

SALMON SOLUTIONS

Making system solutions simple



- ▶ **Weighing, grading, portioning, trimming and packing**
- ▶ **Complete solutions for salmon processing**
- ▶ **Effective MPS production software**
- ▶ **Greater productivity and higher yield**
- ▶ **Fast, reliable and efficient service**



Weighing solutions

Marel offers a variety of weighing solutions, including the M1100 and M2200 series grading and packing scales as well as advanced automatic weighing solutions. Capable of carrying out a variety of weighing and grading operations the Marel scales are accurate and reliable. All Marel scales can interface with the MPS production software providing management with continuous real-time monitoring and status readout.

► WEIGHING



M2200 multi-purpose scale

The M2200 is a flexible and accurate weighing and packing scale that is built to last. Used for a variety of applications the M2200 can control hoppers and conveyors as well as serving as a registration terminal. The robust, hygienic stainless steel design houses a powerful, high-speed scale that can be used with almost any load cell based weight receiver of almost any capacity. The M2200 can operate as a single or dual-range scale, changing from low to high range in response to the load on the platform.

Complete control

External devices can easily be connected to the M2200, which is capable of accommodating a range of printers, barcode readers and labelling equipment. In addition, the M2200 can be integrated into computer networks connecting to the Marel MPS software system. It is custom designed to withstand the harsh conditions of a washdown environment, and it is hygienic and easy to clean.

M1100 weighing and packing scale

Versatile, accurate and incredibly fast, the M1100 general-purpose grading and packing scale is designed to meet the need for a flexible, extremely robust scale in the food processing industry. The M1100 offers a high degree of precision, with calibration that lasts for years. Available as a fixed or free-standing unit, the M1100 and its attendant Marel platforms come in over 20 variants, offering a weighing range maximum of 3kg-3000kg, depending on the version chosen.

Able to operate as a single or multiple-range scale which changes from low to high range with the load on the platform, the M1100 comes complete with five in-built packing memories and five grading memories, each with nine grades. Like all Marel equipment the M1100 is designed to withstand the harsh conditions of the wash down environment, and it is hygienic and easy to clean.



MPS Production Software

The MPS Production System Software is designed specifically for use with Marel food processing equipment. Windows based, MPS consists of a number of interlocking modules, each directly relating to a specific part of the production cycle. As all MPS modules share a common core, the MPS base system, each can be run separately, or as part of the full system. MPS allows processors to monitor the performance of the operation at any given point in time as production data are at hand online.



► SOFTWARE



MPS Grading

MPS Grading is used to make the configuration of Marel graders simpler and gather information from them. Using the module, operators can retrieve precise information on the grading process and control grader settings from a single location. All adjustments of the grader can be controlled directly from the computer. MPS Grading produces various reports of the grading process. Reports can be broken down by time periods, cargoes, batches, products and more.

MPS Trimming

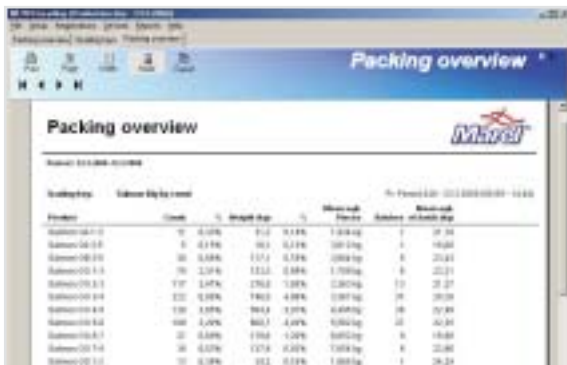
MPS Trimming monitors the total weight of raw material into production for each production line, as well as the performance of individual trimmers including defects from QA sampling. Real-time graphical presentation of yield, throughput and defects per line is shown. Results for performance and yield are shown against targets on reports.

MPS Portioning

MPS Portioning is designed to configure and control portioning machines and to collect portioning data. The program consists of user and control programs. The user program allows the user to create and change programs for portioning machines, analyse data and view reports. The control program is a background program that configures the machines and stores data from them in a database. With a user friendly program configuration MPS Portioning can work with any number of machines.

MPS OptiPack

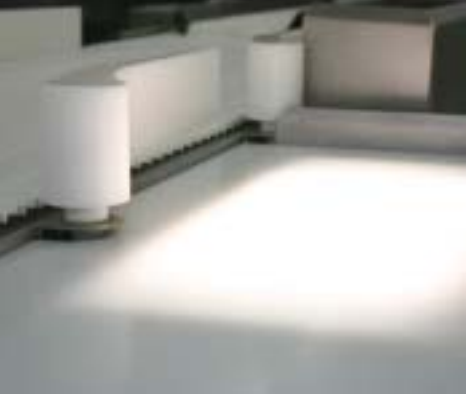
MPS OptiPack is used to control the packing process. It connects to the packing graders and the check scales. It handles the process from order taking through packing, check weighing, labelling and palletising. An optional set-up involves maintained product inventory and dispatch control. Operators can manipulate packed products for orders, pallets, inventories, inventory location or transport. Reports showing inventory status, orders and dispatch overview are included.



