
WE ARE HEUFT!
And HEUFT *knows how!*

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Productmanager

Human Intelligence in empty bottle inspection: Creating the Future from Experience!

TOPICS

- HEUFT solutions for clip lock bottle sidewall inspection:

  New inspection modules for Clip-lock bottles
  - Top-down camera before infeed sidewall
    - Detection of clip-lock orientation
  - Sidewall inspections with dynamic masks for clip-lock area

- HEUFT solutions for ACL bottle sidewall inspection:

  New inspection modules for ACL bottles
  - Integrated cameras in sidewall cabinets
    - Detection of ACL label orientation
  - Sidewall inspections with dynamic masks for clip-lock area

- HEUFT solutions for Inner finish inspection:

  New inspection modules for Screw closure bottles

- HEUFT solutions for bottle colour tolerances:

  New intelligent Infeed control
  - Integrated camera at the infeed check
    - Brightness control of intelligent illumination system

CLIP-LOCK INSPECTION

Contamination

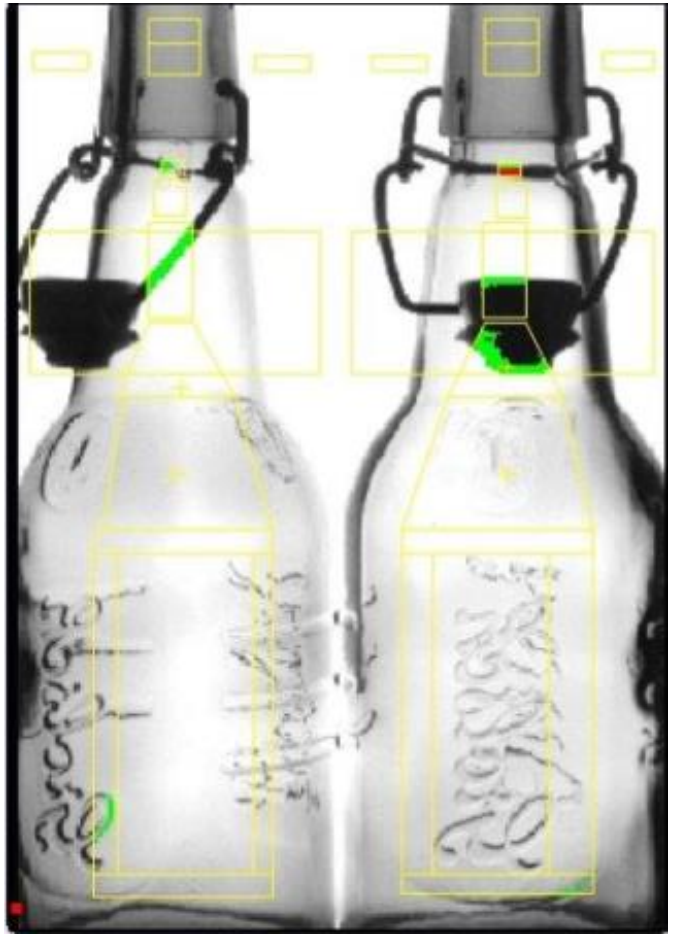
Swing top orientation

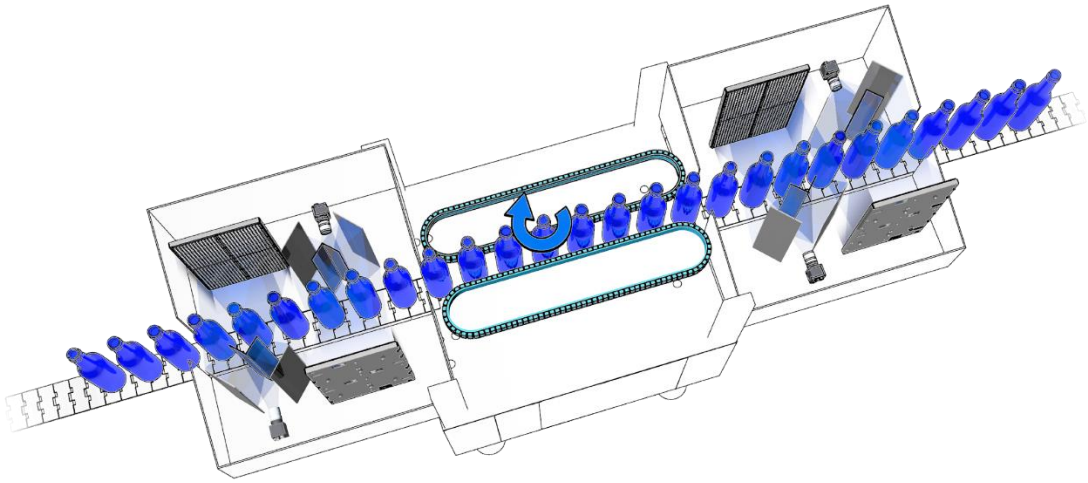
Previously not detectable in neck area, because typicaly blanked out inspection area

Typical Clip-lock bottle faults

Previsous technology

Todays technology





4

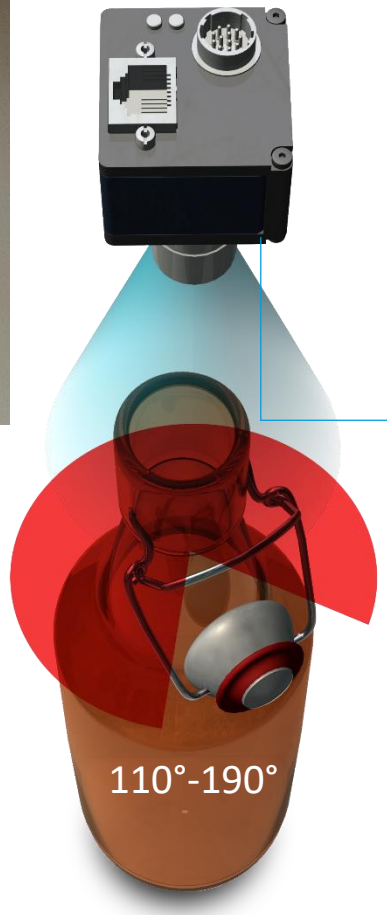
8

2x

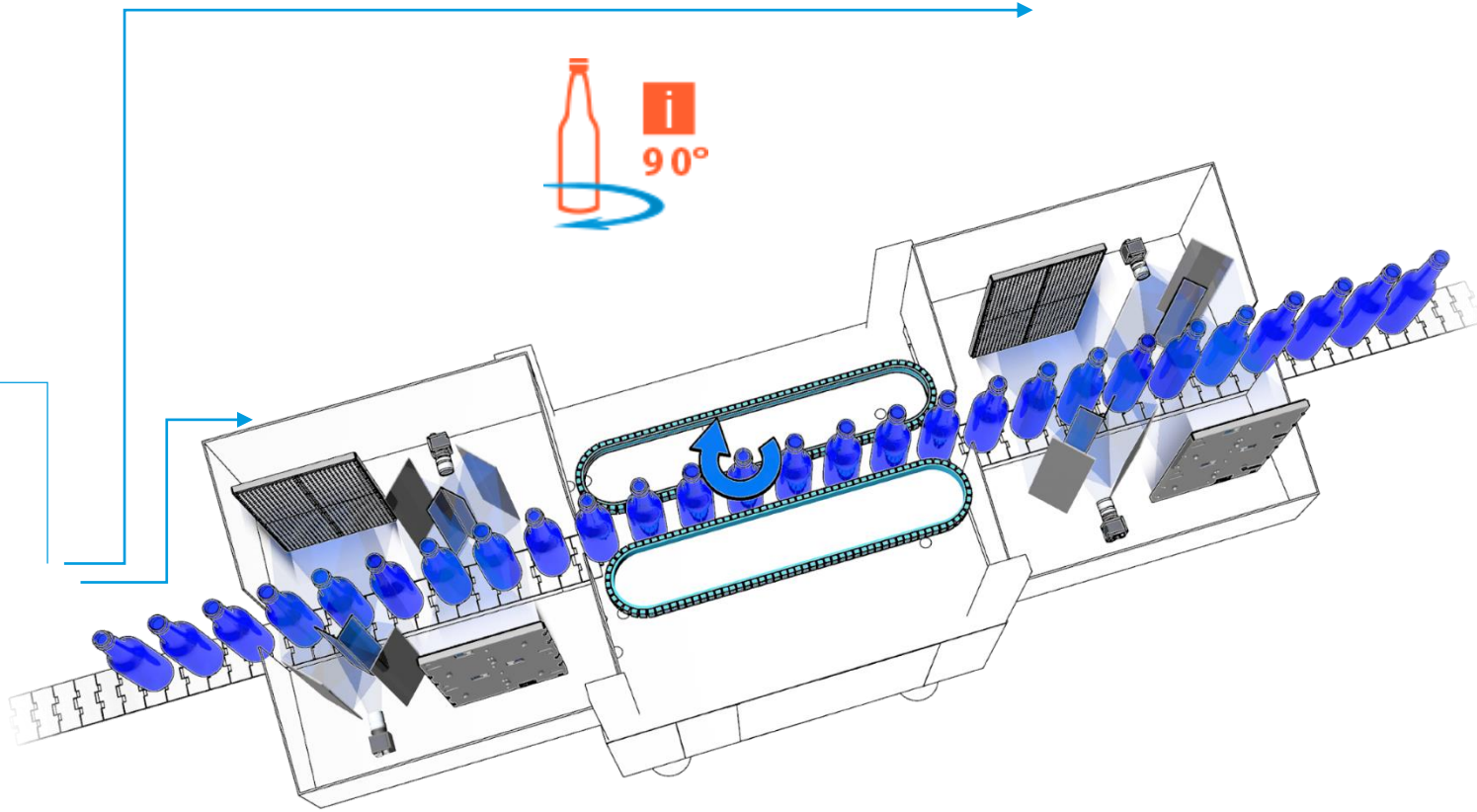
Inspection areas activated by logical links from determination of the position of the clip lock in the sidewall inspection view

