

Creating value through innovation

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# Salmon processing



- 
- Standalone units
  - Complete systems
  - Software
  - Processing knowhow
  - Global service

# The company



**The Marel team has the technological expertise and the practical know-how to help processors achieve their production goals**

**Who are we?**

Marel is the leading global provider of advanced processing solutions and services to the fish, poultry and meat industries.

Marel's origins date back 40 years beginning with the development and building of accurate and rugged onboard marine scales for the fishing industry. To this day, we continue to combine our extensive knowledge of fish processing with continual investment in product development and innovations for processing whitefish and salmon, both farmed and wild, onboard and ashore.

With manufacturing facilities in 12 locations worldwide, we serve the fish processing industry from two strategic centers with distinct industry knowledge:

- Whitefish – based in Gardabaer, Iceland
- Salmon – based in Stovring, Denmark

Both centers have a dedicated R&D team to ensure that we are providing 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 both onboard and ashore.

**Innovation through partnerships**

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 strong partnerships within the industry. Our cutting-edge equipment and software help you operate at peak productivity in all markets, irrespective of the size of your operation. Our products will positively and directly enhance the overall quality and value of seafood.

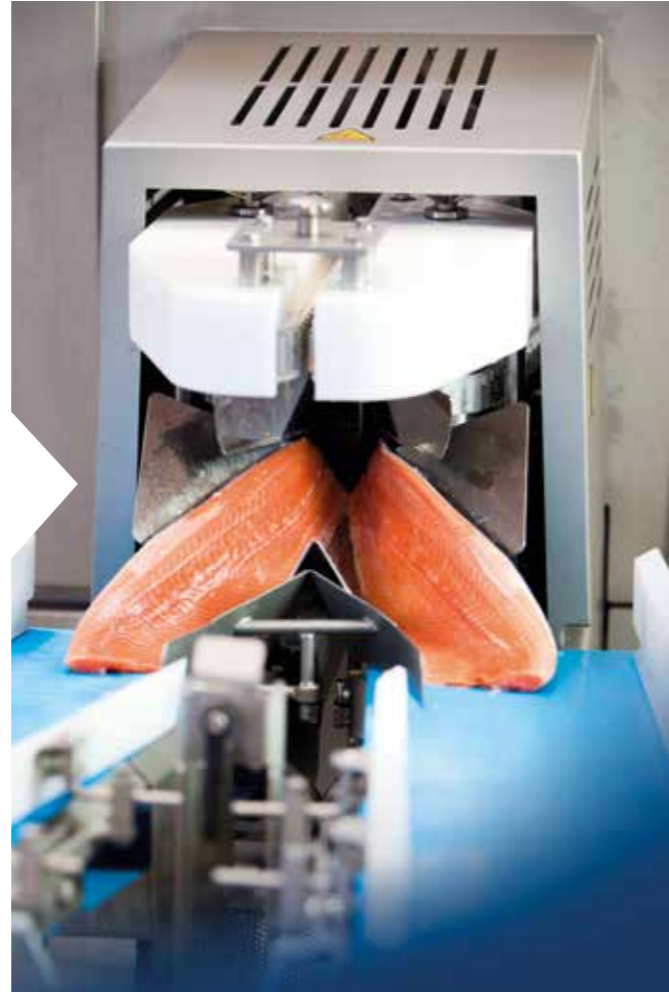
# Product range

Marel provides you with the latest technology in advanced equipment and integrated systems for use in every stage of the processing value chain for both wild and farmed salmon.



