

BIOMETIC

# Innovative Fruit Scanning Solutions



# Make your Sorting Process Smart

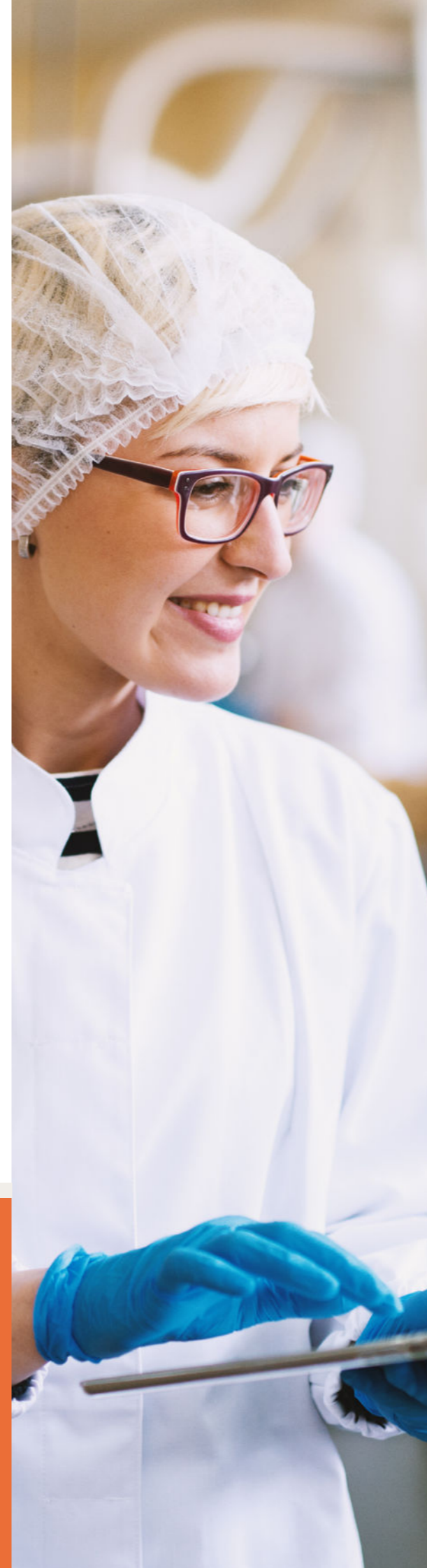
# B

Your Partner for Grading, Sorting, Dynamic Production Control, and Process Optimization for the Fruit and Vegetable Processing Industry



## BIOMETiC Ai

BIOMETiC fruit and vegetable scanners are powered by the Artificial Intelligence platform BIOMETiC Ai to ensure precise and continuously improved sorting results - coupled with effortless retrofitting of existing fruit graders and optimized packhouse operations.



## ORIGINS

### Who we are

BIOMETiC emerges in 2012 as spin-off from **MiCROTEC**, the world's leading provider of measurement systems and development of automated processes for the wood industry.

With **over 40 years of expertise** in real-time biometric scanning and high-speed process optimization, BIOMETiC is the reliable provider of innovative solutions for the automation and optimization of production processes in the fruit and vegetable industry to **increase the added value of your end produce**.

Our main goal is to ensure **your success and satisfaction** so that you can guarantee **top-quality produce** to your international customers.

## PRODUCTS AND SERVICES

### What we do

BIOMETiC **innovative and customizable solutions and systems** can be adapted to the fruit and vegetable industry's various quality and sorting needs to ensure **consistent quality of the distributed products** and **efficiency of the production lines**: From apples and oranges to exotic fruits such as avocados and pomegranates.

The new **BIOMETiC Q Eye Smart** is the only optical sorting scanner fully based on artificial intelligence (**BIOMETiC Ai**). This innovative, unique technology guarantees you as a producer a **high-precise, efficient, and sustainable sorting process for top-quality produce**. This, while reducing your production costs and waste.

With our **Customer Support Team**, we guarantee you and your company comprehensive technical support. Our team is **available 24/7, 365 days** a year, ready to assist you anytime, anywhere.





COMPANY

Corporate Identity

VISION

- ✓ We are the **global trusted partner** providing the most **innovative scanning**, support, and business solutions to all of our customers, powered by a **passionate team** dedicated to the **evolution** of our industries.