1st step of innovation HEUFT InLine IR manufactored 2015

Detection of
fixation clip-locks



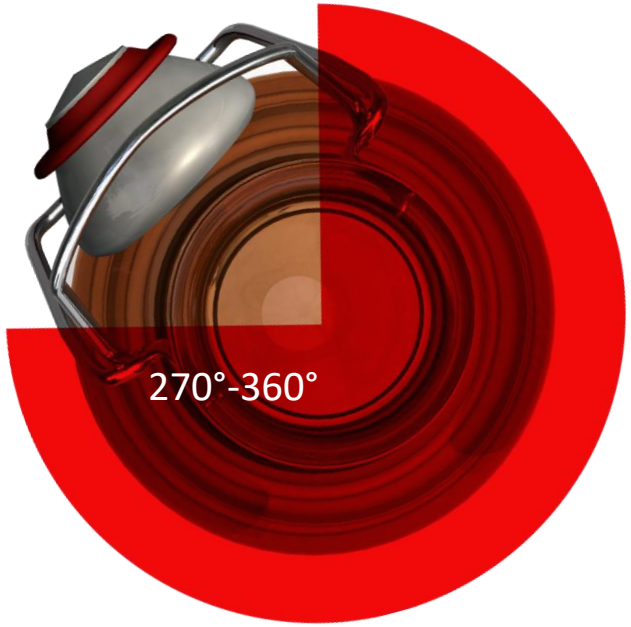
Clip lock orientation

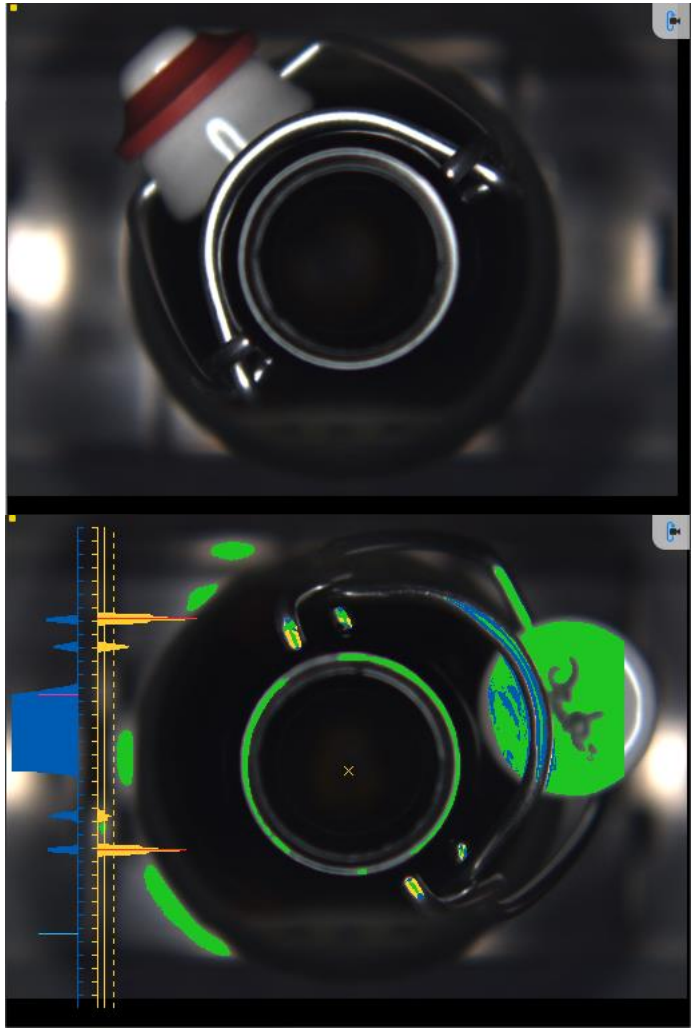


2nd step of innovation HEUFT Clip-lock orientation with top down camera

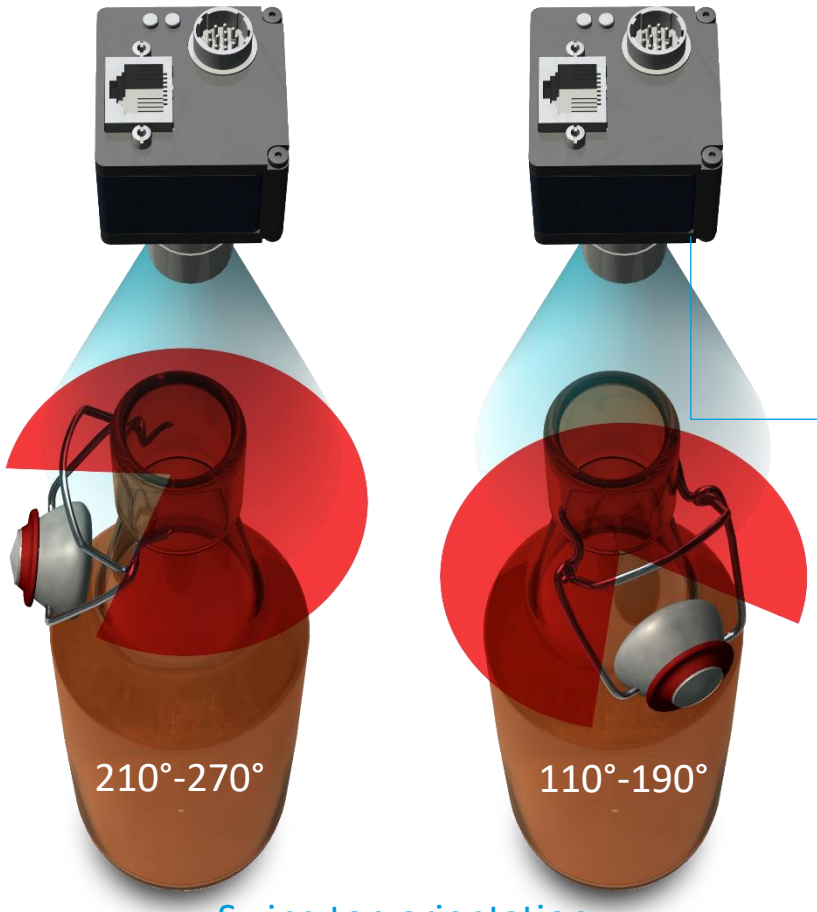
Top-down
camera

Clip lock from top

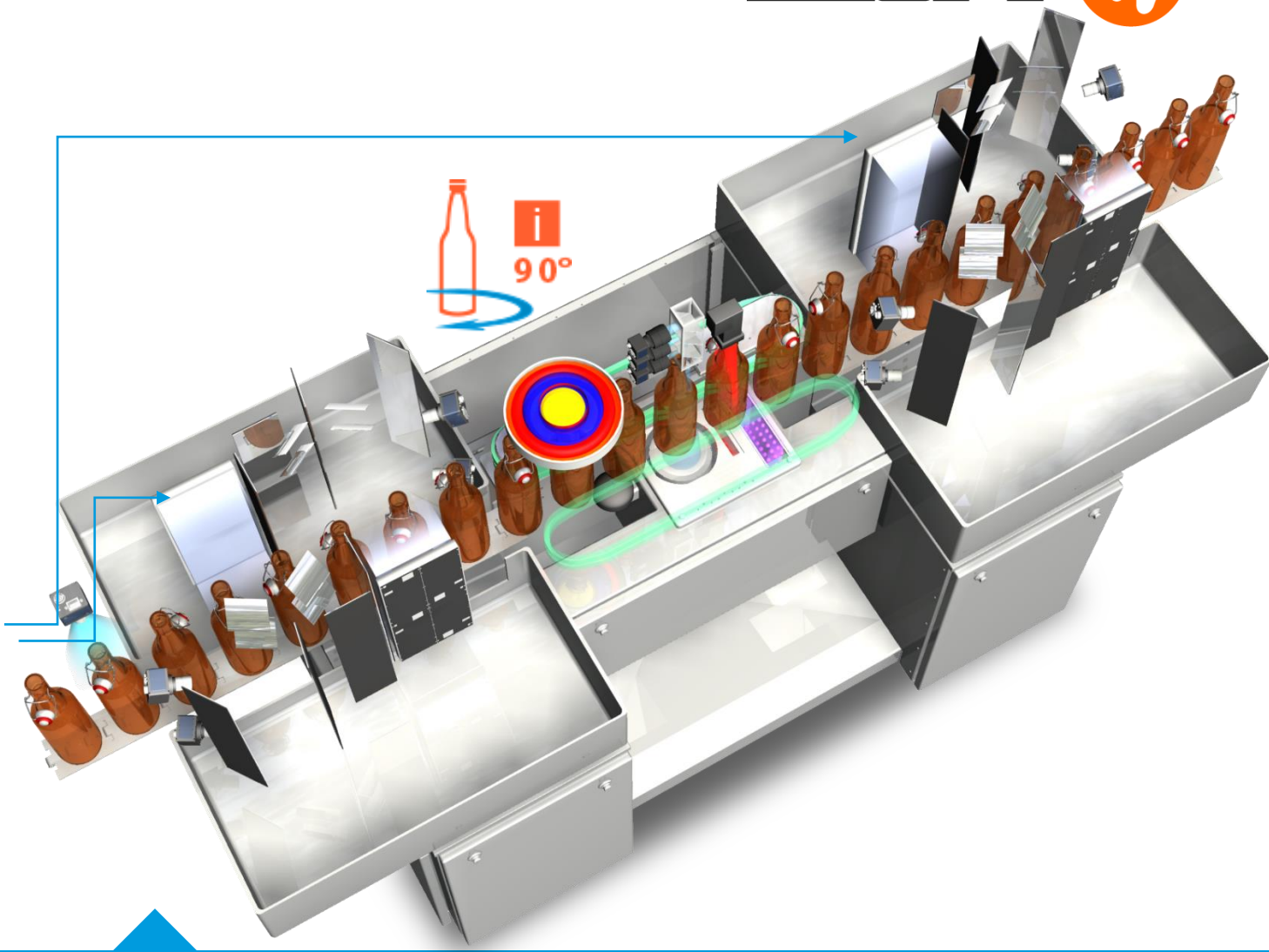




Additional top-down camera checks the clip-lock fixation and orientation



