



TUNASCAN 3D LASER SYSTEM

3D Vision- Automatic tuna sorting system.



No human error

World's first scanner tuna sorter by size and species.



Autonomous Equipment

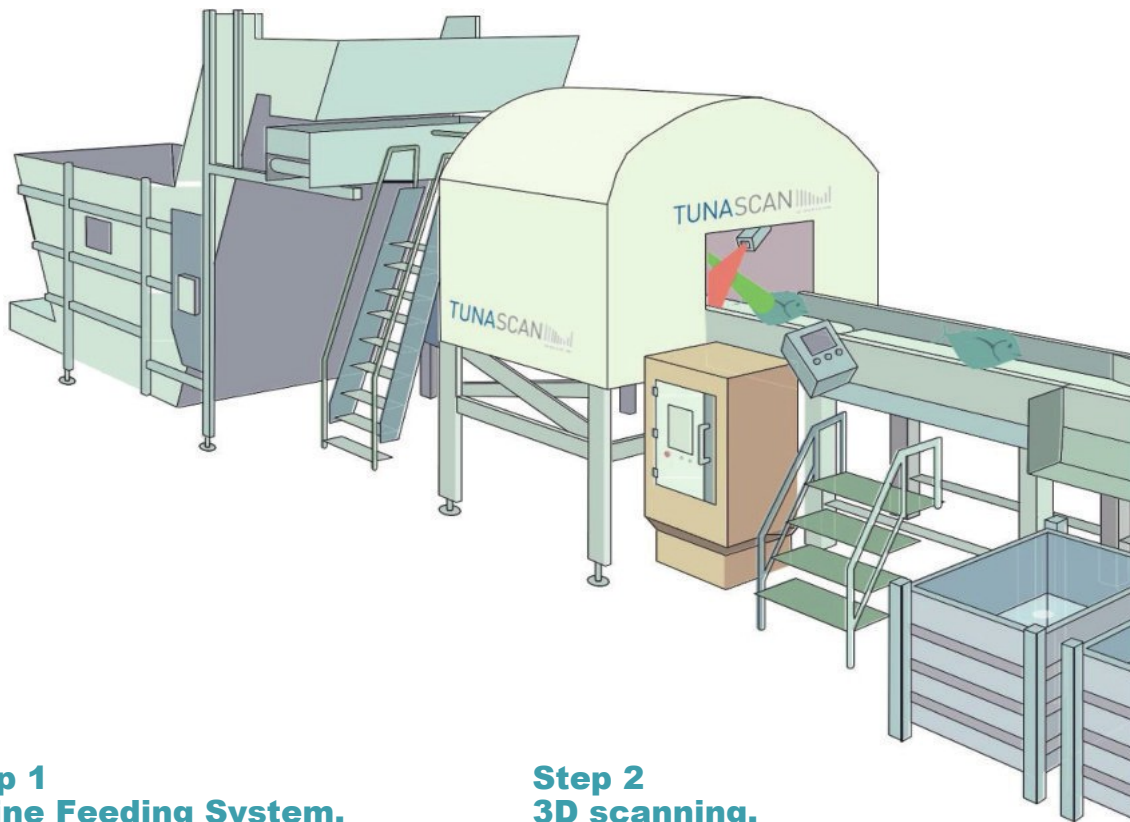
Classifies with hardly any personnel specimens of between 1 and 50 kg, at speeds of up to 50 tonnes per hour.



Automatic Classification

Each species or size of tuna separated in a bin according to the customer's needs.

Stages of the automated process



Step 1 **In-line Feeding System.**

Tuna, regardless of their species mix, size or degree of damage, are unloaded into a hopper and are correctly separated and aligned until they reach the 3D scanning area, using different conveying transport.

Step 2 **3D scanning.**

The most advanced technology of Tunascan, unique system that scans each piece of fish, extracting the information needed for a correct classification, through artificial intelligence algorithms and neural networks. This process is not affected by the presence of ice chunks or frost.

