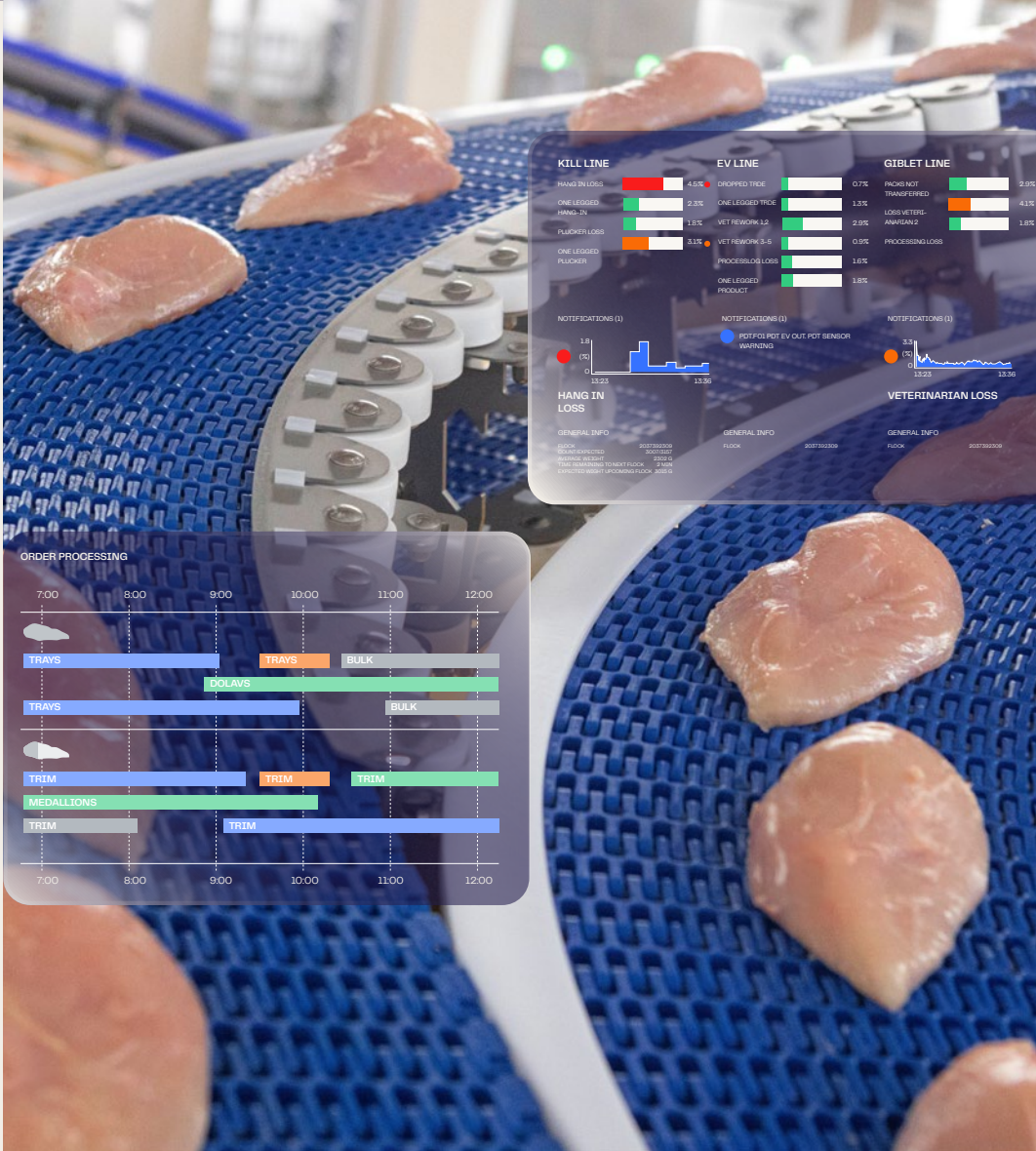




# The world of poultry processing





The background of the page is a photograph of a poultry processing plant. It shows several parallel conveyor belts moving through the facility. Chickens are suspended from these belts by blue plastic hangers. The machinery is made of metal and includes various rollers, chains, and structural supports. The lighting is bright and industrial. The overall scene depicts a large-scale, automated food production environment.

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# The world of poultry processing

The global market for poultry continues to grow. Poultry provides a good, healthy and affordable source of protein. With the increase in world population, the increase in per capita consumption of proteins and the open world market, expectations for growth in the sector are positive.

Markets demand more, safer and an ever greater variety of end products. In many markets this leads to centralization and up-scaling of automated production and to the desire to be able to produce very flexibly and make more different end products.

## Responsible efficiency

Moreover, producers are striving for higher efficiency and a reduction in costs, reasons being that labor costs are rising and natural resources becoming ever scarcer. Everyday production must be able to run without problems with the highest possible up-time, the best yields achievable and predictable, lowest possible cost of ownership.

A lot of attention is also being paid to food safety and quality and of course to producing in an ethical and socially responsible way. Animal welfare, water and energy consumption, full traceability and taking care of the raw material are therefore important starting points. The aim is to add value to poultry as effectively as possible.

## Leader in technology

Day after day, we at JBT Marel are proving our strength in all global poultry markets with all their facets. With our solutions, we offer our customers the best possible starting point. We are convinced that developing innovative products offers the best chance of achieving this. We bring our customers the future today. Our choice for innovation has not happened by chance. Right from the beginnings of our organization in 1963 we have always opted for innovative solutions with added value, solutions based on thorough research. Innovation is a core value; you can say it is in our DNA. We stand with both feet on the ground and are deeply rooted in the poultry industry and its developments.





## Passion for poultry processing

JBT Marel is rightly known as the global leader in the development and production of complete processing systems for broilers, layers, parent stock, turkeys, ducks and geese. Working together with our valued customers, we have implemented with passion countless successful tailor-made projects in every corner of the world. This has led to the world's largest installed base in the industry. Our company offers the most complete and extensive product range in the industry. We offer solutions for live bird supply, primary processing, chilling, cut-up, deboning and high speed slicing, (fixed weight) batching, in-line marinating, meat harvesting and further processing (including portioning, coating, frying, cooking and sausage making). Furthermore we offer various end-of-line solutions, like automatic weighing and labeling and a complete range of products for freezing. Software & monitoring solutions and service & training products complete the picture.



## Endless product variety

With our solutions, you can make all the end products currently available in the market. Besides well-known whole bird, portion and fillet products, the solutions also allow you to produce and pack automatically at high speed a large number of cut, formed, marinated or coated products. We also offer high quality solutions for processing giblets, feet, skin, MDM-products and cartilage.

## Proven solutions for all capacities

We supply in-line solutions for each step in the process, for processing capacities from 1,000 bph (16.6 bpm) and for every level of automation. We are developing new ways of giving ever better support to our customers. Over the years many newly developed solutions have set trends in the poultry processing industry. We are therefore proud of our proven technology.

## Optimum service balance

For us, offering good service is an important starting point. For each customer, we look for the best possible balance between yield, throughput and up-time. In addition to spare parts and complete retrofit and upgrade packs, we also offer different service contracts and training programmes.

Our preventative maintenance contracts are proving their effectiveness on a daily basis. They are an almost indispensable option for completely automated poultry processors, guaranteeing optimum up-time and ensuring that high yields are maintained for longer. At the same time, preventative maintenance contributes to predictable and lower cost of ownership.





# Your process

Laying out your process will of course depend on many factors. The production capacity required and the type of product you want to make are naturally important, so too are customer preferences, your possible growth scenario and export potential. The availability of skilled labor will also play its role. Certain processes or parts of them can be done both manually as well as automatically.

## **The best solution**

Our approach, based on many years experience and expertise, focuses on always making the best possible layout. We offer solutions for processing all the usual types of poultry, all possible stages in the process and at any required production capacity starting from 1,000 broilers per hour (16.6 bpm).

## **We grow with you – modular approach**

Our systems are modular in construction. This means that practically all components of the production process can be scaled up. In the first phase, for example, a number of part processes in the primary process can be automated, such as stunning, killing, scalding and plucking. These can be combined with manual evisceration, cut-up and filleting.

## **Step by step**

At a later stage, these part processes can be automated in phases. Besides cut-up and deboning steps such as slicing, portioning, forming, marinating, coating, frying and cooking can be automated, as can be weighing, batching, packing and labeling.

