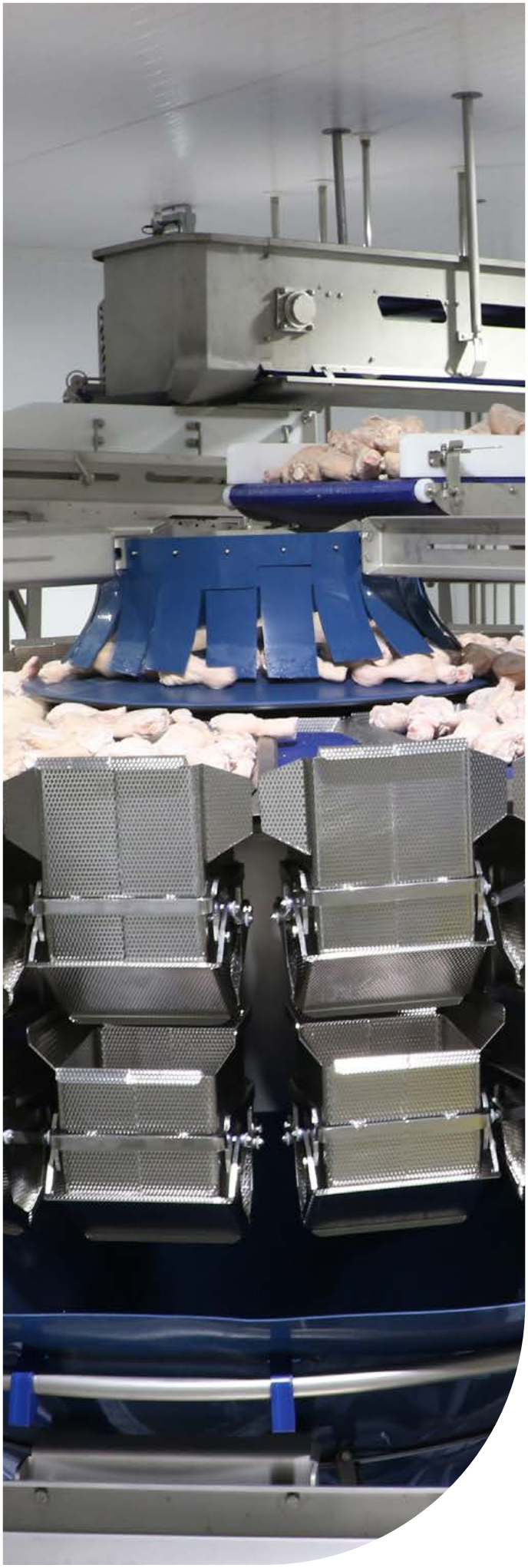
Gain more, give away less

Grading and
batching solutions

JBT Marel



Grading & batching

At multiple stages of the poultry processing line, products must be accurately graded and batched, whether whole birds, portioned cuts, or frozen, fresh, or marinated items. For every application, JBT Marel offers a broad portfolio of flexible grading and zbatching solutions tailored to your operation.

Automation that simplifies operations

JBT Marel solutions automate labor-intensive manual tasks and remove human bias from the grading and batching process. This not only improves consistency and accuracy, but also makes daily operations significantly easier for processors.

Seamless integration for complete solutions

Our graders and batchers can operate as stand-alone units or be fully integrated into complete tray loading and packing lines. Smart system integration allows individual machines to work together as one cohesive solution. Intelligent communication between grading, batching, and portioning equipment elevates process control, optimizes yield, and minimizes product giveaway.

Designed for food safety and efficiency

All JBT Marel graders and batchers meet the most stringent food industry standards. Their versatile, hygienic, and easy-to-clean design ensures reliable performance while supporting the highest levels of food safety and operational efficiency.

Grading and distribution

JBT Marel graders are ideal for sizing and distributing raw material to different locations. Sizing can be beneficial when distributing raw material to further steps in the process where each line is optimized for a certain size. It is also possible to distribute a given number of pieces per minute to each location, ensuring that full use is made of the equipment receiving the raw material, such as a portioning line.

Fixed-weight batching

There are many benefits to be gained from fixed-weight batching. It keeps giveaway as low as possible when packing products while the exact target weight is delivered to customers.

JBT Marel's wide range of batching systems and multihead weighers batch fresh or frozen poultry items of almost any size into fixed-weight packs. All JBT Marel batchers meet the most stringent requirements in the food industry, thanks to their versatility and easy-to clean design.

Integration

JBT Marel batchers can operate as stand-alone units or can be integrated into a complete packing line. Integrated batching and grading has many advantages. Systems that used to be independent of each other start to work together to compose one, integrated solution with a high degree of intelligence, thereby optimizing yield and minimizing give-away.

Stay in-line

By keeping the entire batching and grading process inline, manual labor is reduced to a minimum. Besides this cost-saving aspect, human error is excluded and replaced by robotic precision.

Another benefit is the higher level of food safety which can be achieved by automated grading and batching operations. Intelligent logistics ensure maximum hygiene and reduced human contact with the product.

Compact Grader

The Compact Grader is designed for simple grading and batching and can also be used for temporary or seasonal overflows. It comes in a strong and compact design and is suitable for a variety of products. The CompactGrader is also popular as an inline solution when only calibration is needed.

