



# Gracias!Danke

Dear  
Customer

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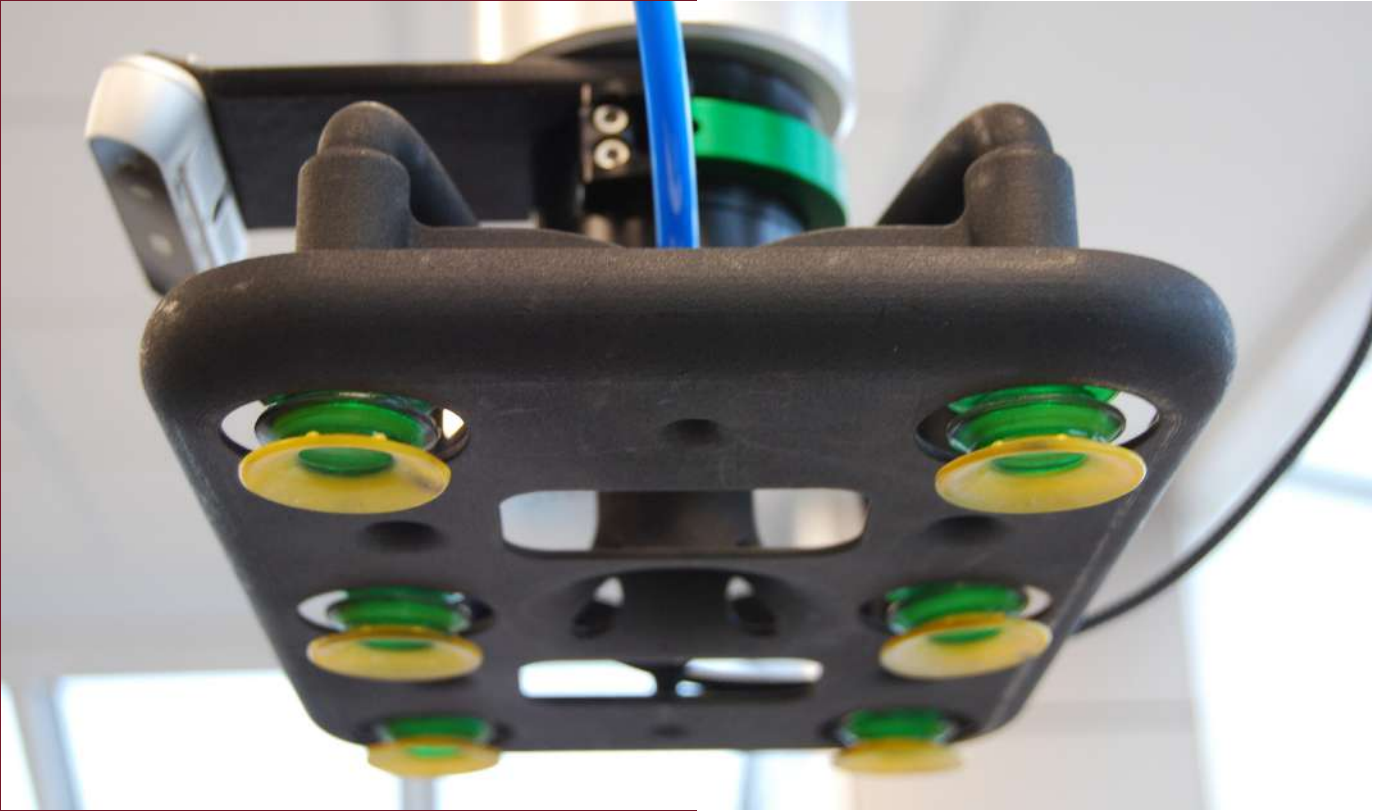
Cretec Cybernetics specialises in machine vision-based automation solutions and multidimensional image processing. Cretec Cybernetics was created from the merger of Cretec GmbH and VisionOnline S.L. - incorporating more than 20 years of real-world industrial automation experience. Our mission is, to provide a pan-european response to globalized and local industrial production companies needs, for better, faster and more reliable inspection solutions.