## Primary processing

- Grading - whole fish
- Weighing



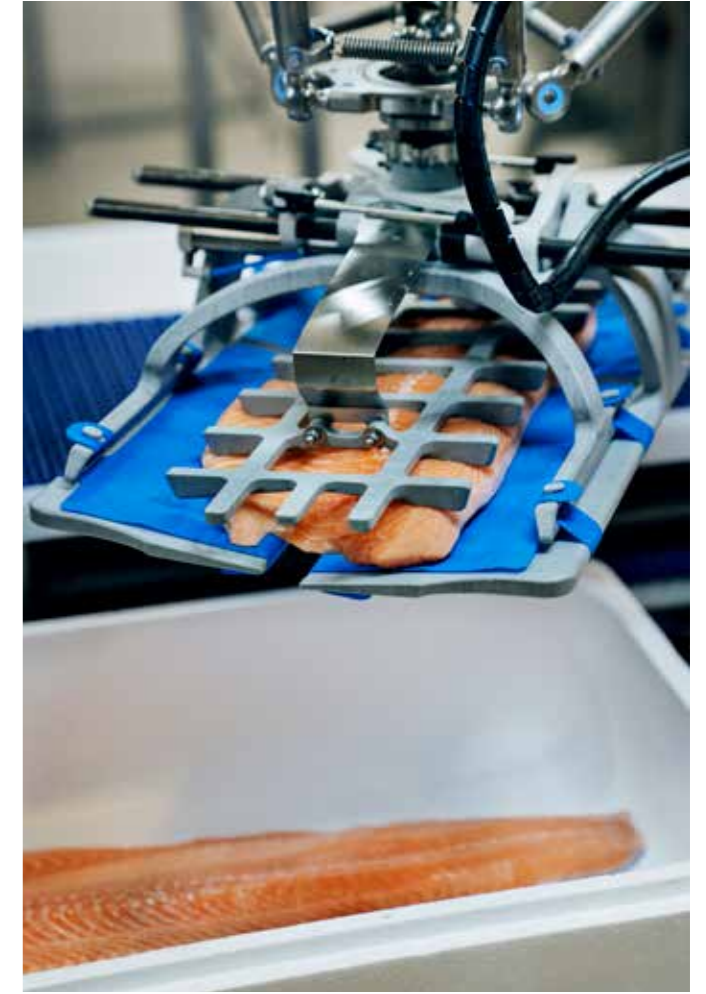
## Secondary processing

- Depalletizing and De-icing
- Deheading
- Desliming
- Filleting
- Trimming
- Pinbone removal
- Skinning
- Quality inspection
- Fillet washing
- Grading - fillets



## Value-added processing

- Portion cutting
- Portioning
- Spicing
- Marinating
- Slicing
- Packing lines



## Packing and labeling

- Checkweighing
- Packing
- Ice machines
- Ice dosing
- Labeling
- Pack handling

◀ **Innova food processing software** - Full Traceability - Real-Time Process Control - Quality Control - Finished Goods Management ▶

# Software



## Innova Food Processing Software

**Innova combines Marel's production management software and processing know-how to fulfill your individual needs, keeping in step with the salmon industry's evolving processing trends.**

Innova empowers you to:

- Control your production
- Experience real-time monitoring
- Improve decision-making based on valuable Innova insights

The ultimate objective of Innova is to empower you to optimize overall production performance to reach your goals. Innova empowers you to maximize yield and throughput, conform to quality standards and ensure food safety while achieving full traceability and raising efficiency.

The Innova Software Solutions portfolio ranges from simple device control solutions to total processing solutions. Based on

modular designs, the solutions are scalable, thereby providing maximum flexibility for salmon processors, ranging from small operations to large plant-wide systems.

Innova's process know-how empowers you to deal with daily challenges and optimize results from receipt to dispatch. Innova production management software can communicate with your other systems, such as an existing ERP system, to deliver a powerful interconnected management system.

Innova provides a solid foundation for reliable data collection and allows full traceability throughout the system. It also allows you to monitor your key performance indicators (KPIs), such as yield, throughput, quality, capacity, and labor efficiency, in realtime.

These valuable insights will help you identify improvement opportunities while ensuring that production conforms to quality and food safety standards.

# Primary processing



## Grading - whole fish

The high level of automation of our whole salmon grading and distribution system ensures a seamless flow of fish from slaughtering to dispatch.

The comprehensive system consists of two distinct processing areas: a gutting area, and a packing and distribution area. The complete system is powered by Innova Food Processing Software and provides you with a managerial overview with control of every stage of the production process.