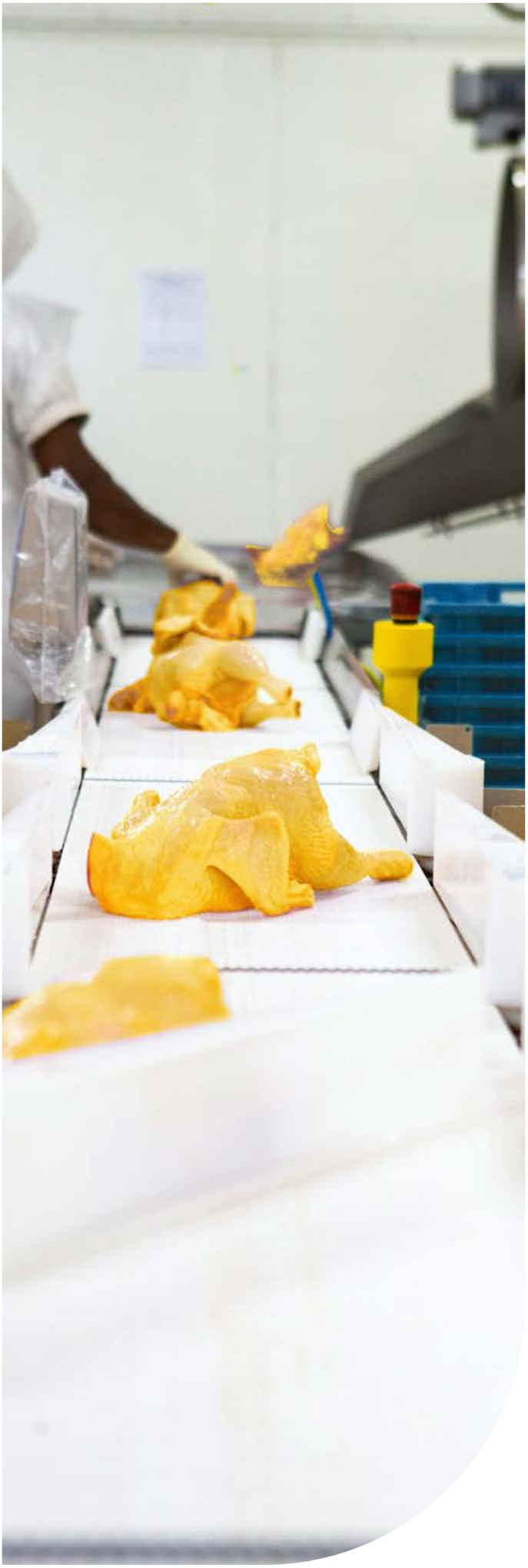
When optional automatic batching bins and tables are added to the system, the Compact Grader becomes a batching solution that ensures best fit batching with minimal giveaway.

