a-eye clearance

OPEN YOUR A-EYES

A-EYES OPEN YOUR A-EYES OPEN YOUR A-EYES OPEN YOUR A-EYES OPEN YOUR A-EYES OPEN YOUR A-EYES

SEAVISION

Streamline the changeover times and improve the process quality of your packaging lines

Nowadays the pharmaceutical market requires more frequent changeovers on the packaging line with a high number of small productions. This increases the risk of a costly product recall for wrong products, labels and packaging entering in the lines. Furthermore, with smaller batches, the time dedicated to the line clearance procedure raises and the efficiency of the process (OEE) is reduced.

A new AI powered automated solution is now available to make line clearance process faster and more efficient.

**TIME SAVING
SOLUTION**

**AI-POWERED
AUTOMATED
SOLUTION**

**CHANGEOVER
DOWNTIME
MINIMIZED**

**REAL-TIME
DETECTION**

**IMPROVED OEE
EFFICIENCY**

**NO HUMAN
INSPECTION
ERRORS**

Improved processes

Enhanced quality

**WORKFLOW | SOP
DIGITALIZATION**

VALIDATED SYSTEM

EASIER AUDIT

**AUTOMATED
REPORT WITH
DIGITAL EVIDENCE**

**CERTAINTY OF
DATA**

**PAPERLESS
SYSTEM**

**EVOLVED
HARDWARE**

**ADVANCED
ALGORITHMS**

**DATA
COLLECTION**

4.0 digital enablement

Faster, safer, better and more compliant line clearance is now a reality

A-eye clearance allows to execute each phase of the procedure in a more reliable and faster way, reducing line changeover times and the risk of human errors, increasing line availability, and improving OEE.

The solution allows to minimize the economic cost of the procedure: thanks to the automatic control less personnel is involved, the time available for production increases, thus resulting an increase of efficiency.

■ Area excluded from the control (outside the machine)
■ Unattended objects

EVOLVED HARDWARE AND AI POWERED SOFTWARE SOLUTION

A-eye clearance solution is a combination of hardware, software and 4.0 capabilities.

HARDWARE
The system can receive and elaborate information from multiple sources in order to answer to every customers request of control.

• Artificial Intelligence cameras
• Sensors | I/O
• Manual acknowledgement (QR code scanning)

SOFTWARE
Every image acquired by the system is analysed by a powerful AI-powered proprietary software that deep understands the scene and highlights only the real issues.

4.0 ENABLEMENT
The system takes benefits from the power of SEA Vision 4.0 pharma software suite yudoo for workflow configuration and execution, digital report and Business Intelligence tools.

AUTOMATION FEATURE
The system includes automation libraries that allows to coordinate the movement of the mechanical parts of the machine before the images acquisition. This feature grants a complete control of all the machine surfaces, even on covered and hidden areas.

