

Inspection of loaded pallets

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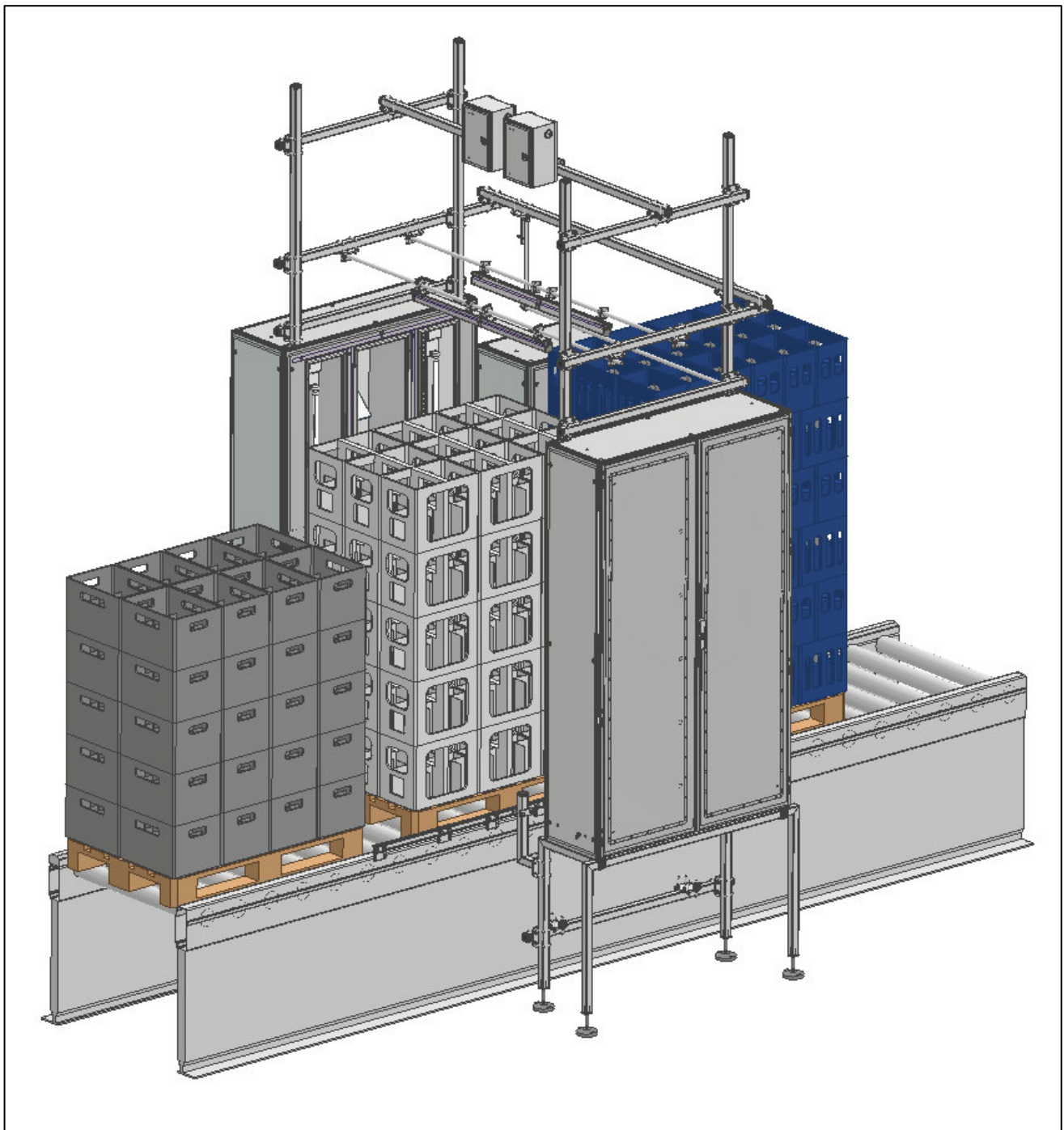


The inspection of loaded pallet is developed to detect beverage crates on the pallet.

The inspection unit is mounted to the left and right of the pallet conveyor and has (depending on the task) five camera/illumination units on each side. The lighting units are power LED units that are operated with flashes.

Due to the high light intensity of the lighting units, there is little extraneous light interference, so that only in direct sunlight does a covering need to be built around the system.

Each camera system takes four images of the passing pallet in a row, so that 40 images of the entire pallet are available.