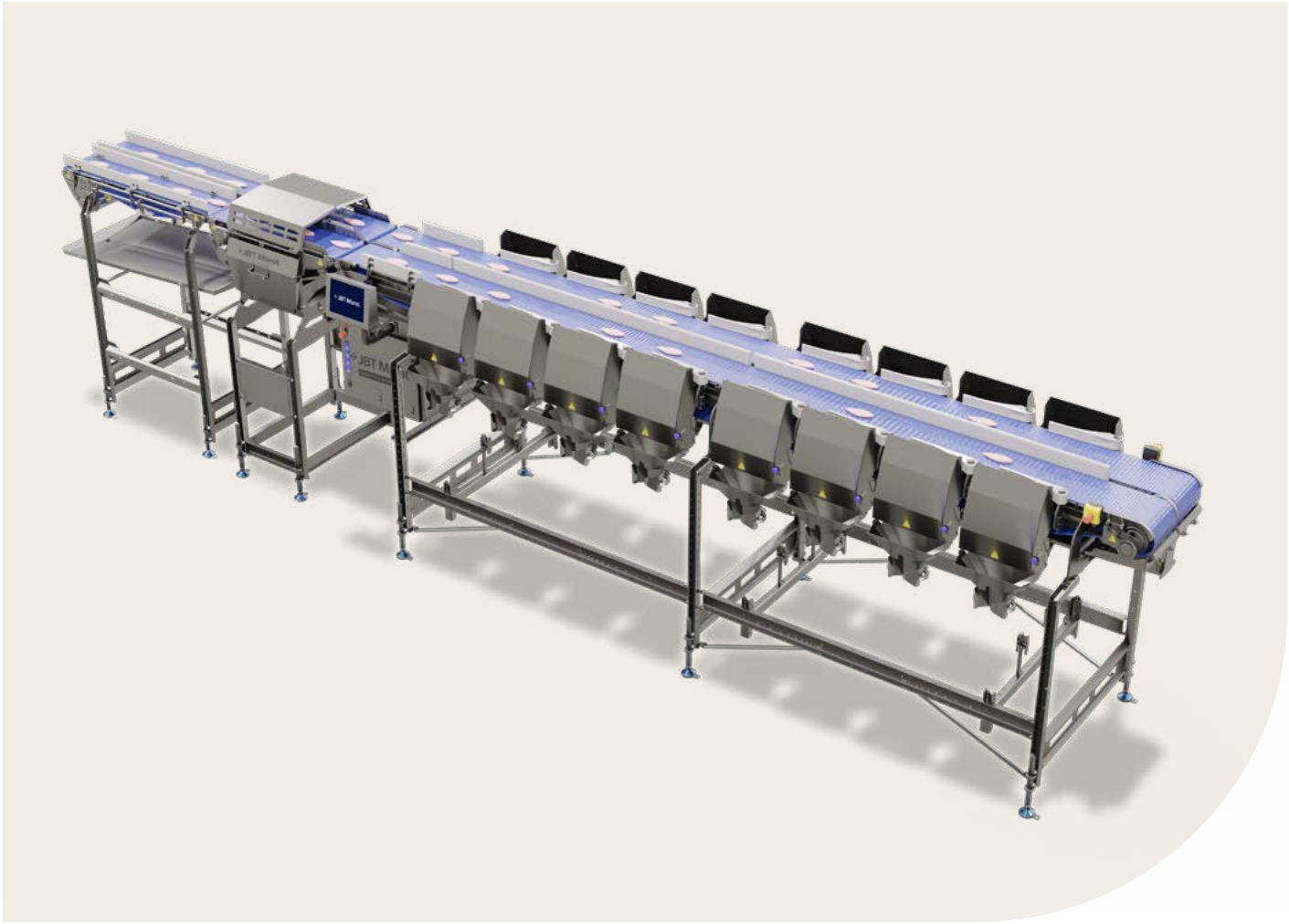
Features

- Easy installation
- Accurate performance
- User friendly and easy to clean
- Small footprint and easy to move
- Typical applications: fillets, whole birds, legs, wings, thighs and drumsticks

> **“The Compact Grader has just one conveyor belt which needs cleaning. That’s all. Such short cleaning times of course add to the maximum uptime.”**

Borgmeier, Germany





Custom Graders

JBT Marel Custom Graders are tailor-made for each customer. They can come in a virtually limitless variety of configurations and sizes. Graders can range from simple weight graders to highly sophisticated grading systems that include infeed and batch takeaway systems. Together with the customer, the best solution can be configured, customized to individual requirements.

All belt grading systems comprise two essential components:

Dynamic weighing unit

An ultra-robust, high-accuracy weigher, which can be customized to handle various weight ranges and throughput.

Discharge unit

Tailor-made to fit customer requirements. Many accessories are available such as bag holders, batching bins and chutes. JBT Marel custom belt graders are equipped with a user-friendly graphical interface that greatly reduces the possibility of human error.

Custom made grading systems can comprise:

- Automatic infeed
- Grading
- Single lane, dual lanes or twin lanes (combining two lanes)
- Flow control
- Batching
- Packing
- Label printing
- Takeaway

SmartLine Grader

The SmartLine Grader range offers the highest levels of speed and accuracy, with utmost attention to hygiene and serviceability.

Available with single lane, dual lanes or twin lanes (combining two lanes), and developed as a modular design, the SmartLine Grader can be configured to most grading and batching needs.

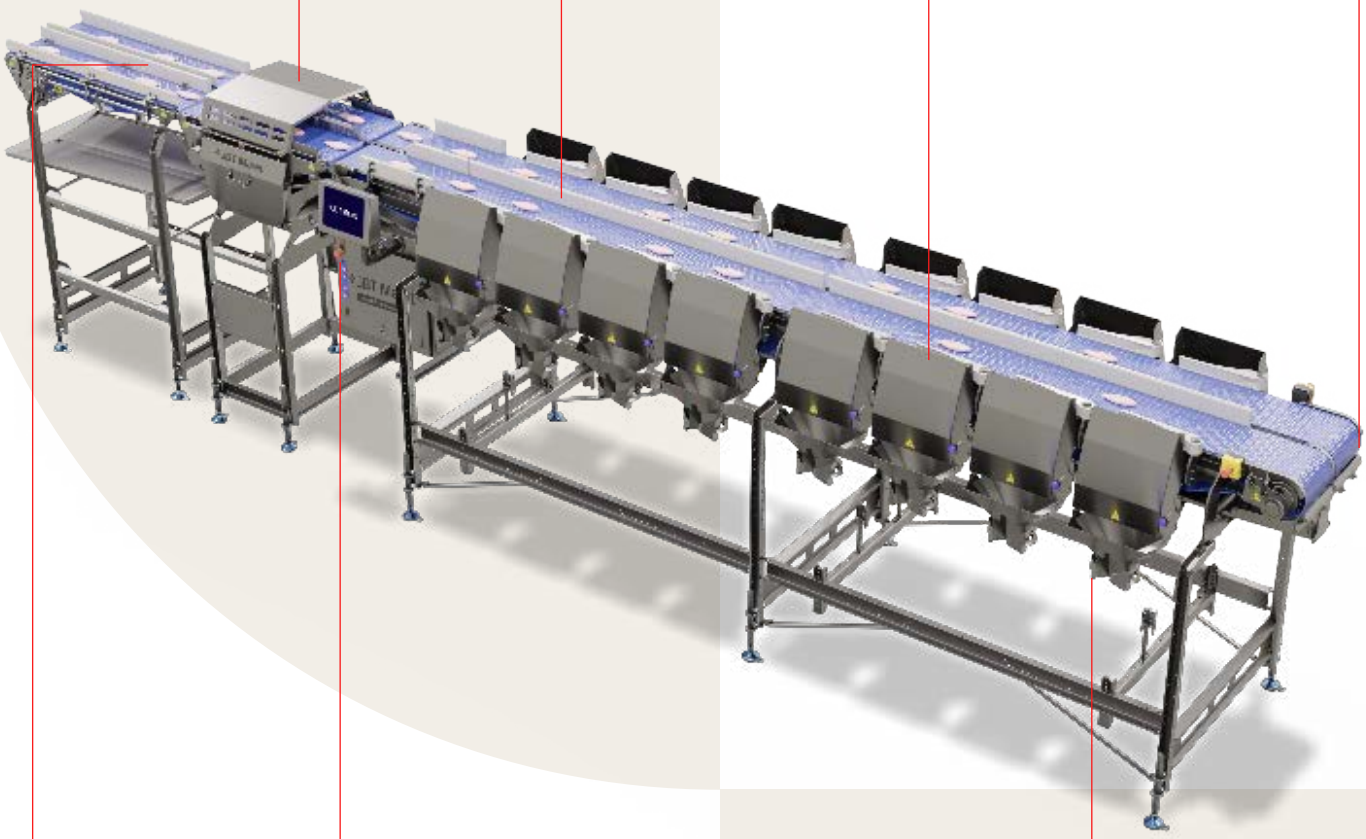
- Unique hygienic design with an IP69K rating
- Speed and accuracy combined
- Real time reporting
- Automatic batch take away
- Ideal for retail, catering and bulk applications
- Typical applications: breast fillets, whole legs, whole birds, thighs, drumsticks, wings, inners.
- Various infeed and take-away solutions available