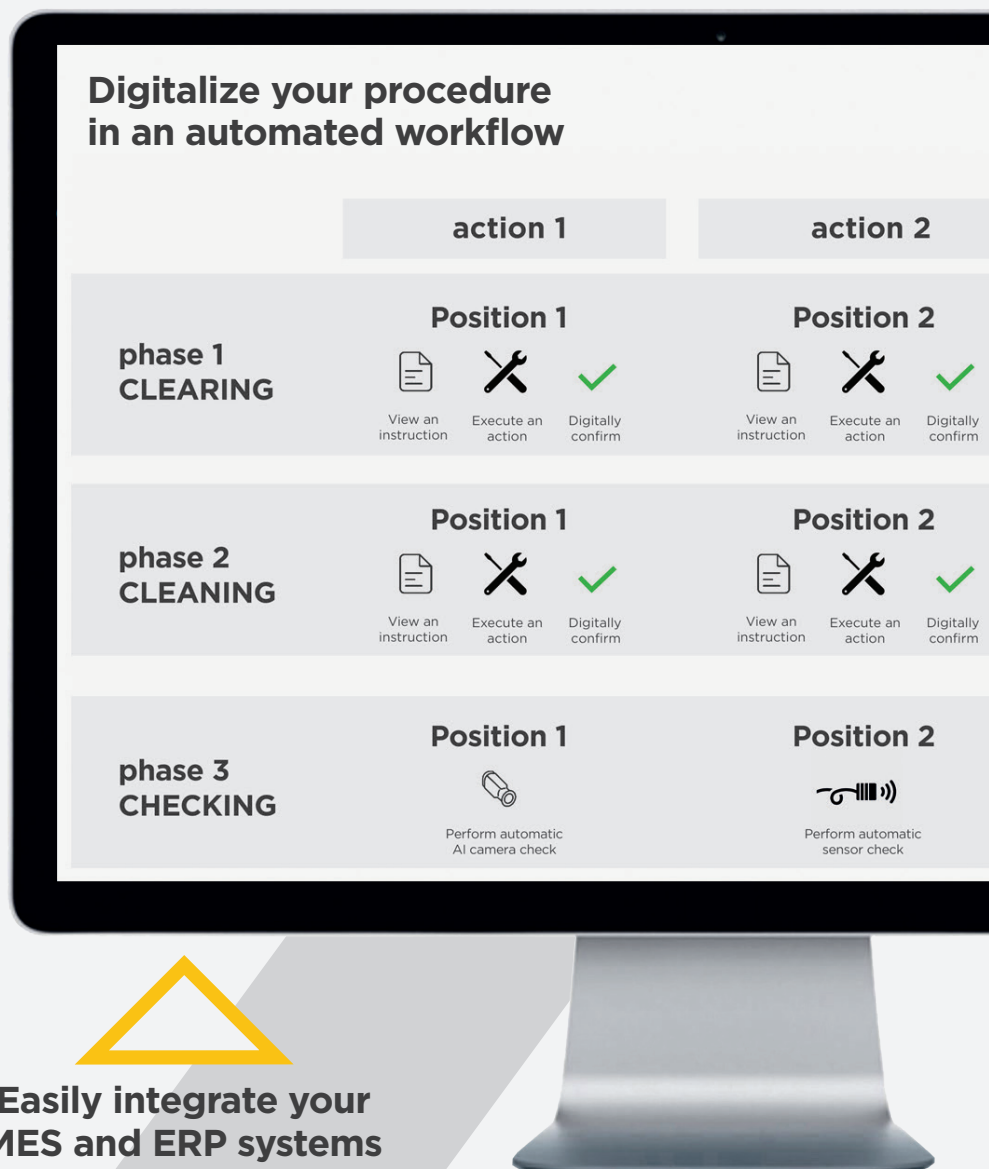## ARTIFICIAL INTELLIGENCE

Powered by **ARGO VISION**

Since its foundation in 2016 ARGO Vision is a software house specialized in the field of **Artificial Intelligence**. The pride of the company is its past and ongoing R&D activity on **Computer Vision and Machine Learning** fields - with particular attention to the world of neural networks.

Today the expertise of ARGO Vision is a **strategic technological asset** that, since 2020, is fully **part of SEA Vision Group** and it is the key to accelerate the transition of pharmaceutical customer to the 4.0 world.

The application of ARGO Vision's AI algorithms to the software solutions developed by SEA Vision, **empowers consolidated software capabilities**, adding a **key component of innovation** to the machine vision technologies portfolio.

Evolve your paper-based SOP in an **automated workflow** with the benefits of a **smart documents system**

Today, manual procedures requires a lot of efforts and impacts the overall efficiency

SOP

Digitalize your procedure in an automated workflow
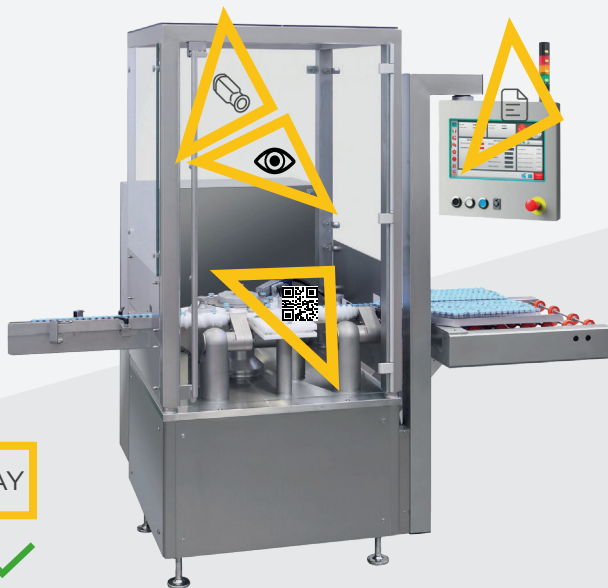
	action 1	action 2
phase 1 CLEARING	**Position 1** — View an instruction / Execute an action / Digitally confirm	**Position 2** — View an instruction / Execute an action / Digitally confirm
phase 2 CLEANING	**Position 1** — View an instruction / Execute an action / Digitally confirm	**Position 2** — View an instruction / Execute an action / Digitally confirm
phase 3 CHECKING	**Position 1** — Perform automatic AI camera check	**Position 2** — Perform automatic sensor check