Intelligent and digitally interconnected systems are the technical basis for this. With the growing help of Artificial Intelligence and Deep Learning, we today solve tasks, that seemed impossible yesterday. We match modern industrial robots and cobots perfectly into cutting-edge machine vision based solutions for handling, inspection and assembly.

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Cretec Cybernetics



# Global Knowledge & Local Support

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Software & Graphical  
User Interface

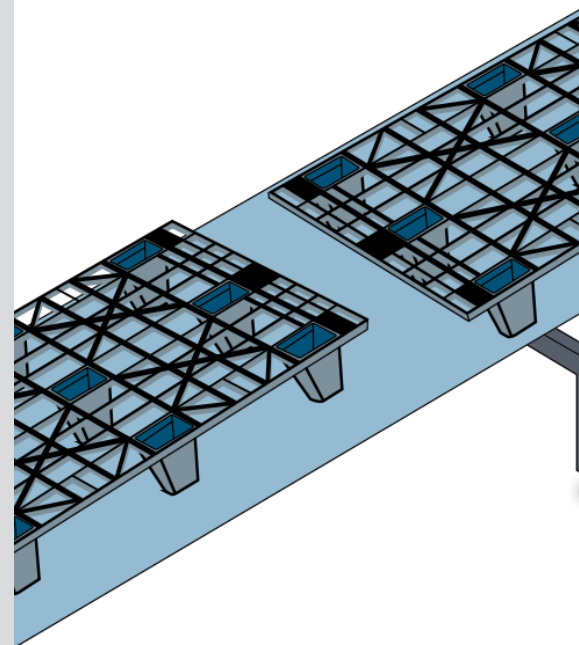
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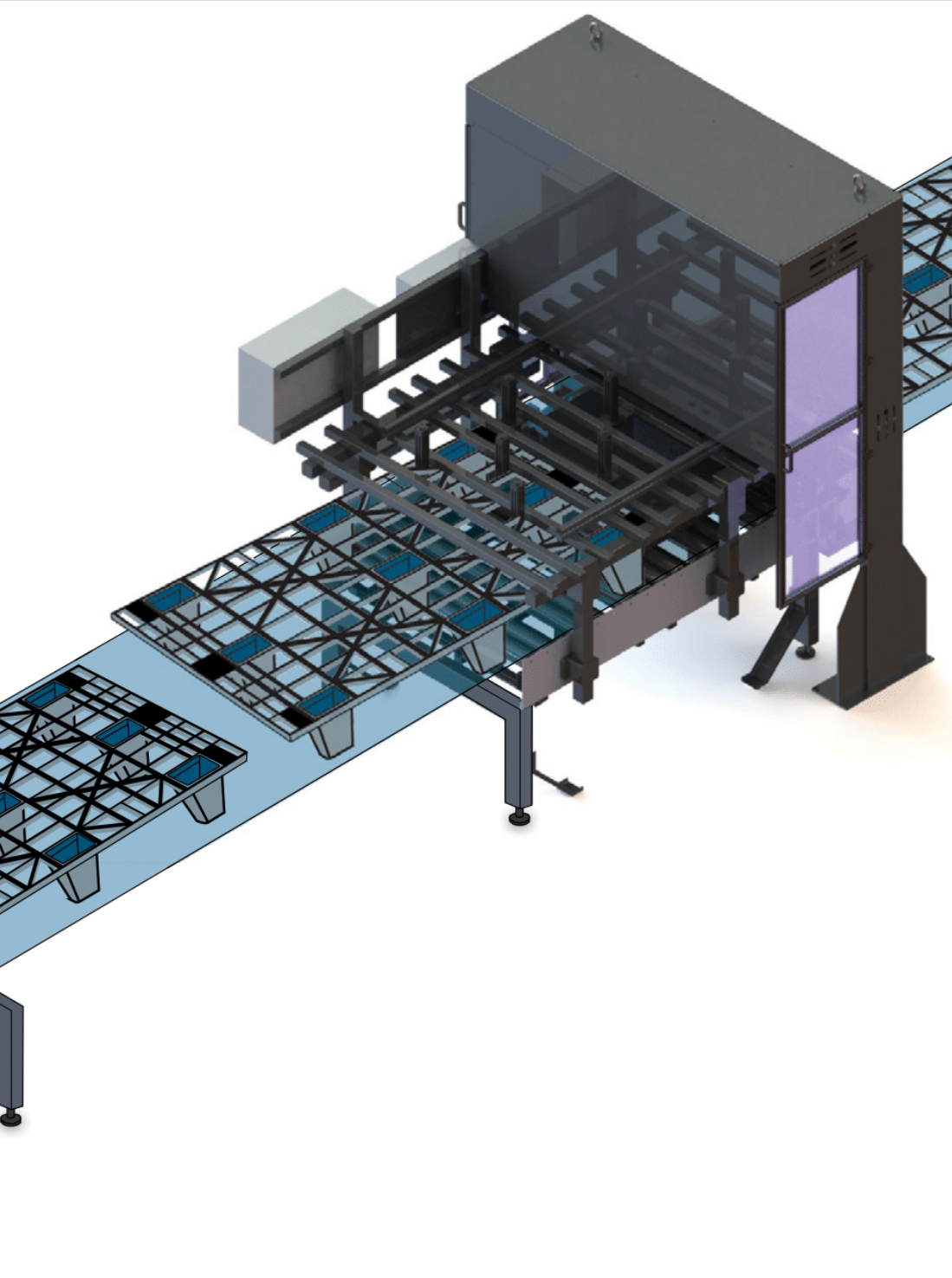