Protection cover for weighing unit.

Belt lifters ensure optimal access during washdown.

With their special non-stick surface, the machine's hoppers are ideal for handling sticky, fresh poultry products. They are available for releasing products into boxes and trays or into bags.

Stainless steel motor enclosure ensures the highest hygiene levels.



Small nose rollers ensure a smooth product transfer.

Easy-to-operate user interface. AXIN controlled operation possible.

Open frame design for maximum cleanability and easy access.

Multihead weighers

MHW Fresh Poultry – Multihead weigher for fresh products

The MHW Fresh Poultry multihead weigher range has been designed specifically for batching various types of products and batch sizes at high capacities into trays or bags, or on a packing line (drums, wings).

- Advanced software options allow six jobs to be run simultaneously
- Minimum giveaway and high throughput
- All-time low maintenance costs
- Easy to operate
- Open, easy-to-clean construction
- Typical poultry products: breast fillets, nuggets, stripes, inner fillets, drumsticks, wings, thighs, legs and giblets

MHW IQF Poultry – Multihead weigher for IQF products

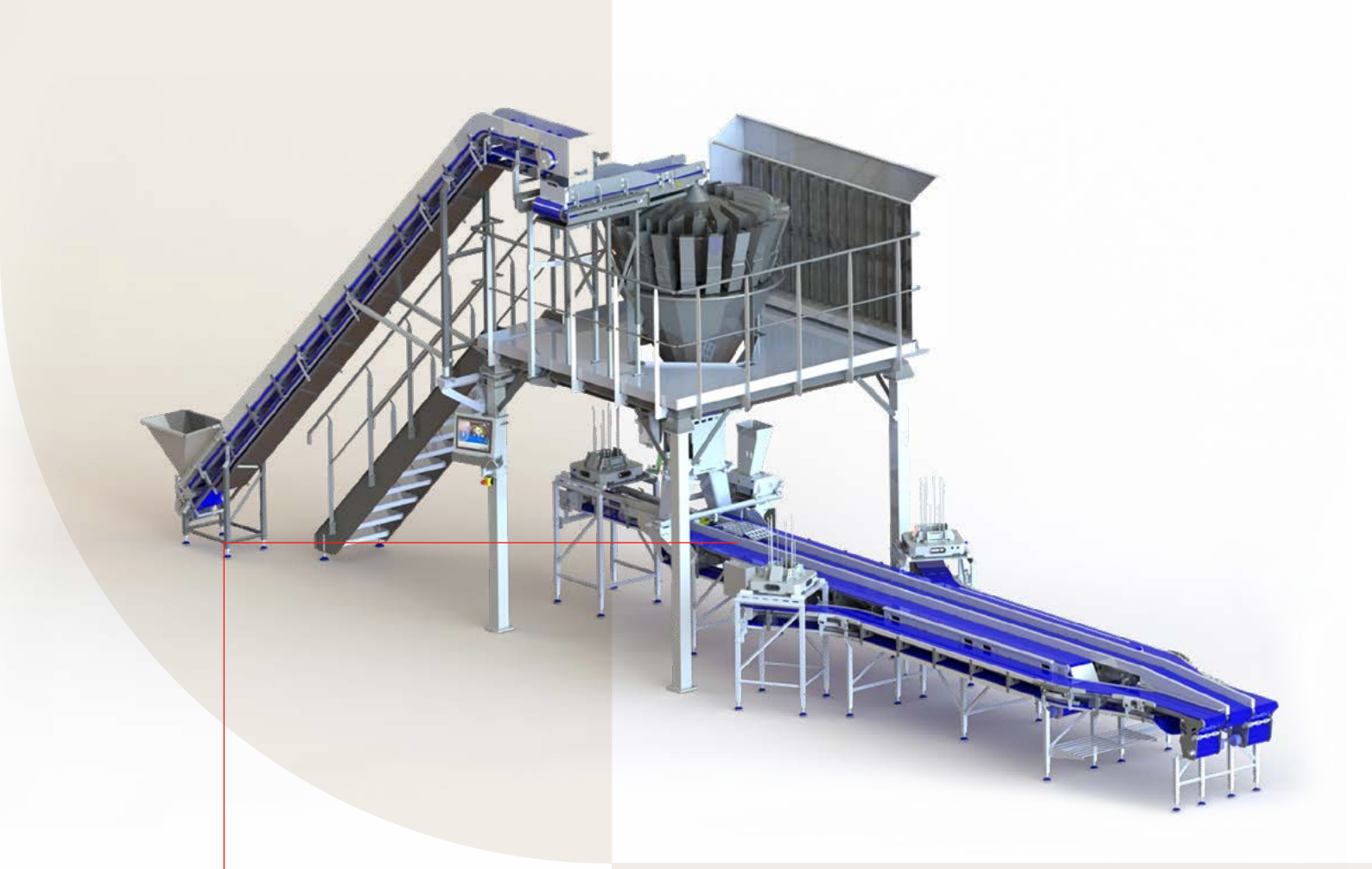
The MHW IQF Poultry multihead weigher for frozen poultry products is perfectly fit for the automatic batching of a wide variety of products and batch sizes into bags or boxes at high capacities. Ideally suited for tough, cold and moist environments, it is robust and stable.