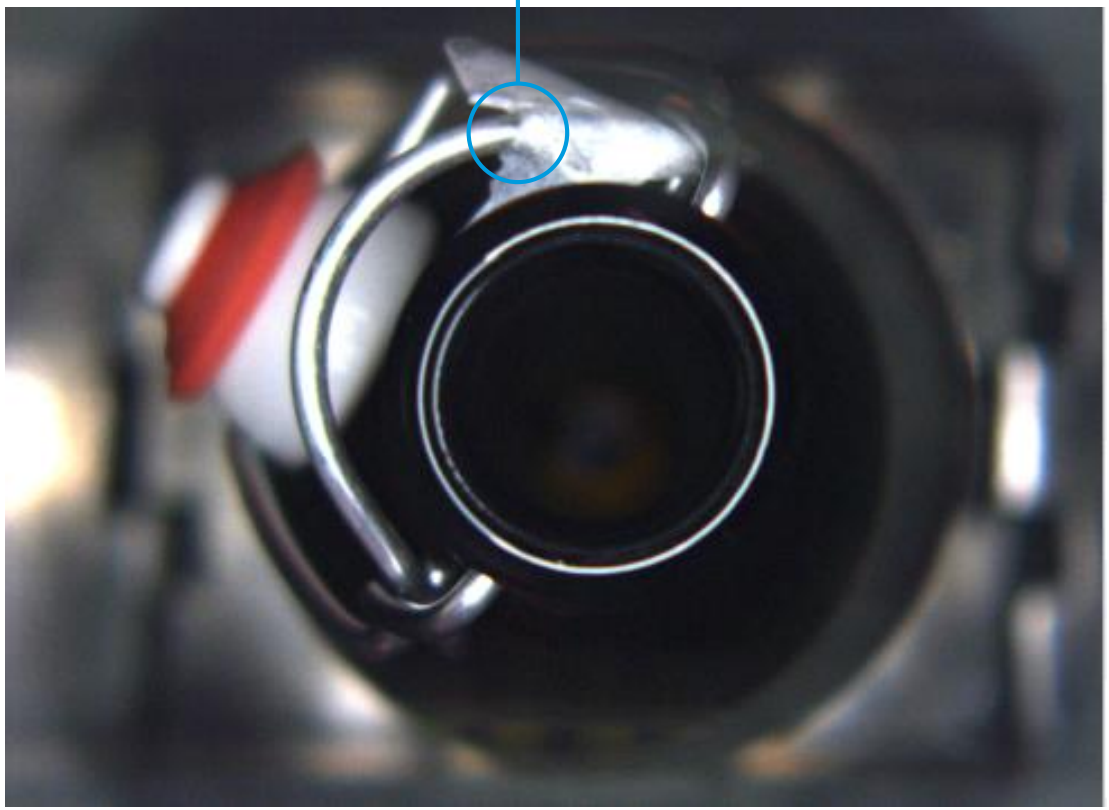
Swing top orientation



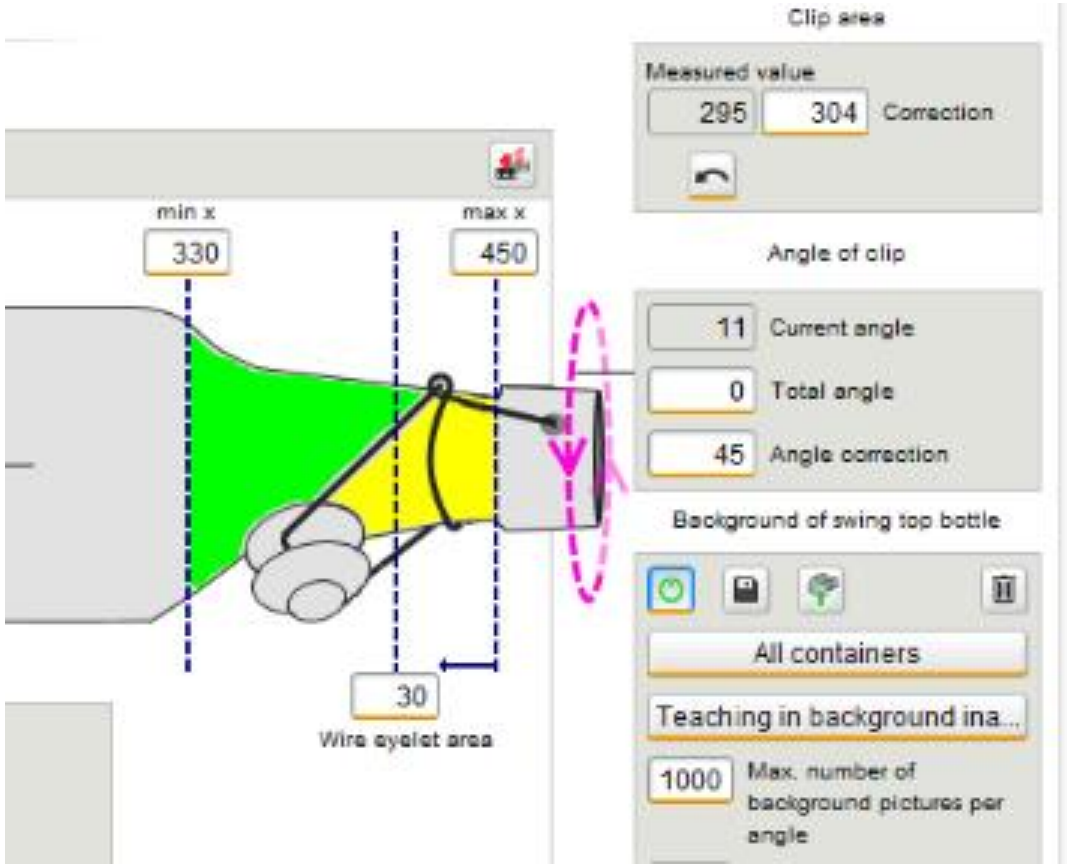
Intelligent tracking of the clip lock position

Label

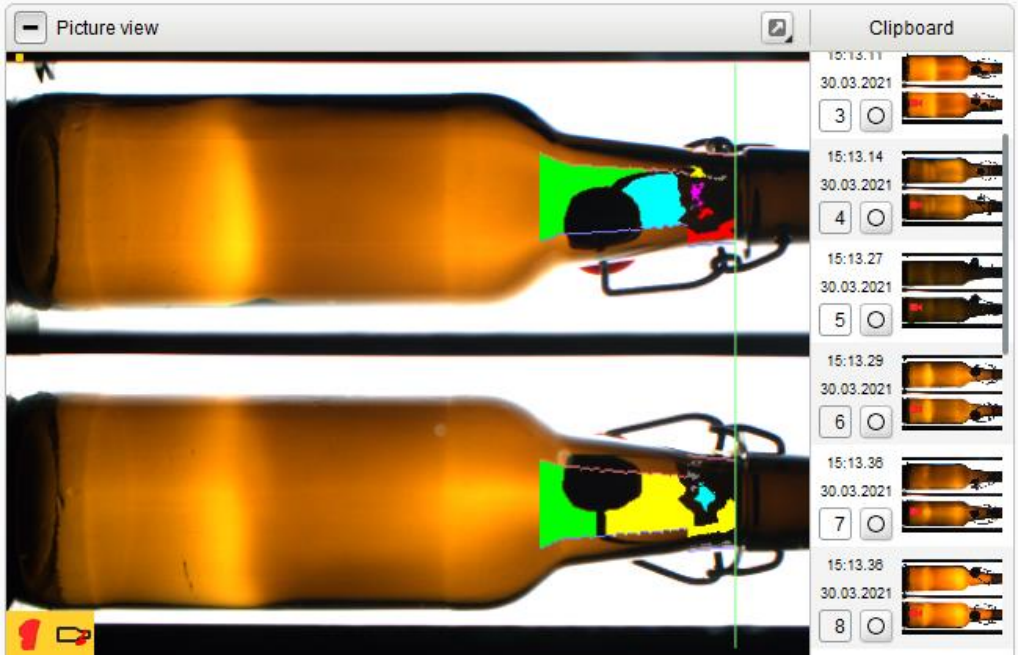
Label



Bottle clip lock area inspection



Classification of the clip-lock and setting of dynamic masks for clip-lock area

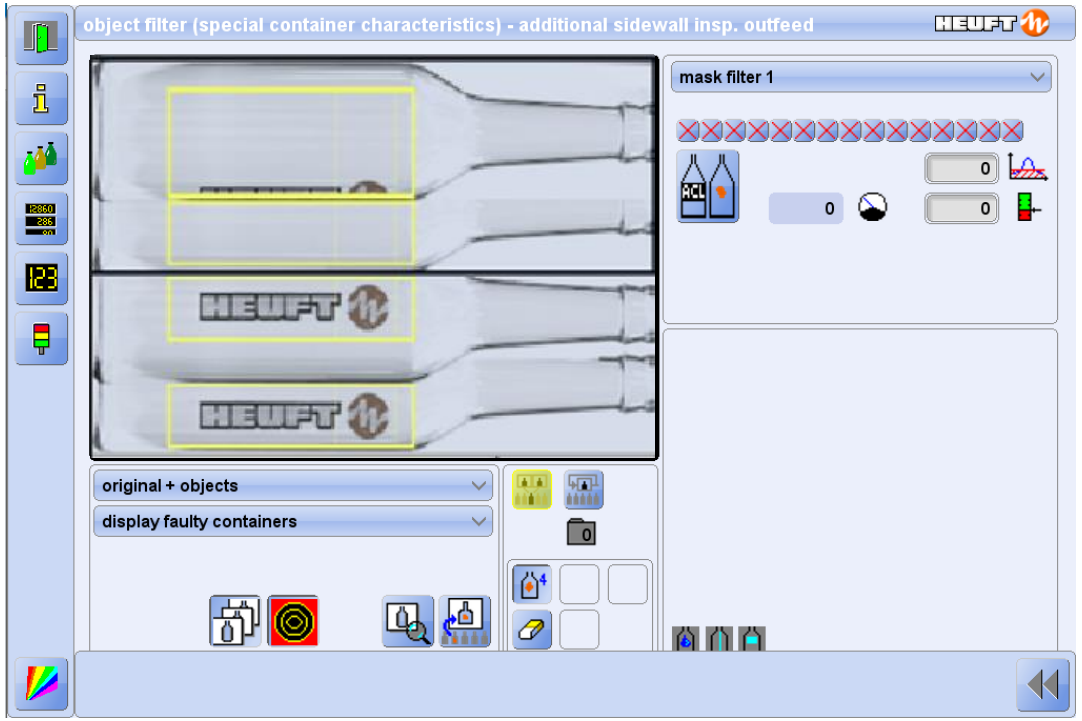


Filtering of the clip-lock = inspection in the remaining surface(green / yellow)

