

miho

David 2

Empty Bottle Inspection Machine



The miho **DAVID 2** is an Empty Bottle Inspector with an **outstanding inspection performance**.

Built with a consistently sophisticated modular basic design, the miho **DAVID 2** takes a leading position among the inspectors due to continued innovation over many years. Naming just two of the recent miho development successes: An innovative thread inspection detects even the smallest, yet up until now undetectable faults (see page 2). And with the base inspection self-monitoring module miho **AIM**, a big step towards the self-control of inspection processes has been achieved, providing a final security measure to ensure accurate test results (see also page 2).

The **basic features** of the miho **DAVID 2** are:

State of the art calculation methods. New platform miho VIDIOS® (Versatile Improved Distributed Imaging Operation System / Real Time). miho **VIDIOS®** has been designed specifically by miho for inspection tasks and provides innovative image-processing.

Continuous **digitised and flexible camera concept** with modern **CCD camera technology**.

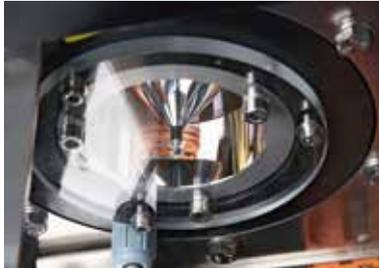
Optimised lighting conditions through **high performance LEDs** using the latest technology.

Optimal **safeguard against extraneous light** through pneumatic removeable light cover.

Hygienic construction.

Consequent open modular construction: possible modification through new inspection modules and functions. Uncomplex maintenance.

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Inspection Units

Base Inspection:

Detection and display of objects and contamination present at the bottle-base.

Detection of transparent faults (for example, cellophane) due to an integrated bright field system with polarisation filter (for glass bottles).

Optional: extension of visual angle for an improved inspection of bottles with long necks.

Optional: **base inspection self-monitoring module miho AIM** (Advanced Introspection Module). A permanent automatic inspection of the safety glass plates to check for dirt and wetting from water prevents a reduced level of inspection accuracy and the distortion of test results.

Residual Liquid Inspection:

Detection of residual liquid in the bottle, especially soda, by using the HF measuring process. With sensitivity adjustment control.

Optional: Residual liquid inspection by using an infrared inspection process for the improved detection of organic liquids (for example, oil).

Bottle-finish Inspection:

Detection and display of damage to the bottle-finish, in particular the sealing surfaces.

Detection not just of "usual" external damage but also of internal damage (for example, cracks) by using a new lighting system

Optional: Underchip detection to detect damage on the side of the bottle mouth. See also thread inspection.

Thread Inspection (optional):

Detection and display of damaged and incorrectly manufactured threads.

The new miho thread inspection detects the smallest breakages, that have up until now remained undetectable, as well as the smallest glass damage and contamination throughout the thread. This significant progress concerning inspection accuracy has been enabled by an innovative miho construction and a specific combination of state-of-the-art lighting, camera and computer technology.

Optionally, the thread inspection module can also be used as a finish inspection for the **highly accurate inspection of the underchip area** (using special software).

Sidewall Inspection:

Detection and display of damage and contamination, even if it is very small, on the outer and inner bottle-wall, whilst reducing the fault detection rate caused by a build up of steam or water drops.

Dual Sidewall Inspection (optional):

This has two camera systems facing one another at the bottle infeed and outfeed. This construction allows any dirt or damage, irrespective of which side of the bottle they are on, to be directly within the view of the camera and to easily be detected.

Inner Sidewall Inspection (optional):

Detection of three dimensional contamination on the inner wall of the bottle which cannot be detected from the outside because of, for example, ACL labels, relief printing.

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System features

Radical and open modular construction:

Each separate function and sub-function of the machine does not only have its own technical component but is also independent and easily accessible. Component parts are also accessible.

Extensive possibilities of modernisation:

This consequent open modular construction allows uncomplex modifications with new inspection modules and future developments. The miho **David 2** is a machine that by upgrading can be kept state of the art technology even after years.

State of the art technology. For example:

State-of-the-art computer technology. New platform miho VIDIOS® (Versatile Improved Distributed Imaging Operation System / Real Time). miho VIDIOS® is a registered trademark of miho for its own specially developed software program structure for image-processing. It is possible to carry out improvements to algorithm through the exact knowledge of source codes both better and faster in accordance with the requirements of inspection technology in the beverage industry. Thanks to miho VIDIOS®, miho is independent from external software manufacturers and can react more quickly to customer needs.

Camera technology:

Thoroughly digitised and flexible camera concept with modern CCD camera technology.