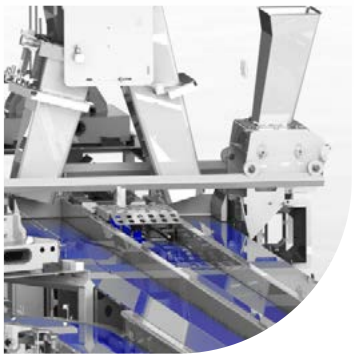
In the latest generation of MHW IQF weighers, all surfaces in contact with products have noise-dampening qualities, a non-sticky pattern, and are easily cleanable. As they are also gentle with products, these PU synthetic surface materials not only keep the plant quieter, but also protect the IQF products from damage.

- High capacity
- Low give away
- Noise reducing surfaces
- All-time low maintenance costs
- Open, easy-to-clean construction
- Optional video camera
- Typical poultry products: breast fillets, wings, drumsticks, thigh, inner fillets and nuggets

> **“JBT Marel multihead weighers have made it easy for us to increase capacity within the same floor space. They are highly accurate, easy to operate, and have not only reduced labor costs but also increased volume and made our business more flexible.”**

Rainbow Farms, South Africa





Multi-job solution with three jobs.

Multi-job options

For JBT Marel MHW multihead weighers the Multi-job option is an add-on that enables JBT Marel MHW series multihead weighers to batch up to six jobs simultaneously. Additionally, processors can prioritize jobs depending on processing needs.

How it works

With steadily increasing birdsize, some batch sizes are now difficult to create on a standard multihead weigher. A 400g [14.1 oz] tray job of chicken breast fillets, for example, can result in a high giveaway and high reject rate, as larger fillets force processors to pack trays with overweight and some do not fit at all. However, if a second tray job, for example 650g [22.9 oz], is batched simultaneously, the result improves significantly. With two jobs, the multihead weigher has suddenly more options open to it and is able to make much better use of incoming product. Every time new products reach the weighing hoppers, the multihead weigher calculates all options for combining the available products and matches the results with the two target weights. The best option is then chosen. The batch will be created and released into the correct tray.

Additionally, a processor can choose to prioritize jobs. This is done by using the option of allocating a certain percentage of the incoming products to the jobs being handled on the machine. Looking at the example already given, this means that 60% of the products could be used for the 400g job and 40% for the 650g job. In this way, processors can fine tune output to their needs.

RoboBatcher Flex

The RoboBatcher Flex is the paramount system for the inline batching of either breast fillets, drumsticks or whole legs. Besides its main function as a fixed-weight batching system, the RoboBatcher Flex can be used as a distribution center. Optionally, integration of the RoboBatcher Flex and the I-Cut 122 portioner results in an intelligent 'robot with a knife'.

- Optimal batching performance with minimum giveaway
- High product utilization
- Maximum flexibility
- High throughput
- Labor saving
- Typical applications: whole legs, drumsticks or breast fillets with or without tenderloin and sliced fillets

Breast fillets/sliced fillets solution

Using integrated logistics between our breast filleting systems, the RoboBatcher Flex ensures the best product distribution. This enables high product utilization and excellent batching results with minimum giveaway.