The world's first scanner for the classification of tuna by species and size.

Step 3 **Automatic sorting into specific bins.**

The user can define the sorting criteria, assigning a specific type of piece to each bin (species and size). The sorting line designed by Marexi allows the stowage without the need for human intervention.

Efficiency in determining
the species of tuna: 95%.

95%

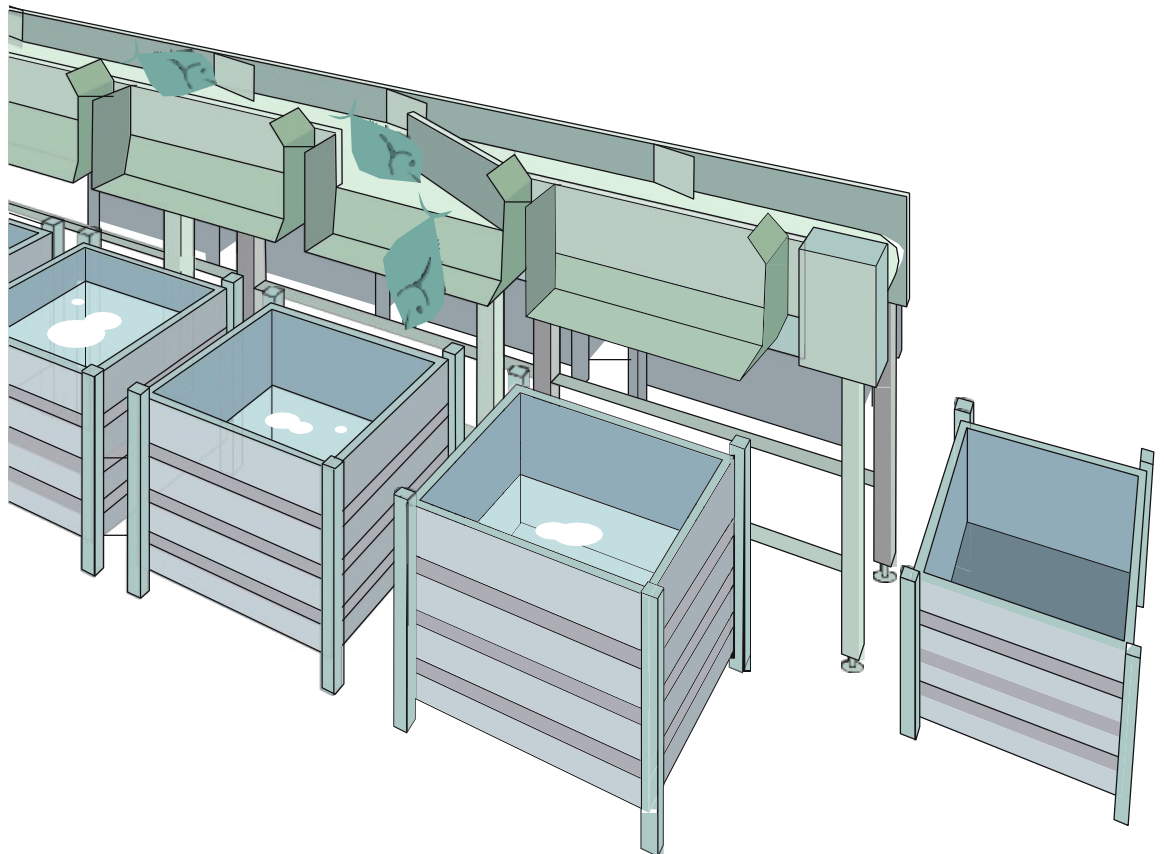
Tuna weight determination
efficiency:

98%

Sorting capacity of up to
50 tonnes per hour for
sizes <1 to 50 Kg

Step 4 Data management.