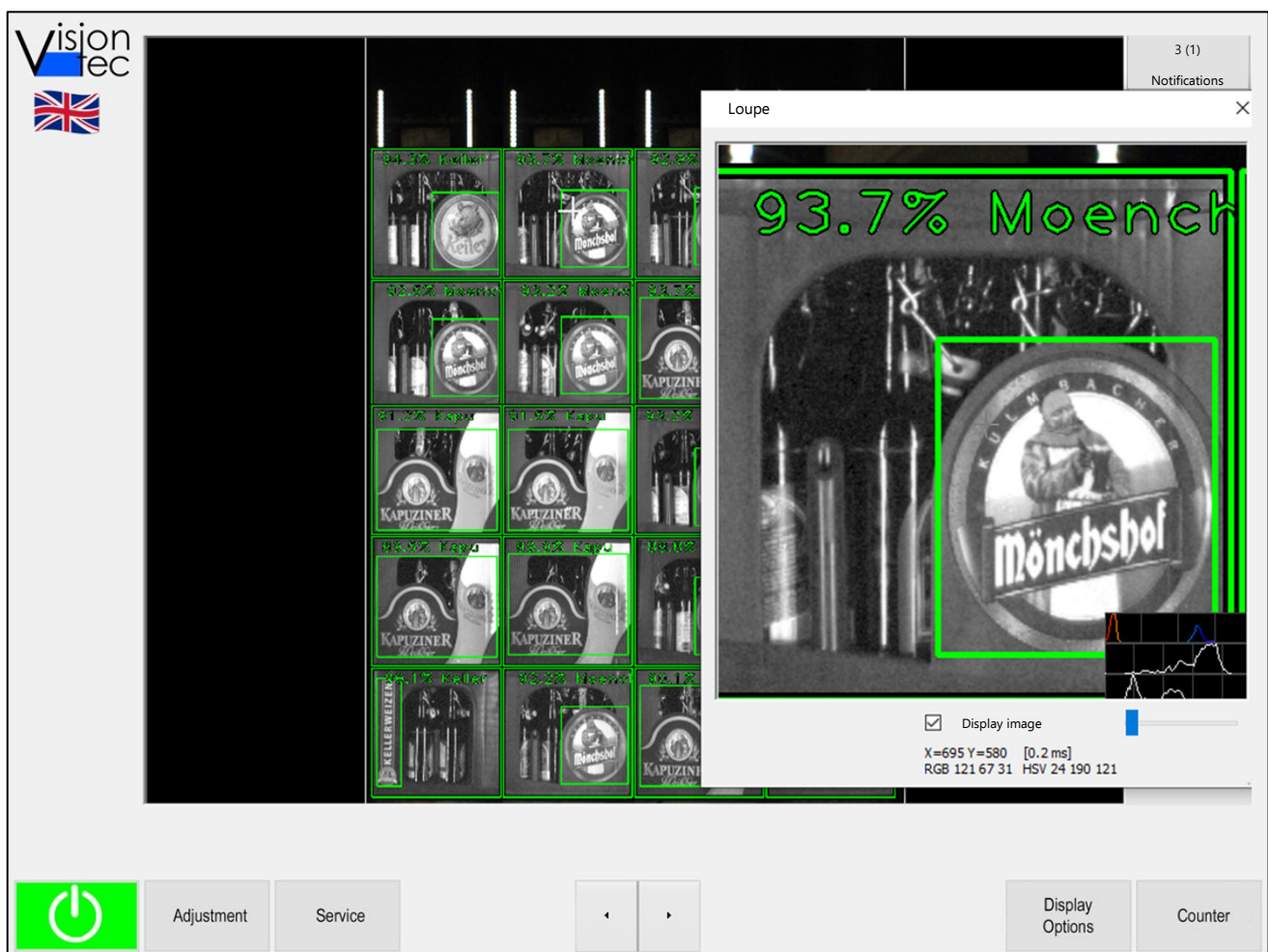
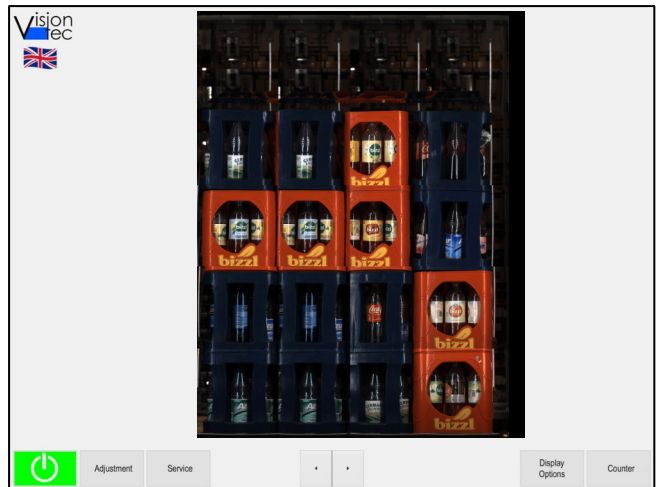
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This image resolution makes it possible to distinguish even very similar crates (e.g., two crates of 11 from a crate of 20 bottles of the same variety).

The individual crate types are taught in using the teach-in process.