Whole leg/drumstick solution

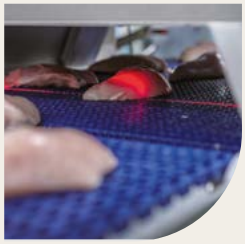
When combining an ACM-NT cut-up line with the RoboBatcher Flex, PDS production management software enables the RoboBatcher Flex to deliver whole legs or drumsticks of a certain weight and quality range, and at a certain speed, resulting in optimal product utilization.

LegPositioner

The JBT Marel Leg Positioner NT positions the legs directly from the ACM-NT cut-up line to the infeed conveyor belt of the RoboBatcher Flex.

Batch to belt concept

The RoboBatcher Flex can be used as a distribution center. With the batch to belt concept, the robot can batch products directly on the belt in fixed weight. The batch then can be distributed to, for example, an I-Cut portion cutter or SmartSplitter for further added value.



3D Laser scanning
Products are scanned for length, width and position on the belt. The 3D laser vision system is the 'eye' of the robot gripper.

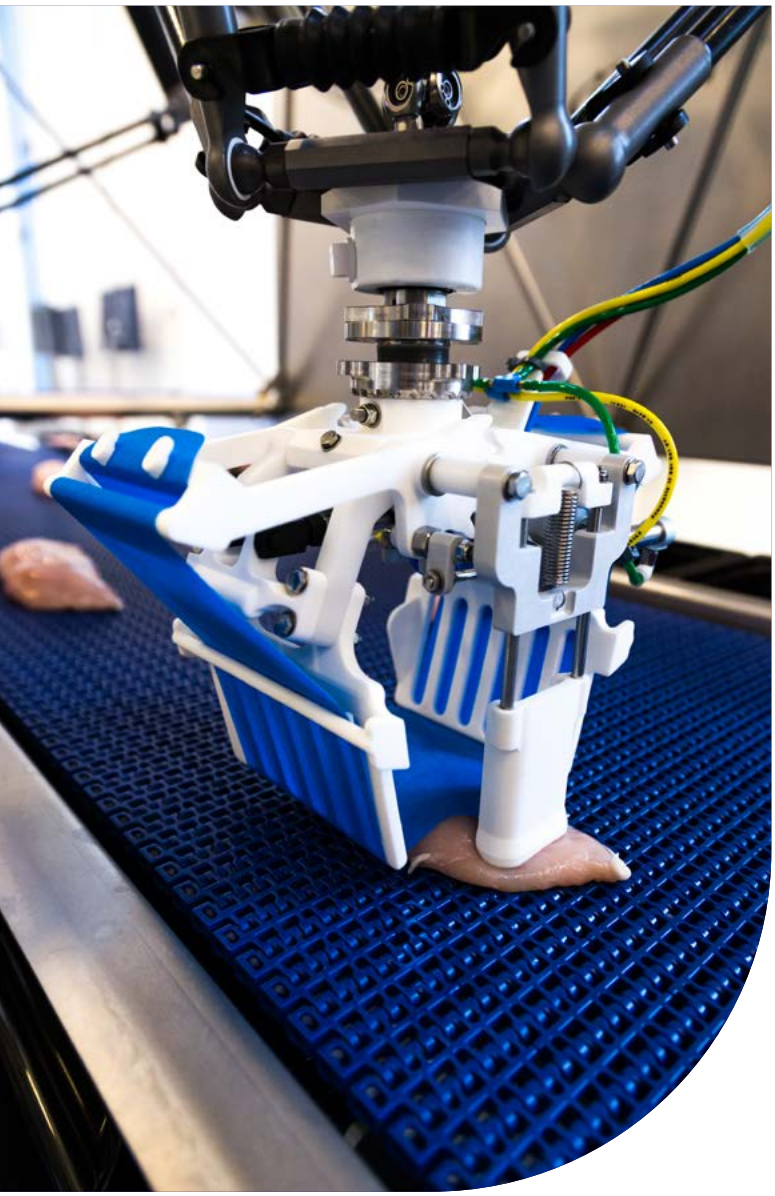
Common lane batching
Two or more robotic heads per system can work together on one tray, ensuring optimal batching performance and high product utilization. This simplifies the entire system and reduces the footprint.

Discharge
The RoboBatcher Flex has an optional integrated discharge for grading, catering or bulk jobs, controlled by the robot system.

Weighing units
Every passing fillet, drumstick or whole leg is precisely weighed individually.

Denester with high tray flexibility
The denesters put their trays on the high friction belt. The system can handle a wide range of different plastic and polystyrene trays. There is a buffer system for trays, and change-over from one type to another is easy and fast.

Simultaneous jobs
The RoboBatcher Flex can handle up to three individual tray jobs at the same time.



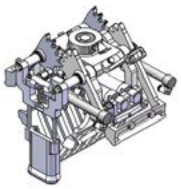
A robot with a knife: intelligent fixed-weight batching

The interaction between RoboBatcher Flex and I-Cut 122 is an intelligent batching concept. It focuses on assessing each breast fillet individually, instead of cutting all fillets to one average. This means that give-away is reduced to a minimum, while minimal trimming ensures that processors achieve high product utilization with both fillets and trim as high value end products. This robot really does use its knife intelligently!