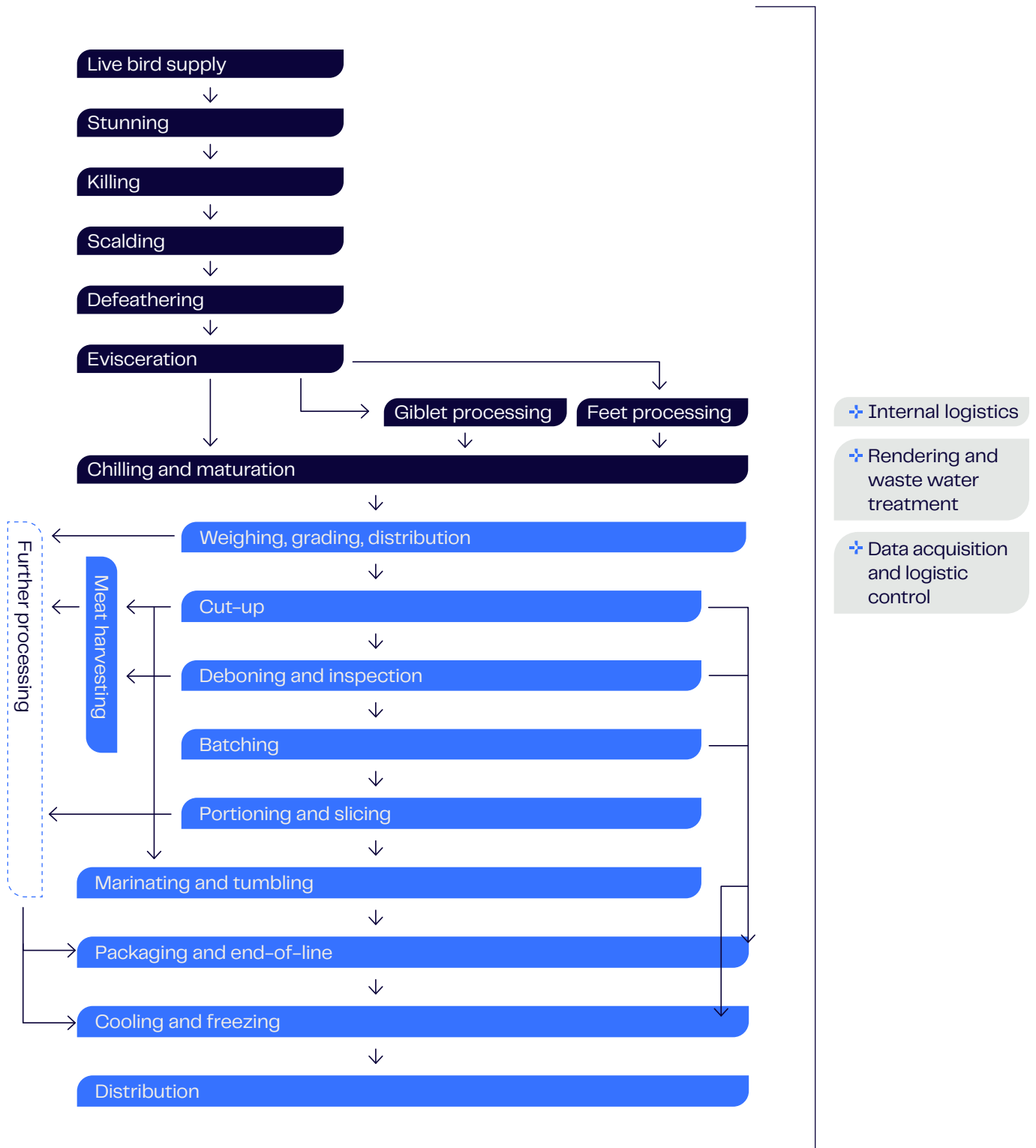
## **Monitoring**

Automated solutions are possible for almost every stage in the process. The production process can be managed and controlled using intelligent management and production software. Think of the assessment of the various quality aspects of a product at high line speeds, weighing and selection and of using information gained to control cut-up and deboning.

## **Custom made**

We are therefore able to offer solutions for all steps in the process and for every production capacity. In consultation with your sales manager and his team and on the basis of your requirements, your market and your circumstances, a specific solution is worked out, a solution which enables you to achieve your aims in the best way possible.

# Process diagram







# Process steps

## Live bird handling

Smooth-running logistics in the supply of product make a very significant contribution to the overall efficiency of a poultry processing plant.

Our live bird handling systems provide effective and animal welfare friendly conditions for loading and transporting birds from grower to processor. The systems' in-plant logistics meet and even go beyond the highest demands as far as line speed, hygiene and durability are concerned. The modular system can be adapted to all desired levels of automation and production capacity.

There are various cleaning and disinfection options to limit any risk of cross-contamination to an absolute minimum. Integrated weighing, product detection and dust extraction are available as options. We also provide a traditional crate system, which can be largely mechanized by using stackers and destackers.

When it comes to animal well-being, hygiene and efficiency, the ultimate live bird handling system is ATLAS. During transport and at the plant, the revolutionary, modular tray design creates more space for the broilers, resulting in highest load capacity!

### Benefits ATLAS

- Vastly improves efficiency
- Increases levels of animal well-being
- Robust in-plant system ensures high throughput
- Leads to a decrease in CO2 emission
- Saves labor and improves ergonomics

## Stunning

We offer two methods for stunning poultry, both of which comply fully with the strictest regulations: electrical waterbath stunning (also available with high-frequency to safeguard product quality) and Multiphase Controlled Atmosphere Stunning (CAS).

Practical experience with this humane way of stunning has shown that blood spots and bone fractures hardly ever occur. The use of carbon dioxide in multiple phases, as applied in our CAS systems, such as the straight-line CAS SmoothFlow, is specifically mentioned in the list of stunning methods accepted without any additional requirements being necessary. The modular CAS systems connects smoothly to the live bird handling systems.

### Benefits electrical waterbath stunning

- Effective stunning
- Available for all processing speeds
- High frequency stunning available

### Benefits CAS stunning

- Improved animal well-being
- No compromises on product quality
- Improved ergonomics and labor saving
- Particularly suitable for higher production capacities



## Killing

An accurate and consistently executed kill cut is a vital step in the primary process. The cut must ensure that the broilers bleed out fully before they enter the scalding process.

The JBT Marel killer is suitable either for making a neck cut (through the veins and arteries while the trachea and esophagus remain intact) or for making a throat cut (through the veins, arteries, trachea and esophagus).

After broilers have been carefully positioned, the type of kill cut chosen is applied. With both throat and neck cuts head loss after plucking is minimal. It goes without saying that JBT Marel's killer meets all existing legislation.

### Benefits

- Double-sided neck cut or throat cut possible
- For all line speeds and broiler weights
- For electrically and CAS stunned broilers







## Scalding

The scalding process largely determines the appearance, color and visual quality of your end product. It can also influence yield and shelf life. JBT Marel scalders ensure optimum heat transfer and precise temperature control, two vital characteristics of a first-class scalding system.

Our scalding systems are easy to clean and maintain and use a minimum of energy. The unique AeroScalder significantly reduces water and energy consumption. It is the benchmark in top quality scalding systems and has been developed with environmental concerns very much in mind, while delivering the perfect scald.



### Benefits immersion scalding

- Precise temperature control for a consistent processing result
- Multi-tank counter-flow for a cleaner process
- Designed for optimal cleanability

### Benefits AeroScalder

- Significant energy and water reduction
- No more immersion of products
- No cross-contamination in the scalder
- A cleaner, consistent process
- A perfect scald



## Defeathering

How a product is plucked is crucially important for its presentation. Plucking action will also determine the extent to which the epidermis remains attached and is especially important if products or portions from them are to be sold fresh skin on.

Immediately after the scalding process, the broilers are at the right temperature. Then they have to be plucked properly according to the demands of the customer: leaving epidermis on or off.

An attack plucker does the tough initial labor as the first plucker in line, removing as many feathers as possible. It can also operate stand-alone in low-capacity lines. Pluckers/finishers follow one or more attack pluckers in higher capacity lines. A plucker/finisher is specialized in removing feathers from particular critical parts of the carcass, such as wings and tail.

### Benefits

- For all types of poultry and all product weights
- A plucker solution for every situation and every capacity
- Easy to set, maintain and clean
- Low cost of ownership



## Evisceration

JBT Marel offers a complete range of equipment for every step in the evisceration process. Before evisceration begins, the vent cutter and opening machine prepare the carcass so the evisceration arm can enter the abdominal cavity with precision. The VC-i vent cutter features advanced PUPIL vision technology supported by an AI-driven database, enabling accurate detection of correctly positioned cloacas for optimal performance.

With Nuova automatic evisceration, the entire viscera pack including the crop is removed completely in a single operation. The viscera pack is separated immediately from the product and transferred automatically to a dedicated shackle on a separate pack processing line. This method has major hygiene and product quality benefits and saves labor.