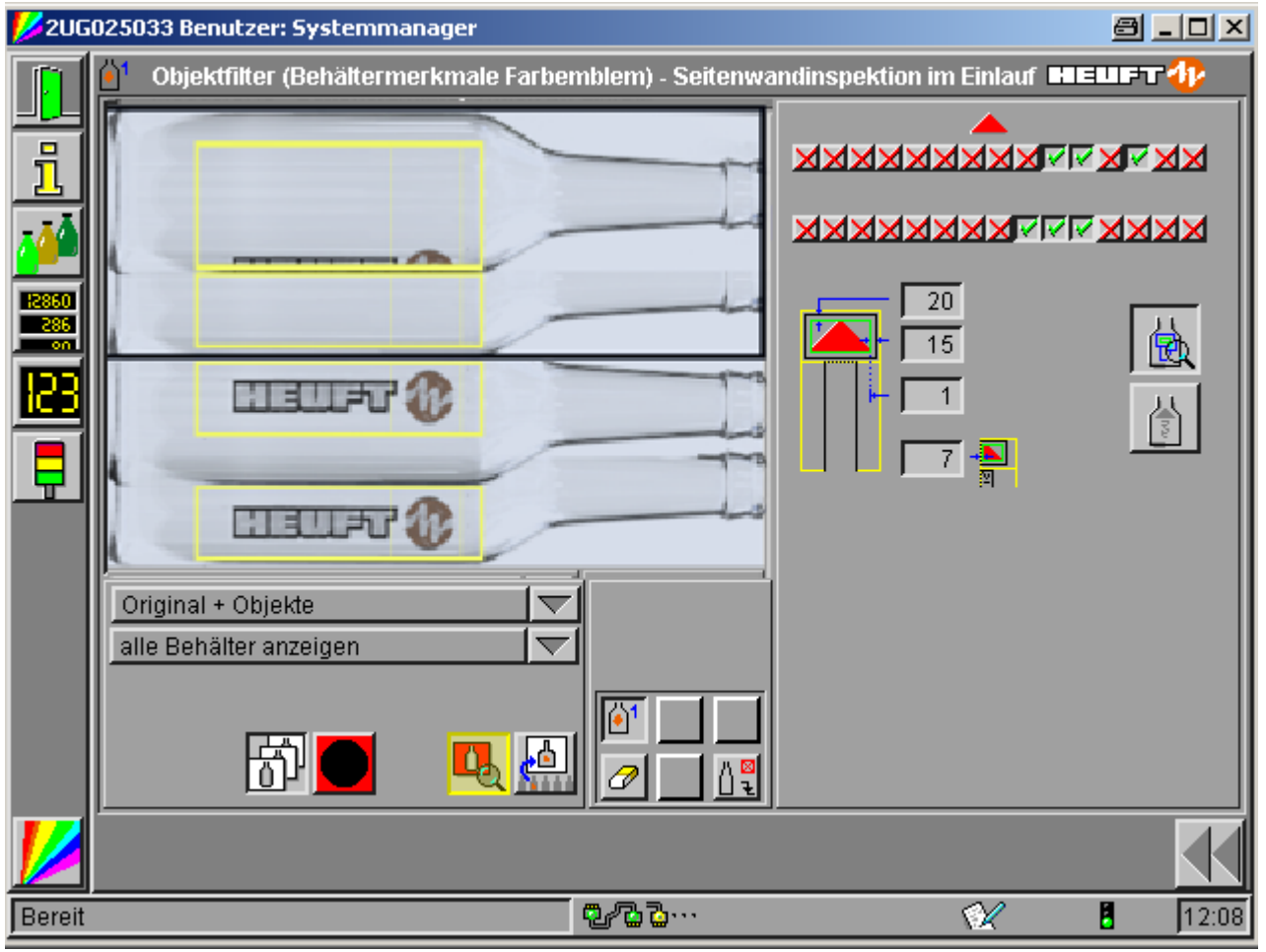
EMPTY BOTTLE INSPECTION

THE ACL DETECTION

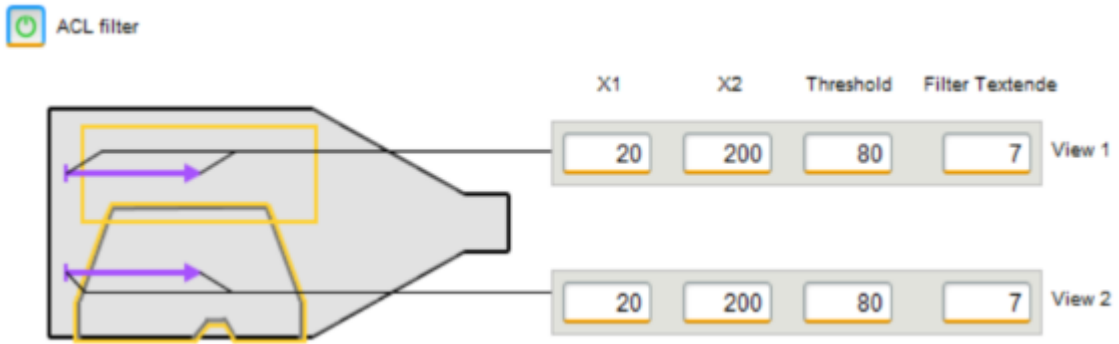
Bottle flow without alignment in the sidewall inspection



1st step of innovation = ACL area presence detection



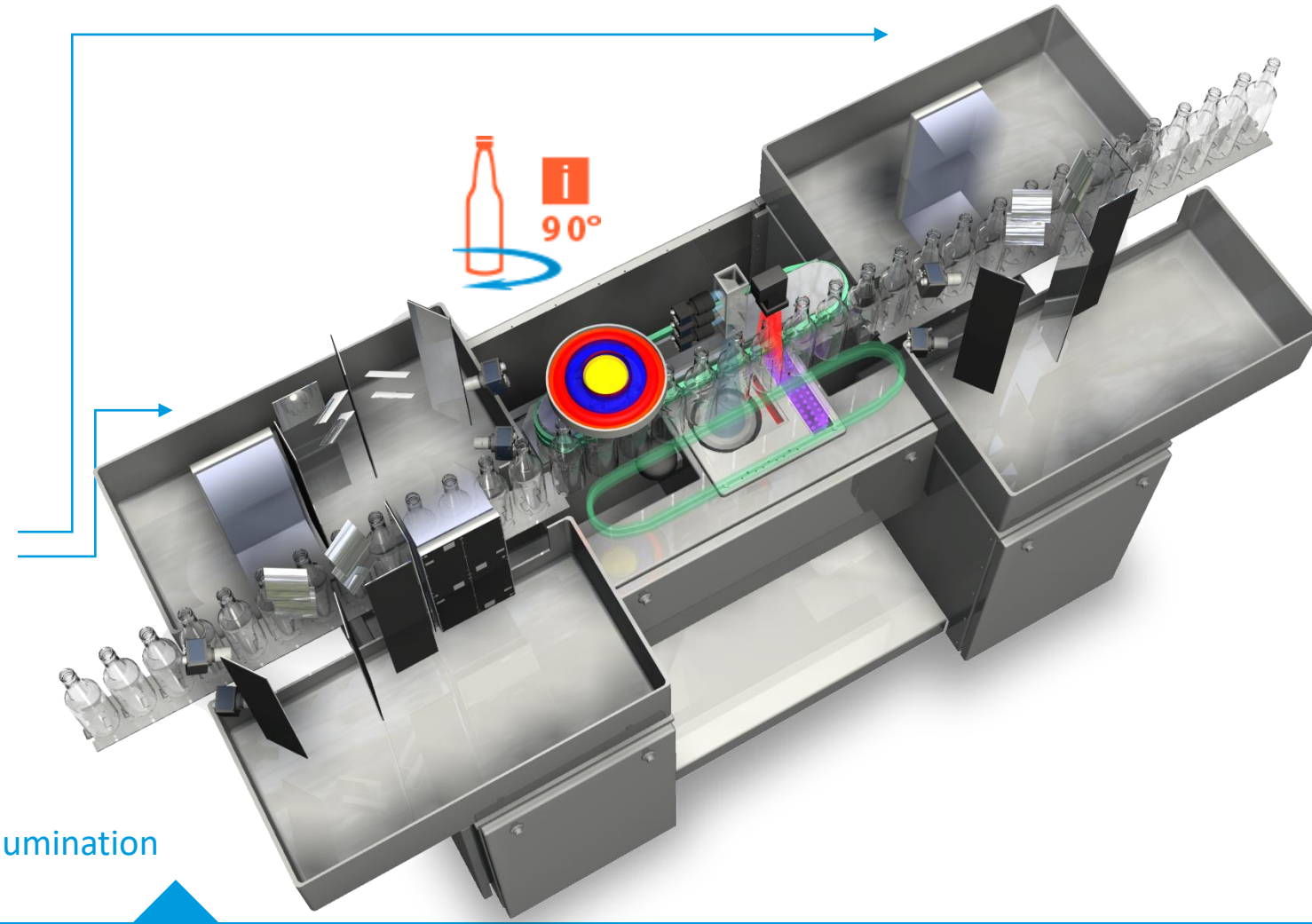
2nd step of innovation = ACL area activation through logical links