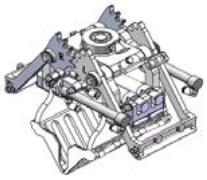
Grippers

Any request to pick, pack and style specific poultry cuts can easily be met with RoboBatcher's portfolio of grippers. Product changeovers are easy and quick; exchanging the gripper takes just minutes. This allows for seamless adaptation to various items, from chicken breast fillets to tenderloins, from drumsticks to whole legs. The superb gripper technology prevents parts of the meat from hanging over the tray's edges. This also saves staff for rework.

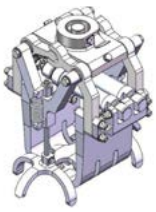
Each gripper features state-of-the-art technology, resulting in precise, careful handling of products. First, the vision system determines the position and orientation of each product. The gripper then aligns itself to securely pick up the product, before transferring it swiftly to the designated tray alongside the belt. Once the product is placed, the cycle immediately restarts, all within milliseconds, ensuring exceptional speed and accuracy.



Fillet gripper



Tender/Drumstick gripper



Whole leg gripper

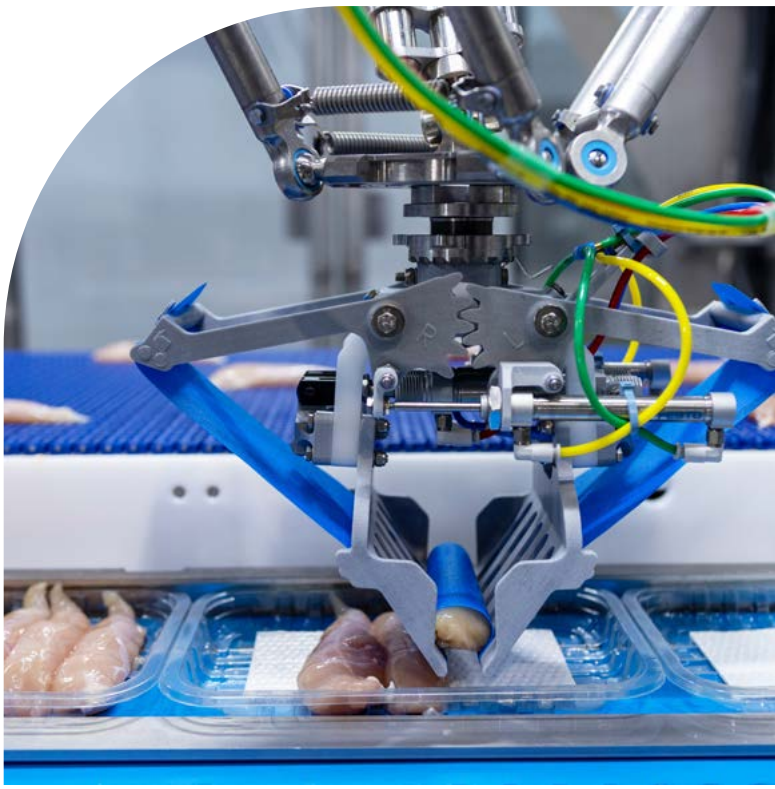
10G forces

The RoboBatcher Flex operates at high speeds, with acceleration forces reaching up to 10G. The grippers feature 3D printed parts that require fewer bolted joints, making them lighter and able to move faster. They are also easy to clean.

Styling

Retail trays need to be styled. RoboBatcher offers a range of styling patterns such as yin-yang, fishbone, or woven, which are easy to program on the HMI touchscreen. The gripper can work simultaneously on multiple trays, ensuring great flexibility and visual appeal. The packing system is fully adjustable to fill trays while meeting specific customer specifications, including total weight, tray type, number of products, and product styling.

> **"The RoboBatchers have made us more efficient and reduced giveaway."**
>
> Cargill, UK



RoboPacker

The RoboPacker automates the packing and styling of catch-weight poultry portions of fillets, drumsticks and tenders into trays, picking and placing up to 180 portions and up to 80 trays per minute.
Equipped with proprietary gripper technology, and a 3D vision system that scans individual portions for size and position, the RoboPacker accurately packs portions into pre-determined styles.

The advanced vision technology allows you to specify minimum batch weight and piece count for greater flexibility. During execution, whichever of the two values comes first will close the batch.

The RoboPacker's compact design ensures easy installation into any production line. It seamlessly integrates with JBT Marel and third-party tray dispensers to distribute a wide variety of tray formats and meet specific product and consumer requirements.