After evisceration, several carousel machines take care of neck processing, inside/outside washing and final inspection. Together, these systems prepare your products in the best possible way for chilling and all other downstream operations.





Viscera packs are held in the viscera pack shackle with the intestines hanging down and away from the edible giblets.

The Nuova product range offers tailored evisceration solutions for ready-to-grow processors without automatic pack rehang (CoreTech) up to data-driven intelligent systems with HMI control and real-time machine health monitoring (Nuova-i).

### Benefits

- Efficient, consistent and reliable evisceration
- Unique hygienic, automated process
- All capacities up to 15,000 bph (250 bpm)
- Customized manual, semi- or fully automatic giblet harvesting for optimum added value



## Giblet processing

Giblets are popular and a profitable part of poultry processing. Processing them effectively and efficiently is most definitely in the processor's best interest. Our equipment is suitable for the production of giblets for human consumption or for pet food.

With the Nuova giblet processing system you can do all giblet processing operations manually, semi-automatic or completely automatic, ensuring the best possible yields, top giblet quality and optimum levels of hygiene.

After harvesting, giblets must be washed, chilled and transported. We offer a comprehensive range of equipment and systems for the highest production capacities.



### Benefits

- Modular manual, semi-automatic or fully automatic giblet processing
- Optimum yield, quality and hygiene
- Limitless layout flexibility



## Feet processing

Feet and paws are popular. A feet processing system is therefore an interesting option for many processors. The system processes feet fully automatically from scalding through peeling and chilling. Its flexible and modular setup enables a profitable solution for every processor. Various high yield, high quality feet products can now be processed at the highest possible production capacities.

### Benefits

- Numerous in-line processing options
- Fully automated scalding, peeling and chilling set-ups
- Saves labor

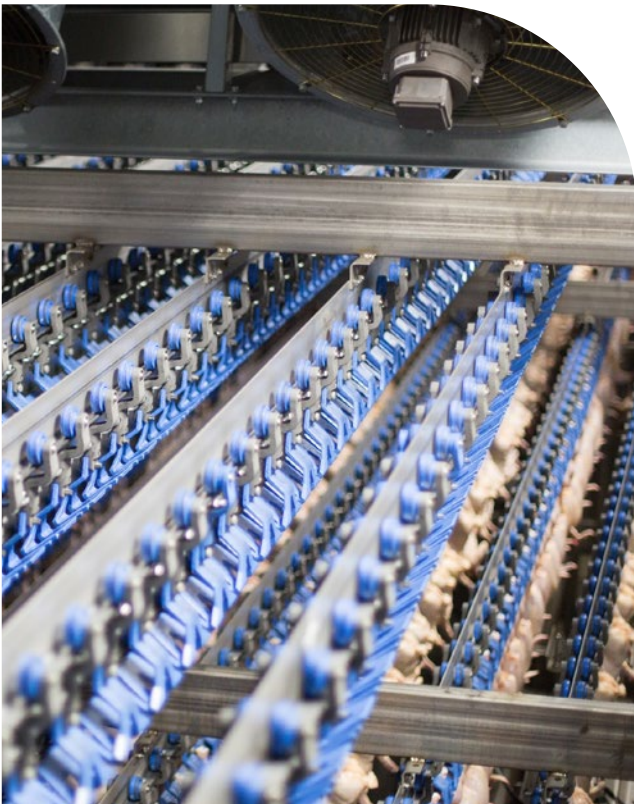


## Chilling and maturation

For optimum shelf life, quality, freshness and food safety, end products must be effectively chilled. JBT Marel offers chilling solutions with various technologies for all processing capacities, all product requirements and all products, including giblets and feet.

### Water chilling

Our immersion chilling solutions include options ranging from off-line rocker arm pre-chillers and screw chillers to in-line immersion chilling. They supply end products with excellent yield, quality and shelf life, perfect for sale, either fresh or frozen.



### Air chilling

Our air chilling tunnels chill products to the correct breast core temperature without freezing wings or neck flaps. JBT Marel knows exactly how to create the perfect mix of techniques and parameters, such as air speed, air direction, moistening, temperature variations, and tunnel load.

An absolute minimum of weight loss is achieved with JBT Marel's 'Plus' technology, which prevents dehydration through moisturizing cabinets in the line. The end product has attractive texture and color characteristics.

The Shock Maturation chilling method consists of two stages. First, a short, rapid chilling phase at low temperatures inhibits bacterial growth, followed by a longer, moderately cold phase for optimal maturation, resulting in tender meat.

#### Benefits water chilling

- Short dwell times
- Most efficient for frozen products
- Cost-effective and space-saving

#### Benefits air chilling

- Effective in-line chilling for all products and capacities
- Optimal product quality with high yield
- Unique maturation chilling and 'Plus'- technology
- No risk of cross-contamination



## Weighing, grading, distribution

The weight and quality of both whole products and parts can be determined automatically at various points in the process. The earlier grading takes place, the more accurate will be the decision-making for order production. SmartWeigher and IRIS vision inspection can be implemented at four different locations in the plant to facilitate this: in the defeathering and evisceration department, in the distribution and the cut-up line.

The gathered data will serve as the input for the PDS plant production and control software. As these product details will remain linked to the product, downstream operations can benefit from this precise assessment.

Automatic weighing, grading and distribution are important steps towards good in-plant logistics, full traceability, reduced give away and improved yield.

### Benefits

- Fast, accurate 'weight and vision based' selection
- Flexible distribution options
- Reduces give away to a minimum
- Specialized process control software







## Cut-up

Our high performance ACM cut-up system is just as flexible as you need it to be. With its numerous module options, the system offers almost limitless layout and production flexibility, regardless of processing capacity.

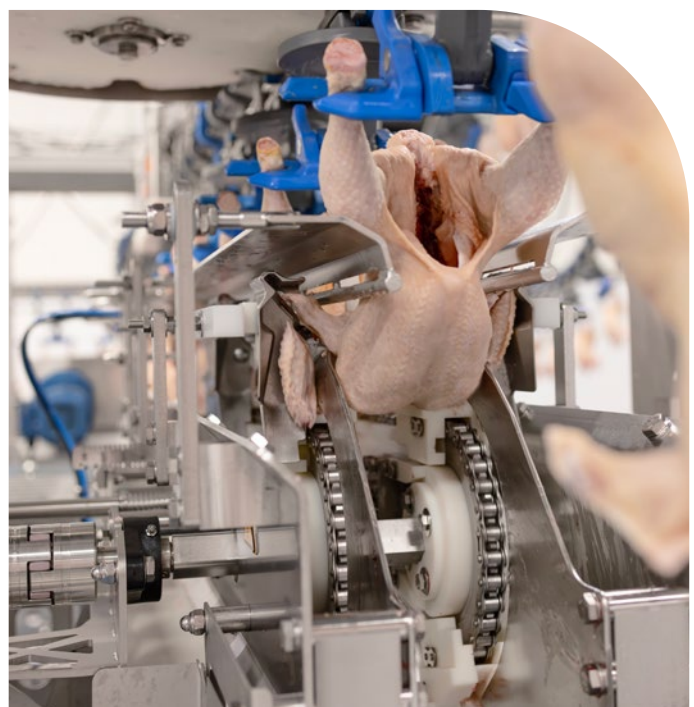
The system's smoothly rotating product carrier positions product perfectly, even at the highest line speeds. The result is a system producing the highest yields and percentage of A-grade cuts in the entire poultry processing industry. The system includes a full selection of wing, breast and leg processing modules such as WingMaster for midwing cutting and ALPINE for anatomic leg processing. The various modules allow you to produce all current products, including those where an anatomic cut is needed.

### Q-Wing

Q-Wing is JBT Marel's automated quality assessment and distribution solution for wing parts. The process saves labor and ensures objective, consistent cutting and grading, including clear logistics. The result is maximum added value to wing parts of all quality grades.

### Benefits

- Flexible, accurate, high yield cut-up
- Limitless layout and production flexibility
- Highest percentage of A-grade cuts
- Virtual combination of multiple cut-up lines







## Deboning

Our deboning options are all about high-yield, top-quality and safe end products. To that we add limitless versatility in the end products possible and the processing of valuable by-products.

Thanks to technical and technological refinements, the number of end product options has become ever larger, the number of manual operations fewer and the cuts possible more complex. As a result, the systems' yields have kept on increasing.

### Breast deboning

JBT Marel's systems truly master breast deboning and can handle a wide range of breast cap and front-half weights and sizes, even from breeds other than standard broilers. Not only breast fillets, the basis for many other further processed end products, but also tenderloins, butterflies, and baby tenders can be harvested.