MISSION

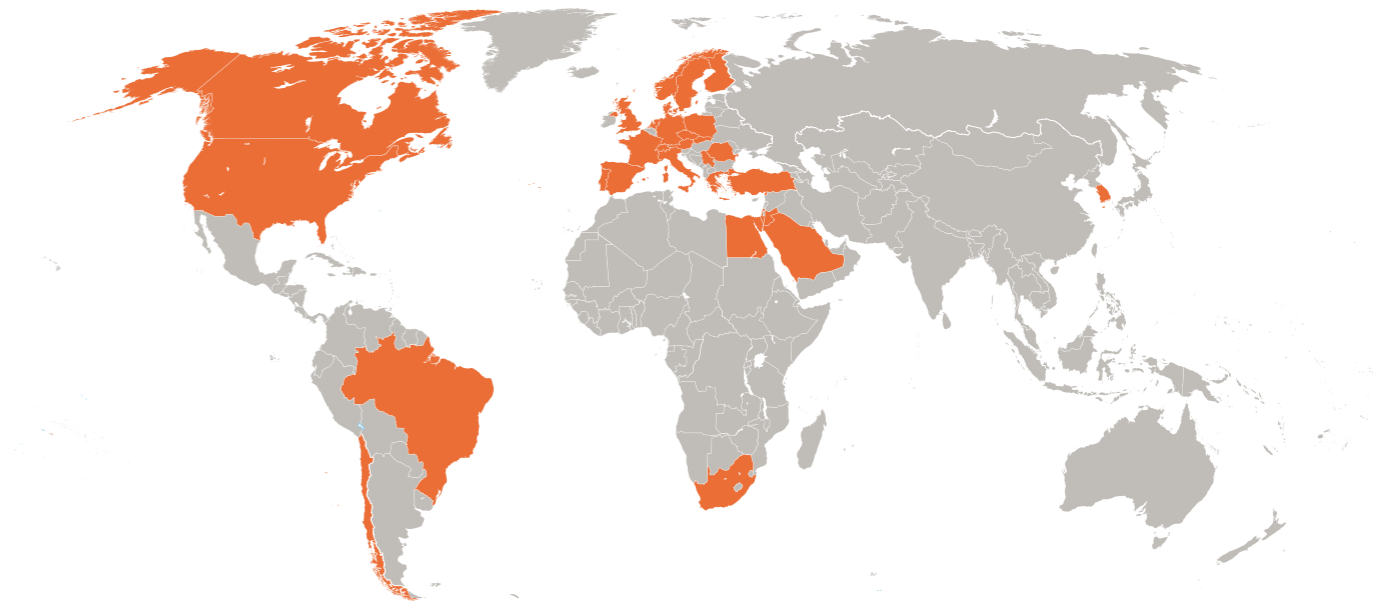
- ✓ We partner with our **customers** to continually enhance their business.
- ✓ We continuously invest in **development** of people, technology, services, and support to earn and keep the **trust of the customer** by providing excellent solutions.
- ✓ We have **passion**, we believe in what we do, and we share the **common goal** to deliver great results.
- ✓ We create **success** and **accomplishments** among our customers, our employees and our company, providing long term growth, profitability and development.

CORE VALUES

- ✓ We are dedicated to our customers;  
**Their success** is the **foundation** of our **success**.
- ✓ **Innovation** keeps us on the forefront of technology and in the lead of our industry.
- ✓ **Integrity** builds mutual trust among customers, employees and other business partners.
- ✓ **Respect** for one another is the basis of successful relationships. Through **collaboration** we achieve more.
- ✓ We are **reliable** and **dependable**; **we deliver what we promise**.
- ✓ Our **passion for excellence** is the engine that drives us forward, keeping us a step ahead

COMPANY

Worldwide References



BIOMETIC

# Scanning Solutions for External Quality

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Introducing Q Eye Smart, the fruit and vegetable scanner, powered by BIOMETiC Ai.

The new BIOMETiC Q Eye Smart is the only fruit and vegetable scanner powered entirely by artificial intelligence (BIOMETiC Ai). This innovative scanner revolutionizes your grading, ensuring unparalleled sorting precision and efficiency while adapting seamlessly to your production, market, and seasonal needs.

Q Eye Smart guarantees you meticulous inspection by retrofitting and integrating easily into production lines, giving new life to your grader and resulting in superior produce quality while reducing production costs and waste.

Leveraging our advanced BIOMETiC Ai platform and specialized image processing, Q Eye Smart raises the bar in analyzing and processing your quality data for fruits, ensuring continuously optimized performances.



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Q Eye Smart, powered by BIOMETiC Ai, is the ultimate fruit scanning technology that allows reliable, precise, and continuously optimized sorting.

MIRIAM SHOHAM, IL

EXTERNAL QUALITY

## Q Eye Smart

**Q Eye Smart scans, grades and classifies your produce for an optimized sorting**

Q Eye Smart is the only scanner entirely based on artificial intelligence (BIOMETiC Ai). Its innovative technology **substantially upgrades the entire sorting process.**

When integrated into the production line, Q Eye Smart inspects your fruits and vegetables with extremely **high precision** and **repeatability**, assuring **top-quality produce** and a general **reduction of production costs and waste.**

Q Eye Smart relies on **BIOMETiC Ai platform** and **advanced image processing** specially designed to deliver **superior performance** by analyzing and processing quality data about fruits.