3st step of innovation = ACL identification

ACL Quality inspection

ACL Quality inspection



Additional cameras in sidewall cabinetts with incident illumination

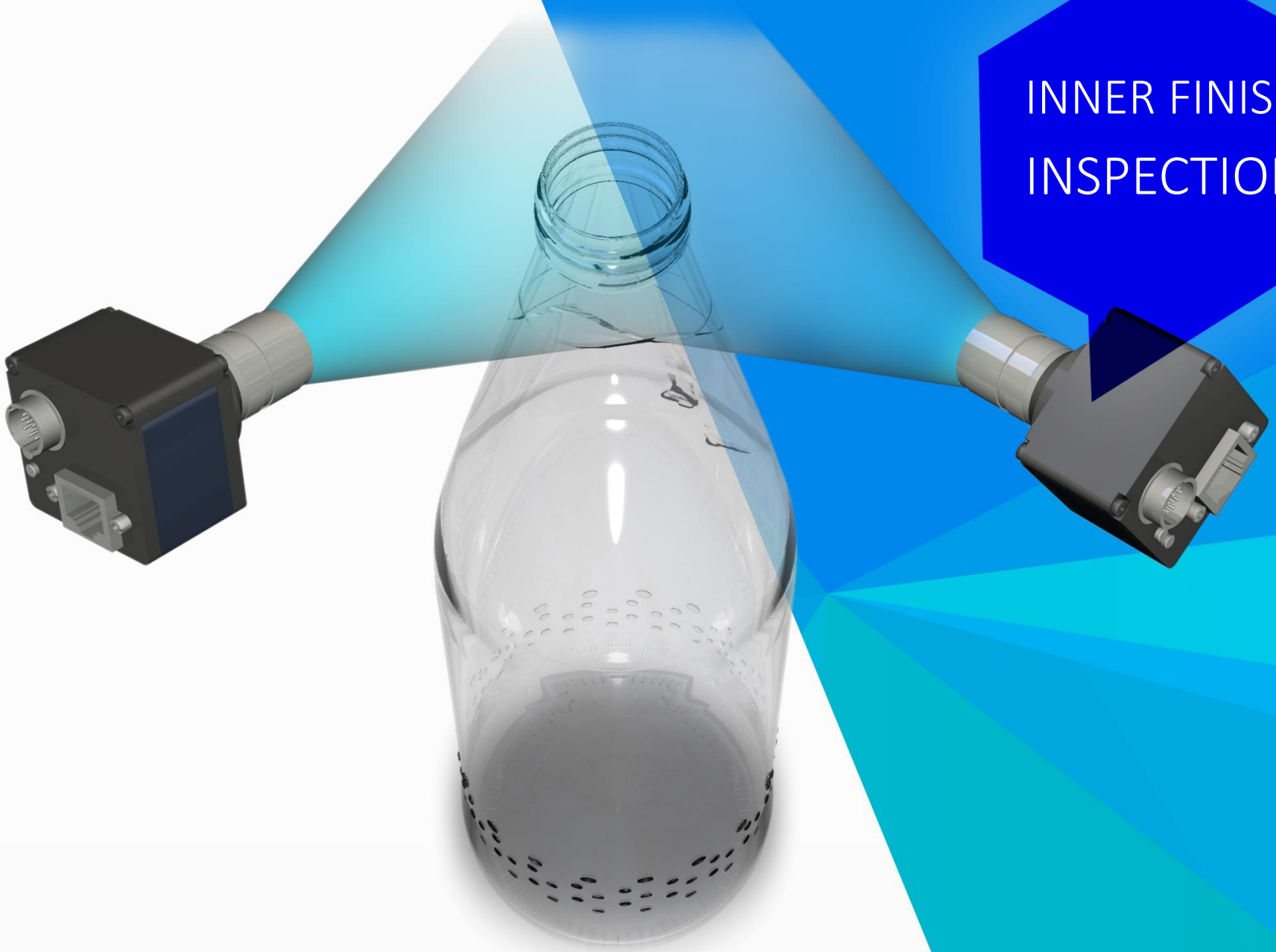
Intergrated ACL quality inspection

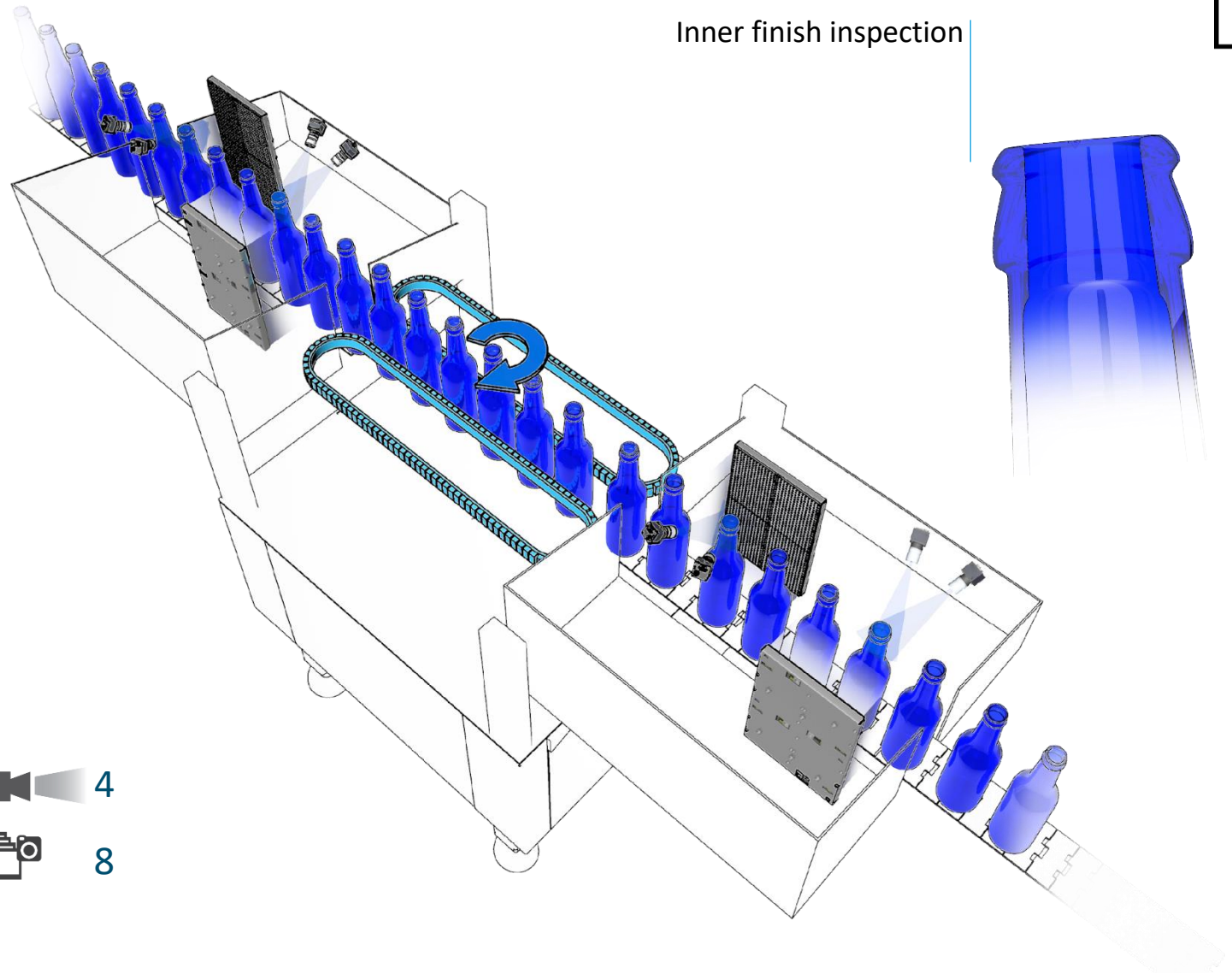
Composition of the 4 camera views

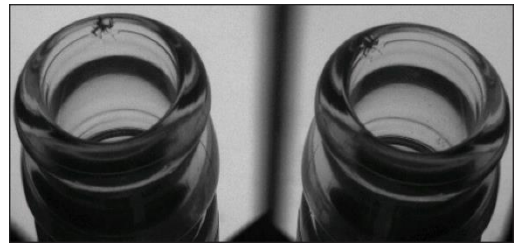
Taught in picture

ACL inspection, Picture composition, images transfered to main HVPC card

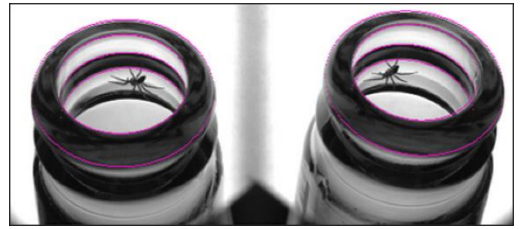