Around the world, this breast filleting expertise, delivering the highest yield every time, is proven by intelligent, adaptive solutions like ATHENA and AMF-i, as well as FHF FlexControl front-half deboning. All JBT Marel breast deboning systems are easy to control, with module settings automatically adjusted based on the flock characteristics. These characteristics are stored in the recipes, which can be easily accessed and controlled via the touchscreen. This kind of automation minimizes human intervention.

### Thigh deboning

Besides breast deboning, the JBT Marel portfolio also features thigh deboning. The Thigh Fillet System performs consistent and precise deboning operations, mimicking skilled manual cuts, while running in-line at high-speed. Without any human intervention, the system performs revolutionary kneecap removal, maximum meat harvesting, and optimum efficiency. The result? Tasty, attractive, perfectly intact fillets that meet the highest retail-quality standards, as demanded by supermarkets expecting flawless presentation of thigh fillets in their trays.

### Benefits breast deboning

- High yield, high quality fillet products
- Adaptive front half and breast cap deboning
- Countless end product possibilities
- Easy recipe-control via touchscreen

### Benefits thigh deboning

- Unique: fully inline versatile thigh deboning
- Flawless, retail-quality A-class thigh fillets
- Highest thigh meat yield in the market
- Labor saving – no shackling, skinning, or kneecap trimming



## Inspection

Deboned poultry meat can be scanned using advanced x-ray technology. JBT Marel's SensorX identifies the exact location of bone particles and other foreign objects with minimal false positives, enabling effective trimming. After that, products are re-scanned for extra safety. Not only has the incidence of false positives been reduced to an absolute industry minimum, but the detection of hard-to-find bone fragments is also more accurate. Internal SmartBase software enables machine health status monitoring and remote support while the optional Infeed Monitoring improves the infeed operation and prevents rework.

SensorX sets the standard in bone detection, ensuring highly reliable food safety and a safe, bone-free premium product. Its excellent performance increases product quality and minimizes the risk of product recalls or customer complaints.

### Benefits

- High-tech contaminant detection for deboned poultry meat
- Ensuring the highest grade of food safety
- The least false positives
- SmartBase (connected) machine software



## Belt grading and distribution

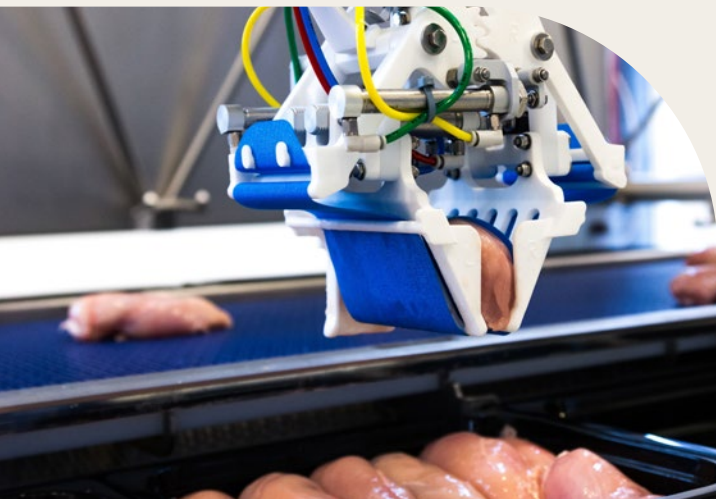
JBT Marel succeeds in keeping track of individual poultry meat pieces after the deboning process, even when they're on a conveyor belt. The products can be assessed for visual quality, size, weight and contaminants while they're on the belt. Besides that, their shape and position are also known to the system, all with the help of cameras and SensorX. The grading process, supported by intelligent, easy-to-operate ProFlow software, allows for a well-founded distribution of every single piece of poultry meat, using the SystemFlex Distributors. Graders such as the SmartLine Grader or Compact Grader can also play a role in distributing products on the conveyor belt.

In the end, every destination will be provided with the best matching products, meeting all customer's order requirements and supplying the highest value for the processor.

### Benefits

- Distributing product streams based on quality, weight or quantity
- Traceable products
- Best possible destination for every fillet
- Maintaining fillet positioning on the belt





## Batching

We offer all kind of batching solutions, including fully integrated tray loading and packing systems. JBT Marel Multihead Weighers handle all in-feed, sorting, mixing and weighing requirements. They automatically portion and pack all types of fresh or frozen poultry products. The fully automatic RoboBatcher packs up to 300 chicken fillets per minute into trays. It is known for its high-precision fixed weight batching with virtually no give-away.

Intelligent communication between various batching and portioning equipment lifts the process to a higher level, thereby optimizing product utilization. The „Robot with a Knife“ concept illustrates this perfectly. equipped with AI performance measurement.



### Benefits

- Wide range of flexible and in-line solutions
- Extremely low give-away
- Labor saving

## Portioning, positioning, profiling, flattening

The demand for poultry meat in the right size is rising. But chickens are growing larger, so their breast and leg parts are often too big for consumers. It is essential to create suitable sizes for the fast food, retail, and food service markets. After deboning, boneless products can go through various processes to become the desired end products.

### Positioning

For many portioning operations, it is crucial that boneless products are placed in the right orientation on the belt before entering the machine. Normally, this requires several operators. JBT Marel's RoboOptimizer solves this challenge by using robotics to handle the positioning task.

### Portion cutting

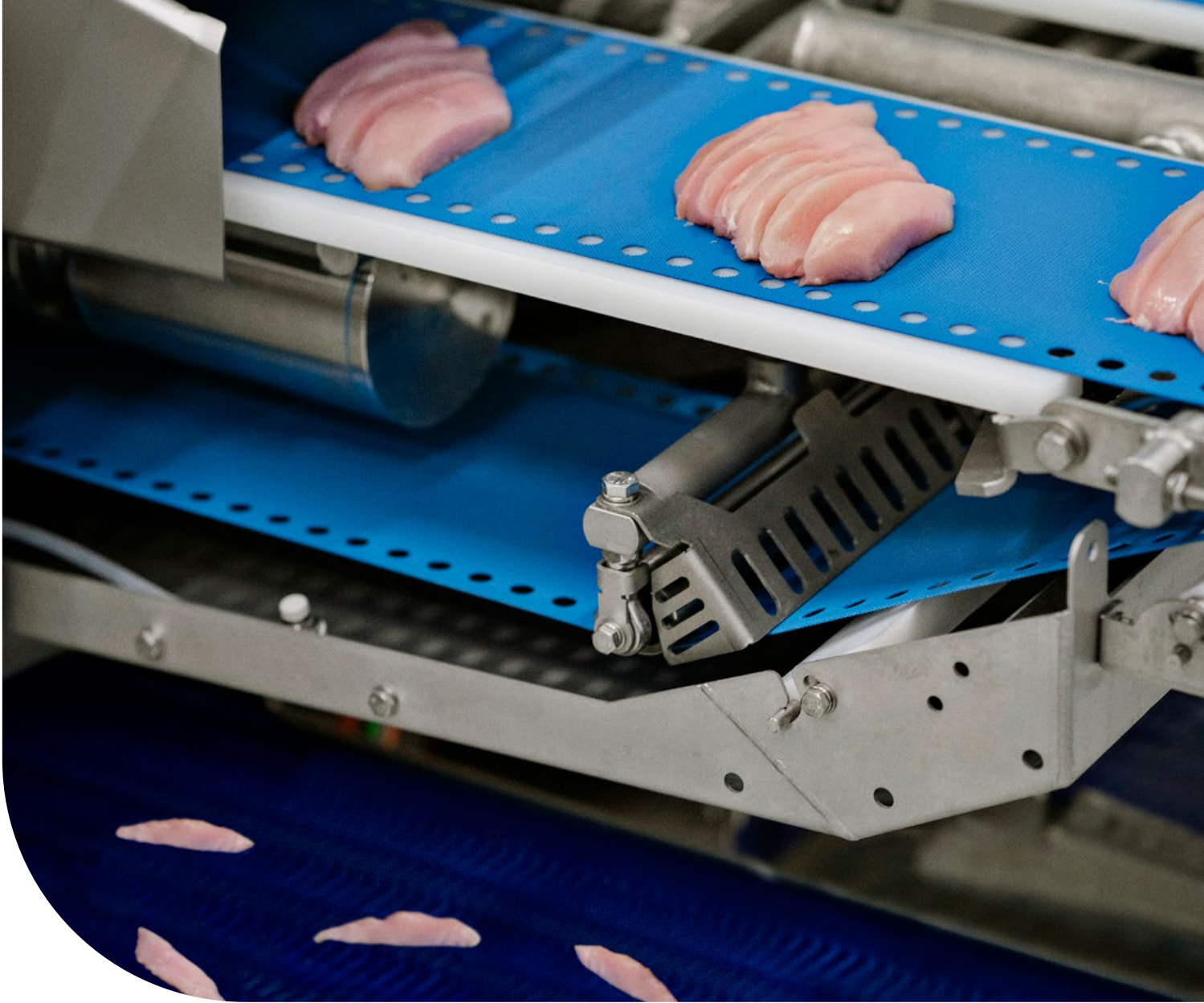
For cutting large boneless breast or thigh meat parts into sandwich fillets, strips, or cubes, JBT Marel provides integrated, high-precision solutions. Options include blade cutting and waterjet cutting to produce fixed-weight or fixed-shape boneless products.