## Weighing

Marel bench, floor, and hopper scales can be combined with our comprehensive range of weighing indicators, computers, printers, labelers, software, and accessories to suit your individual processing needs.

Our scales can be used as standalone installations or as a part of a complete production management system. Our hopper scales are designed for weighing a continuous product low into batches for packing or yield monitoring.

## Innova order fulfillment

Innova can communicate with other systems, such as ERP, to give you a powerful interconnected management system and produce your product to order. Enter the orders from your customers each morning and produce only what you know you can sell.



# Secondary processing

## Depalletizing and De-icing

Marel offers a variety of de-icing systems for separating the ice when emptying polystyrene boxes or crates with unprocessed salmon. The choice of de-icing system depends on the needed throughput of the line with basic manual lifting for small scale operations, and with advanced robotic solutions for handling of boxes and pallets, including handling of empty boxes for large-scale operations

## Desliming

To ensure a high level of hygiene, Marel has various units for removing slime, blood, and bacteria from the salmon. The units use a high-pressure water system to thoroughly rinse the product, significantly reducing the bacteria count. The desliming unit can be used before gutting, or before or after the de-heading process.

Water consumption is reduced by recirculating the water through a filter in the desliming rinsing system.

## Deheading

We provide both automatic and manual deheading systems. The unique cutting principles of our automated deheading system deliver outstanding results in throughput, yield and quality. A single operator is all that is required for the infeed, as each fish is measured, cut, and transferred automatically into the filleting machine. This ensures a uniform cut, reduces operational costs, and optimizes your overall yield. Manual deheading is often combined with a desliming unit with one or two workstations. We also provide manual systems compatible with a PacelInfeeder for automatically transferring deheaded fish into a filleting machine.

## Filleting

Our salmon filleting machines are among the best and most efficient on the market.

Filleting is one of the secondary processes where there is great potential to increase yield. Marel's salmon filleting machine MS 2730 is equipped with several tools to improve your yield results significantly.

### Automatic infeed

When connecting the MS 2730 with a PacelInfeeder unit, the salmon is transferred smoothly into the machine without manual handling at the right pace adjusted for the filleting machine. The PacelInfeeder improves the performance of the filleting machine and makes the infeed effortless and independent of the operator's skills.

## Trimming

Marel is the leading global provider of trimming systems for salmon. Trimming methods vary from factory to factory, depending on factors such as throughput, labor costs, and traceability requirements. Whatever the set-up and scale of your production, we can provide the ideal system—ranging from highly advanced automatic systems to basic manual trimming. Most of our manual lines are designed as active lines, where trimming is conducted on the conveyor belt while it is running, with throughput depending on the size of the fish and trim level. All Marel trimming lines comply fully with the most stringent industry requirements. Lines are ergonomically designed with the option of an adjustable height working platform.

### Automatic trimming

Automatic trimming is available with back and belly trim tools integrated into Marel's advanced filleting machine MS 2730,

significantly reducing the cost of manual trimming. The height and depth of each fish are measured at the infeed, and the trim cuts are made based on this measurement by two sets of circular knives. The fillets are delivered with the back and belly trimmed according to your preselected settings.

## Pinbone removal

Marel was one of the pioneers of automated pinbone removal. Our pinbone removers are designed to match each fillet's size, shape, and structure and are very gentle, delivering the highest quality end products.

We offer a wide selection of both standard and vacuum pinbone machines for fresh salmon fillets. The vacuum model removes bones and water from the fillet surface very efficiently, ensuring very high quality.

Marel also offers water-jet cutting solutions for pinbone removal combined with portion cutting, using X-ray technology for bone detection and 3D vision scanning of the fillets to identify shape and density.

## Skinning

Our skinning machines skin salmon and trout fillets in a variety of ways, ranging from silver skinning to deep skinning, without any loss of quality or capacity.

The skinners optimize the flow of salmon processing lines and stand out for the way it skins fillets head first, leaving no skin on the tail while achieving a very high yield from each fillet.