INNER FINISH INSPECTION



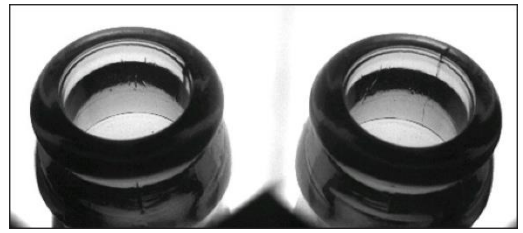




Chip on the inside

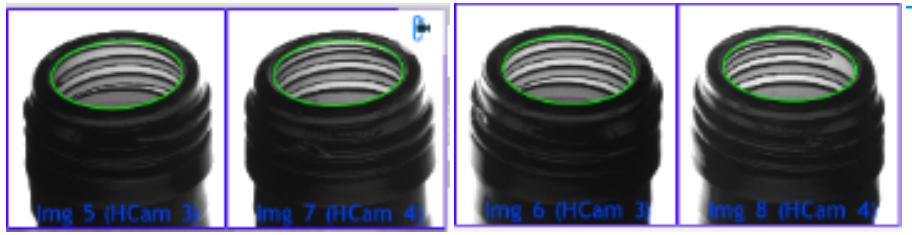


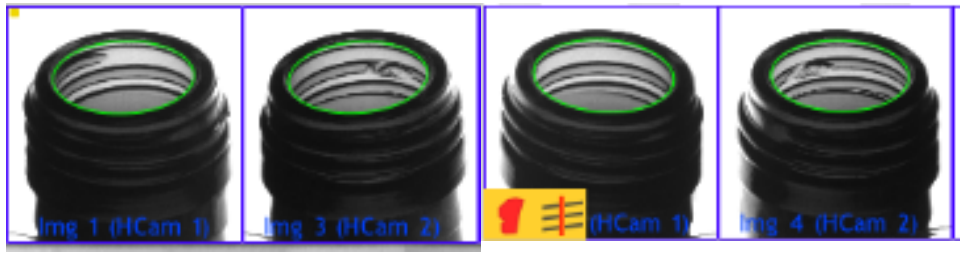
Foreign object

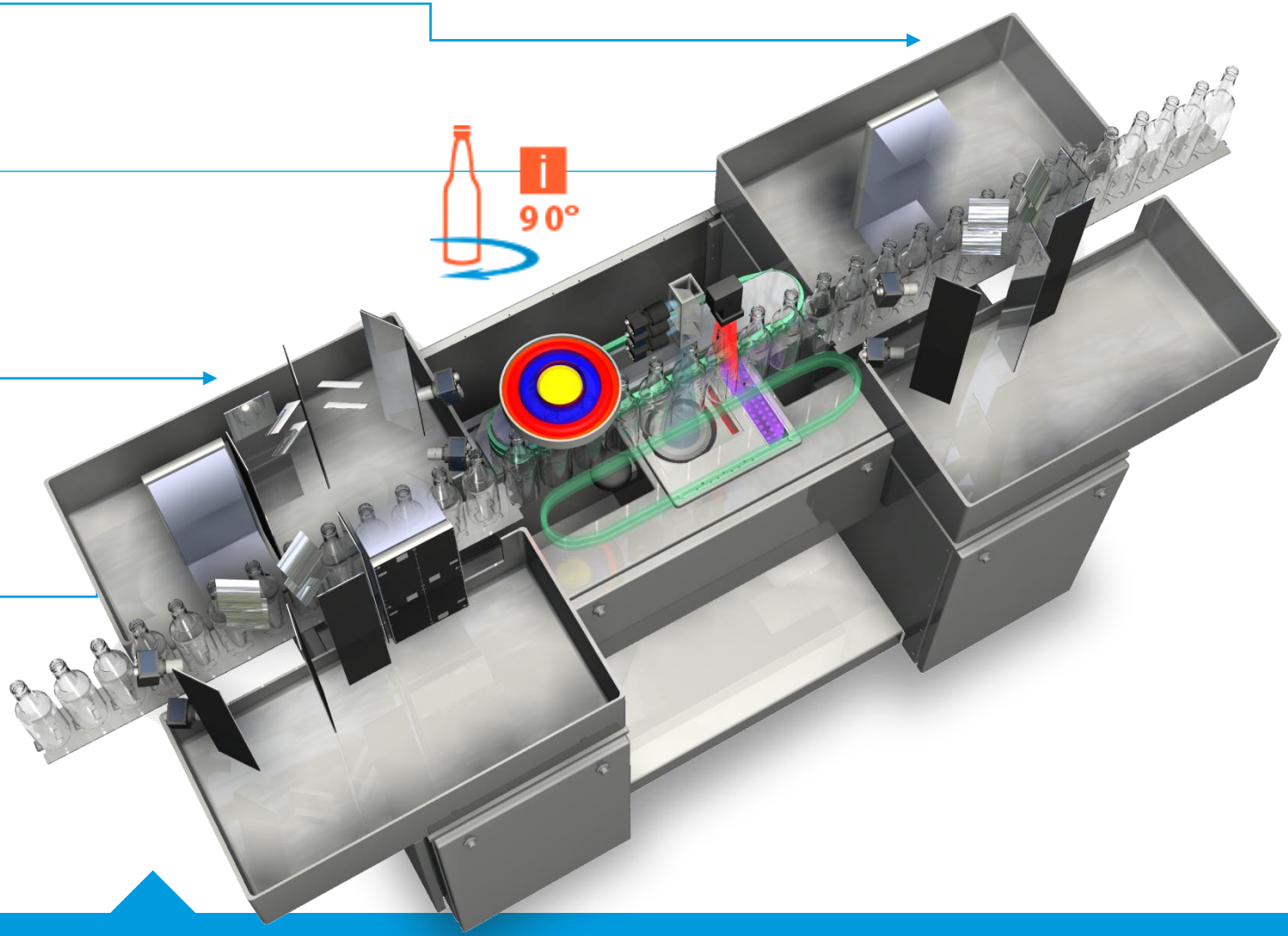


Vertical crack

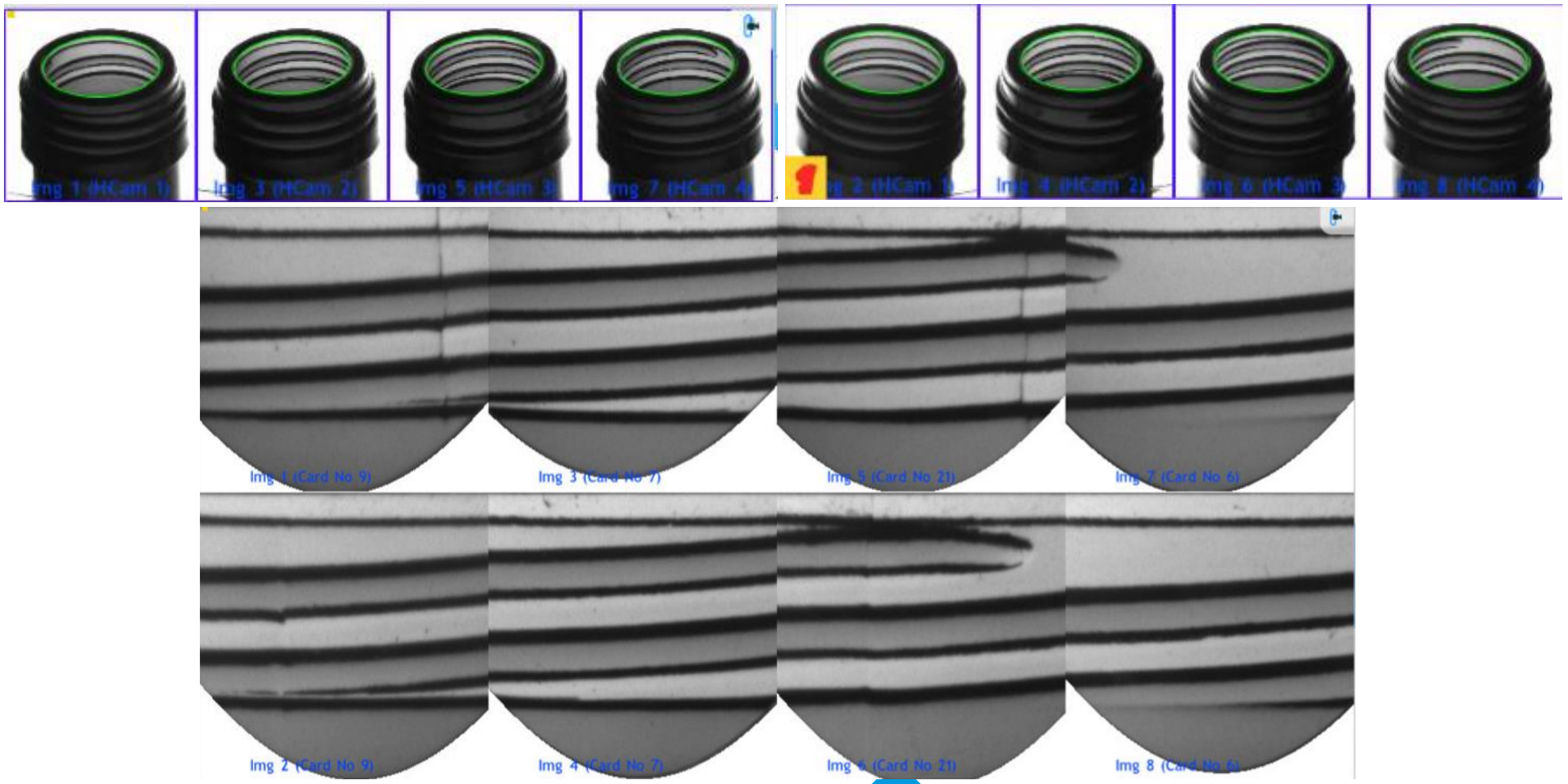
Inner finish inspection since 2014



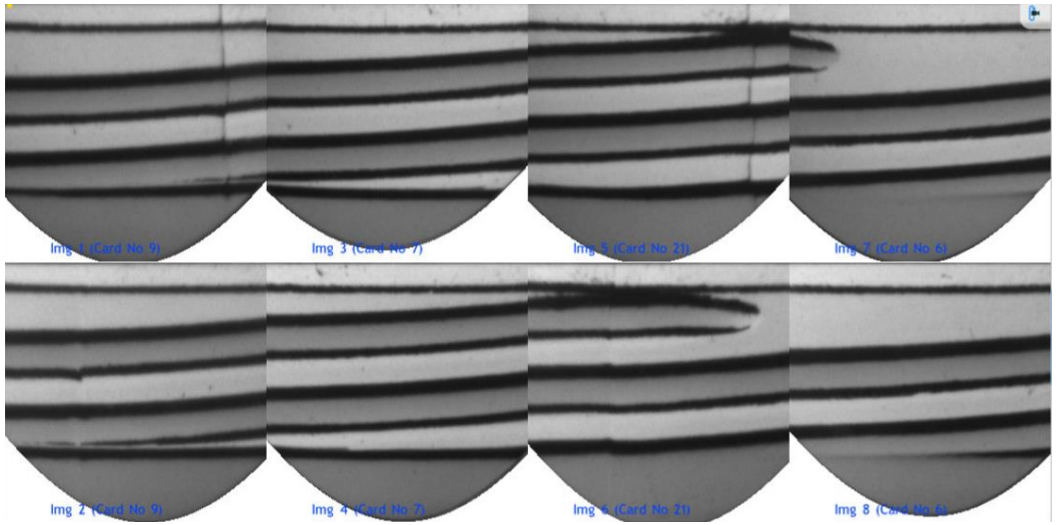


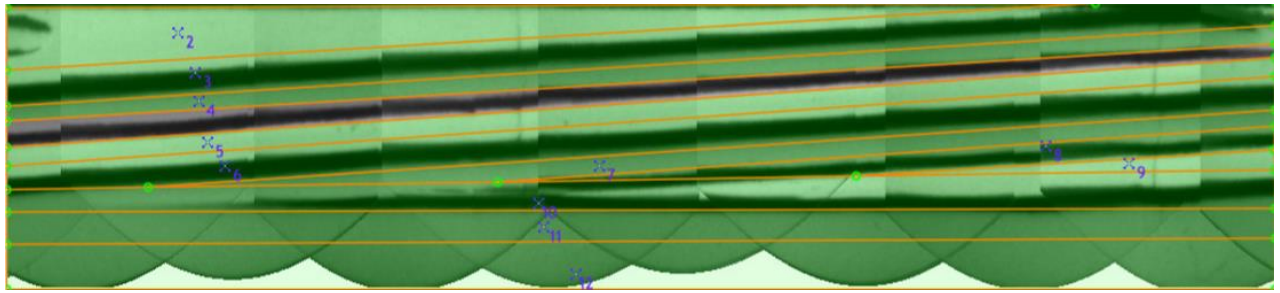


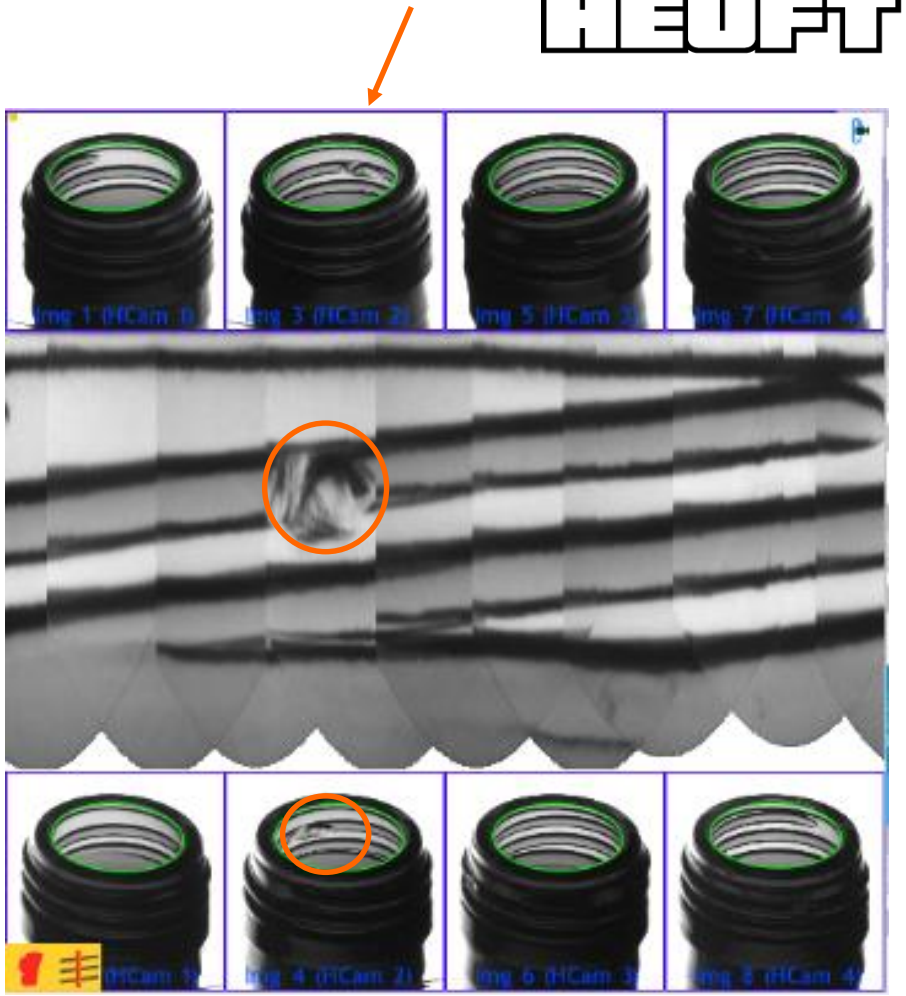