When every individual piece of meat needs to be treated flexibly for maximum yield, waterjet portioning is the technology of choice. The DSI Waterjet Cutter can create uniquely shaped, fixed-weight portions with trimmed-away fat and near-zero waste, even when dealing with high varieties in the raw material.

For high-volume production where speed, throughput, and consistent cuts matter most, blade cutting is the ideal solution. The I-Cut 122 TrimSort efficiently produces thousands of identical chicken strips, cubes, or sandwich fillets at high speed—ideal for fast-food chains or large food service contracts.







### Flattening

JBT Marel flattening solutions shape the meat for products like schnitzels, while maintaining quality and moisture. JBT Marel's equipment gently massages the poultry meat, ensuring a better bite, texture, and taste.

### Profiling

Profiling is a cost-effective way to create identical portions for the food-service industry. A profiler uses templates to shape products, creating uniform, value-added portions, while maximizing raw material.

### Slicing

A JBT Marel slicer cuts boneless meat into fixed-width portions at high speed.



### Benefits

- Multiple cutting possibilities
- High accuracy
- Minimal product give-away
- Reduces labor costs

These can be strips, splits, steaks or dices. Multiple products can be cut using the same slicer configuration. Cutting blades at fixed or adjustable widths give you flexibility.

### Horizontal splitting

JBT Marel's splitters cut poultry fillets horizontally into portions of uniform thickness. They work extremely accurately, even on two independent lanes.

## Meat harvesting

One of our goals is to add as much value as possible to every bird. Our meat harvesting equipment gives you the possibility to harvest any remaining valuable poultry meat from e.g. carcasses or necks.

Mechanically deboned meat provides a profitable source of good quality raw material for the sausage, snack and comminuted meat industry.

We offer highly efficient durable meat recovery systems requiring only a minimum of maintenance and easy to operate and clean.

### Benefits

- Getting more value from your carcasses
- Harvesting of good quality raw material
- Adjustable pressure and press times
- Easy to operate and clean



## Marinating and tumbling

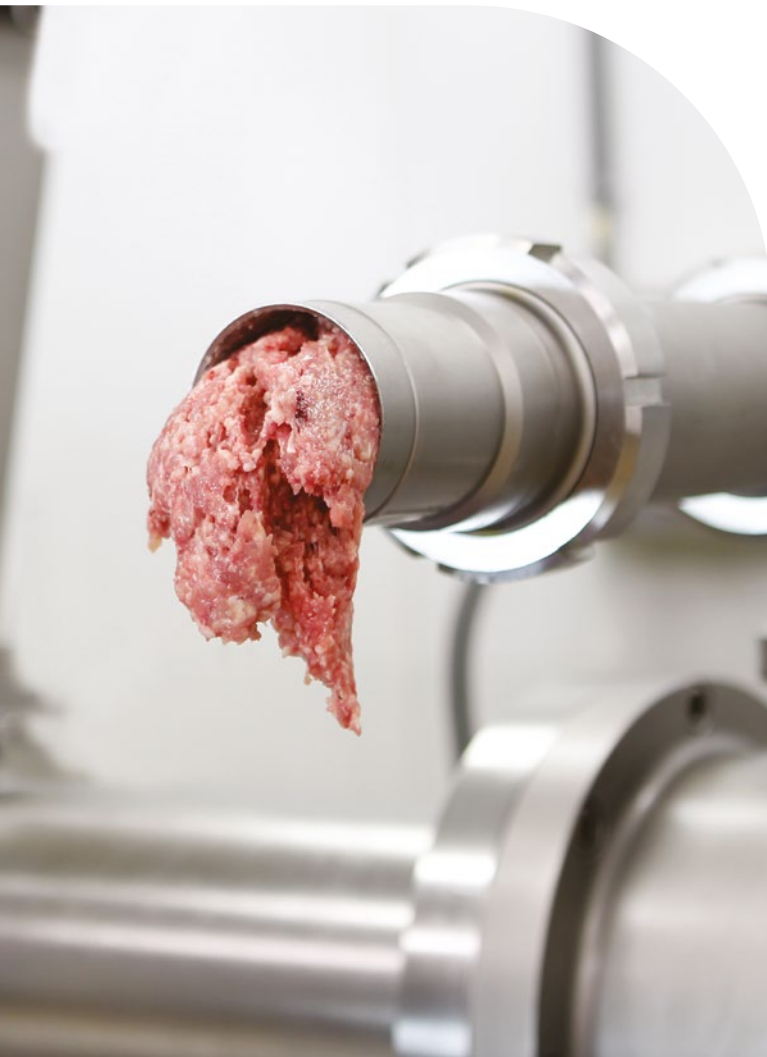
The market for seasoned, ready to cook and ready to eat products continues to grow. Marinating and garnishing all kinds of bone-in and deboned products is very popular. These techniques add value to your products and offer interesting possibilities in virtually all markets, with new tastes and applications being introduced all the time.

With our massage and marinating solutions you can process small batches in-line, either wet or dry, larger or smaller products, with or without bone and with or without additives.

Keeping this process in-line does away with the need for manual product handling operations. There are no longer any worries about logistics as tracking and tracing is easier.

### Benefits

- Fully automated in-line process
- Uniform distribution of additives
- Easy tracking and tracing of batches







## Packing, sealing and labeling

Packing, sealing and labeling systems perform the final operations to complete the process and provide customer specified presentation. The equipment comprises a combination of well-proven elements and can be tailored to your requirements.

JBT Marel's RoboPacker automates the manual task of packing and styling catch-weight products into trays. It increases throughput, improves yield and delivers consistent performance throughout the day. By reducing the number of people, the RoboPacker also contributes to higher food safety standards.

All tray-sealing process types are supported, including atmospheric, gas flush, vacuum/gas, and skin pack. This ensures the sealing production lines can quickly and flexibly adapt to diverse packaging needs.

JBT Marel labelers provide base, top, side, single, double or 3-panel application, non contact or in-line printing and application. Our weigh price labelers provide excellent performance with low running cost through class leading print head life. Designed for a wide range of applications, they can handle most current pack sizes at up to 160 packs per minute.

### Benefits

- Robotized packing
- Digital weighing accuracy, precision and reliability
- A great variety of flexible sealing processes
- Labeling solutions for a wide range of products and capacities





## Data-driven control, giving intelligent insight for efficient processing

Complex, high capacity processing requires ever more production control and management information. When it comes to optimizing profits and overall production performance, we provide a complete management solution.

Our modular software packages can cover the complete value chain in the production cycle, from the receipt of input material right up to dispatch of the end products.

PDS is the modular production control software for JBT Marel poultry equipment, focusing strongly on those parts of the process where products are transported in a shackle suspended from the overhead conveyor.

### IMPAQT

For poultry processors looking to enhance their primary processes. IMPAQT software offers the right support. It analyzes and improves the availability, performance and quality trends of their poultry processing line. JBT Marel's IMPAQT software reveals the exact reason for any production loss and identifies where to improve efficiency. IMPAQT gives real-time insight to reach full potential. JBT Marel is able to offer the most extensive and best process control solution for all poultry processors.

### ProFlow Breast Meat

ProFlow Breast Meat software is part of JBT Marel's value optimization process including quality and weight assessment solutions such as IRIS FI, SensorX,

Spectra as well as distribution hardware such as Fillet Distributor. ProFlow Breast Meat software connects and controls the entire breast meat process flow. It matches deboned breast meat products with customer orders and determines the best follow-up process for each individual product: bulk, retail, QSR and more.

### SmartBase machine software

Internal machine software is getting more and more intelligent. Systems such as VC-i, Nuova-i, ATHENA, and SensorX are equipped with SmartBase on board. Integrated JBT Marel SmartBase machine software displays production status and machine health data on the HMI screen. When connected, historical data dashboards are available remotely via the secure cloud, along with options such as helpdesk support, real-time machine performance, and production performance insights.

### Benefits

- Real-time quality data
- Full traceability is possible
- Monitors the complete value chain in real-time
- Intelligent algorithms to support decision-making



## Internal logistics

Good internal logistics improve the flow of your end products, safeguarding quality in the various process steps. We offer various types of SystemFlex conveyor belts and overhead conveyor systems for connecting process steps in the most efficient way possible.