## Quality inspection

Marel's QC scanner monitors fillet quality after the filleting and trimming process, and following the skinning process. The scanner identifies the color of the fillets, and defects like blood and melanin spots, insufficient trimming skinning, and brown meat removal. A 3D scan determines the weight of each fillet. These features make it possible to grade the fillets by quality and weight, or to separate fillets that need further handling.

## Fillet washing

Before packing, freezing, or further handling, a Marel fillet washing unit can rinse of any slime, blood, or any remains from the filleting, trimming, and pinbone removal processes, for reducing bacterial counts.

The fillet washer has adjustable air blowers to remove surplus water from the surface of fillets after rinsing. The unit is highly efficient and can fit into any processing line.

## Grading fillets

Our graders are highly accurate and ensure optimal processing and packing performance by directing salmon fillets based on size and quality.

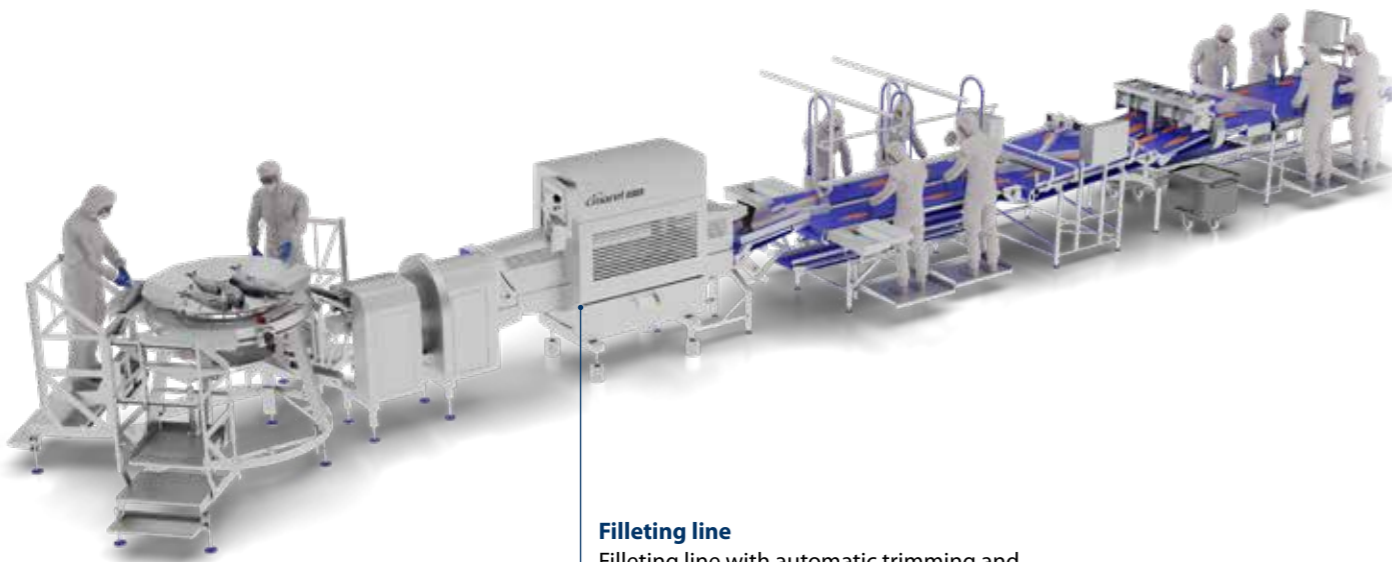
From the robust and sophisticated CheckBin Grader that reduces overpack, to the completely modular SmartLine Grader for supreme hygiene and serviceability, all of our graders come with an advanced Innova reporting functions to offer you an excellent overview of your production processes.

# Filleting line systems

Marel's expertise and experience in designing and manufacturing advanced filleting systems are unmatched in the industry. Virtually a one-stop shop for salmon processors, we offer everything from single standalone units to custom-designed systems, including a wide range of key products for primary, secondary, and value-adding processing.