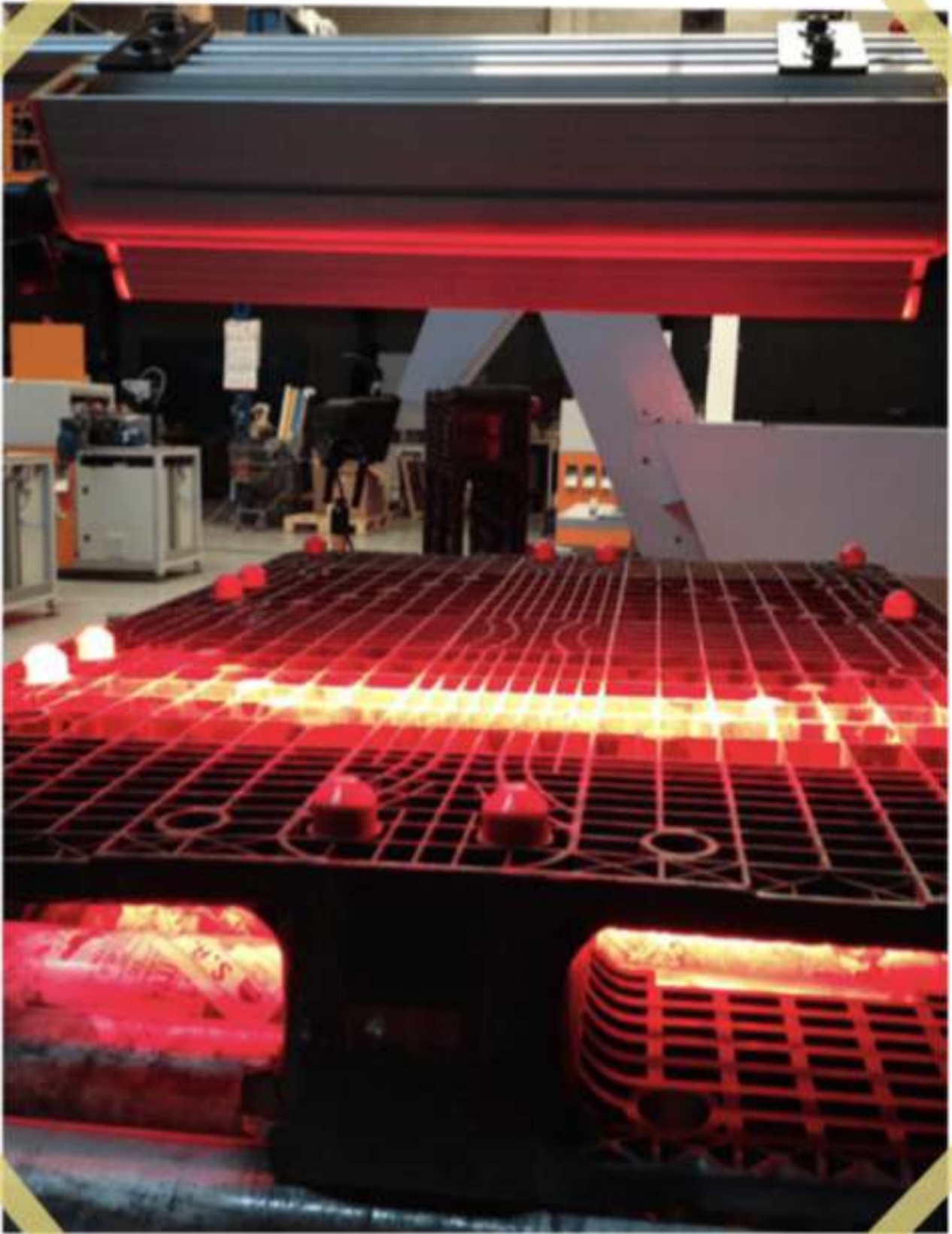
# Palet Control

## Automated visual inspection solution for pallets

Modular machine vision system inspects pallets and pallet accessories as rubber knobs, thus making sure only fully functional pallets are put into service.