New Inspection Inner finish inspection



Picture composition, image preparation by HCAM





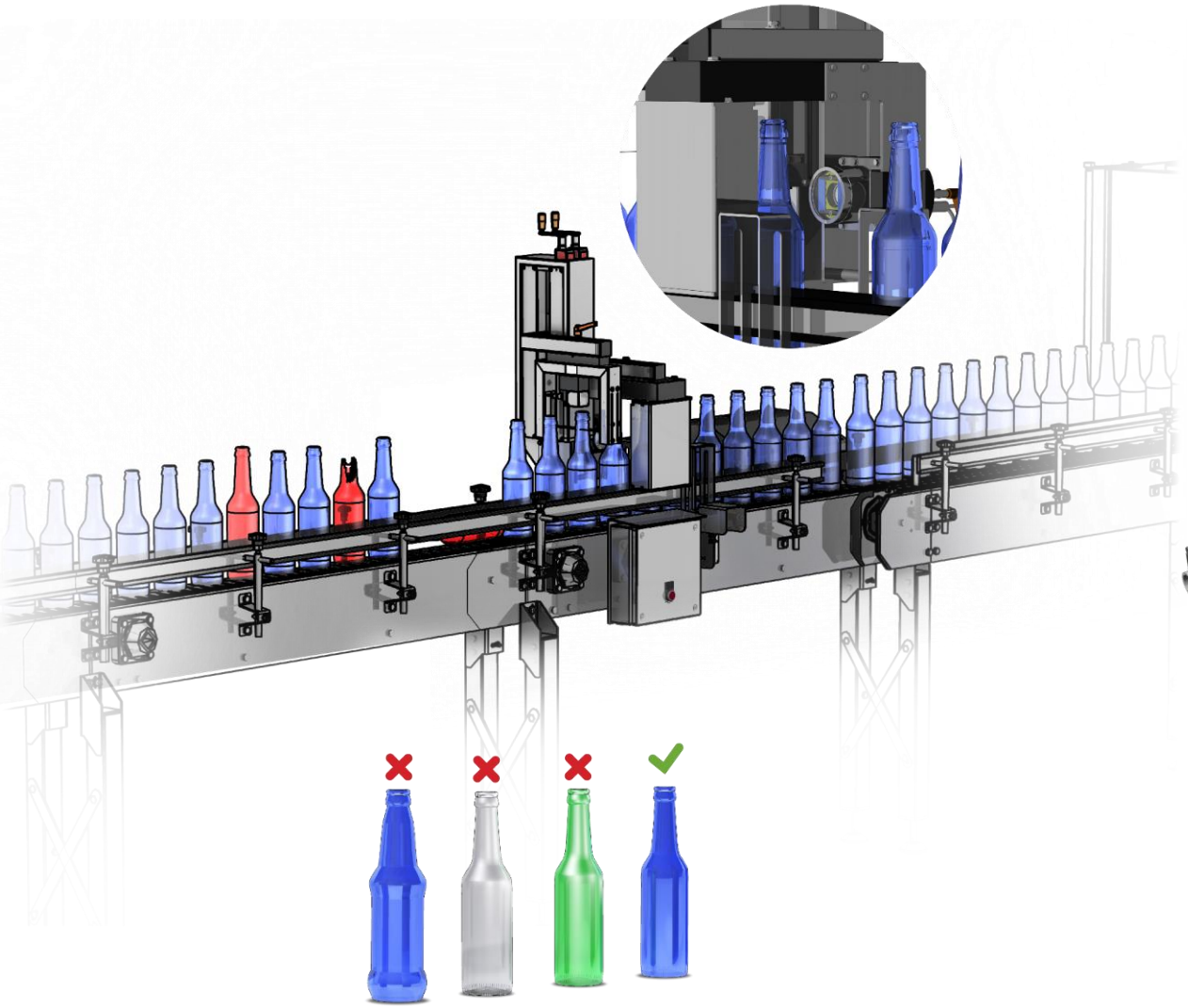


Evaluation of Inner finish inspection, images transfered to main HVPC card

EMPTY BOTTLE INSPECTION

Intellegent Infeed control

BRIGHTNESS CONTROL



Sensor camera of the infeed control

Solution: Brightness control

foreign object

bright bottle

dark bottle

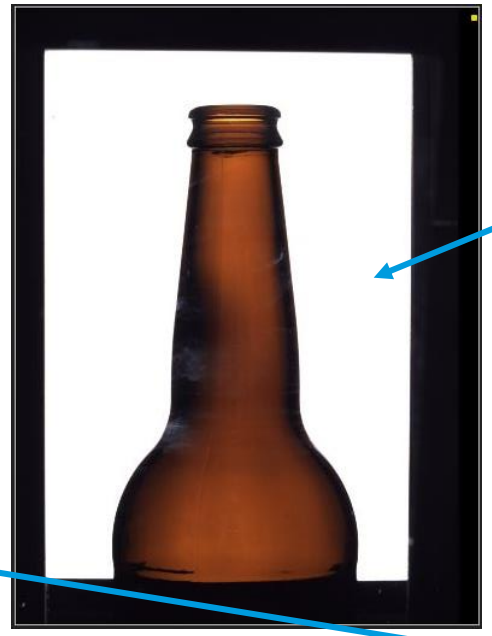
Bottle tolerances in brightness without individual measurement