Special lighting systems and light techniques:

Simultaneous implementation of different lighting processes. General use of LED lighting with a long lifetime.

Hygienic construction:

Slanting surfaces. No build-up of dripping water. Extensive access, therefore, no inaccessible corners and zones. Covered cable conduits. Closed pipeline cooling system: Secured against contamination.

Very solid mechanical components:

For example: Precision transport system for which all parts have been constructed to deal with the toughest of demands.

Maintenance- and service-friendly:

The clearly-arranged and open construction allows an uncomplex maintenance.

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Operation

TFT colour display:

With touch screen and intuitively controllable operator interface. Installed in a swivel arm.

User administration:

Multi-level user administration with password protection.

Optional: Registration by using a transponder.

Data processing (optional):

Extensive protocols and storing of all operating data. Compatible with the "Weihenstephan Standards".

Remote maintenance (optional):

The miho **remote maintenance module** visualizes from a distance the current operation status (for example, counters and disruptions), the parameters and the images on an authorized computer. The remote distance module can be used to enter new parameters or to update them, to pre-set-up new bottle-types and to quickly and accurately analyze any faults.

The remote maintenance can be done using DSL or the company network and is secured by VPN technology.

Performance

72 000 bottles per hour

Periphery

Infeed inspection:

Sorting module miho **Unicon 3** (sensor technology). Halts the conveyor for bottles that are too low, too high and chipped. Option: An individual reject system that is installed before the infeed of the machine that rejects the foreign bottles without stopping the conveyor.

Alternative to the miho **Unicon 3**: the Sorting System miho **Multicon 3** (camera-based). Performs a differentiated detection in accordance with size, shape and colour. Rejection or diversion of different bottle-types takes place through a separate reject system without the conveyor being stopped.

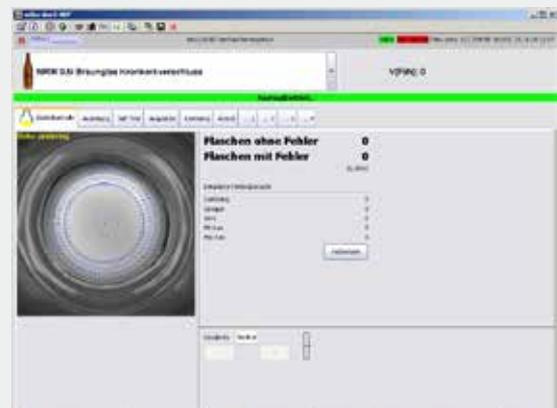
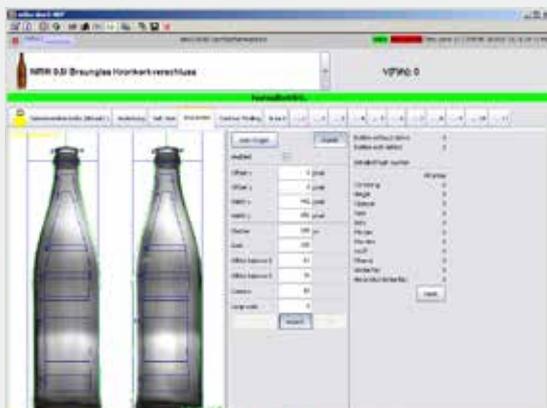
Reject Systems:

Options:

Pneumatic Reject miho **HSP**

Eccentric Reject System miho **ESF 2**

Linear Reject System miho **Leonardo M**

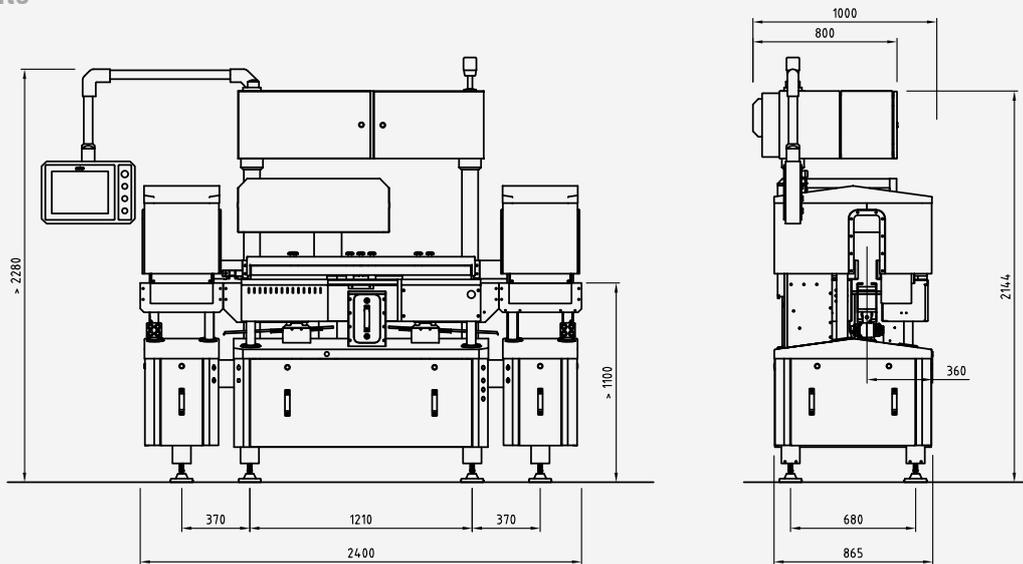


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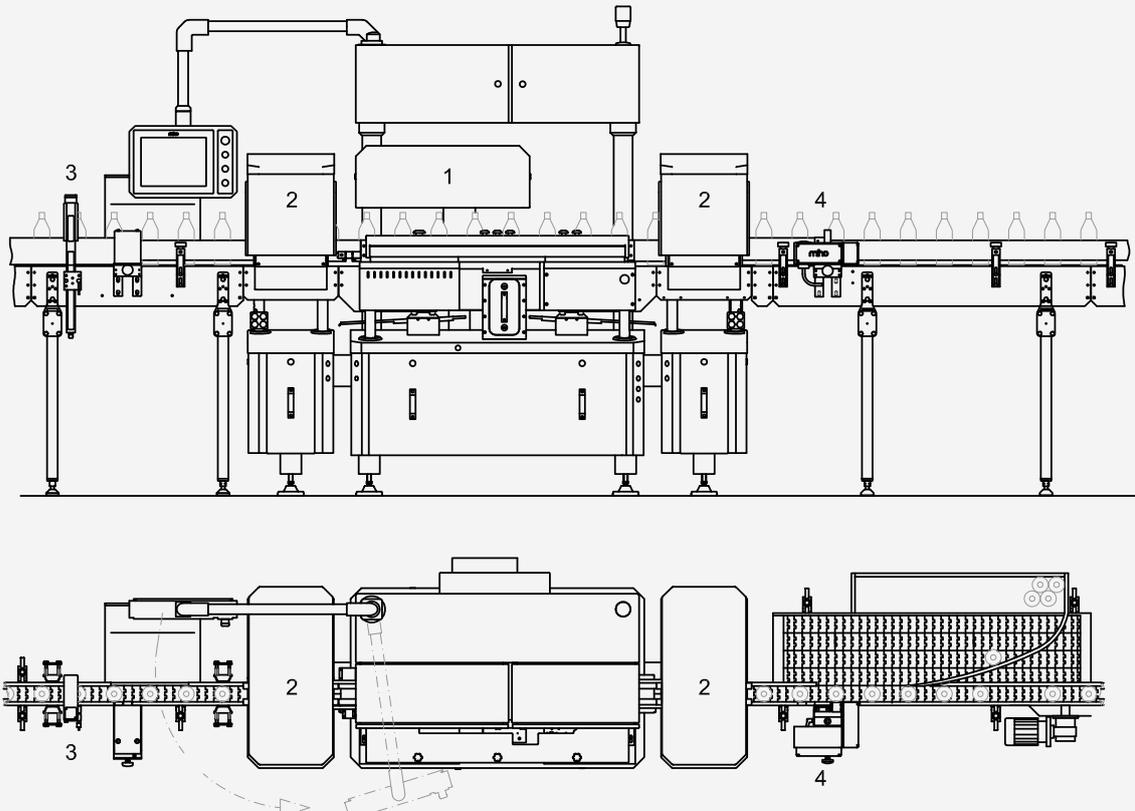
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Measurements



