

VISION INSPECTION SYSTEMS FOR ORAL SOLID PRODUCTS





Vision Inspection Systems

Vision inspection systems for solid dose products portfolio.

SEA Vision is a pioneer of vision systems for the control of solid dose products like tablets and capsules, offering a complete portfolio of **reliable and innovative** solutions.

In this catalogue you will find the vision inspection systems specifically dedicated to the control of defectiveness of oral solid dose products like integrity, shape, colour and dimension.

	harleblister_	harle2D 3D_
Products & Packaging		
Type of machine	Blister Thermoformer	Blister Thermoformer Bottle counter/filler Strips filling and sealing machine

Capable of **controlling 100% of the product during the packaging process**, they guarantee maximum production quality, **eliminating any mix-up risk** in order to preserve the health of the final user. Designed to **minimize rejections**, limiting them to only the products that are non-compliant with absolute **precision and reliability**.

SEA Vision offers a complete set of controls over any kind of oral solid dose products packaging (bottles, strips, sachets, stickpacks and others) with dedicated vision systems such as Databox and OCVmulti, that you can consult on dedicated catalogues.

Control over
100% of the
products

Optimal controls
over any
product and
material

Operations
executed in real
time

High precision

Perfect machine
integration and
reject
management



The systems can be installed on any type of machine currently present on the market **without impacting the production speed**, integrating itself perfectly thanks to its automation logic. The **in-house developed algorithms** are entirely proprietary and the dedicated instructions allows a smart use of the latest generation of hardware resources and guarantees **real time control** measurable in milliseconds.

In order to guarantee a perfect control for each specific application, material or machine configuration, the vision system is equipped with an **optimal combination of optics and LED light units** according to the specific product.



Vision Inspection Systems

Harleblister is the vision system designed for the inspection of solid dose products on thermoforming machines.

SEA Vision is a pioneer of vision systems for the control of blisters. It develops **reliable and innovative** solutions for the complete control of the correctness of products within the blister and of the packaging.

Harleblister can control all **oral solid products**:

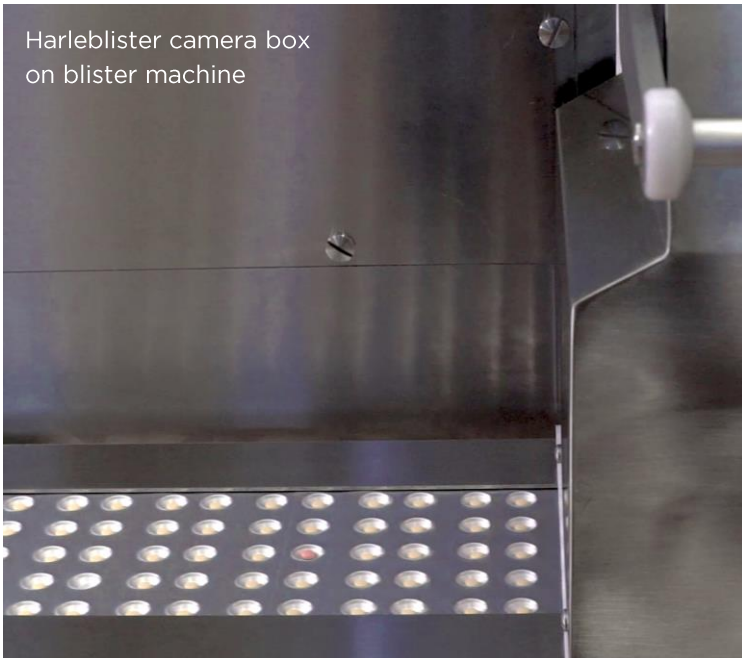
- White and coloured tablets
- Uncoated and coated tablets
- Monochromatic capsules
- Bicoloured capsules
- Softgel capsules

Harleblister can handle **blisters of various materials**:

- Transparent PVC
- Opaque PVC
- Amber PVC
- Polypropylene
- PVDC
- Aluminium/Aluminium