Easily integrate your MES and ERP systems

AI POWERED SOLUTION FOR LINE CLEARANCE AUTOMATION

We have introduced a **powerful engine to transform the paper based procedure** into an **automated and completely configurable workflow.**
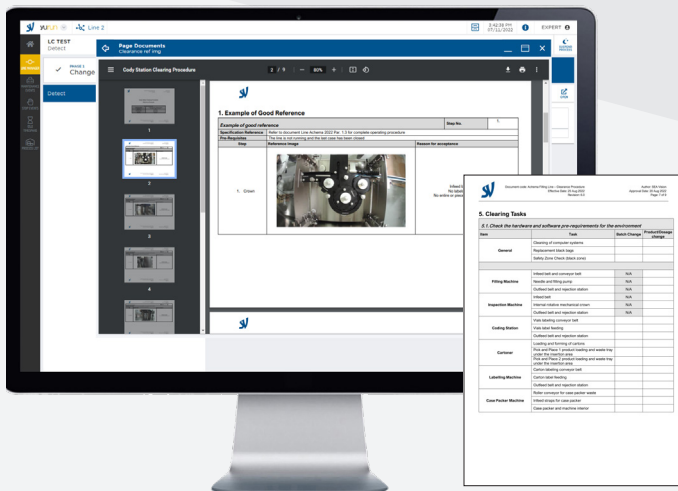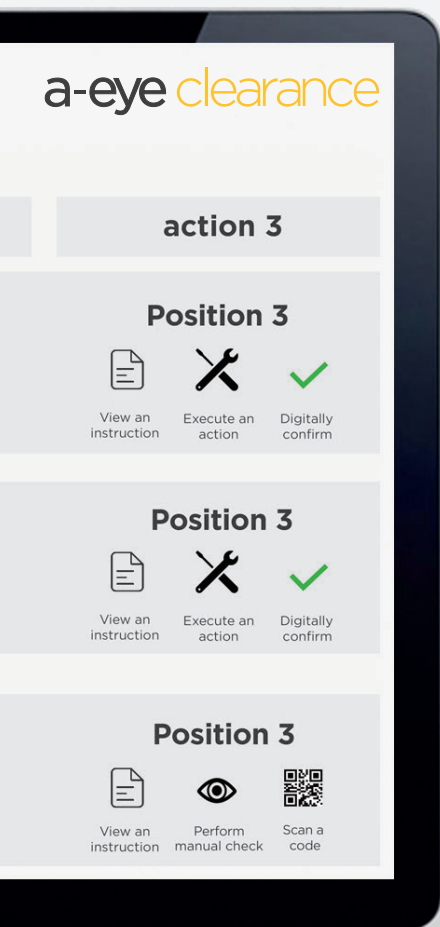
The workflow can include several consequential phases that can contain different actions.

Every action can be executed by the operator:
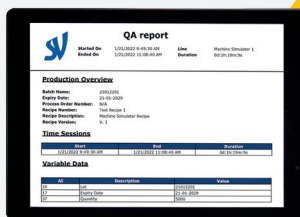
MANUALLY AUTOMATICALLY IN A HYBRID WAY

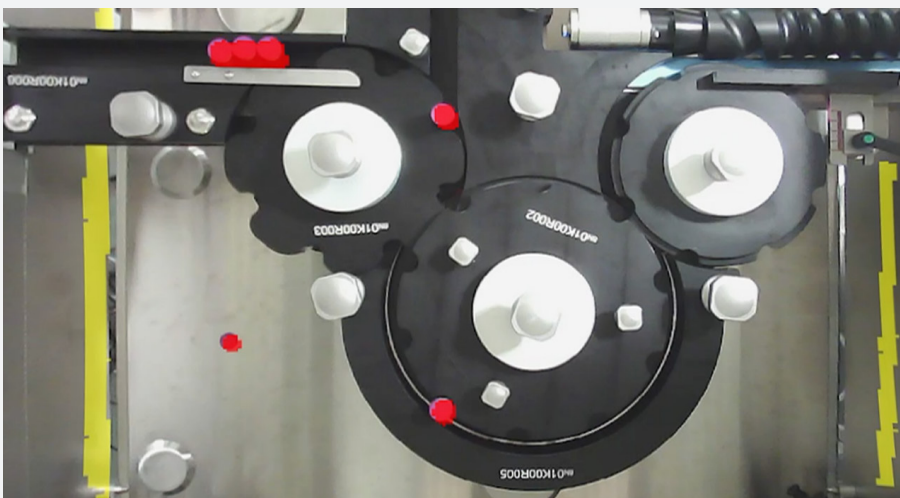## Enjoy the benefit of the smart documents system