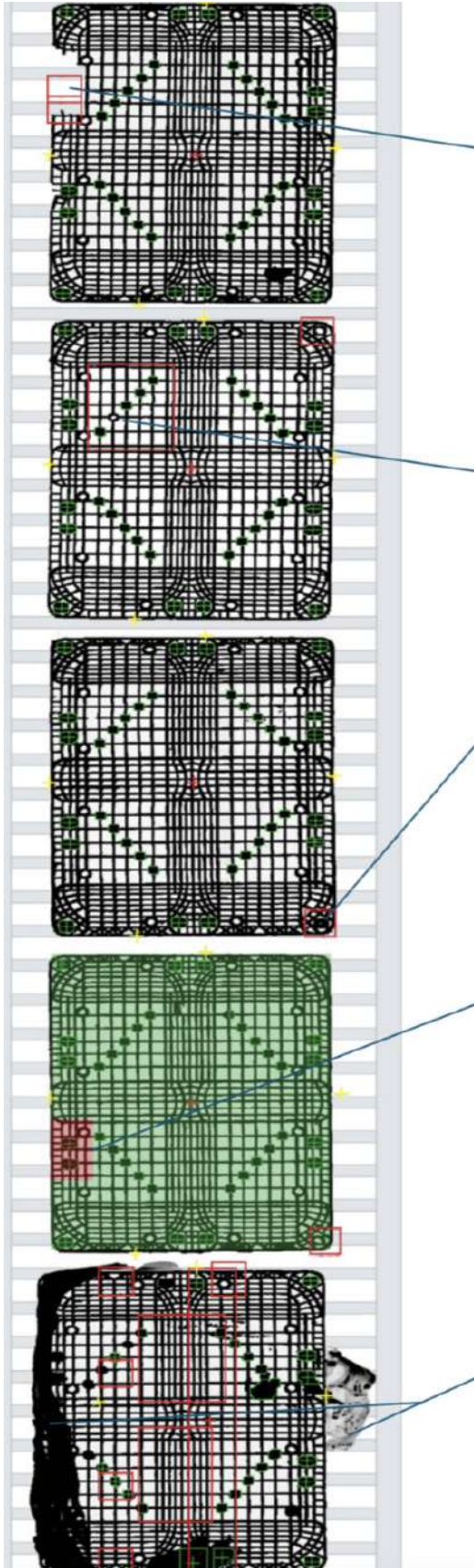
# Palet Control

## Working system

### Principal advantages of a vision inspection system for pallets:

- Evaluation of pallet condition as OK, NOK or usable
- Usable pallets can be re-used, whereas mechanical system only give OK or NOK
- Detection of cut or otherwise deteriorated centering and anti-sliding knobs.
- Statistics and error management. Pallet deterioration can be monitored over time to improve process.

# Palet Control



## Perimeter and principal structure:

Detections of missing parts of the pallet or alien objects.

- Alien objects in the perimeter of the pallet and any other not desired object that might interfere with correct usability.
- Missing material due to breakout of structural parts.

## Anti-sliding knobs:

- Rubber knobs are mounted to the pallet in order to prevent the keg from sliding off. Presence of the anti-sliding rubber knobs is verified by the system.

## Centering knobs:

- Missing or cut centering knobs can not hold the keg safely on the pallet, thus their presence and good state needs to be controlled.

## Bottom part inspection:

- On the bottom part of the pallet structural integrity may be inspired via different technologies
  - Camera inspection, like top part
  - Ultrasound inspection
  - Mechanical sensing