Harleblister camera box
on blister machine

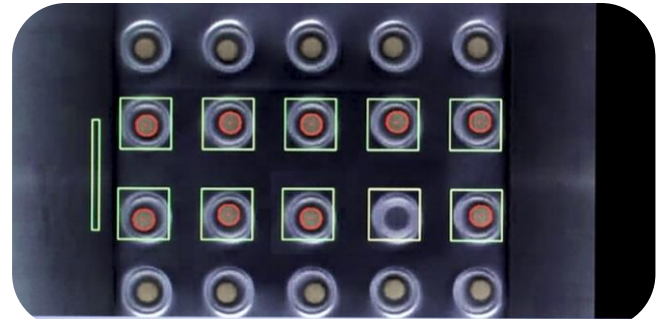


Harleblister is the vision inspection system designed to check the product and the packaging, it identifies any type of defect, giving the machine the input to reject non-compliant products.

Controls

Control every detail of your production

Harleblister executes the **inspection over 100% of the production** and is capable of detecting all possible defects on solids, all thanks to the wide range of controls that it offers. From the **correctness** and **integrity** of the single product until the **completeness** and **defectiveness** of the blister packaging: All **controls are customizable** and can be performed singularly or in simultaneous executions. The system is designed to detect differences in size, shape and colour, even minimal ones.



Missing tablet

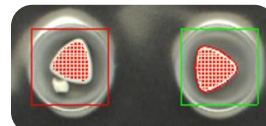
QUALITY CONTROLS ON PRODUCT (tablet)



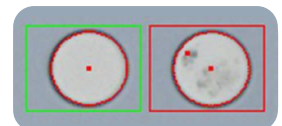
Wrong dimension



Wrong colour



Fragment in cavity



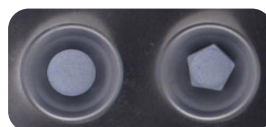
Black spots



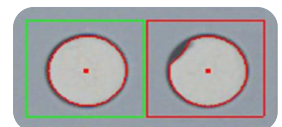
Wrong shape



Wrong shape
(exagonal with
same area)



Wrong shape
(pentagonal with
same area)



Chipped tablet

QUALITY CONTROLS ON PRODUCT (capsule)



Wrong colour
(monochromatic)



Wrong colour
(bicolour)



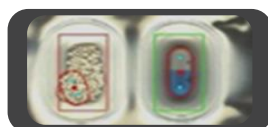
Excessively
opened capsule



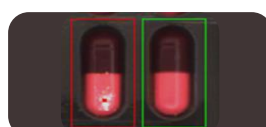
Excessively closed
capsule



Incomplete
capsule

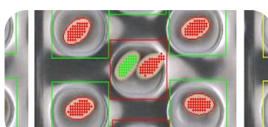


Powder inside the
cavity

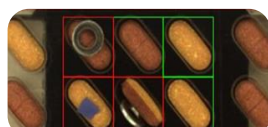


Powder on
capsule

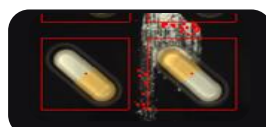
QUALITY CONTROLS ON BLISTERS



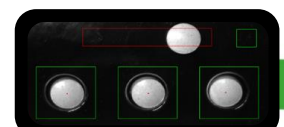
Double product



Foreign bodies



Powder presence

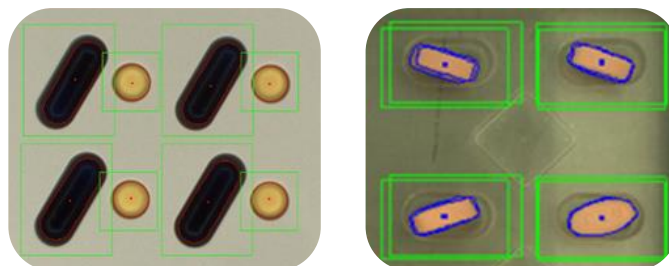


Tablet outside cavity

Special Controls

Multiproduct management

Thanks to the **multiproduct management**, it is possible to perform controls on different products within the same blister.



Articles cross-check

This feature increases the safety of the controls on products.

It analyzes the archive of articles to identify critical similarities between the products that could lead to a mix-up. It measures the probability that different item will be considered good by the same control and helps avoiding errors.