Q Eye Smart's **user-friendly software interface** allows the producer to **freely decide the customized produce quality parameters** and get detailed statistical and quality reports.



Q EYE SMART

# BIOMETiC Ai

The latest BIOMETiC Ai platform is integrated into Q Eye Smart, assuring an optimized and customized sorting that is **flexible**, continuously **up-to-date** and **time-responsive** to any market needs.

## Some application examples

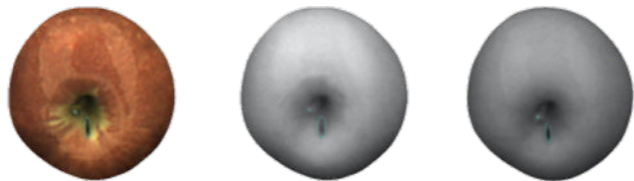
- |                |                |
|----------------|----------------|
| ✓ Apples       | ✓ Onions       |
| ✓ Citrus       | ✓ Dates        |
| ✓ Avocados     | ✓ Stone fruits |
| ✓ Pomegranates | ✓ Pears        |
| ✓ Mangos       | ✓ ...          |

## Technology advantages

- Precise location and labeling of difficult-to-detect fruit and vegetable defects
- Customized quality parameters for each fruit and vegetable variety
- Continuous improvement of fruit quality detection by adding new features
- Easy and quick addition of new fruit and vegetable varieties

## CROMETiC Digital Camera

Q Eye Smart technology is combined with the Q Eye CROMETiC cameras designed and developed in-house. The analysis is carried out by making sure that each fruit or vegetable rotates 360° and **every part is scanned, including the calyx and stem areas.**



Q EYE SMART

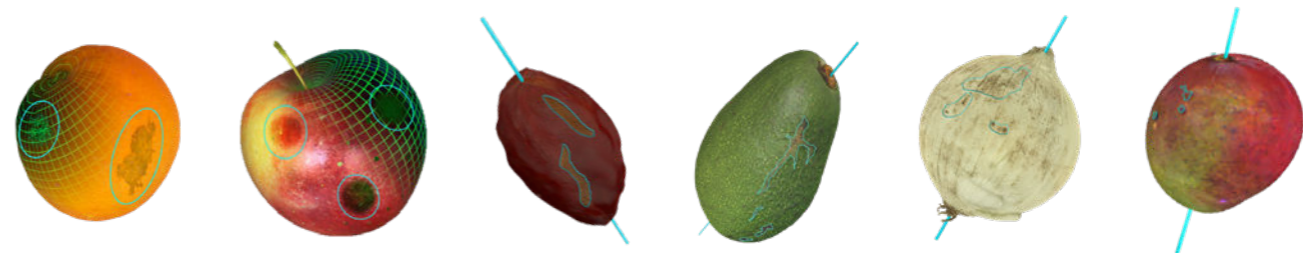
# The Only Quality Scanner entirely based on Artificial Intelligence

## Q Eye Smart: Customer Benefits

- ✓ Detection of quality factors, including external defects, shape, color, and weight
- ✓ Continuous identification of complex fruit characteristics and defects
- ✓ Creation of personalized quality classes with customized sorting
- ✓ Significant reduction of production costs and waste
- ✓ Sustainable production through reclamation and reuse of produce containing unacceptable defect levels for the international market

## Q Eye Smart: Features

- ✓ Extensive and constantly updated BIOMETiC Ai Platform, customizable for fruit and vegetable type, variety and defect
- ✓ Multi-Sensor Quality Scanner with in-house developed HD cameras
- ✓ Smart engineering, advanced electronic sensors, and ultra-high-speed image processing
- ✓ Uses Tally Fruit Sorter to automate the sorting process
- ✓ Surface mapping at 360 degrees
- ✓ Active rotation control



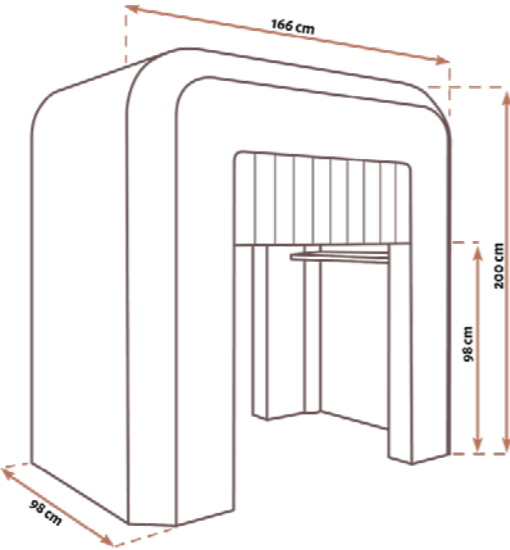
Technical features	
Versions	500 mm rotation for smaller fruits, e.g. apples, dates, onions, ... 800 mm rotation for bigger fruits, e.g. mangoes, pomelos, avocados, ...
Resolution	0.1 mm/pixel
Cameras	In-house developed Crometic Cameras with ultra-high-speed acquired full HD images
Lighting	Multispectral LED, UV, Polarized Light