Installation example



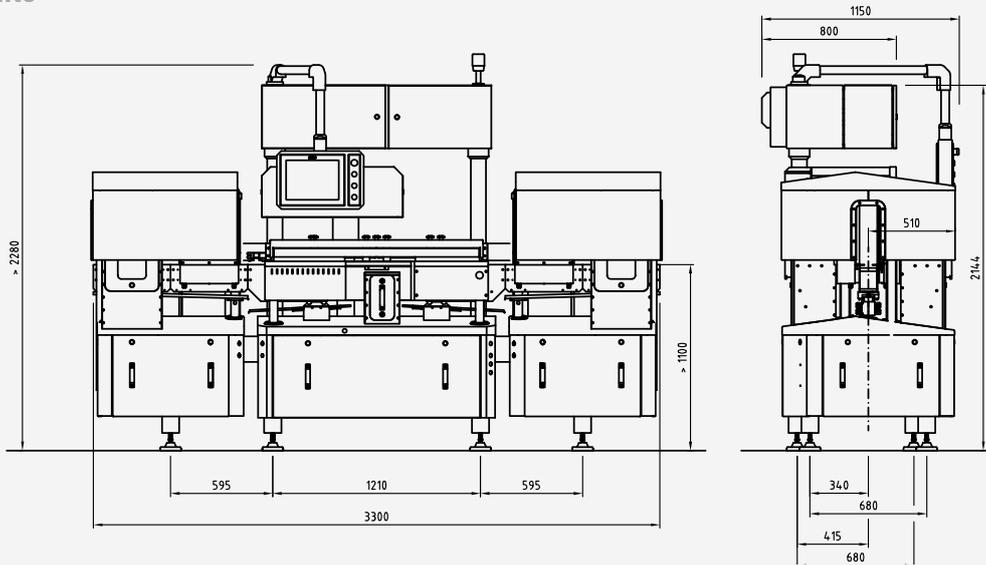
1 Inspection Head

2 Sidewall Inspection

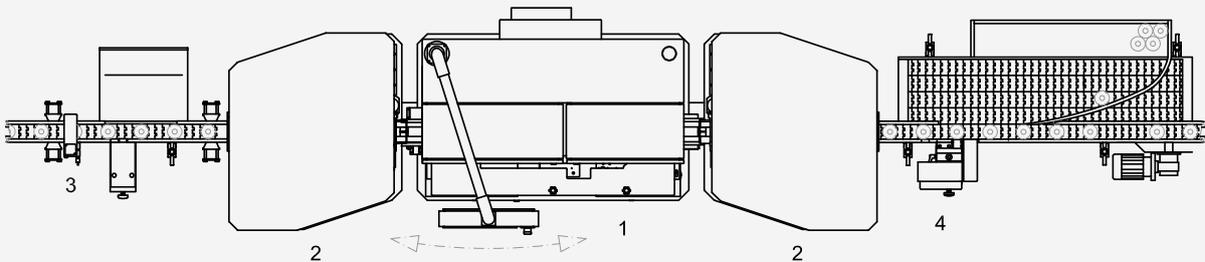
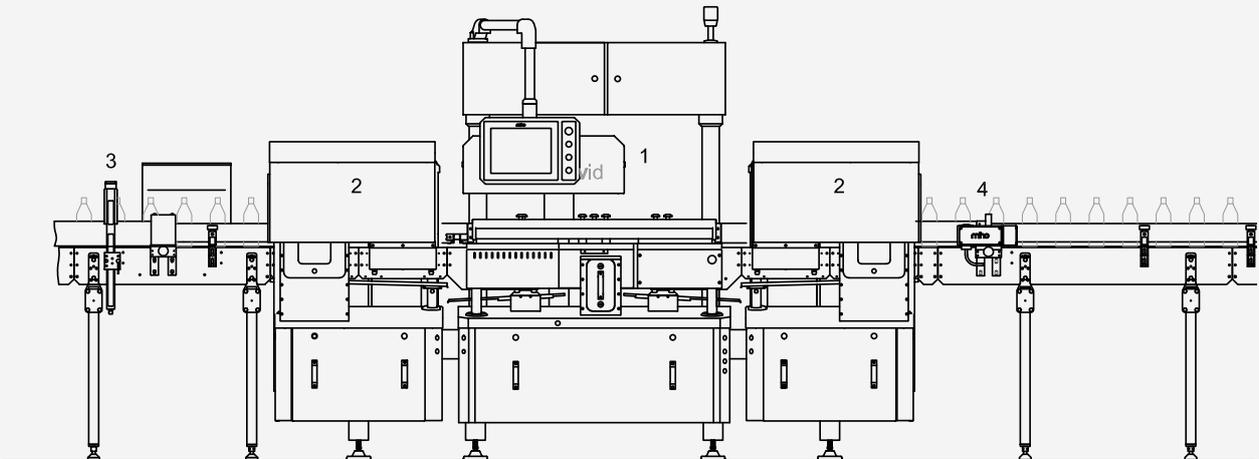
3 Infeed inspection

4 Eccentric reject system miho ESF 2

Measurements



Installation example



1 Inspection Head 2 Dual Sidewall Inspection 3 Infeed inspection 4 Eccentric reject system miho ESF 2