Besides bringing product safely to the next process step, another aim can be to reduce the number of times product is touched by operators. One way of doing this is to use conveyor belts which automatically position product correctly for infeed into a downstream machine. Also the belt material is critical, for preserving meat integrity, ensuring food safety, and extending shelf life. JBT Marel's EnduraBelt is designed specifically for poultry processing environments. Its protein-specific, non-sticky surface reduces touchpoints for safe and reliable transport.

We also offer a complete system consisting of an overhead conveyor equipped with specially developed tray carriers, automatic tray loading and unloading stations. The system takes trays from the end of each tray filling line and distributes them intelligently over a number of tray sealing/wrapping and labeling lines sited in one centralized, dedicated packing area.

### Benefits

- Bringing the right products to the right place
- Smooth product flow
- Labor saving
- Less product touching for higher food safety



## Rendering and wastewater treatment

### Transport

Blood, feathers and other slaughter offal must be transported and collected rapidly, effectively and hygienically. For this we offer various options, ranging from simple pumping systems to extensive vacuum transport systems, including cleaning-in-place (CIP) and disinfection.

### Rendering

We provide a range of systems for the rendering of feathers and slaughter offal, thus producing attractive base materials for other industries.

### Wastewater treatment

Extending the product range for the poultry processing industry, we offer various solutions for the treatment and purification of process and wastewater. We have our JBT Marel Water Treatment in-house experience available to support you in finding tailor-made solutions that suit specific requirements and levels of pollution.

### Benefits

- A sustainable way of processing offal and wastewater
- Maximum utilization of resources
- Expert in-house knowledge
- Tailor-made solutions possible for every situation





# Turkey processing

If you're seeking innovative and efficient turkey processing solutions tailored to your specific needs, JBT Marel is your ideal partner. Our automated, modular systems handle a wide variety of turkey weights, maximizing efficiency and minimizing waste. From live bird handling to packing, JBT Marel's solutions integrate seamlessly into your operations, regardless of production capacity. Our labor-saving technologies address the unique characteristics of turkeys, whether toms or hens, providing customized solutions for each processing stage.

We offer complete solutions for processing all common turkey weights at capacities ranging from 250 turkeys per hour (4.2 tpm) up to a maximum of 3,000 male (50 tpm) or 3,600 (60 tpm) female turkeys per hour.

Today we offer the highest level of automated turkey processing for the highest processing speeds currently available in the market. The level of mechanization in turkey processing nearly equals that of broiler processing.

Besides providing efficient and effective automated processing, our solutions contribute to better working conditions for operators. Automatic solutions include Multiphase CAS stunning, defeathering and evisceration, as well as in-line air-chilling, cut-up and deboning.

With JBT Marel, you benefit from decades of experience and cutting-edge turkey processing technologies that ensure optimal performance, food safety, and sustainability, all while meeting your customers' expectations.



# Duck processing

For every need that arises in your duck processing facility, JBT Marel offers wide-ranging solutions, tailored to your individual business situation. If you're aiming to maximize added value and minimize waste, our modular, in-line systems offer the required flexibility and automation capabilities up to 6,000 ducks per hour.

The teams from JBT Marel and legacy PMJ have united their technology, know-how and experience to drive further growth and providing better value for customers in the duck, goose and waterfowl processing industry.

Our dedicated duck processing portfolio features specialized automated solutions, including the waxing process and the world's first FHF-D automated breast deboning system. These duck-specific innovations are unique to JBT Marel, delivering unrivaled efficiency and product quality.

We offer a complete range of systems, services and software to ensure optimal factory-wide integration and operations. For all steps of duck processing, we have state-of-the-art systems and services available. Our solutions take into account all unique aspects of a duck's anatomy. This goes for all duck types, including Pekin Ducks, Barbary, Muscovy and Mullard.

Duck processors can capitalize on these in-line modular processing systems, which enable consistent production with highest yield.

## Goose processing

Most goose processors have a mixed production program, processing ducks as well. That is why JBT Marel developed a range of machines that can process both species on a single line. JBT Marel's versatile designs and innovative solutions accommodate extended weight ranges and feature quick-exchange tool sets to enable hybrid duck and goose processing.

### Layers and parent stock

We have developed dedicated processing equipment for the automatic processing of layers and parent stock. Because the weight and conformation of these birds are different to those of broilers, special attention must be paid to the evisceration process. This has resulted in a technical solution for ovary removal.