Q EYE SMART

Quality Detection

Q Eye Smart classifies the single product taking into account the different characteristics of each fruit found after scanning. This, in order to classify the fruit to be in a certain **quality-range** and assign it to the appropriate **quality class**.

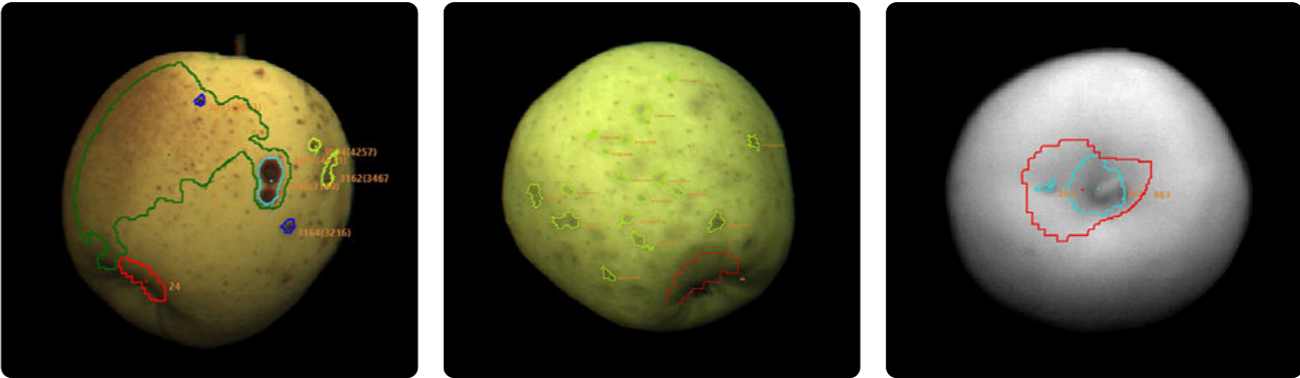


Q EYE SMART

Applications & Results

EXAMPLES

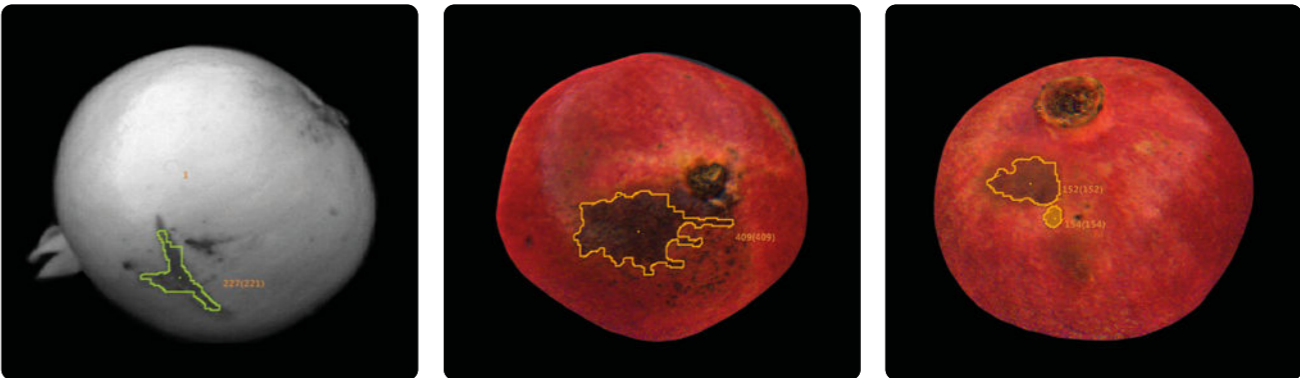
Apples



- ✓ Hail damage
- ✓ Finger pressure
- ✓ Leaf detection
- ✓ Rot at calyx and stalk
- ✓ Scab
- ✓ Stalk damage
- ✓ Cut in the stem cavity
- ✓ Stalk absence
- ✓ ...

EXAMPLES

Pomegranates



- ✓ Dark and black spots
- ✓ Color variations
- ✓ Russet and rubbing
- ✓ Cracks
- ✓ Sunburn
- ✓ Stalk corking
- ✓ External rot
- ✓ Dark spots
- ✓ ...