**Filleting line**  
Complete filleting line from deheading to smoke trolley loading



**Filleting line**  
Filleting line with automatic trimming and standard pinbone removal

# Slicing line systems

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



**Slicing line**  
Slicing line with three Retail Pack Slicers and packing line for thermoforming



**Slicing line**  
Slicing line with one single lane slicer and a packing line for four operators



### Portion cutting

Marel has been a leading innovator of portion cutters for more than 20 years. With over 2,000 machines installed worldwide, our equipment helps you keep pace with your customers' continually increasing demands.

We use the latest hardware and software technology to guarantee extreme accuracy and maximize the use of raw materials, ensuring you the best return on investment.

Thanks to superior accuracy and minimal giveaway, you can achieve almost 100% product utilization and increase profits considerably. Automation also results in extensive savings on manual labor costs.

Our portion cutters have become industry benchmarks, leading the way in traceability and food safety, and helping processors maximize product yield, quality, and throughput.

FleXicut is the name of Marel's water-jet cutting solutions for production of portions. Using tilted D2 and dynamic D3 water-jet robot cutters, the FleXicut provides unparalleled flexibility in salmon fillet portioning. The water-jet robot's incredible range of movement facilitates cuts at any angle or curved pattern.

### Portioning

The RevoPortioner produces perfectly portioned products at a lower pressure out of trimmings and cube cuts while retaining the texture and structure of the raw material. This can be done without the need for additives to make it stick together, thus avoiding additional costs and keeping the fresh flavor of the fish intact. End products will always have the same shape, weight, and size, and be of uniform quality, according to your exact specifications.

Consistent top-quality products such as fish cakes and fish burgers are made in an energy efficient process with a rapid return on investment.

## Innova order fulfillment



Innova can communicate with other systems, such as ERP or other planning systems, to give you a powerful interconnected management system and produce your product to order. Enter the orders from your customers each morning and produce only what you know you can sell.



### Spicing

Our salt and spice dispenser supports efficient dry salting and spicing of salmon fillets before fillets are placed on smoking grids. You can use the machines for salt, sugar or salt mixtures, and various spices.

The salt or spice is stored in a heated tank to keep it dry in the humid environment of a fish processing plant. The dispenser can fit into your existing processing lines or can be delivered as a part of a complete fillet line.

### Marinating

We offer a system for in-line wet marinating of fragile salmon products like fresh or frozen fillets or portions. The marinade is sprayed uniformly on one, or both sides of the product, and if desired, coarse pieces are evenly distributed.

The system minimizes your giveaway and waste, saves on labor costs, and is compatible with both a single and multilane process set-up.

### Slicing

Marel is the leading supplier of slicing equipment for fresh salmon and trout, ranging from single standard units to large scale production systems including packing lines.

Our standard slicers are ideal for processing cold smoked salmon, marinated salmon, and similar species such as trout and halibut.

For more complex operations, our multi-angle slicers are ideal for both standard slicing and for making products such as sushi slices, bacon cut, and raw salmon.

Our slicers range from single-lane models for small operations to the fastest slicer on the market today for maximum throughput. Some of our slicers are equipped with a vision scanning system for making fixed weight slices or portions exceptionally accurate. Our retail pack slicer deliver slices in batches for packaging. Furthermore we have the most automated horizontal slicer on the market for producing long slices.

### Packing lines

We can provide a complete system with one or more slicing units, packing stations, and checkweighing set-ups, customized to meet your particular requirements.

## Innova real-time data collection



Accurate data collection is the key to efficient traceability and monitoring. The system collects reliable data in real time and presents it on user-friendly dashboards and reports. Real-time data from the processing lets you monitor targets per employee or per process line for yield, quality and throughput.