> **"We were able to keep the same team but essentially double our output."**
>
> Valérie Sanchez,
> Administrative Director at Pac-Rite,
> Canada

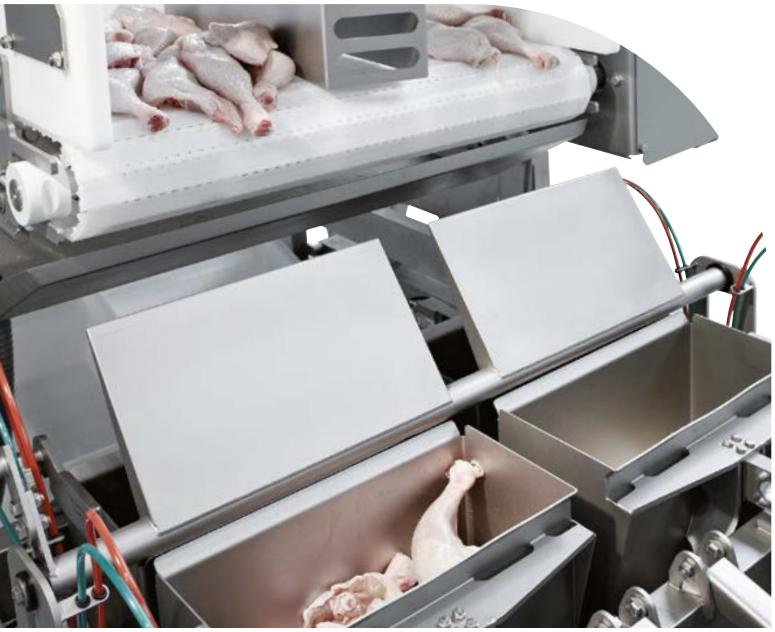
- **Automated packing** to reduce labor dependency
- **Consistent throughput** and capacity. Pack up to 180 portions per minute, 24/7
- **Proprietary gripper technology** styles product with precision and gentle handling
- **Enhanced food safety** with less human contact, hygiene and risk of contamination is minimized. Hygenic design ensures access to all sides for thorough cleaning
- **Increased control** advanced HMI sets benchmark for defining and adjusting packing and styling programs to meet changing consumer needs
- **Compact design** saves space for easy installation into production lines
- **AXIN Software** enabled to optimize machine health and production control

SpeedBatcher

The SpeedBatcher is ideal for creating bulk batches automatically for catering or export orders. There are two versions, each dedicated to different product sizes.

When optional automatic batching bins and tables are added to the system, the Compact Grader becomes a batching solution that ensures best fit batching with minimal giveaway.

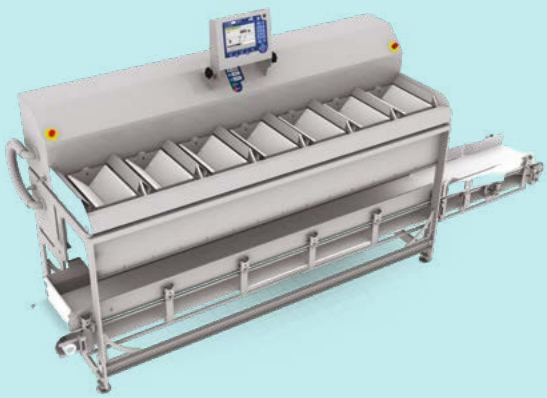
- Fully automatic from input of product to output of a precise batch
- Stand-alone or part of a complete bulk packing line
- Automatic or manual filling of boxes or bags
- Easy to operate and clean
- Typical poultry products: breast caps, fillets, whole legs, thigh, whole wings
- Fresh or IQF frozen



TargetBatcher

The TargetBatcher is a compact, semi-automatic batching machine for making up small batches. The machine is perfect for different batching jobs, when fast changeover from one product to the next is crucial. Product mixing and pre-fill solutions are also possible.

- Small footprint
- Simple installation
- Easy to operate and clean
- Typical poultry products: breast fillets, leg quarters, wings, drumsticks, thigh
- Fresh or IQF frozen



JBT Marel software for grading and batching

Dedicated software

Dedicated software for grading and batching allows you to monitor and control every step of the production process, from receipt of raw material to dispatch.

It links together JBT Marel's processing equipment and can communicate with other systems, such as an existing ERP system, to give a powerful interconnected management system. It can control single devices or a full range of equipment across the plant floor. The separate software modules are highly flexible and able to support both large and small operations. The insight that the software gives, enables processors to identify opportunities for improvements and ensure production conforms to quality and food safety standards.

- Real-time control of all types of graders and batchers in a single system
- Real-time monitoring enables quick intervention and a reduction in give-away
- Storage of lot/batch data for customer verification of batch results
- Reports enable historical analysis of raw material and results
- Built-in traceability support
- Easy, fast and cost-effective implementation

Control and monitor your operation in real-time

Grading

The Grading Software module enables users to control and monitor all grading operations in a single system. The system can define an unlimited number of grading programs, which are tailor-made for each grader according to its capabilities and features, such as defining how the raw material entering the grader should be graded. Grading Software allows for easy-to-use remote programming, control, real-time monitoring and reporting on actual performance. Users can monit or all aspects of the grading process including throughput, batch giveaway, weight distribution of input material and giveaway and size/quality breakdown. Batches from the grader can be labeled, palletized and assigned to orders and/or inventory. The system fully supports all the software's traceability features.

The Grading Software module can generate reports that show grading results based on multiple grading parameters such as weight distribution, throughput, size and quality. This is convenient, for example, when payment to a supplier is based on a particular weight distribution.

Batching

JBT Marel's software is a great tool for managing the batching process. Information about batches produced is recorded in the database in real time which enables the continuous monitoring of throughput and overweight. The software gives a complete overview of the batching process per station. It informs on product distribution, pack size and packing throughput and efficiency.

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