# Applications & Results

EXAMPLES

Onions



- ✓ Sprout
- ✓ Mechanical damages
- ✓ Misshaped
- ✓ Rotten parts
- ✓ Single and multiple cracks
- ✓ Root disease
- ✓ Stained
- ✓ Half or fully skinned
- ✓ ...

EXAMPLES

Dates



- ✓ Shape
- ✓ Weight
- ✓ Yellow ring
- ✓ Loose skin
- ✓ ...

# Applications & Results

EXAMPLES

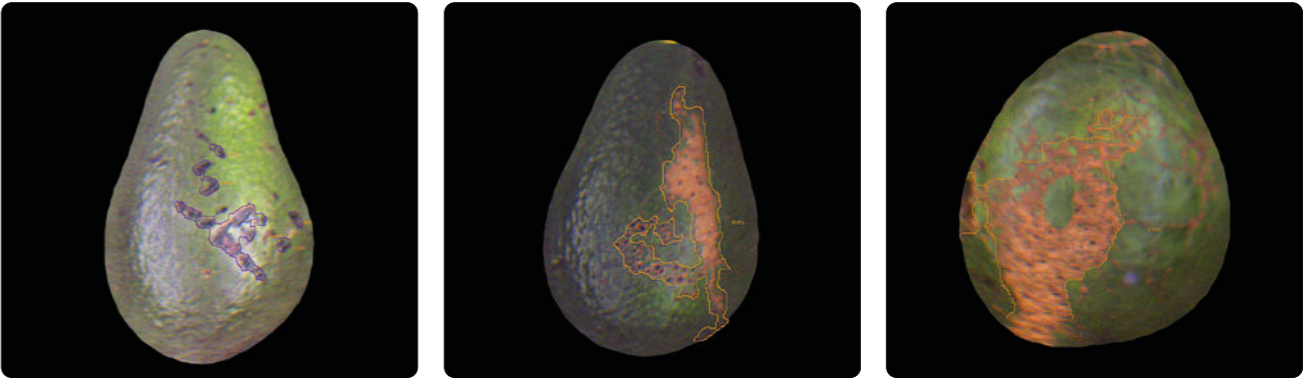
Citrus



- ✓ Rot
- ✓ Punctures
- ✓ Frost and storm damages
- ✓ Rust
- ✓ Silver scurf
- ✓ Green, black and red dots
- ✓ Sunburn
- ✓ Skin cracks
- ✓ Calyx cut
- ✓ Torn-stem
- ✓ Scale insect damage
- ✓ Alternaria
- ✓ Skin texture (smooth or rough)
- ✓ Rings
- ✓ ...

EXAMPLES

Avocados



- ✓ Sunburn (yellow, red and black)
- ✓ Corkiness
- ✓ Wound
- ✓ Rubbing (black and brown)
- ✓ Cheek (black and red)
- ✓ Damaged skin
- ✓ Scale
- ✓ Mold
- ✓ Moth
- ✓ Ground contact
- ✓ Yellow fruit
- ✓ ...

BIOMETiC

# Scanning Solutions for Internal Quality

B

Introducing BIOMETiC's latest solutions:  
Q Eye Spectro and Q Eye XP.

Q Eye Spectro brings non-destructive internal quality evaluation to fruits and vegetables using advanced hyperspectral and spectroscopy technologies. It identifies complex internal factors in real time and offers personalized sorting options, reducing production costs and waste. Plus, it reclaims produce with unacceptable defects for sustainable international markets.

Meanwhile, Q Eye XP scans packaged fruits using safe X-ray technology and a highly sensitive in-house sensor. It detects internal defects, ensuring final internal quality checks for packaging lines and large-scale retail. This solution not only protects brand reputation but also minimizes waste across the production chain.



## INTERNAL QUALITY

### Q Eye Spectro

BIOMETiC's newly released in-line Q Eye Spectro enables **non-destructive evaluation** of fruits' and vegetables' **internal quality with high accuracy**.



#### Q Eye Spectro: Customer Benefits

- ✓ Real-time detection of complex internal quality factors through non-destructive method
- ✓ Creation of personalized quality classes with customized sorting
- ✓ Significant reduction of production costs and waste
- ✓ Sustainable production through reclamation (and reuse) of produce containing unacceptable defect levels for the international market

#### Q Eye Spectro: Features

- ✓ Extensive and constantly updated BIOMETiC Ai Platform, customizable for fruit and vegetable type, variety and defect
- ✓ Smart engineering, advanced electronic sensors, and ultra-high-speed image processing
- ✓ Relies on advanced transmittance and reflection technologies
- ✓ Fast and accurate calibration
- ✓ Low production maintenance effort

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With BIOMETiC Q Eye Spectro, we have found a reliable solution offering us the best-in-industry detection of product internal quality issues.