Thanks to the **smart document system**, at every action to be performed is possible to link the most useful instruction documents, pictures or videos. In this way the operator has always the right information at the right time. The process is faster and reduces the hours of training.

a-eye clearance

action 3

Position 3

View an instruction | Execute an action | Digitally confirm

Position 3

View an instruction | Execute an action | Digitally confirm

Position 3

View an instruction | Perform manual check | Scan a code

Discover the benefits of automated personalized digital report

The acquisition system is smart and does not compare pixels but images

GO BEYOND THE LIMIT OF A TRADITIONAL VISION SYSTEM

Thanks to the Artificial Intelligence the system is capable to deeply understand the scenes and it's never limited by reflections, shadows and different light conditions.
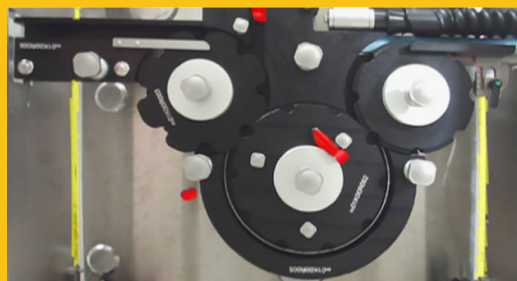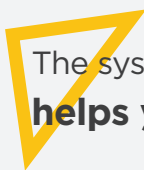
HOW IT WORKS

The system recognizes in real-time: the parts of the machine outside their correct position, the products that pass through the machine and the foreign objects.

MULTI-CAMERA SCENE

Each scene can be controlled by multiple cameras at the same time. The controls are combined for a best result.

The control can be made even on area that are dark or hardly reachable from a operator, overcoming the limits of human inspection. A network of cameras and sensors can control and provide an overview of the whole line immediately.

The system **is always active** and
helps you in different ways

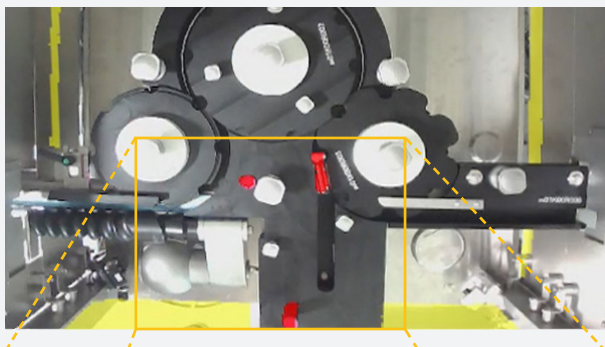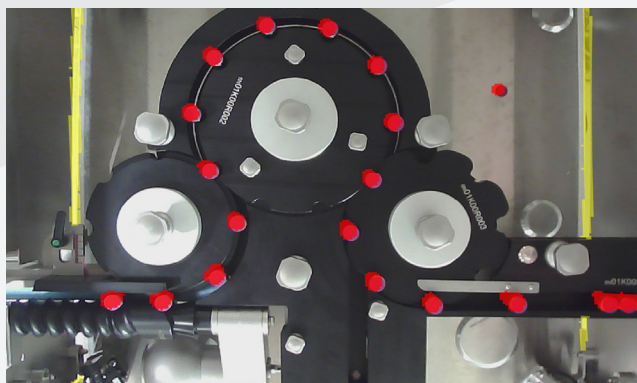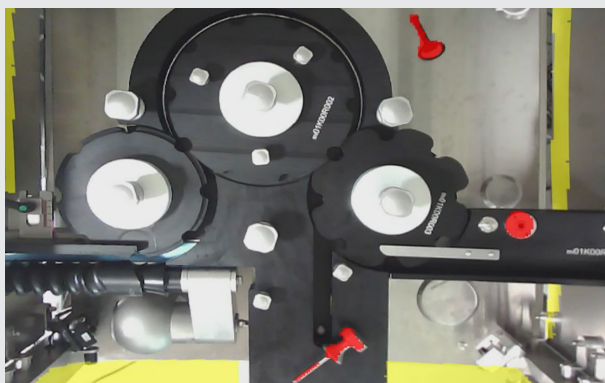Powered by

ARGO VISION

REAL TIME ANOMALIES DETECTION
The system highlights in real-time the anomalies and gives a visual feedback to the operator.