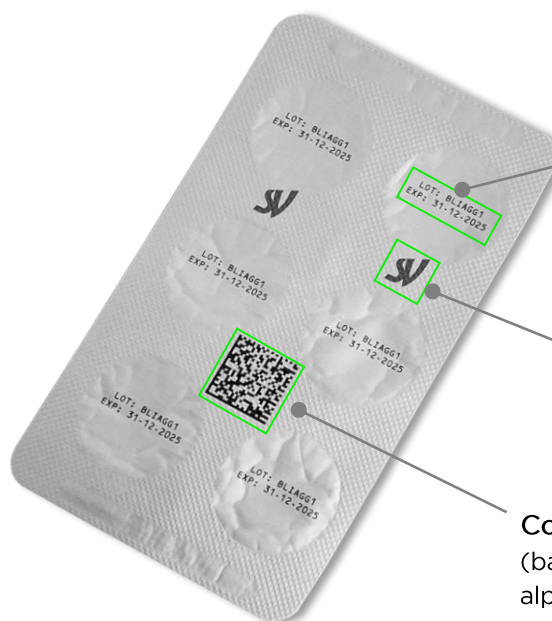
Additional controls

CONTROLS ON BLISTER LIDDING FOIL



Alucode

Control of lidding foil reel correctness



OCV/OCR

Control of printed variable data

Printing quality
(PQV - Print quality verification)

Codes

(barcodes, 2D and alphanumerical codes)

OTHER CONTROLS

A wide experience matured in over 25 years allows the Harleblister to perform a large number of additional controls thanks to the **programmable measures tool**. An example? The verification of a text or of a logo printed on the tablet.



PRINTERS MANAGEMENT

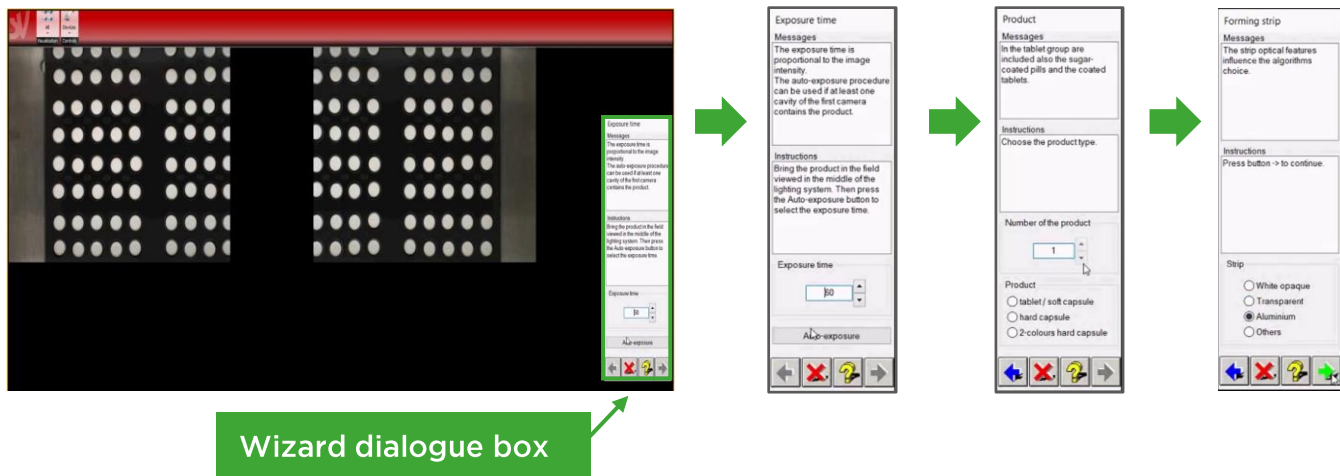
Harleblister manages in-line printing at run-time.