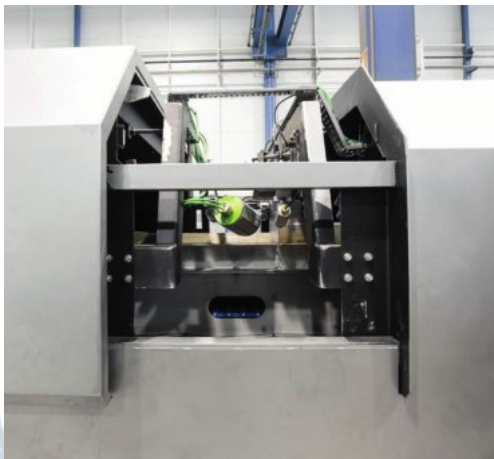
All information is stored in a database connected to the company's ERP. With the necessary authorisation, this information can be accessed in real time from any computer or mobile device, stored in historical archives and even used to generate work reports.



How does Tunascan[®] work ?

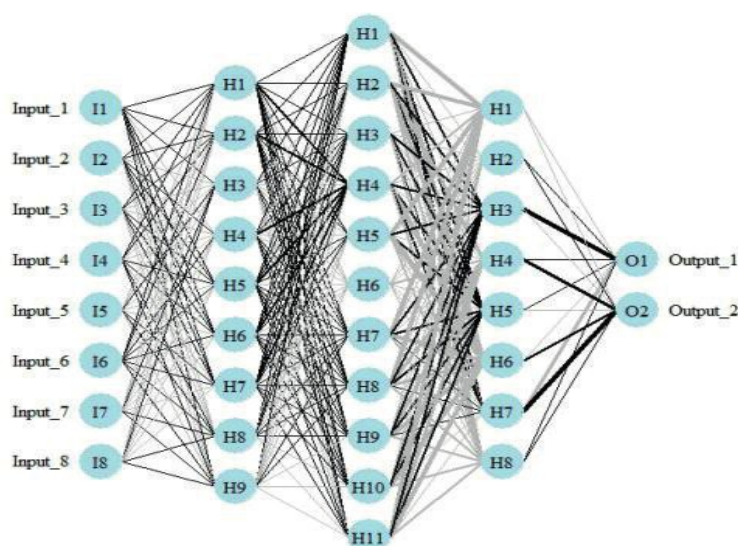
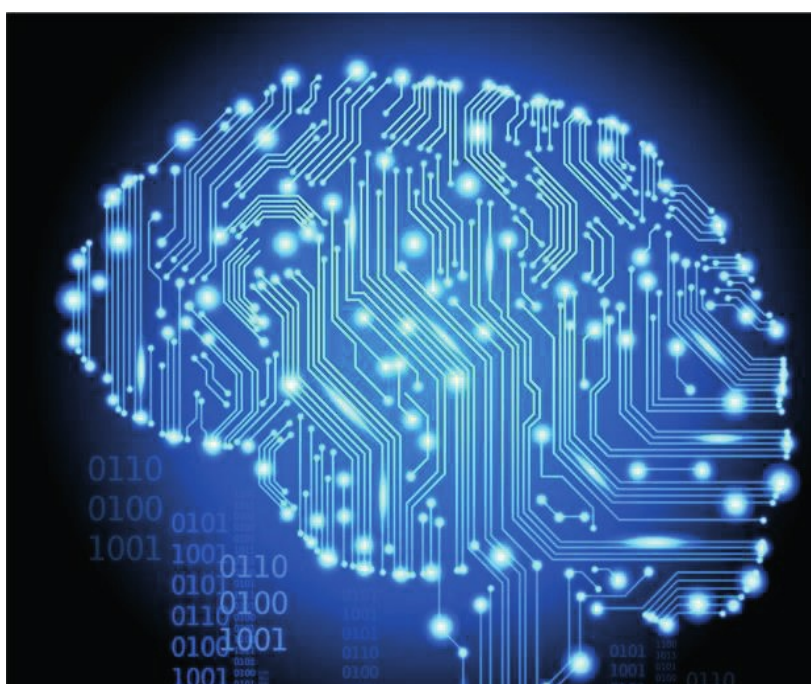
The technology used to analyse the tuna is 3D laser profilometry, which converts each scanned piece into a cloud of reference points in space.