DURING FORMAT CHANGE
The system highlights the missing and misplaced components, helping the operator to don't forget details.
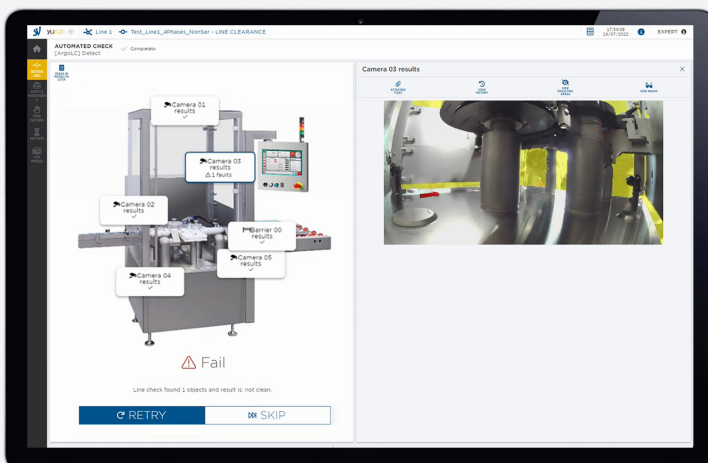
DURING PRODUCTION
The system evaluates in real-time the product presence, and it highlights out of place elements. Everything is always under control.

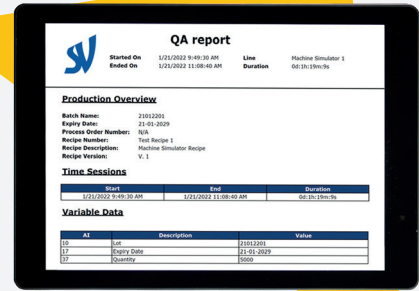View of out of place products on the machine

AUTOMATIC CHECKING SYSTEM
A-eye clearance system automatically performs the checking procedure, to verify that every check point has been correctly cleared - giving immediate evidences of the control. In case of foreign object detection, it alerts the operator.

SELF-IMPROVING AI ALGORITHMS
The Artificial Intelligence algorithms automatically improves their-selves to react always better to the changes on the scene. Algorithms improvements are developed to be installed accordingly to the customers specific change management procedures.
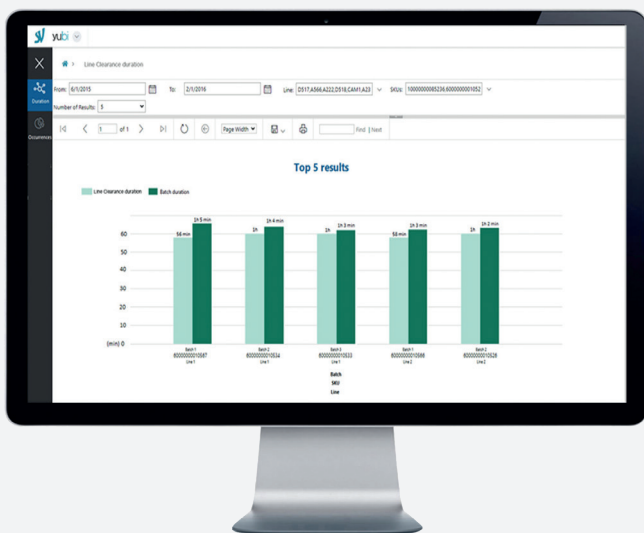
QA **automated reports** that gives digital evidence of the processes

The system automatically collects information and digital evidence for every performed phase and action (both automatic and manual). At the end of the process the data collected are used for the creation of automatic and personalized QA reports.

