Intelligent trimming

Automatic trimming of salmon fillets

- **Automatic fillet trimming and grading**
- **Increases yield, throughput and quality**
- **Colour, weight and shape trim pattern selection**
- **Multiple trimming definitions simultaneously**
- **Trims up to 40 fillets per minute**

Intelligent Trimming machine

Designed to trim salmon fillets automatically, the Marel ITM Intelligent Trimming Machine is the ideal solution for high-value trimming of fillets into pre-defined shapes. The ITM uses an advanced vision sytem that ensures a high precision cut, making the entire process - from measuring to trimming - efficient and productive.

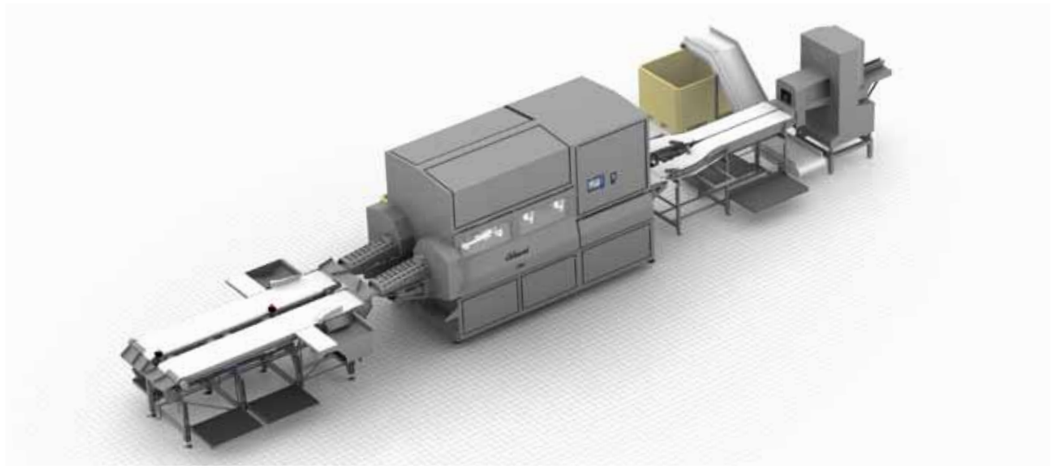
Total Processing Solution

Using the latest in colour and vision technology, the ITM automatically evaluates each fillet before trimming, and then calculates the most economic cut configuration based on weight, shape, and colour grade parameters. This optimises production value and ensures correct production mix according to orders.

The unit's M3000 graphical colour controller makes it easy for the operator to define trimming patterns and monitor the process. The ITM machine is capable of detecting melanin spots and other colour defects. The machine trims up to 40 fillets per minute, delivering better yields than manual trimming.

The ITM is designed as a part of a Marel salmon fillet processing solution as shown on the layout below. The ITM is not only a trimming machine but a colour and size grader as well. The ITM gives each fillet a grading signal according to weight, colour grade, and trim category. The grade signal is then used for grading the fillets into different processes later in the solution.

All fillets are processed according to specifications and the information can be used for grading the fillets into packing stations to ensure uniform quality of product in each box. By using this information, together with size and overall colour grade, the ITM maximizes production value and ensure processing according to orders by using the specifications given by the production manager.



Trimming Patterns

Trim A

- Weight and colour range assigned by production manager

Trim B/C

- Weight and colour range assigned by production manager
- Back fins off
- Collar bone off
- Belly fat, fins off

Trim D/E

- Weight and colour range assigned by production manager
- Back fins off
- Collar bone off
- All belly, fins off
- Tail trimmed

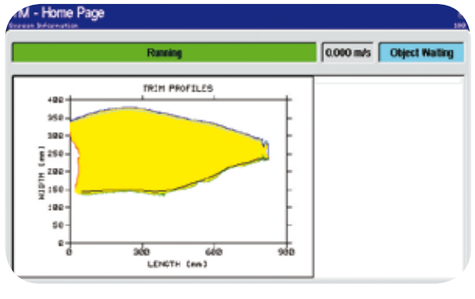
User defined

- Weight and colour range assigned by production manager
- Cutting curve designed by production manager

1 Colour vision

The ITM detects colour, volume, as well as cutting mistakes from filleting machines. The colour analysis is used to determine the colour category of the fillet according to a standard industrial scale.

2 Automatic evaluation



The ITM automatically evaluates each fillet and then calculates the optimal trim configuration. As an intelligent cut decision is made for each individual fillet, the product value is maximised. The ITM minimises trimming mistakes and delivers more products into higher value categories.

3 Intelligent trimming

Fillets are trimmed with precision using automatic servo knives and a Whizard Circular Trimmer. The M3000 controller assigns specialized cutting tasks to each knife that follows set curves, securing uniform cut and increased yield. The ITM ensures that fillets of the right colour grade and weight are delivered into each category.

4 Grading

The ITM assigns a grading signal to each fillet according to trim definition, size, and colour grade. This grade signal is used later in the system to grade the fillets into different processes. This information is also used to collect statistics on accumulated quantity in each individual process.

Innova
Intelligent production control system

Innova production software is used to collect trimming data. The software works with any number of machines and stores summarized long-term information about the colour, weight, length and type of pieces and portions. Statistical reports on colour grading and on incoming and outgoing weight are available.

The software also collects real-time data to monitor the systems performance and calculates key performance indicators such as throughput, yield, production value and other variables. Production managers can utilize the data to optimize the production process and receive the best value possible.

Marel

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