Configuration

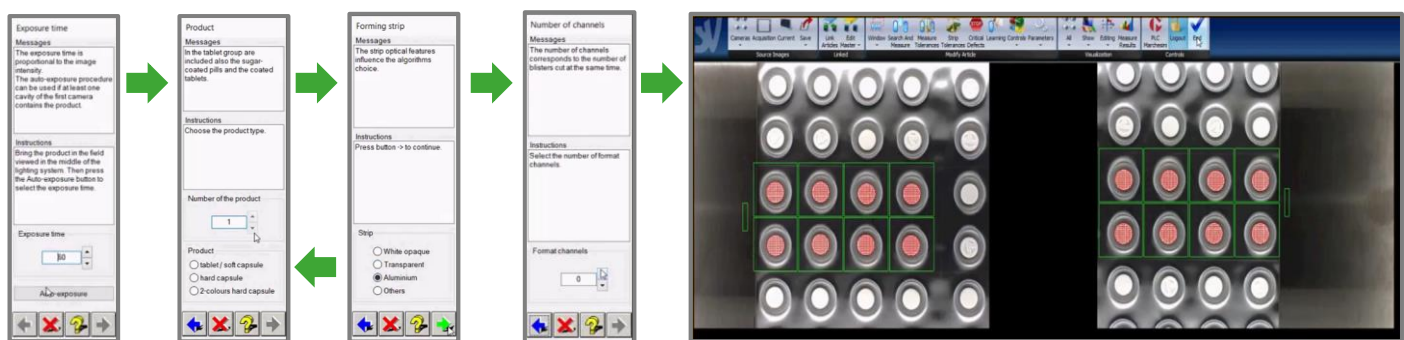
Fast articles configuration with Wizard

Configure the control for a new article is easy with Wizard.

Wizard function shows a sequence of dialogue boxes containing messages to read and instructions to execute.



The user can step back to the former dialogue boxes at any moment to change the parameter settings.



Wizard function is a sequential tool that guides the operator along a pre-defined path of operations.

The operator can easily configure an article without knowing in advance the correct sequence of operations that must be accessed from the software menu.

Vision Inspection Systems

Harle2D|3D is the vision systems designed for the inspection of solid dose products on filling & counting or thermoforming machines.

Harle2D|3D system is capable to check capsules and tablets in **three dimensions** and detect invisible errors for traditional two-dimensional vision systems and is able to reject the single product.

Control in 3 dimensions over 100% of the products

Grants product integrity and avoid mix-up

Operations executed in real time

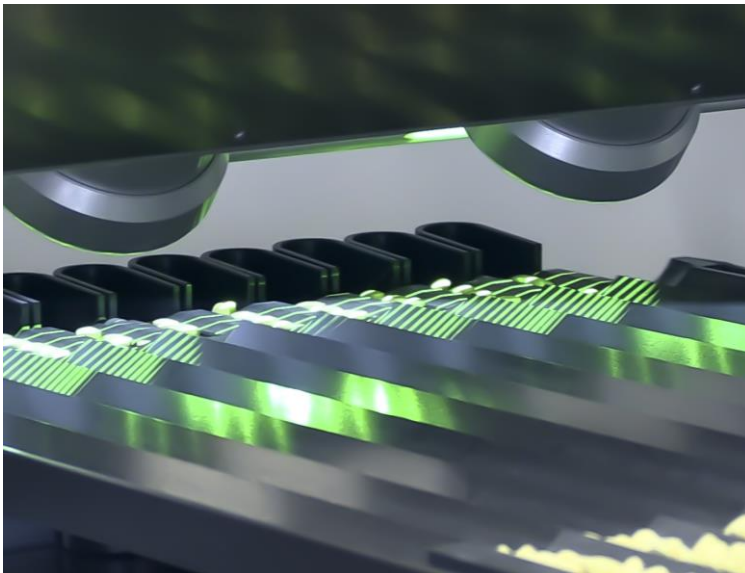
High precision

Single product rejection management

Harle2D|3D can control oral solid products:

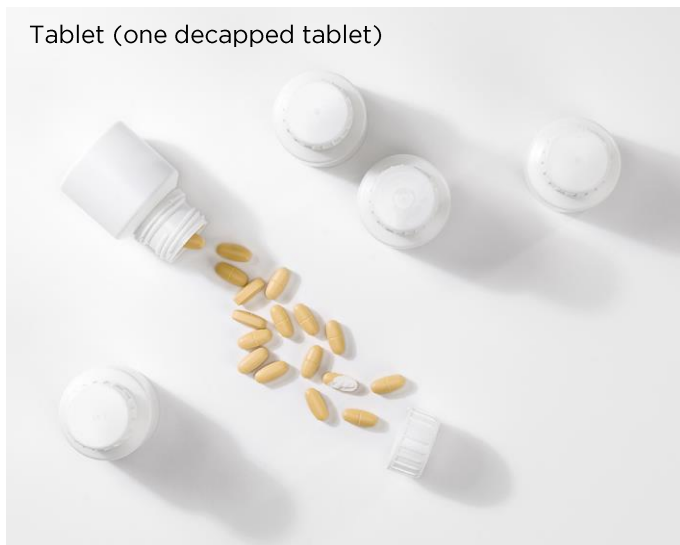
- White and coloured tablets
- Uncoated and coated tablets
- Monochromatic capsules
- Bicoloured capsules

The result is always optimal.



Harle2D|3D add a dimension to the control on tablets and capsules

Tablet (one decapped tablet)



Capsules (one with different colour)



Harle2D is designed to check oral solid product **dimensions, shape and colour**.

Harle3D is designed to check **product thickness**.

Harle2D|3D effectively identifies any type of defect, giving the machine the input to discard single products that are not compliant.

Harle3D can be installed only in combination with harle2D.

The **3D control** allows the identification of errors that are impossible to find for a traditional 2D system such as a **decapped tablet** that shows the undamaged side to the camera. Harle3D thanks to a system of LED projectors is able to **control the height** of each product that passes under the cameras, adding a dimension to the control.

It is designed to **minimize waste**, limiting it only to truly non-compliant products with absolute precision and reliability.

Controls

Track and reject every single product

2D CONTROLS - QUALITY OF THE TABLET

- Size;
- Colour;
- Shape;
- Integrity (broken or chipped tablet);
- Coating imperfection.

2D CONTROLS - QUALITY OF THE CAPSULE

- Size;
- Colour (monochromatic and two-color capsule);
- Shape (excessively closed capsule, excessively opened capsule);
- Integrity (open capsule, half capsule).

3D CONTROLS - QUALITY OF THE PRODUCT

- Product height control;
- Decapped tablet identification;
- Identification of crushed capsule.

Harle2D | 3D inspects **100% of the production** and is able to detect all possible defects on solid products, thanks to the wide range of controls it offers.

From the correctness and integrity of the single product, all **controls are customizable** and can be carried out individually or in simultaneous combinations.

The system is designed to **detect even minimal differences** in size, shape and colour.



Harle2D|3D HMI on counting machine



Harle2D|3D HMI on touch screen display



Single product rejection management

Special features

Product tracking feature

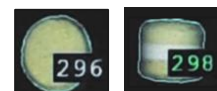
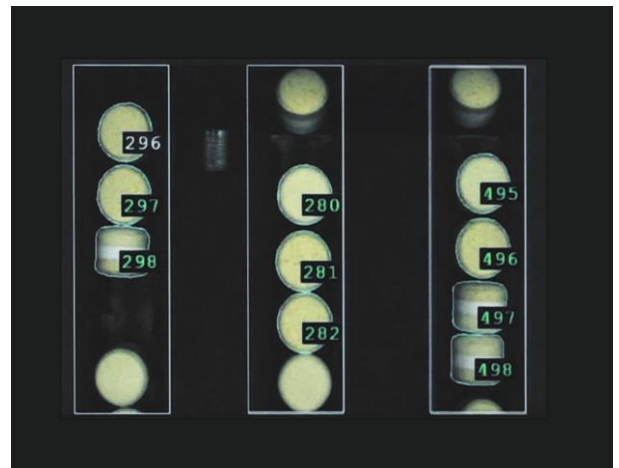
Every single **product is tracked during transport** up to the reject position. This allows the best reject management according to the automation level of the machine, even the **rejection of the single product**.