MSP ONIONS, NL

# Applications & Results

EXAMPLES

Avocados



- ✓ Dry Matter Content
- ✓ ...

Dates



- ✓ Aspergillus
- ✓ Humidity Level
- ✓ ...

Citrus Fruits



- ✓ Brix Degree
- ✓ Red Pulp
- ✓ ...

EXAMPLES

Onions



- ✓ Internal Rot
- ✓ Internal Browning
- ✓ ...

Potatoes



- ✓ Dry Matter
- ✓ Internal Rot
- ✓ Internal Browning
- ✓ ...

Pomegranates

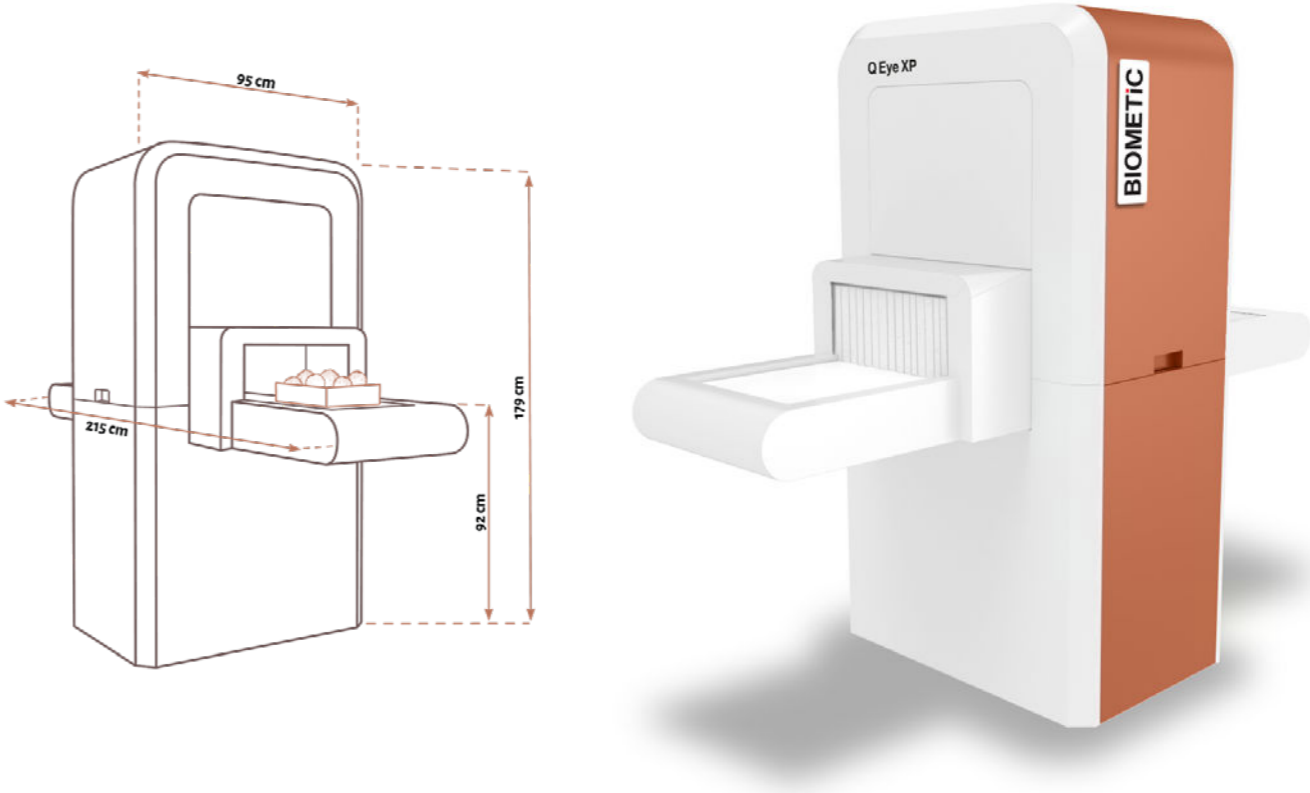


- ✓ Black Heart
- ✓ Alternaria
- ✓ ...

# Q Eye XP

X-ray vision scanner for seeing inside your produce

Q Eye XP is an **internal fruit quality scanner** that scans already packed products for **internal fruit defects**. The inspection is carried out with the help of **X-rays**, a perfectly safe and non-destructive technology, using an in-house developed high-sensitive sensor. It analyzes the inside of the fruits, detecting **all internal defects and foreign bodies**.



