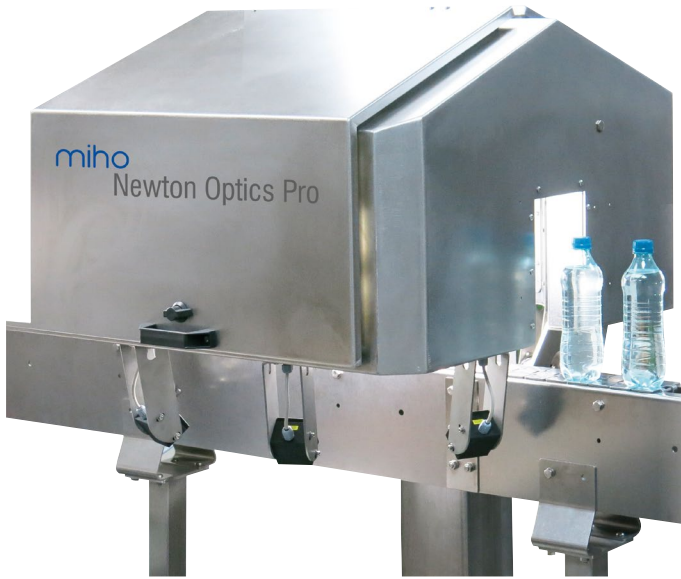


Fill level and cap control

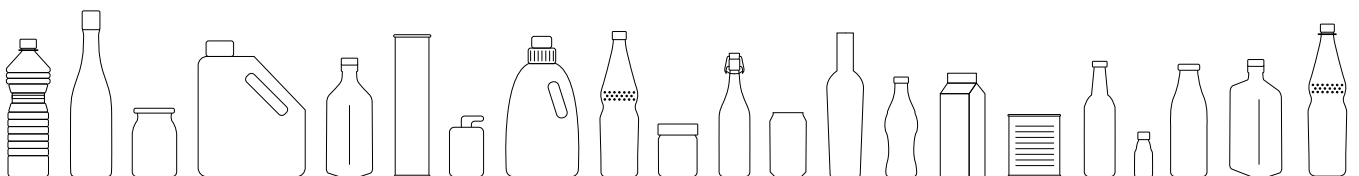
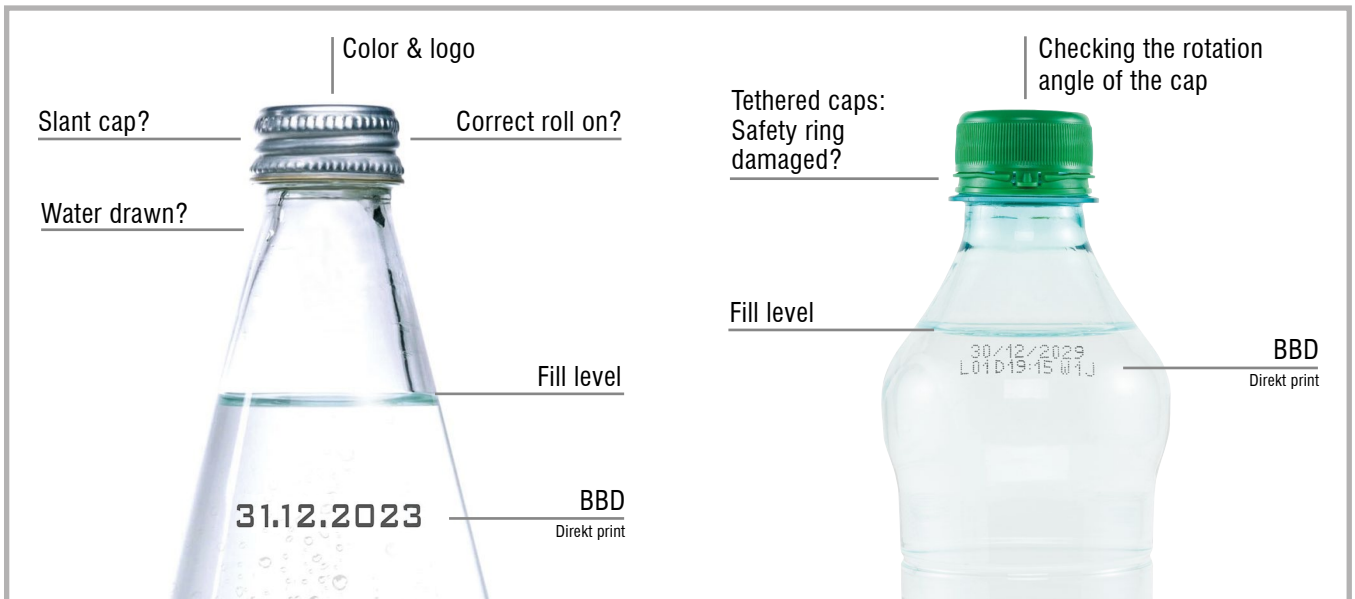
miho Newton Optics Pro



Advantages

- Inspection of tethered caps: retracted or broken safety ring
- Inspection of the rotation angle of the cap
- 360° inspection, for any cap design
- Cap inspection: colour, correctness, slanted fit, MHD, lot no.
- Checking the roll-on of metal screw closures
- Inspection of direct printing on the bottle neck
- Presence detection of wrap-around labels
- Optical fill level control with foam compensation
- Optical method (no ionising radiation): suitable for organic beverages

An integrated fill level and cap inspection covers all the necessary checks for various caps.



