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BottleWatcher

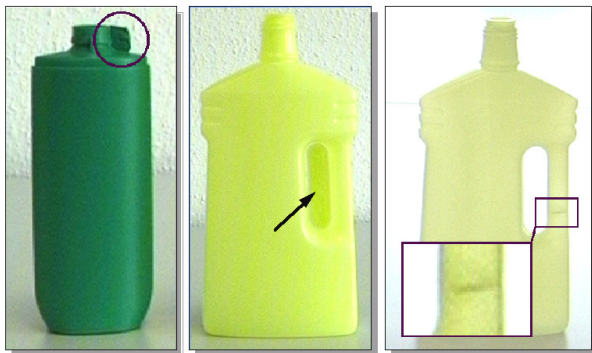
**Automated Vision System for
Inspection of Plastic Containers**



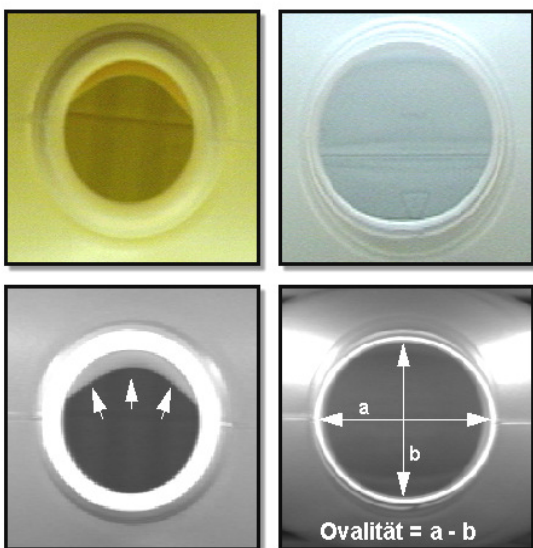
Area of application

BottleWatcher is a fully automated image processing system for the in-line inspection of plastic containers.

The **BottleWatcher standard system** checks the plastic bottles for external flashes and flashes around the handle down to a size of 0,5 mm (0.02 inch). In addition, the handle is checked for handle folds.



The optional **bottle neck inspection module (NC)** of BottleWatcher allows the measurement of the neck's diameter and ovality. Both measurements are accomplished with an accuracy of 0,1 mm (0.004 inch). The system also finds material inserts inside the neck.



BottleWatcher can also be equipped with a **label inspection module (LC)**, which checks the position of labels on the front and rear of the bottle and the identity of the label. The measuring accuracy is better than 0,1 mm (0.004 inch).



SOFIX is a registered trademark of Henkel KGaA, Germany.

The optional **material fault module (MFx)** inspects the unlabelled bottle surface for material flaws like inclusions or pin holes. The inspection area can be as high as 150 mm (5.9 inch).



Advantages

The BottleWatcher image processing system offers an intuitive user interface that is easy to learn, even for non-software professionals. It always shows the image of the current test object, overlaid with the inspection results and a statistical overview of all fault categories.

With BottleWatcher it is easy to switch among different products. It stores the individual product settings in a database, from which they can be recalled by the push of a button. Finding the optimal settings for a new product is enhanced by a guided setup process, where the user is prompted step-by-step to mark surface areas or adjust critical values. A typical setup for a new product is just the matter of a few minutes, or even seconds.

Even in the measurement mode, the user can modify product and quality parameters to adapt to modified production parameters. The access to such settings can be limited to authorized personnel only. A flexible system of user access rights adapts to your specific operational situation.

Critical alert signals are not only displayed on the system screen, but can also be connected to external display devices to be easily recognized in a production floor environment. For instance, signals like “fault sequence” or “system stopped” are often connected to external lights or control units.

The system speaks your language; language resources for English, French, Dutch and German are available, others are possible. All user manuals will be delivered in your language, too.

System highlights:

- All examinations on one screen – one information system, universal operation
- Up to 7 objects per second
- Turn-key system – including lighting, mounting, software, ejector, etc.
- Cameras are protected against moisture and dirt
- Network integration possible
- Product settings can be recalled from a database
- Installation within a few hours with just a few brief production interruptions
- Quick set-up of product-specific settings (within a few minutes)
- Easy to use and to learn
- Training course included
- Multi-lingual, user interface and manual in local language
- Extensible and modular; can be configured right to your demands by many options
- Detailed statistics information (QA)

System components



Rack made of aluminum profiles including:

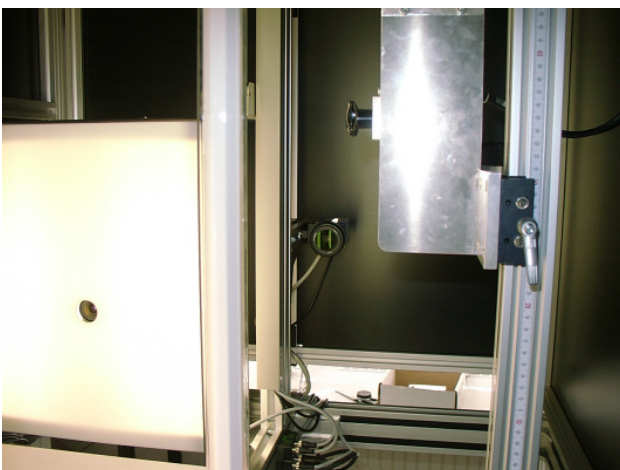
- cameras with lenses,
- industrial quality lighting,
- ejector cylinder and valve,
- conveyor belt.