Product tracking features

Multi-product management

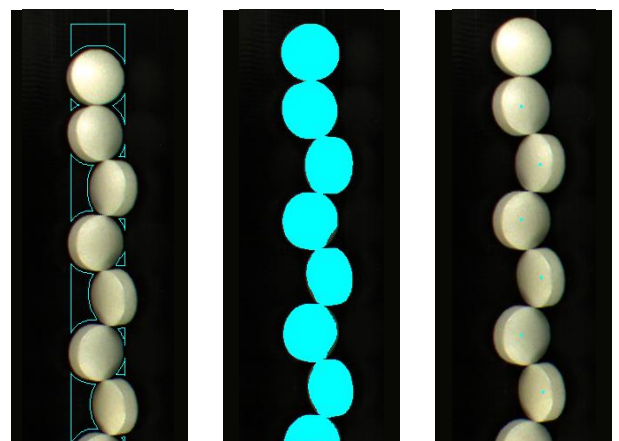
Thanks to the **multi-product management**, it is possible to control products that can assume **different positions on the vibrating plates**.



Control of multi-layer tablet

Advanced segmentation

Thanks to specifically developed algorithms, Harle2D|3D_ **segments and controls products that touch each other** on the vibrating plates.



Advanced segmentation on HMI

Machine integration

Perfect machine integration, result of a wide experience.



Harleblister camera and light unit box on blister machine. Product: tablets.

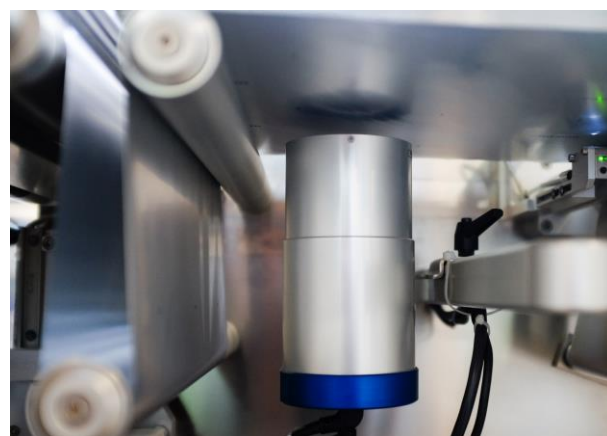


Harleblister cameras and light units box on blister machine. Product: capsules.

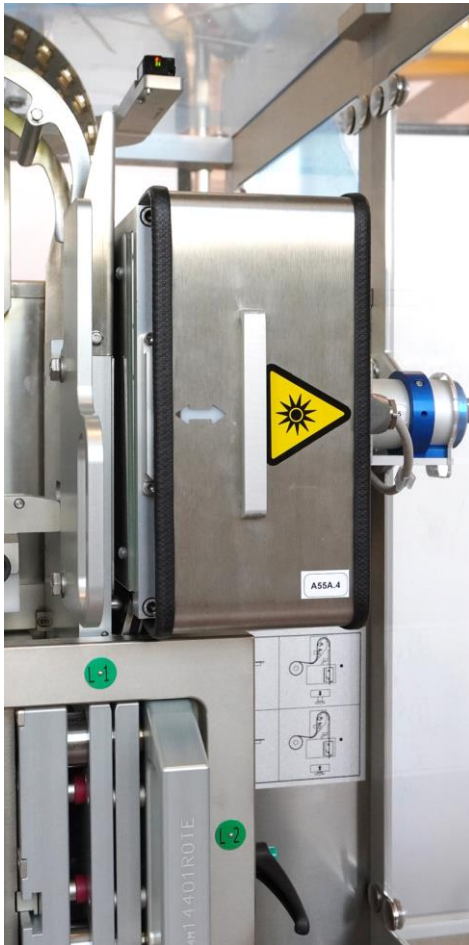
Automation

SEA Vision has a **strong experience of integration** of vision systems on machines with different levels of automation.

Such a **wide and matured experience** guarantees a **correct machine integration**, an **accurate signal exchange** management and integrated automation and **rejection logics**.



Alucode camera on blister machine

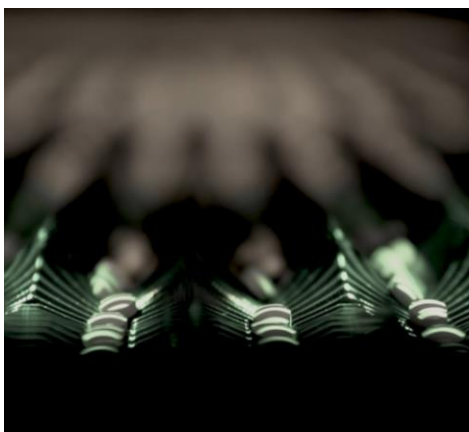


Camera for OCV/OCR - PQV control on blister machine.