MPS Grading - Packing overview



MPS OptiPack - Order progress



Grading

Marel has worked closely with fish processors around the world to develop a wide variety of customized grading and packing solutions. Marel offers precise weight grading equipment, automatic infeeds and take-away systems as well as a host of other customized grading solutions, specifically designed for the grading and batching of whole salmon, fillets, portions and IQF pieces.

► GRADING



Simple Grading

Used for simple grading by weight. Batches are not created.

Simple Batching

Simple batching allows processors to specify values for the minimum weight of a batch and/or the minimum number of pieces in each batch.

Intelligent Batching

The advanced version of the simple method. Used to minimize batch overweight. The reject parameter is used to improve batch accuracy.



Grading and Infeed System for Gutting

The Automatic Grading and Infeed system is designed to work with salmon gutting machines. The system offers the combined features of correctly positioning fish as they enter the gutting machine and securing the correct setting to suit the weight of each fish. The system greatly increases throughput, yield and productivity by being able to achieve a high level of precision.

Salmon are fed onto a conveyor and visually inspected by an operator. At the touch of a button, the operator can redirect deformed fish or those not correctly positioned into manual gutting. The salmon then move onto a Marel grader for weight grading. Each fish is then automatically sent to a gutting machine calibrated for its weight.

Whole Salmon Grader

The Marel Automatic Whole Salmon Grader is equipped with a reliable infeed system, which ensures that fish are channelled to the correct weighing unit. Based on a pack-to-order concept, the multi-batching capability of the Whole Salmon Grader allows processors to handle three or more types of boxes at the same time if required. The grader is capable of simultaneously grading whole salmon into tubs and sending salmon to pre-rigor processing.

The system automatically weighs, grades and selects salmon to fit a pre-determined target pack weight, before boxing them in a head-to-tail configuration. The boxes are then labelled with a bar code with production details. Capacity is 60-80 fish per minute, with a takeaway output of ten, 20 kg boxes per minute. The Marel system offers reduced overweight, higher yields and improved quality, as well as increasing capacity per man-hour compared with conventional processing methods.



GRADING



CheckBin Grader

The Marel CheckBin Grader is a highly accurate net-weight grading and packing equipment. This system uses intelligent batching to produce accurate batches for packing. The CheckBin Grader significantly reduces overpack by using weighing bins that constantly monitor the batch weight and send confirmations or corrections to the main computer. The CheckBin Grader reduces product handling and rework.

The intelligent batching software runs on the M3000 main computer and uses complex mathematical algorithms to select the right pieces for each batch. The bin scale feeds back the actual weight in the bin to the main weight-grader computer, which in turn adjusts the accumulated piece weight accordingly, thereby eliminating the accumulation error.

Intelligent Batching Grader

With intelligent batching to minimize overweight, the Intelligent Batching Graders offer great accuracy and high capacity. The product flows over the weighing unit's conveyor belt to a grader where the product is graded according to the selected grader program. The product is intelligently graded into batches with minimum overweight.

The Intelligent Batching Grader in combination with the Marel Intelligent Portioning Machine offers a fully integrated intelligent processing system to portion and grade salmon products by fixed weight, size or shape. Cost effective, versatile, hard wearing and easy to clean, the intelligent processing system dramatically increases throughput and yield.



Salmon Slice Grader

The Marel Salmon Slice Grader is a solution designed to meet demands for accurate grading and intelligent batching of salmon slices for consumer packages. The system includes proven high precision weighing units; robust and easy to clean discharge units and user-friendly software.

With an accuracy of ± 1 gram the system delivers 200-gram batches, with 8-10 slices a plate, at the throughput of up to 220 pieces a minute. Efficient and reliable, the Salmon Slice Grader offers intelligent batching with minimal giveaway. The system is compact and requires less space than traditional solutions.





Flowlines

Marel's tried and tested flowline technology improves overall plant performance as well as providing its users with 100% product traceability. The salmon trimming flowlines track yield and quality from every worker and processes the product in one continuous flow. A cross-platform solution designed for maximum efficiency, the Marel flowline is custom-designed to help processors exploit their product to the full.

► FLOWLINES

Salmon Trimming Flowline

Based on technology in continuous development, the improved Marel Salmon trimming flowline is simple in concept but revolutionary in design. Maintaining high standards of quality and performance, the flowline is designed to directly increase efficiency and yield.