The real world first is the Tunascan's ability to process all this three-dimensional data and deliver a grading verdict in milliseconds, which is 95 % reliable in species identification and 98 % reliable in weight, or allows the identification of damaged fish.



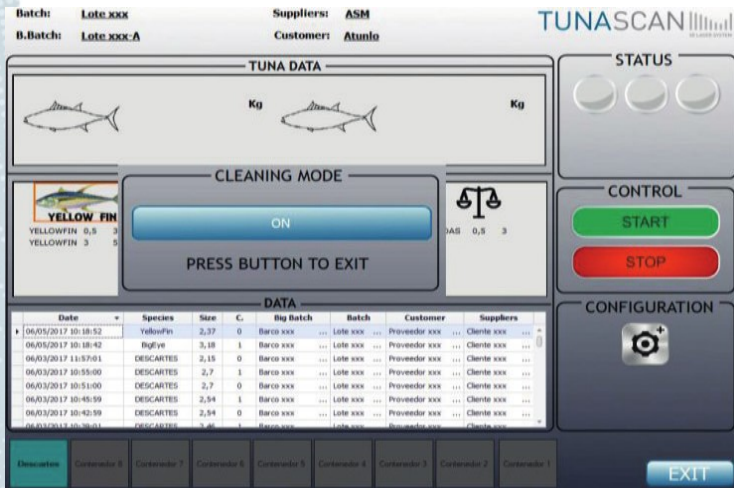
How does Tunascan[®] think ?

A multidisciplinary team of biologists, physicists, engineers and mathematicians have worked for years on the development of Tunascan, analysing the bio-morphological characteristics of more than 10,000 tuna of the most commercialised species, in order to develop a series of algorithms and neural networks whose effectiveness has been proven through DNA analysis.



Real-time information:

Depending on the user authorisation level; the system reports:



To the Machine Operator: Via a touch screen at the control station.



To the Forklift Operator: Using a 60" TV screen.

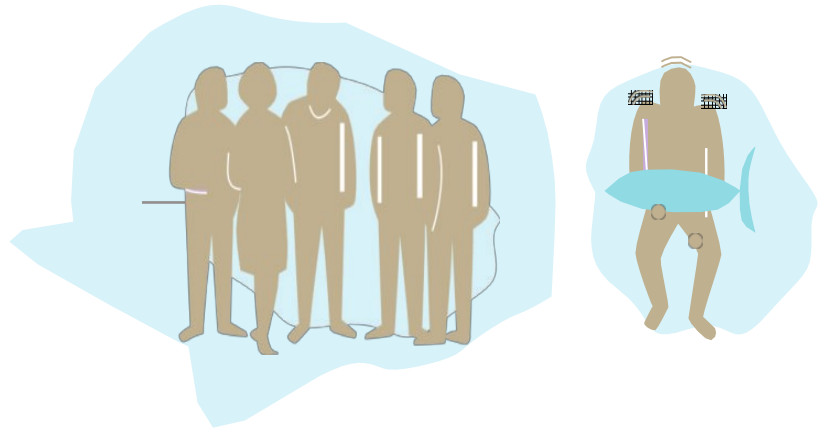


To Authorised Personnel: Through any remote device (PC, Tablet, Phone...) they can obtain and export all the information in the usual formats (Excel, Word, Pdf...).

Without Tunascan®

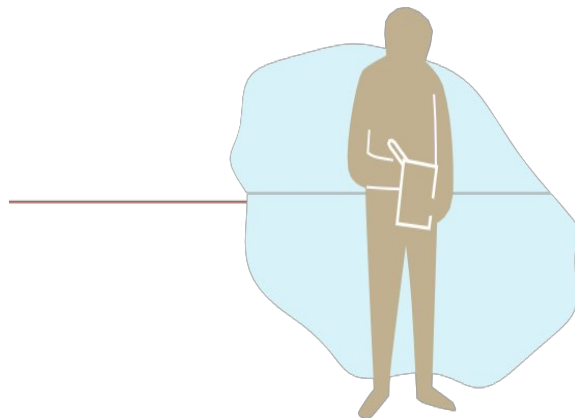
Personnel.