Broken safety ring



Angle of rotation check OK



Retracted safety ring



Angle of rotation check not OK

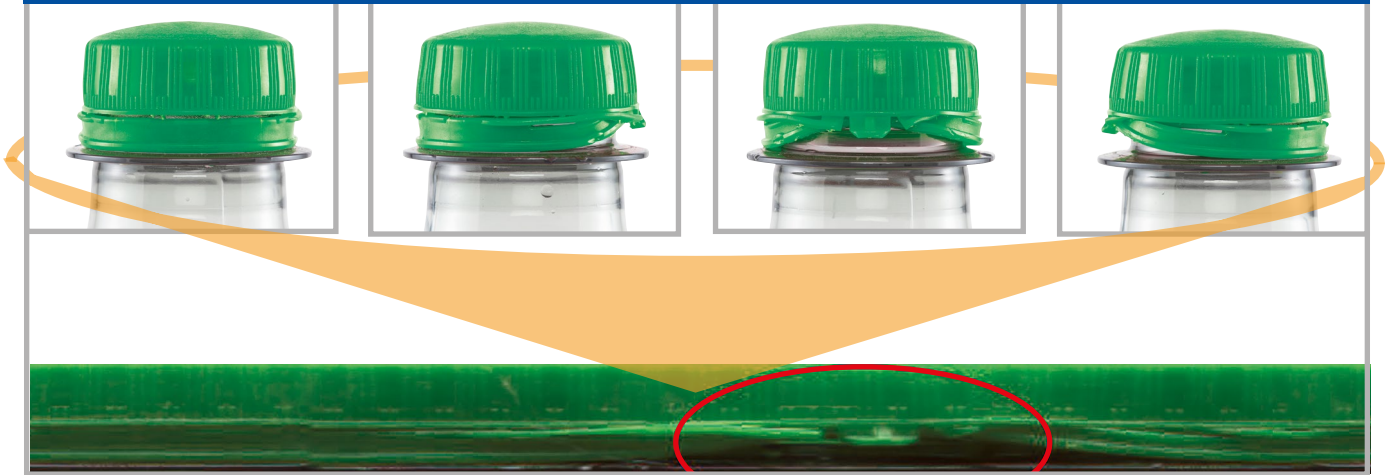


Damaged safety ring

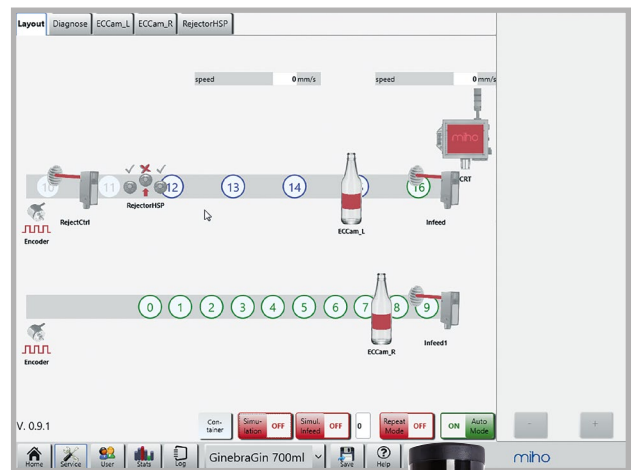


The **angle of rotation of the cap is checked** by means of two markings. The reference mark is on the side or top of the neck ring, the 2nd mark is on the side of the screw cap.

360° Check



360° unwinding of the cap image is the prerequisite for precise inspection for defects - without blind spots – in complicated cap designs (tethered caps).



Flow diagram to show the current system status and fault visualization with intuitive operation and help suggestions

Evaluation unit of the Multi-PC product family (tests from EC-Cam)

- For control, evaluation and visualization of various inspection units and inspection heads of the miho product family.
- PC technology with touch controls based on the Microsoft Windows 10 operating system and image processing miho VIDIOS_SC®. Intuitive visualization and parameterization of the entire machine package with inspection units and reject systems.
- Compact electronics housing made of stainless steel with 15-inch multi-zone colour touch display, IP 55 version.
- Control of one or more miho camera lighting units or other inspection heads from the miho product range.
- Evaluation of the camera images by several individually parameterizable evaluation zones.
- Remote maintenance functionality with all the necessary software licenses (Open VPN).
- Separate miho AWeS production data acquisition, interface according to Weihenstephan standard.