PAPERLESS SOLUTION

All the procedures are digitalized and the needed reports are automatically filled in digital formats. This helps to reduce the quantity of paper travelling back and forth on the line, reduces the space needed for physical archives, and helps the environment.
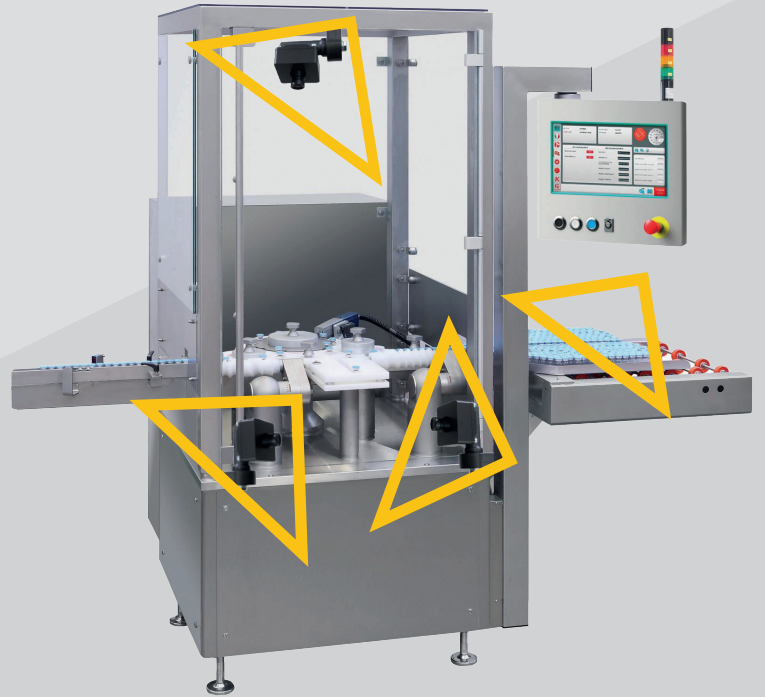
BI TOOLS THAT WORKS

The business intelligence tools adds the possibility to smartly elaborate the huge amount of data collected and extract useful information to increase the performances further.
An example: changeover time of different line clearance processes can be deeply analysed in order to understand how to improve and reduce this time, increasing productivity.

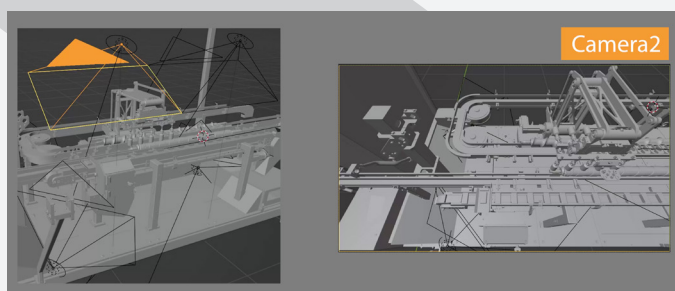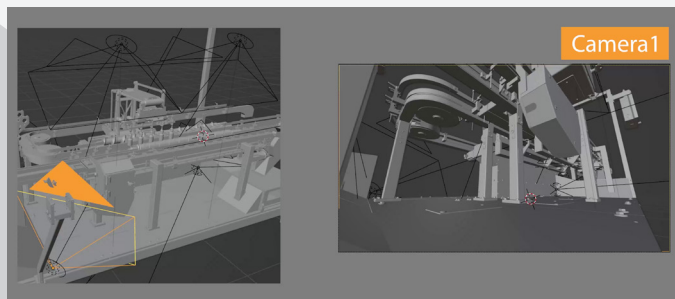## PHARMA-SPECIFIC VALIDATED SYSTEM

The system is compliant with pharma industry regulations. User access is regulated by FDA 21 CFR Part 11 and Annex 11. All events are registered by the software in an Audit Trail file. Software development follows Gamp 5 guidelines for products including Artificial Intelligence and Machine Learning.

Suitable for new installations and for revamping

DIGITAL ANALYSIS OF THE MACHINE 3D MODEL

The cameras position is studied on a three dimensional model of the machine (if available) to grant the best coverage of every area to inspect, and the best results.

Camera1

Camera2

SURVEY FOR REVAMPING

For existing lines, the machines are physically analysed in their structure and modified where it is necessary, to have a better and clear view of the working area.

OPTIMIZATION OF NEW MACHINE

The new machines can be optimized for line clearance even before their manufacturing, to reach the highest quality and the maximum benefits.

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