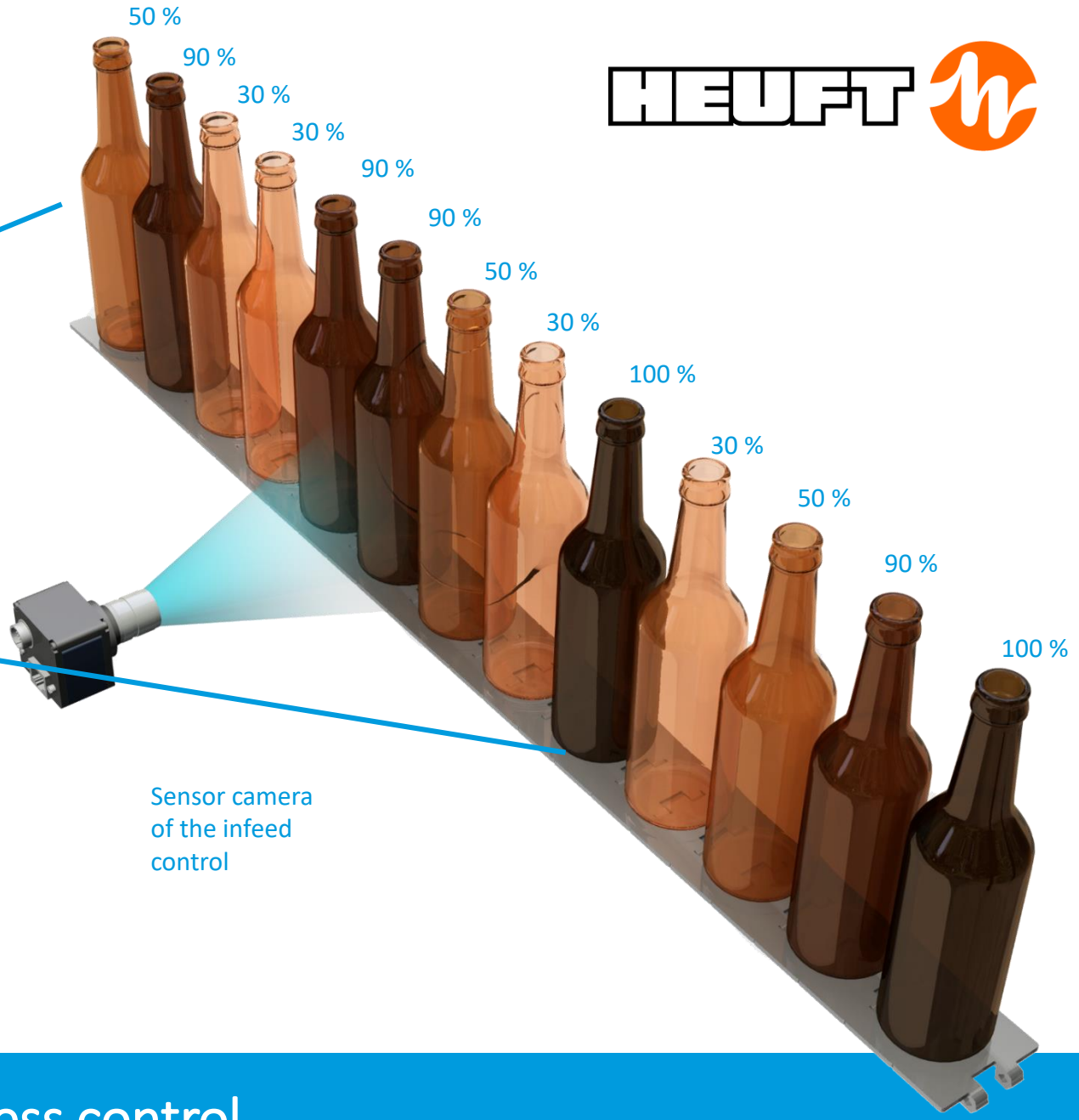
foreign object

dark bottle

Critical shades of colour and brightness generating usually false rejects

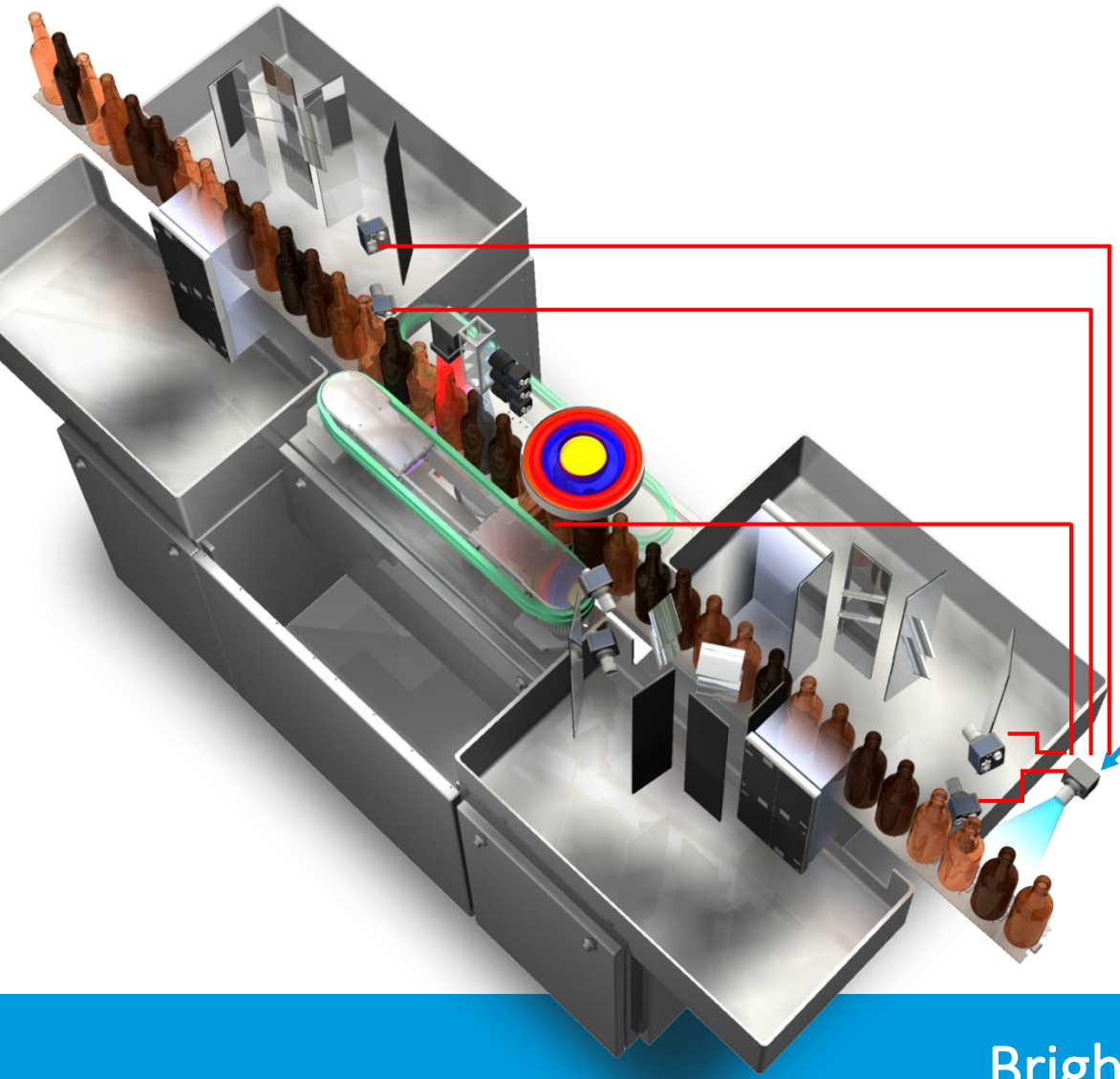
EMPTY BOTTLE INSPECTION

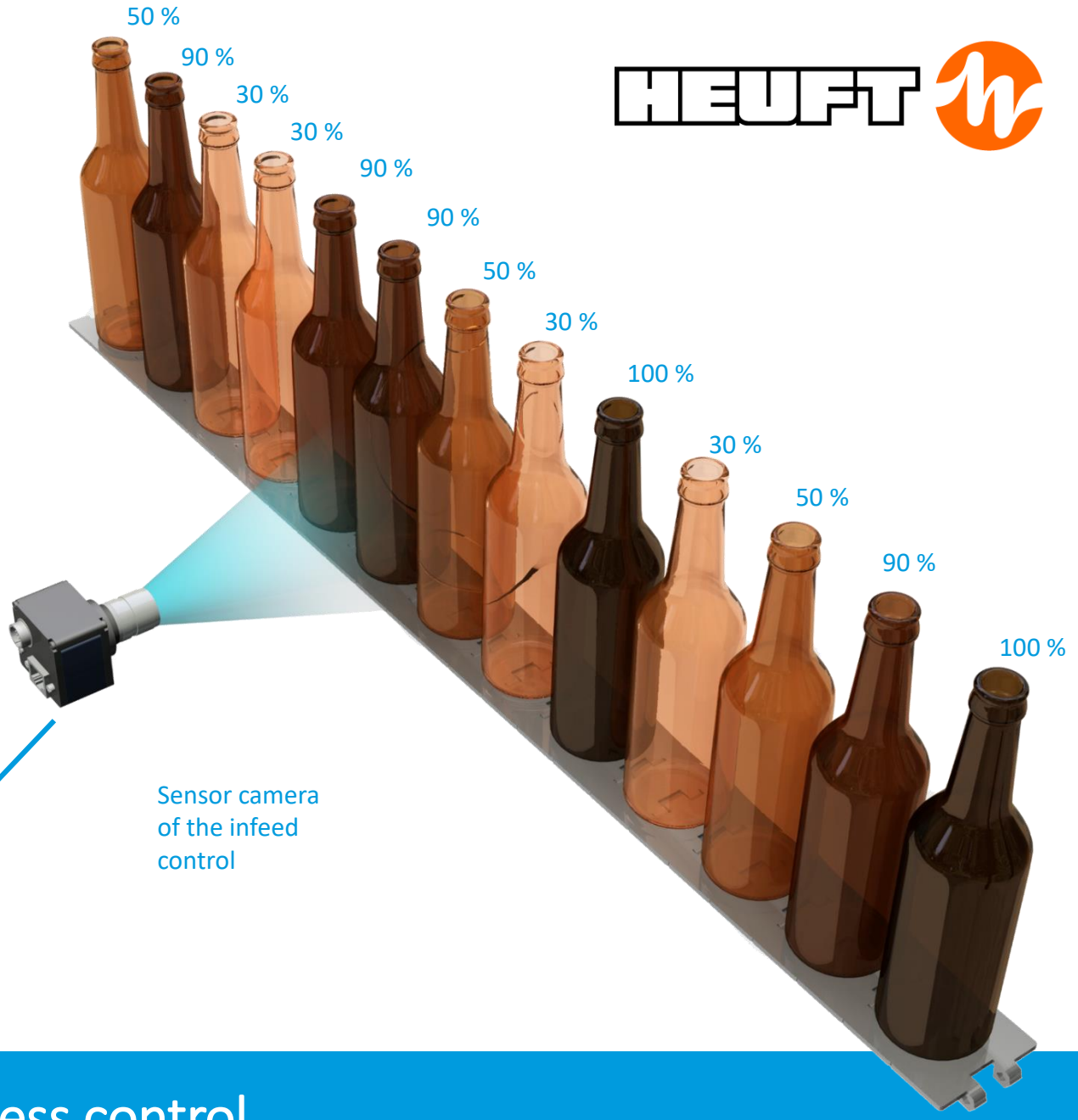




Sensor camera of the infeed control

Brightness control





Sensor camera of the infeed control

Brightness control

foreign object

dark bottle

foreign object

adapted brightness

Brightness control = intellegent adjustment of illumination

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THANK YOU FOR YOUR ATTENTION!