Technologies

CAP INSPECTION TECHNOLOGY

AI sees more

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Tethered caps have been mandatory for all non-returnable PET bottles since July 2024. In order to detect defects in these closures even more precisely and efficiently, KHS now relies on assistance from AI on its proven Innocheck TSI closure inspector.

NON-RETURNABLE PET   RETURNABLE PET

PHOTOGRAPHY / ILLUSTRATION

Frank Reinhold

COVER PHOTO

Smart system for the quick and reliable identification of potential defects in tethered caps: AI-based fault detection during cap inspection.

The obligatory introduction of ↗ **tethered caps** in the EU presented bottle and beverage producers with a number of challenges: with numerous variants in bottle and cap design being processed and line capacities increasing, they had to find new solutions to continue to meet the high demands made of product quality and protection. This also applied to inspection technology, explains Nikita Wall from Labeling and Inspection Technology Product Support at KHS. "Tethered caps were rarely used before the EU directive came into force. Standard systems thus frequently reach the limits of their capacity where cap inspection is concerned."

"In intensive field tests our AI-based fault detector has proved that it fully satisfies the high demands our customers make of quality assurance."

Nikita Wall
Labeling & Inspection Technology Product Support, KHS

AI-based fault detection

One smart way of identifying potential defects in tethered caps during cap inspection is KHS' AI-based fault detection system, available with immediate effect. It makes use of patent-pending algorithms to analyze images of bottle closures in real time. While cameras log the caps in high-resolution quality, AI models evaluate this data. By applying deep learning, the models adjust to account for any new types of flaw found.

KHS' AI-assisted system increases the accuracy and efficiency of control by the proven ⬈ **Innocheck TSI** closure inspector. This option can be implemented on new and existing machines. "In intensive field tests our AI-based fault detector has proved that it fully satisfies the high demands our customers make of quality assurance," emphasizes Wall.

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Using high-resolution 360° imaging, the module checks that caps are intact and correctly seated and that there are no signs of damage.

KHS Innocheck TSI

Our animation shows in detail how the KHS Innocheck TSI detects and displays faulty tamper-evident seals on screw caps with the help of AI.

CLICK HERE FOR THE VIDEO

Further projects in the pipeline

KHS is also planning on using AI for more of its inspection technology. Says Wall, "In the development team, we're currently deciding which systems this would make sense for. AI solutions are a possibility primarily for complex requirements – and if they give our customers clear benefits."

Any further questions?

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