- The inspection result is shown on the GUI as a graphical representation, also for non-imaging technologies.

## External elements:

- Efficient detection of external elements that might the automatic processing of the pallets, like shrink foil or similar...

# Palet Control

## Software & Graphical User Interface

### User interface:

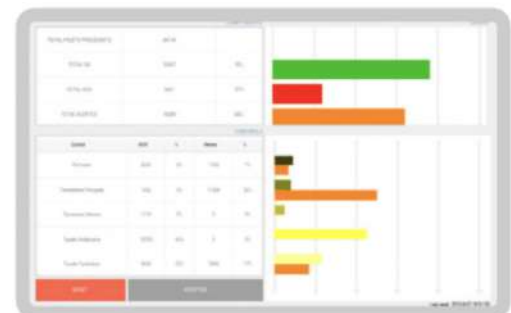
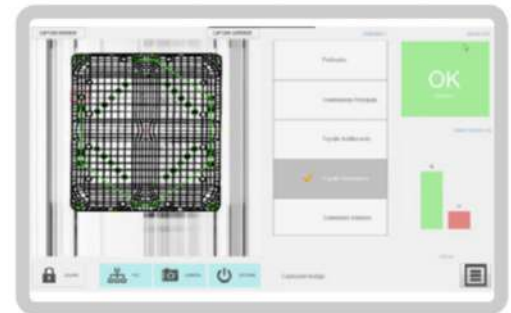
- Image processing and feature extraction is done by high-end algorithms, but the graphical user interface is kept intuitive and easy to use.

### Production statistics:

- PalletControl saves and offers statistical data of the products inspected in order to detect trends and improve efficiency.

### Image history:

- Images of NOK inspections are saved into a data base with a graphical representation of the error that caused the pallet to be NOK

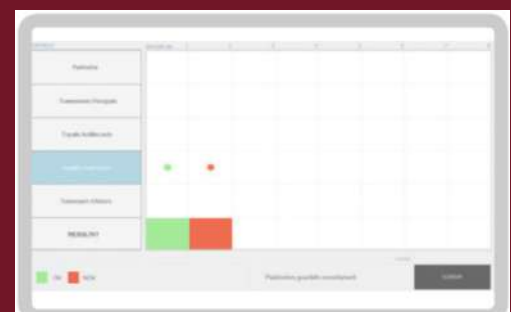


### Decision making in the operator's hand:

- The user can activate and deactivate controls and their influence on the global control result.
- Action to be taken, a simple alarm or a signal to the segregation mechanism for scrapping.

### System calibration:

- On the calibration screen the user can verify the correct functioning of the system.



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