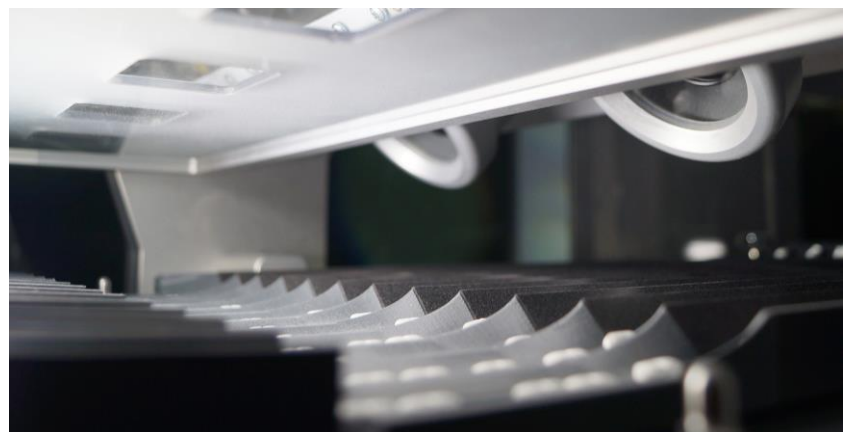


Harle2D cameras on strip packaging machine

Machine Integration



Harle3D LED projector pattern on tablet



Harle2D cameras on counting machine

Software

Software features

The systems are based on the use of cameras for the acquisition of product images which the software elaborates in **real time** by performing complex search operations, measures and comparison with reference models and tolerances. Depending on the result, the systems **automatically communicate the rejection signal** for wrong products to the machine.

The design method is of the upmost importance for the productivity of the entire system: fast, reliable, equipped with **smart algorithms** that takes full advantage of the installed hardware in order to severely **reduce the elaboration time** of the images, guaranteeing a **precise and secure result** at all times.

The **development of proprietary algorithms** allows making the most of the performance of all the threads available in the latest generation processors. The concepts of **spatial and temporal parallelism** have been developed to allow calculations on parallel threads. The results are a **significant improvement in calculation performance** and a **reduction in image processing time**.

The elaboration of the calculation time is measurable in milliseconds and allows to perform controls **without effecting the machine speed** in any way.

The display clearly shows the results of every single control **in real time**, allowing the operator to have a **complete set of production data** that is always under control.

The systems are **expandable** and additional controls can also be integrated in a latter time.

Compliance

Pharma specific

Specifically designed for the pharmaceutical field, the systems are entirely compliant to all industry regulations. User access is regulated in accordance with the FDA regulation 21 CFR part 11 and annex 11. All events are registered in an audit trail file. Software development follows GAMP5 regulation.

Hardware

Hardware features

Excellent software requires proper hardware. SEA Vision uses only **latest generation** components, such as **industrial computers** with **multicore, multithreaded** processors that are fully utilized by **proprietary algorithms** and instructions.

The optics and the light units are specifically designed and assembled to adapt to the requested controls and to the specifications of the machine they are integrated into, always guaranteeing an optimal result.

The image acquisition is quick and precise with an **optimized lighting management**.

All used displays are touch-screen with an optimized interface that increases usability and interaction.



Display

The software optimized for touch display makes the use simple and intuitive.

According to the Customer preference, it can be integrated into the machine HMI or separated.



Dedicated HMI on touch screen display



Integrated HMI on OEM HMI



Fully integrated with yudoo

All the inspection solutions are natively integrated with Yudoo, the 4.0 pharmaceutical software suite for the full management of automation processes, digital quality, data analysis and for Track&Trace. A digital hub that is everywhere accessible through a secure-access web interface or dedicated devices.





Via Treves, 9 E Pavia (Italy)
Ph. +39 0382 529576



Connect with us, follow our social channels
to get the latest news and event updates!
www.seavision-group.com