The reception and sorting of the production requires a large staff of experienced fish workers with a high degree of concentration to visually distinguish the different species, as well as to weigh the fish.



Data processing.

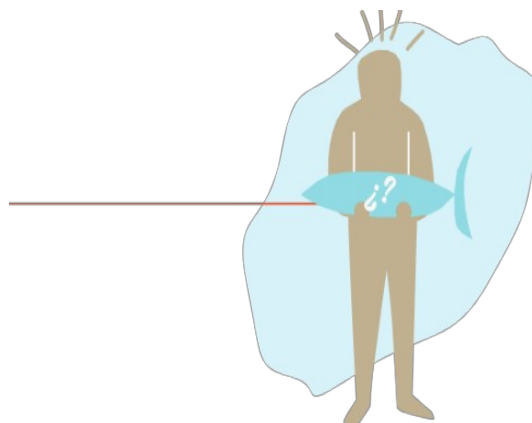
Converting all this work into valid information for the company's ERP requires a great deal of effort for the workers who, in addition to controlling the weight, types of fish, rejects, etc. they have to create physical documents and them between the different departments of the company.



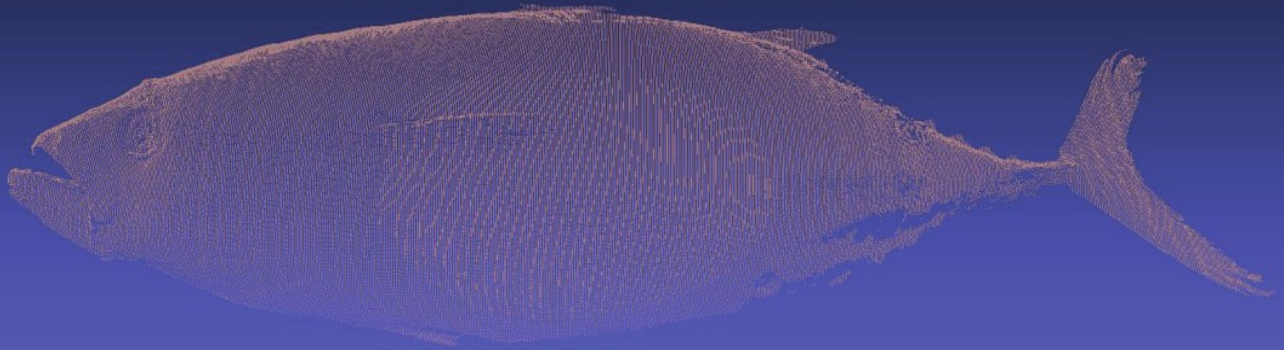
Quality protocols.

The procedure without Tunascan leaves the quality standards established by the company in hands, attention and subjective judgement of the workers.

The possible human error in discerning parts could affect the company's affect the company's commitments to customers.



With Tunascan®



Economic Aspects:

- ◉ Fast return on investment: 3D processing and sorting of the production by species, size and weight into specific bins is fully automatic, operated by a single person. Human error is eliminated and labour risks are reduced.
- ◉ Optimisation and absolute control of purchases from suppliers, allowing for the to justify claims. Allows the purchase of unsorted batches of fish (mixed), considerably reducing the average cost per kilo.
- ◉ Optimisation of sales and absolute control of information in the event of customer complaints.

Data processing:

The Tunascan database is directly connected to the company's ERP, avoiding the risk of losing paperwork when moving from one department to another.

