Optional	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Spacing of Slices & Portions	n/a	n/a	n/a	n/a	n/a	Standard	Standard	Standard	Standard	Standard	n/a	n/a
Portion Length Control	n/a	n/a	n/a	n/a	n/a	Standard	Standard	n/a	n/a	n/a	n/a	n/a
Slice Length Control	n/a	n/a	n/a	n/a	n/a	Standard	Standard	Standard	Standard	n/a	n/a	n/a
Batching	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Standard	n/a	n/a
Innova Standard Solution	n/a	n/a	n/a	n/a	n/a	Optional	Optional	Optional	Optional	Optional	n/a	n/a

* Conversion of slices/min to kg depends on fillet size, slice angle, and slice thickness (= slice weight)
 ** 13-25°/18-30°/28-40°
 *** Depends on slice angle and fillet thickness. Fish quality, texture, and tempering can also be limiting factors
 **** All software packages – standard and optional – can save and store programs



Who are we?

With roots in the fish industry all the way back to the company's origins developing onboard scales, Marel combines its extensive knowledge of fish processing with heavy investment in product development to create innovative equipment, systems, and software for processing whitefish and salmon, both farmed and wild, onboard and ashore.

With manufacturing facilities in 16 locations worldwide, we serve the fish processing industry from three strategic centers with distinct industry knowledge:

Onboard and wild salmon – based in Seattle, USA

Whitefish – based in Gardabaer, Iceland

Salmon – based in Stovring, Denmark

All three centers have a dedicated R&D team to ensure that we are providing you with the latest technology in processing equipment for all stages of the fish processing value chain, ranging from single scales to integrated production lines and turnkey systems.

Innovation through partnership

With offices and subsidiaries in over 30 countries on six continents and a global network of over 100 agents and distributors, our expertise in local markets and requirements helps us deliver the best fish processing innovation for your needs. Marel thrives on imagination, ingenuity, and its strong partnerships within the industry. Our cutting edge equipment and software components help you operate at peak productivity in all markets, irrespective of the size of your operation, and our products positively and directly enhance the overall quality and value of seafood.



Marel is the leading global provider of advanced equipment and systems for the fish, meat and poultry industries.

With offices and subsidiaries in over 30 countries on six continents and a vast global network of agents and distributors, Marel's expertise in local markets and requirements helps it deliver the best processing innovation for its customers.

Our dedicated R&D teams ensure that we provide the latest technology for all stages of the processing value chain; ranging from single scales to integrated production lines and turnkey systems.