# Packing and labeling



## Checkweighing

The Marel M-Check range of checkweighers combines the highest accuracy, flexibility and capacity, making them the ideal choice for salmon processing. Approved for process and end-of-line applications, the checkweighers monitor and improve the accuracy of processing equipment output and ensure compliance with weight legislation across a wide range of products. Metal detection is also available. The system also integrates seamlessly with upstream processing equipment to ensure processing is optimized and giveaway minimized. Marel checkweighers dynamically simplify and efficiently manage underweight, overweight, or non-weighted items in the production flow.

## Packing

Using an exclusive combination of state-of-the-art batching software and innovative robotic technology, the RoboBatcher series packs and styles fish into trays, thermoformer packs, or boxes. Fixed weight packing ensures a result so close to the target weight that giveaway is minimal. Its exceptional grippers are designed explicitly for gentle product handling, ensuring even the most fragile fish isn't damaged during packing. The fully automated dispatch process ensures that once a package, job or recipe reaches the set target weight, it is immediately conveyed for final packing and further distribution. Depending on your packing needs, the RoboBatcher series comes in three types: RoboBatcher Box, RoboBatcher Thermoformer and RoboBatcher Flex.

## Ice machines

The MAJA ice machines offer quick product cooling with slow-melting ice and long-lasting freshness. Thanks to the MAJA ice machines' high efficiency and hygienic design, labor costs are significantly lowered, with less time spent cleaning. A wide range of accessories and options make ice handling, storage and batching easy, effective and save time. Ice made from MAJA machines is up to 30% lighter than other types of ice used for fish cooling, requiring less to fill displays and reducing transportation costs.

## Ice dosing

Marel's automatic IceDoser ensures continuous and accurate dosing for various box sizes, dispensing precise quantities of ice and providing uniform coverage while keeping excess weight

to an absolute minimum. This precision significantly reduces transportation costs, particularly for air freight. Delivering uniform coverage at up to 16 doses a minute and batches between 1 and 6 kg, the IceDoser works with multiple box types and sizes simultaneously.

## Labeling

Marel's highly successful weigh price labelers are designed for maximum efficiency and quality for weighing, pricing and labeling retail packs. Ranging from manual and automatic weigh price labelers to box and crate labelers for various sizes, Marel labelers are accurate, reliable, inexpensive, and straightforward. Flexible linerless labeling delivers a premium shelf presentation of all popular tray sizes and skin packs. The standard wraparound labels offer plenty of space on both sides to communicate essential product information and comply with all food-labeling regulations. It also eliminates backing paper waste, making it a more sustainable option. Labeling QC inspection systems are available to maintain label and pack presentation quality.