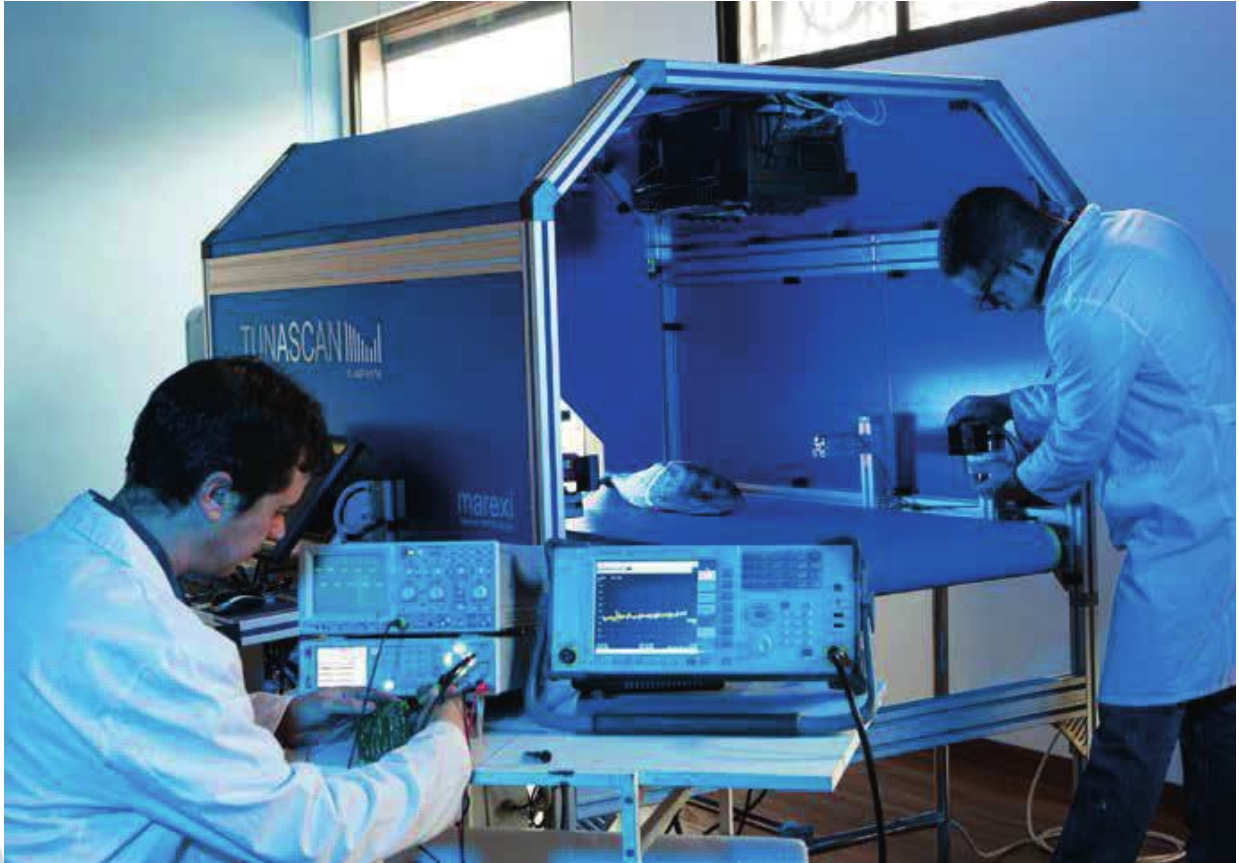
Quality protocols:

The Tunascan software allows the company to adapt the classification criteria of species, weight and quality according to the requirements of each moment or of its customers. Once established, they will remain constant and will not be affected by the subjective interpretation of each worker. In this way, customer satisfaction is guaranteed.

Strength and durability:

Tunascan has been tested over the years in aggressive industrial environments (salinity, humidity...) and in some cases working in 3 shifts of 8h per day.

*Once again Marexi innovates
at the service of the food industry*



Company founded in 2004 in Vigo, SPAIN.
Marexi researches and develops technological solutions.
Marexi products and solutions are protected by international patents.

*Technological solutions for fisheries,
aquaculture, food and environment*

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