**Roll-on inspection,
inspection for cut-ins**



360° check: broken safety ring



BBD detection on PET container



**Cap inspection from above:
Colour, logo, imprint**



Inspection head

Function

- Closure: Checking the closure for exact fit (slanted fit / screw depth) and sleep caps. Check for damage to the safety ring on metal and plastic screw caps.
- Non-roll-on check for metal screw caps with a circumferential defect of $> 90^\circ$.
- MHD, lot no. (on the side of the closure): Check for the presence of a BBD on the side of the closure. For this purpose, the MHD must be on the side facing the camera.
- Presence of a nitrogen mist directly after the filler and capper.
- Filling level: Check the filling level for under- and overfilling of transparent, cloudy/opaque, and foaming liquids, provided the fill level is not covered by a label. Illumination by direct light and/or transmitted light with optical method.
- Up to eight images per bottle can be created and evaluated according to various criteria via the miho VIDIOS® image processing system.
- Serial defect detection is implemented.
- Not suitable for opaque containers and for bottles with labels in the fill height range.

Technology

- State-of-the-art camera and illumination technology with several optical axes (90° offset / 270° coverage) and variable illumination.
- Up to eight maintenance-free SMD LED illumination units, independent of each other and arranged at different angles, with a service life of at least 50,000 operating hours.
- Adjustment of the probe to different bottle heights by handwheel height adjustment. Optional: motorised height adjustment.
- Test rejection according to manual request with programmable number in connection with a miho filler monitoring system miho FM2.
- Depending on the configuration up to 60,000 containers per hour.

Optical cap inspection



Optical fill level control: for foaming, turbid and opaque liquids



miho modular product system for complete inspection between filler and labeler

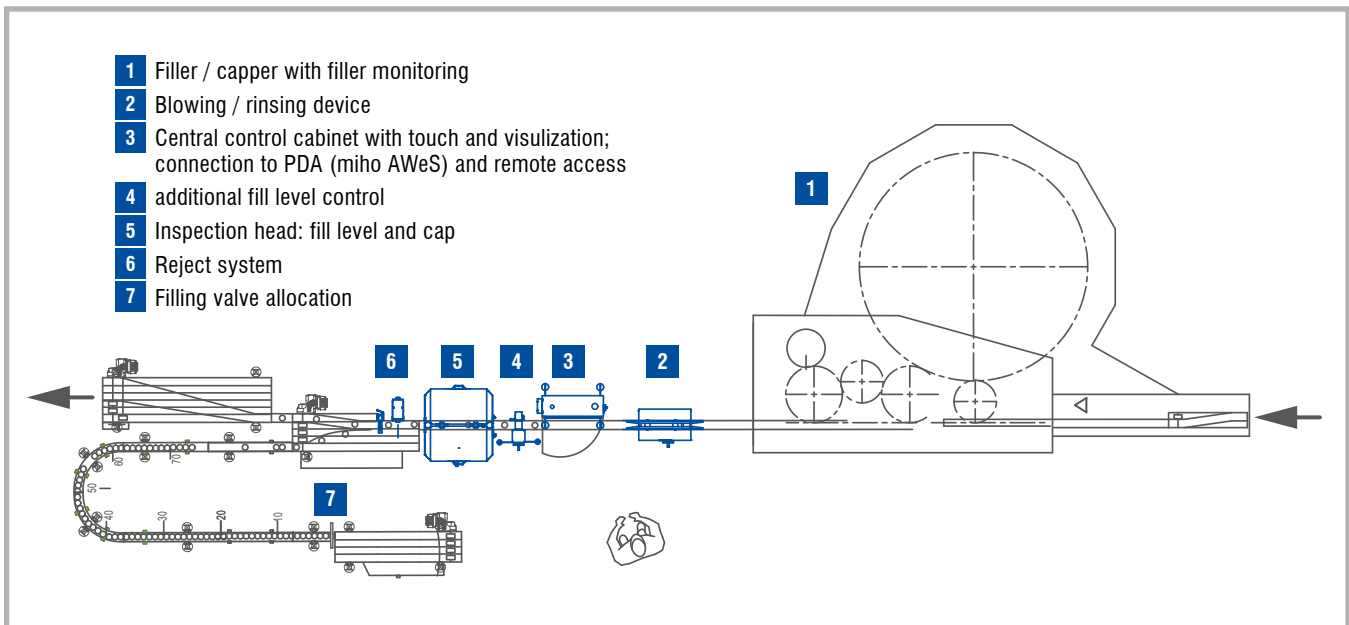
Device / module	Inspection task / function
miho Newton Optics Pro / basic unit	Fill level, complete cap inspection
miho Newton Optics Pro / top camera	Top cap inspection / rotation angle inspection
miho Newton IR 2 / inspection head	Fill level control (liquid with pulp)
miho Newton X2 / inspection head	Fill level control (fill level covered by a label / in cans)
miho Newton HF 2 / inspection head	Fill level control (standard)
miho FM 2	Filler monitor, bottle burst control
miho LC 2 / Prüfkopf	Metal detection
miho MX / Prüfkopf	Filling tube detection

Network integration

- Diagnosis and online help through separate remote maintenance module
- Production data acquisition miho AWeS via Weihenstephaner Standard
- Intermediate storing of the operating data in case of failure of the existing network

Reject systems

- High speed pusher miho HSP
- Multiway reject system miho HSPM
- Linear segment reject system miho Leonardo M
- Segment reject system miho Leonardo SFM



A integrated control of fill level and cap, as well as filler and capper monitoring can be carried out behind the filler and capper.