**Q Eye XP** is designed for **packaging lines** and large-scale retail trade, precisely allowing the producers and retailers to perform final food safety and quality checks before the product reaches the consumer, thus protecting the brand's reputation. Another important challenge we have overcome is **limiting and eliminating waste** within the production chain.

Technical features

Selection speed	up to 40 m /min
Resolution	0.8 mm/pixel
Height of Boxes	from 30 to 60 cm, modular

# What distinguishes Q Eye XP from Other Inspection Systems

## Why our customers choose Q Eye XP:

- ✓ It performs the final safety and quality checks before the product reaches the consumer
- ✓ Adaptable to all types of boxes of fruit and vegetables
- ✓ Detects internal quality defects and foreign bodies in your products
- ✓ Ensures optimized and more sustainable production
- ✓ Reduces waste and complaints
- ✓ It can be integrated into packaging lines or used as a stand-alone system in retail stores or import facilities

# Applications & Results

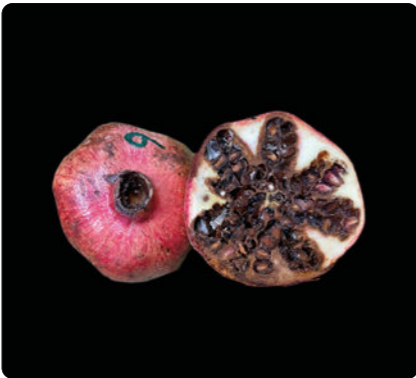
## EXAMPLES

### Avocados



- ✓ Seed
- ✓ Empty Spaces
- ✓ Internal Holes
- ✓ Rot
- ✓ ...

### Pomegranate



- ✓ Alternaria
- ✓ Rot
- ✓ ...

### Potatoes



- ✓ Hollow Heart
- ✓ ...

# Solutions for Traceability and Production Process Optimization

F Trace is a versatile system designed for traceability and process enhancement. Customized modules cater to various production areas, ensuring improved processes, product safety, and quality. It seamlessly integrates across all production lines, providing real-time insights into production phases, processing times, and product shipment. F Trace offers increased safety, adaptability, cost savings, and process optimization, ensuring precise tracking and easy usability.

Tally is your dynamic sorting optimizer for fruit and vegetable grading lines. Its software consolidates and assesses all produce information, optimizing quality, weight, and quantity in real time. This solution automates sorting lines, managing orders efficiently while ensuring quality control and accurate quantity determination. Tally dynamically allocates exits, manages real-time production, and centralizes product data for automatic quality assessment, delivering complete process control and easy integration with major systems.



FOOD TRACEABILITY SOFTWARE

F Trace

Traceability, process control, and warehouse management

We have developed F Trace to **improve production processes** and ensure maximum traceability, quality, and safety of products.

**F Trace is a single solution** that can be integrated into all production lines, guaranteeing **complete traceability of your produce**. It optimizes processes, providing real-time data of the different production phases, processing times, and shipment of your products.



F TRACE

Complete Traceability, from Fresh Produce to Distribution

F Trace: Customer Benefits

- ✓ Increased product safety. You know exactly where your produce comes from
- ✓ Adaptable to your products and needs
- ✓ Ensures significant savings
- ✓ Protects brand reputation
- ✓ Optimizes your production processes
- ✓ Simple and intuitive to use
- ✓ Can be used in any production process
- ✓ Tracks products with high accuracy
- ✓ Flexible, can be used in any production process

F Trace: Features

- ✓ Ensures a complete overview of your food products at all stages of production
- ✓ Guarantees complete traceability from harvesting to distribution
- ✓ Interacts with all machines and technologies, from the beginning to the end of your line
- ✓ Monitors, evaluates, and optimizes in real-time the processes in your line
- ✓ Has an intuitive online interface with sorting machines and ERP solutions
- ✓ Is flexible and customizable and can also be integrated into lines with non-BIOMETiC solutions

Technical features

F Trace is a **modular system for traceability and optimization of the production process**.

The various modules are tailored to the customer and cover the following **process areas**:

- ✓ Complete Traceability
- ✓ Incoming products / Delivery
- ✓ Calibration / Selection
- ✓ Warehouse and stock management
- ✓ Optimization and production statistics
- ✓ Packing and Packaging
- ✓ Weighting / Labeling
- ✓ Palletizing
- ✓ Quality control of outgoing goods
- ✓ Shipping / Outgoing products



DYNAMIC SORTING OPTIMIZER

Tally

**Tally** is a modular solution based on Crometic Camera technology that sorting fruits and vegetables according to color, diameter, and weight.

Tally’s **software centralizes** and **evaluates** all the information of your fruits and vegetables (*weight, size, volume, shape, and quality*), so you can have a continuous optimization of quality, weight, and quantity as well as immediate savings.