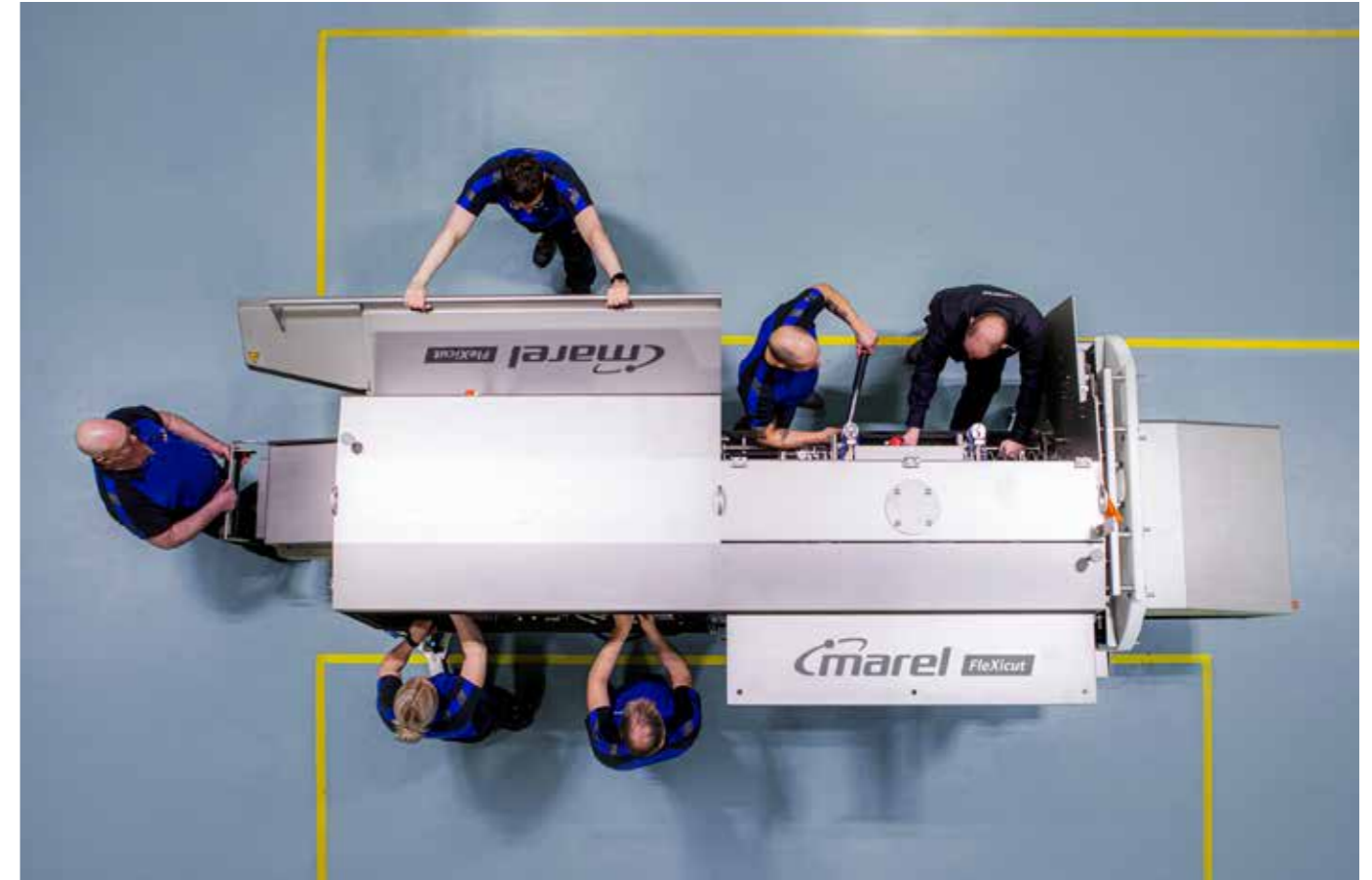
## Pack handling

Efficient pack rotating, singulating and alignment are necessary for a well-functioning packing system. Marel's range of full pack handling equipment helps ensure that product flow is maintained at optimum speed, channeling products from multi-lane packing machines into a single line with perfect orientation for further automated packing steps.

## Innova customer-specific labeling



Innova can help simplify your labeling process and use the data you have already collected to meet different needs with ease. Innova Labeling selects texts and images from the database based on product, customer, and destination. You can use the same label design even if you need to print the label in a different language.



# Service and support

## Maintain maximum uptime

Marel's comprehensive preventive maintenance program offers a structured way to reduce the risk of unexpected breakdowns and helps maintain maximum performance. Maintenance costs become more predictable, and routine tune-ups are scheduled to fit into the production cycle.

## Spare parts services

Marel offers flexible spare parts packages tailored to different needs. Customers can choose to maintain a full range of common-use replacements tailored to on-site equipment, keep spare parts kits for planned maintenance of individual items, or get individual parts as and when required. All Marel parts are manufactured from high-quality materials and provide optimal performance for the equipment.

For more information, see: [marel.com/service](https://marel.com/service)

*Improve your output with proactive services.*

## A global reach with a local focus

The Marel service organization operates under the principle of a global reach with a local focus. With offices and subsidiaries in some 30 countries, and a network of more than 100 agents and distributors, Marel is in a unique position to serve its customers wherever they may be located. Regional teams take the company closer to its customers, facilitating faster on-site response times while the international online support team offers remote technical support directly to the site or even the equipment where possible.



*TRANSFORMING FOOD PROCESSING*