MPS - Salmon yield

The Marel Salmon Flowline was developed with hygiene and easy washdown in mind. Cables, switch boxes and other electrical components are housed above the line, easily removed Intralox belts are used on all conveyors, and a revolutionary take-away bin for fillets combines both easy cleaning and easy handling. Workstations are ergonomically designed for worker comfort and maximum productivity.

The flowline tracks yield and quality from each worker and is designed to improve overall plant performance, providing detailed and valuable information on throughput, yield and defects. To ensure quality the system automatically directs samples from the trimmers to special quality inspection stations.

The flowline lowers costs, increases efficiency, reduces salvage, improves the utilization of higher-priced items, guarantees 100% traceability, enhances ergonomic configurations and maximizes quality.



Portioning

The Marel IPM III LaserEye combines conveying and cutting technology with built-in laser vision to meet today's demand for accurately portioned salmon products. The IPM III LaserEye is the ideal solution for high-value portioning into pre-defined weights and shapes. By using the IPM processors can improve yield and throughput while maintaining the quality and appearance of the product.



▶ PORTIONING

IPM III LaserEye Intelligent Portioning

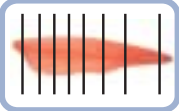

The Marel IPM III LaserEye utilises the latest 3D laser-vision technology to evaluate each piece before cutting. The unit then automatically calculates the most economic cut configuration based on pre-selected parameters.

Operating at a speed of up to 8 cuts per second on the single-lane version, the IPM III LaserEye is capable of performing multiple cutting schemes simultaneously, increasing throughput and optimising yields.

Available as a single or dual lane unit the Marel IPM III LaserEye is specifically designed to fulfil customer demands. While the single-lane version is sufficient for most users, the dual-lane version is the solution when high throughput is required, to ensure an unbroken flow of left and right fillets through filleting, trimming, portioning and grading with minimum handling.

Combining the IPM III LaserEye with a Marel intelligent batching system greatly reduces give-away, and can result in some cases in yields of up to 100%. So, when quality, precision, economy, and optimum throughput are of the essence, the Marel portioning solution is the answer.

Cut Variety

	Product	Throughput <small>Portions per minute per lane</small>	Accuracy <small>Based on 1 StDev</small>
	Salmon Filet	150 - 250	2 - 3%
	Salmon Steaks	90 - 150	4 - 5%



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► **Marel Salmon Production Lines**

Marel offers salmon production lines that include weighing, trimming, grading, portioning and packing. All Marel equipment is capable of operating as an independent module, or as part of a fully integrated Marel processing system. It offers users more tangible rewards than

simply the pleasure of working with some of the smartest technology around. Marel equipment means higher yields, increased productivity and reduced labor costs, factors which taken together add up to one thing – higher profits.

► **Partners in Processing - The Marel Group**

Together Marel and it's subsidiaries Carnitech and CP Food Machinery offer a one-stop-shop for all your salmon processing needs. The highly efficient solutions from the Marel Group offer you the best performance for your plant; from infeed and gutting to portioning,

batching and packing. The Marel Group's turn-key solutions for salmon processing are based on decades of experience in whitefish processing along with close co-operation with salmon processors worldwide.



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Silk Cut Series

Silk Cut 90/180 - CP's fresh slicer introduces various important benefits that translate into a decisive lead in day-to-day operations.

Silk Cut 90A /180A - This fresh slicer contains the new technological innovations of the series.

Silk Cut 180 MA/180 MAA - The new multifunctional slicing machine that enables portions to be cut up to a length of 100 mm.

Skinning Machine - 648A

The skinning machine series is developed for fresh and smoked salmon products.

Slicing Machine - FLS 40 ES

CP fresh slicers are designed and constructed for optimum performance and simple operation.

Slicing Machine - Party Pack

The P 2000 slices and packs fresh salmon in a single work routine.

Slicing machine - LS 220

The compact new long slicer is designed and constructed in the well-known CP quality, with a lot of new features.

Filleting Machines

The new MK6 generation CT2611 Filleting Machine
On the basis of our well-known Northern Light CT2611, we have designed a generation of filleting machines, MK6, with even more advantages, making the machines more rational and efficient to use.

Pin Bone Removers

- Standard Pin Bone Remover CT2612, single or double belt
- CT2613 Pin Bone Remover
- Pin Bone Remover CT2614 for smoked salmon fillets
- Pin Bone Remover integrated into a complete production line

Active Trimming Line

On the Active Trimming line the trim is performed directly on the belt which is made of cut-proof material. The operators divide the trim between them; each operator has a trimming function on the fillet.

Fillet Washer

With the fillet washer the salmon fillets are easily rinsed and cleaned on both sides before they are being packed or further processed.