We have developed Tally, a **fruit and vegetable sorting optimizer** that guarantees **quality, weight, and target quantity** of fresh fruit and vegetables. A single solution to enter and manage orders and control, as well as automate your sorting line.

Tally allows dynamic allocation of exits and management of orders as they are entered into the system. It works on any sorting line, manages production in real-time as needed, and centralizes each product’s information. This way, product quality is automatically established.

TALLY

A Single Solution for Dynamic Selection Optimization

Tally: Customer Benefits

- ✓ Complete process control with management of several sorting lines selection, exits, and packaging tables
- ✓ Processing and synchronization of incoming order data
- ✓ Automatic quality assignment to the packages with the determination of weight and quantity
- ✓ Secure automation and time control of processes
- ✓ Easy integration with all major input/output systems and devices

Tally: Features

- ✓ 100% control of your sorting process
- ✓ Data elaboration and synchronization with incoming orders
- ✓ Dynamic box assignment based on sorting of target quality, color, diameter, and weight
- ✓ Safe process automation and time control with BIOMETiC time-triggered technology
- ✓ Extensive interfaces with all major systems in input/output devices

Technical features	
Selection speed	up to 40 fruits/sec
Ejectors piloting	24 V o 48 V
Number of ejectors	up to 512 per control unit
Weight acquisition	DAC 20 bit, 1 kHz, with conditioner for load cells with 4 or 6 wires
Number of lines	flexible

## 24/7 SUPPORT & SERVICES

### We are Close to our Customers

With our **Customer Support Team**, we guarantee you and your company comprehensive technical support. Our team is available **24/7, 365 days a year**, ready to assist you anytime, any-where.

Request assistance now at [support@biometric.com](mailto:support@biometric.com)

And if you need immediate support, call us at [+39 0472 273 610](tel:+390472273610)

## MAINTENANCE AND SUPPORT PROGRAM

With our comprehensive Maintenance Program, you get maximum efficiency from your food production.

Our **After-Sales Team** supports you with a range of services to ensure the correct and smooth operation of your BIOMETiC solution, preventing any problems that may cause downtime:

- ✓ Defect detection upgrade and optimization with the latest Artificial intelligence algorithms
- ✓ Evaluation and design of new customized upgrades and implementation of ad hoc algorithms
- ✓ Hardware upgrades with the inclusion of the latest developments
- ✓ Packages of original and high-quality spare parts, packed and shipped with care
- ✓ On-site preventive maintenance and optimization visits by our experts
- ✓ Remote and on-site training sessions for your operators

While each service can be **purchased** separately, they work in combination, **providing full support**, which ensures that your BIOMETiC solutions deliver the **maximum inspection performance and value**.

Request now your customized Maintenance Program at [after.sales@biometric.com](mailto:after.sales@biometric.com)

## WHEN INNOVATION MEETS EXCELLENCE

### Awards for our Commitment to Quality



At BIOMETiC, we continuously invest in researching and developing technologies to **provide excellent and innovative solutions to our customers**.

The care we put into combining **food quality** and **production process optimization** with **high-quality design** has allowed us to achieve **significant results**. This is why, so far, our solutions have been awarded the world's most important **design and technology awards**:

- ✓ Interpoma Technology Award – Category “Post Harvest”
- ✓ iF Design Award
- ✓ ADI Design Index Prize
- ✓ Fruit Logistica Innovation Award Nominee



## COMPANY

### Our Offices



#### BIOMETiC Bressanone

Julius-Durst, 98  
39042 Bressanone  
Italy



#### BIOMETiC Venezia

Miranese, 56  
30171 Venice  
Italy

### GLOBAL PRESENCE

From our corporate offices, we reach our customers everywhere, thus guaranteeing our support globally.

## COMPANY

### We are BIOMETiC



**Federico Giudiceandrea**  
President and Founder



**Frank Jöst**  
Chief Executive Officer



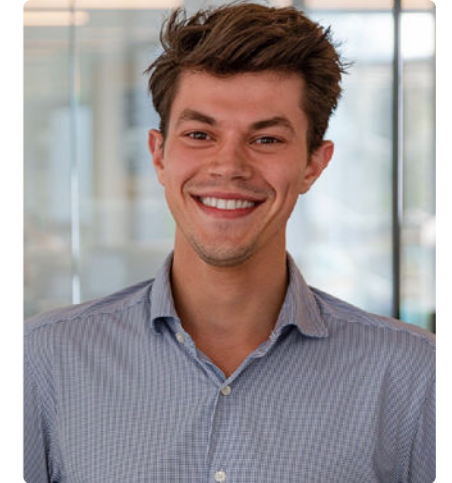
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