# Capacities up to 15,000 per hour (250 bpm)

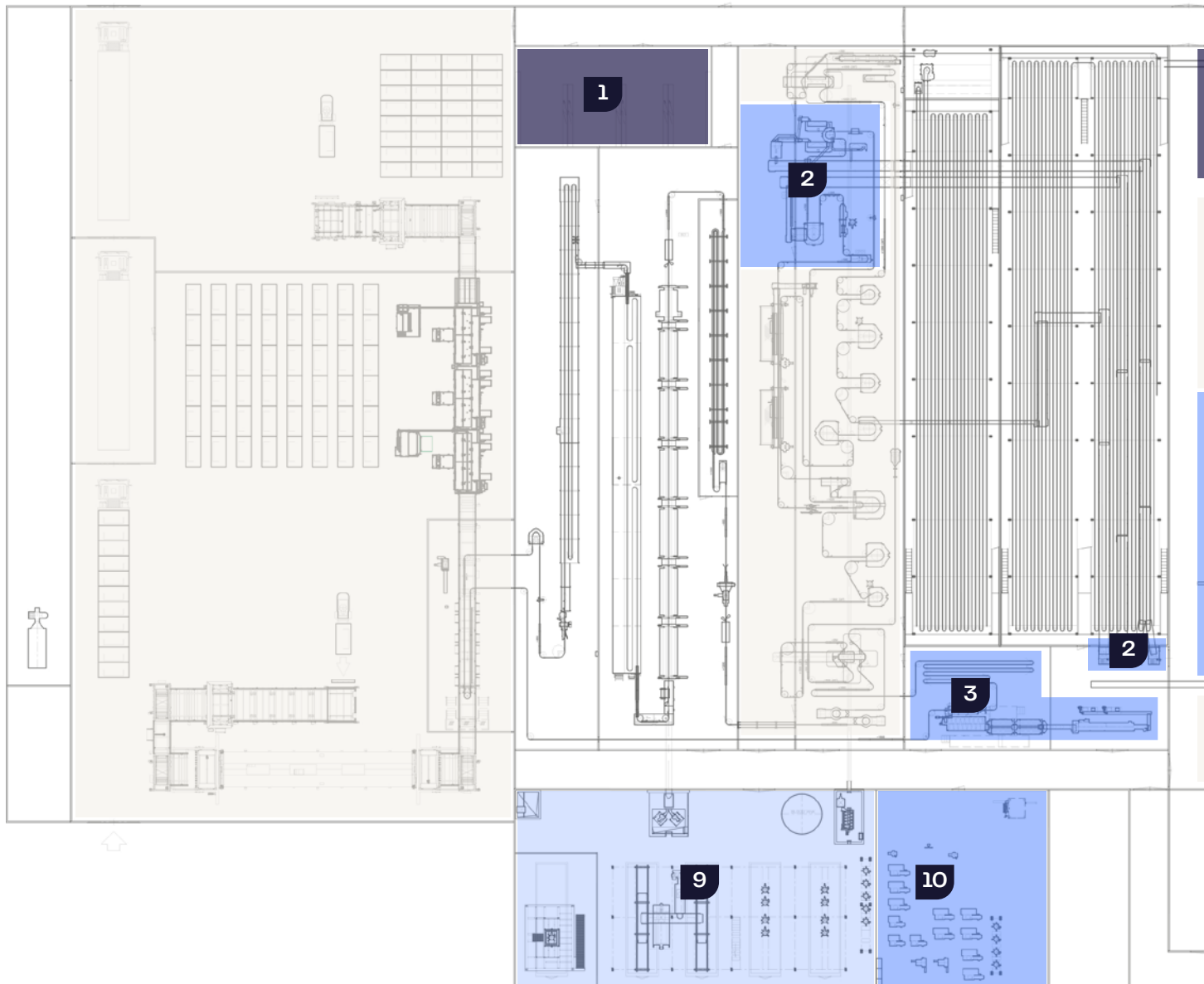
## Primary processing

Live bird supply  
Stunning  
Hanging

Killing  
Scalding  
Defeathering  
Electric stimulation

Evisceration

Chilling



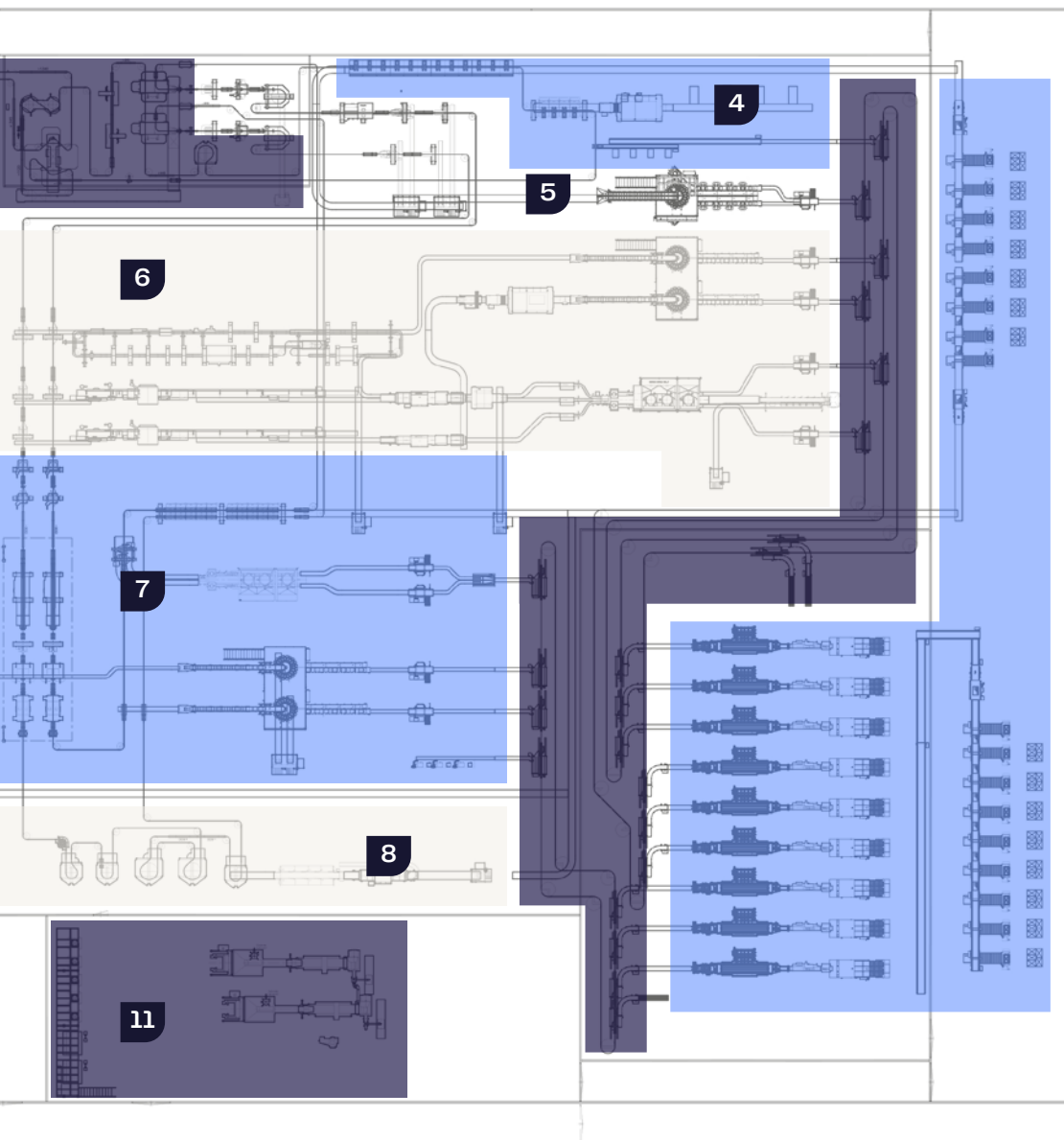


## Secondary processing

Weighing  
Grading  
Distribution

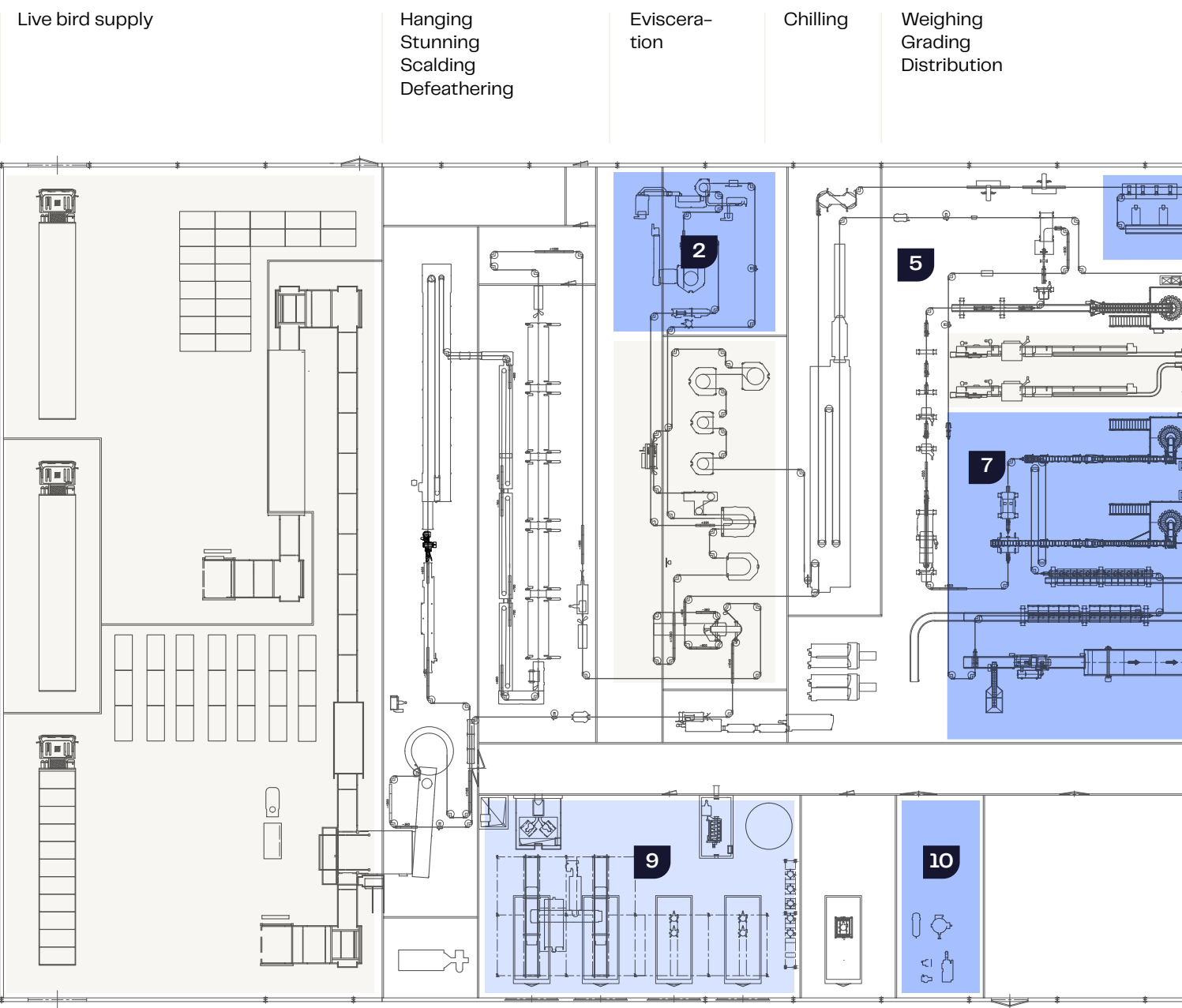
Internal  
logistics

End-of-line



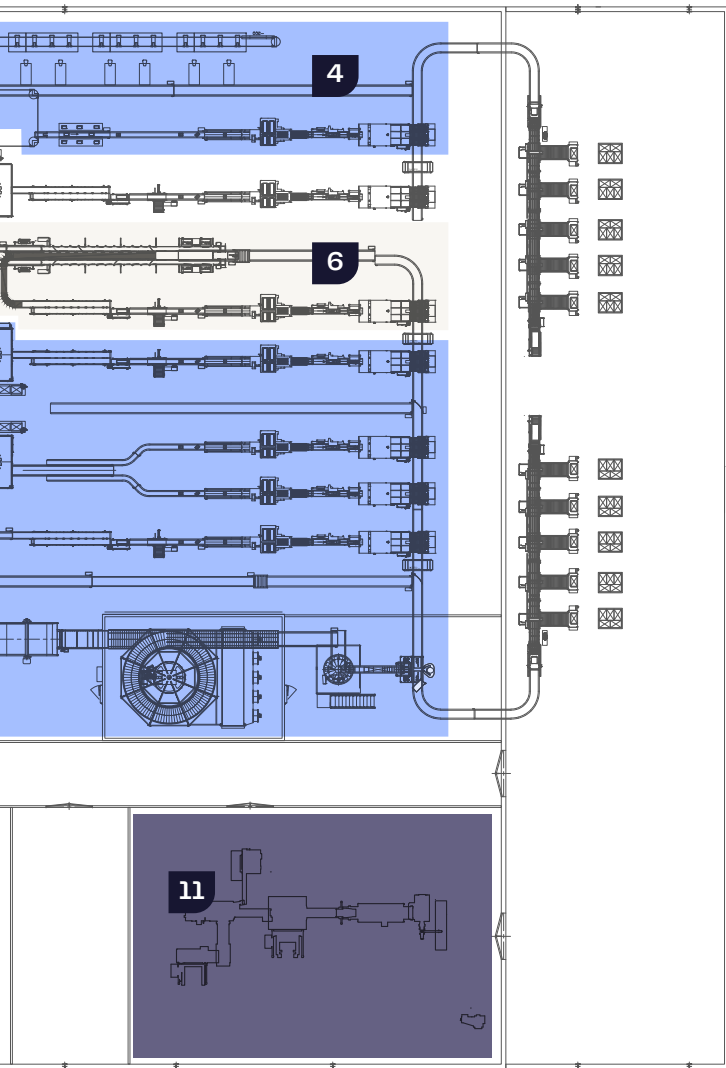
- 1** Electrical panels
- 2** Giblet processing
- 3** Feet processing
- 4** Whole bird processing
- 5** Wing processing
- 6** Breast filleting processing
- 7** Leg processing
- 8** Thigh processing
- 9** Rendering & by-products
- 10** Pump room  
/ vacuum compressors
- 11** Meat harvesting  
/ vacuum transport

# Capacities up to 9,000 per hour (150 bpm)



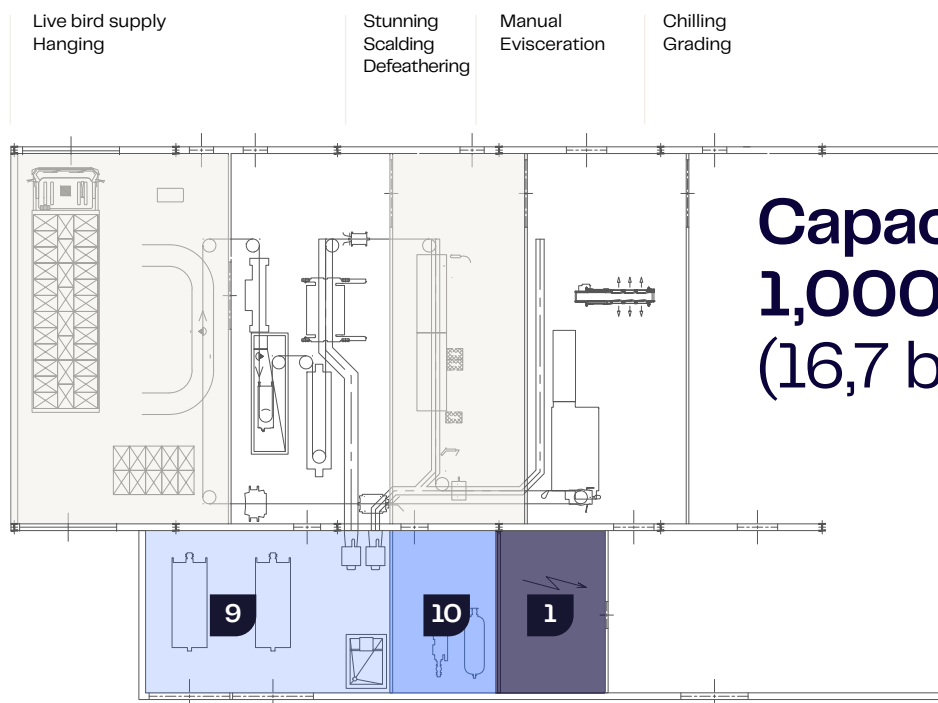
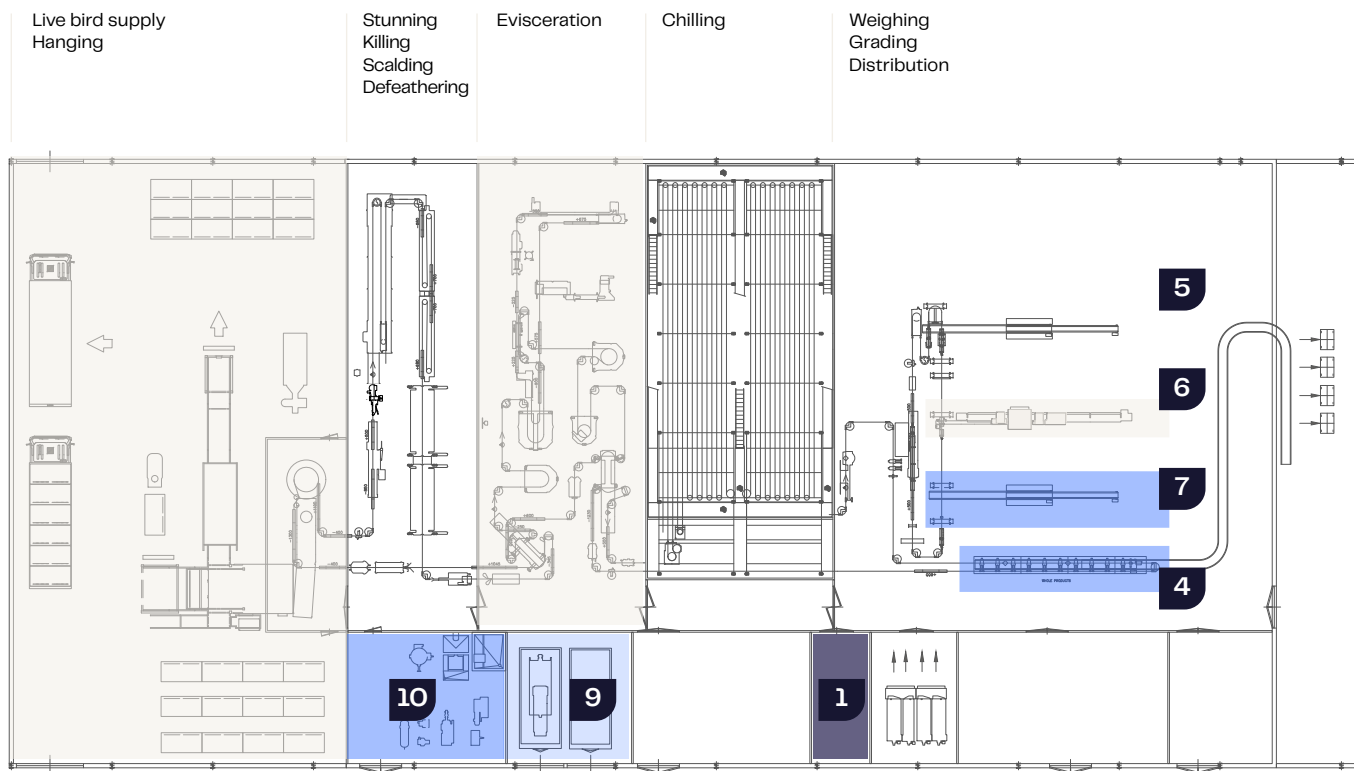


Packaging  
End-of-line



- 2** Giblet processing
- 4** Whole bird processing
- 5** Wing processing
- 6** Breast filleting processing
- 7** Leg processing
- 9** Rendering & by-products
- 10** Pump room  
/ vacuum compressors
- 11** Meat harvesting  
/ vacuum transport

# Capacity 2,000 – 5,000 per hour (33–83 bpm)



**Capacity  
1,000 per hour  
(16,7 bpm)**

- 1** Electrical panels
- 4** Whole bird processing
- 5** Wing processing
- 6** Breast filleting processing
- 7** Leg processing
- 9** Rendering & by-products
- 10** Pump room  
/ vacuum compressors





# Committed to your continuous success

Our worldwide network of local offices and agents ensures that you, our customers, receive prompt and attentive service. Our knowledge-driven and dedicated service engineers are always on hand, familiar with your operations, and, if needed, in continuous contact with our specialist staff to provide support.

We are committed to taking care of your maintenance, service, and spare parts to ensure they never hold you back. Our goal is to take away, as much as possible, your worries so you can focus on keeping your operations running successfully with peace of mind.

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