As the grip holes of crates without bottles are illuminated much more intensively, pallet stacks with empty crates are also reliably detected.



With the side camera systems, side stacks of crates on the pallet are inspected - in the case of the Euro pallet, this means all crates.

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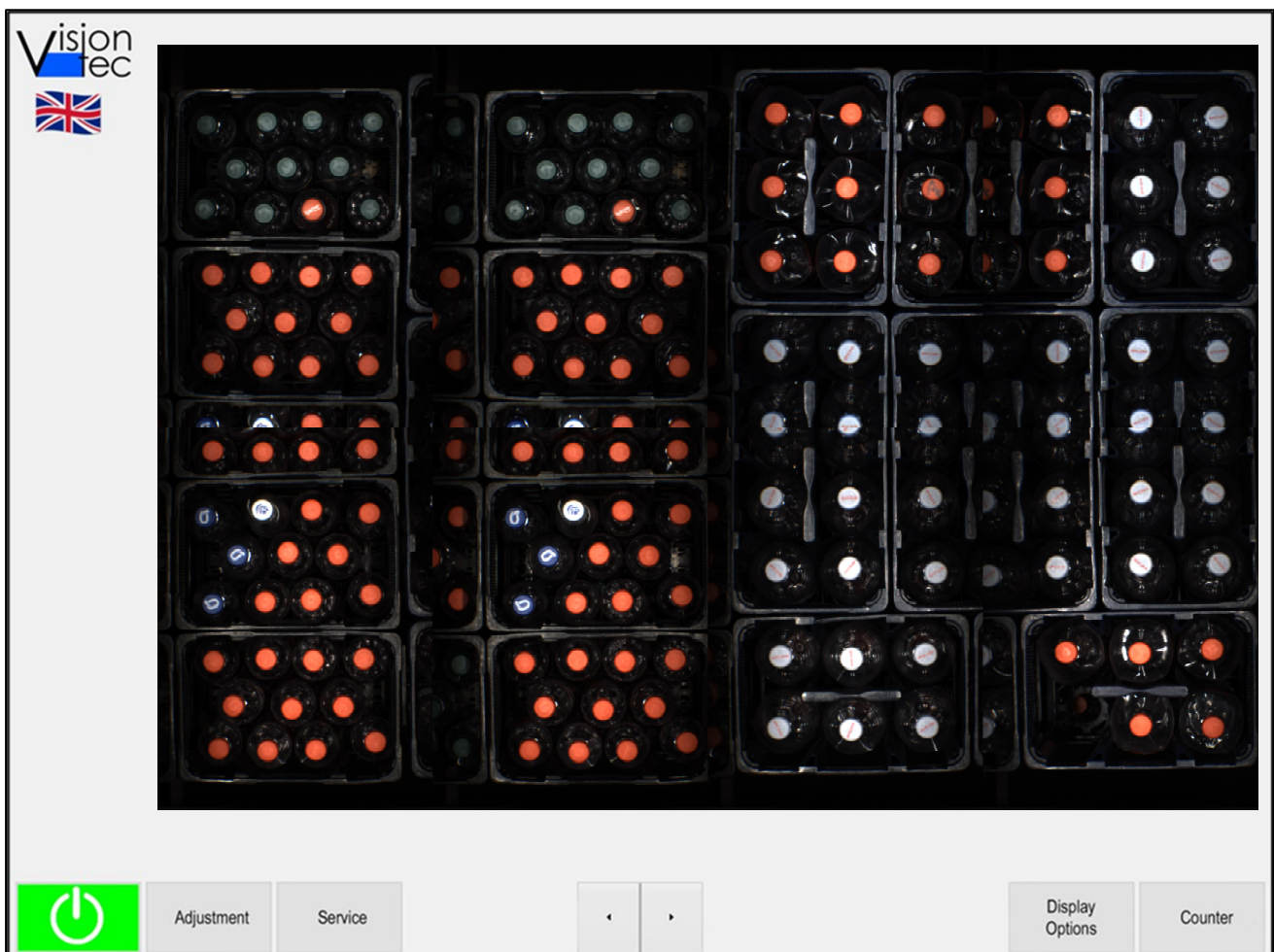
But e.g. the inspection of the middle crate stacks is missing in the case of the well pallet, for which an additional camera inspection is recommended from above.

This is used to check the layer pattern of the top crate layer.

If it is confirmed that the layer is complete with well crates, it is guaranteed that there are also well crates in the lower layers (since the crate geometry of the well crates does not match any other type of crate).

Alternative, an additional visual inspection from the side is also possible. For this purpose, another 2 x 3 camera/illumination units are mounted, which view between the passing pallets and also check the middle crate stacks on the incoming and outgoing long side.

The requirement for checking the long sides is a pallet spacing of 1500 mm. However, the middle stack of crates (which cannot be seen from any of the four sides) is not taken into account.





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