19" industrial housing including:

- image processing PC,
- control unit,
- UPS (uninterruptable power supply),
- ventilation,
- dust protected cable inlet with strain relief clamps, IP 42.

Control panel:

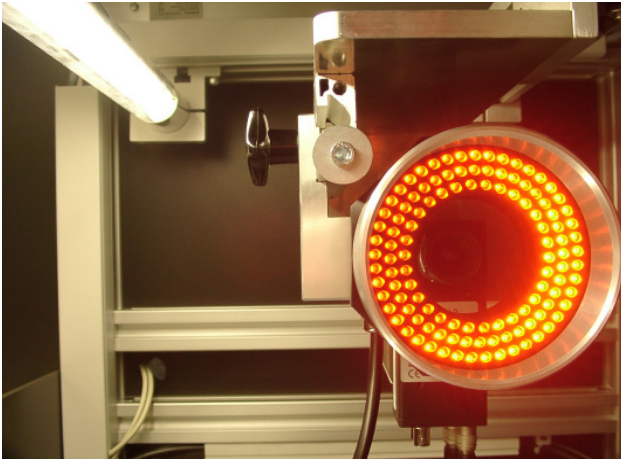
- high quality 15 inch TFT display with a resolution of 1024 x 768 pixels,
- membrane keyboard with 14 PC keys,
- aluminum housing,
- sturdy industrial design with flat elegant form.



Inspection module S

Checks the plastic bottle for:

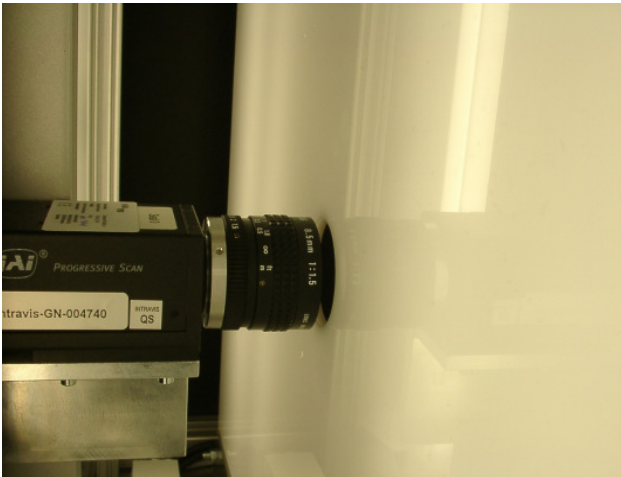
- external flashes,
- flashes around the handle,
- handle for interior folds.



Inspection module NC

Checks bottle neck for:

- diameter,
- ovality,
- material inserts.



Inspection module LC (with option MFX)

Checks both labels for:

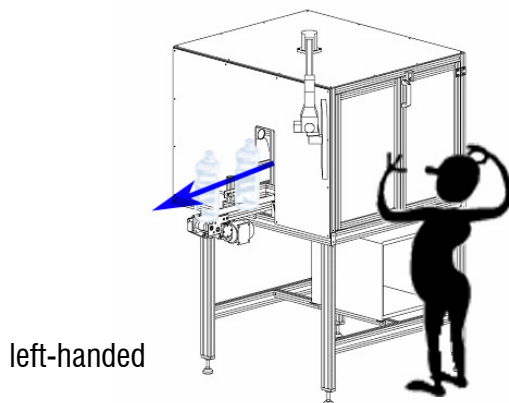
- presence of the label
- identity of the label
- label position and alignment

If the LC module is not used for label examination, it can be used for the detection of material defects on the front side and rear side:

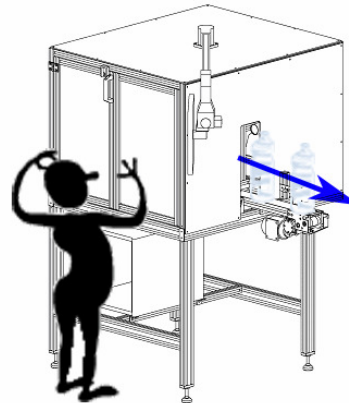
- pin holes (minor material impacts)
- colored streaks
- coarse surface faults

System versions

The BottleWatcher system is available in left-handed or right-handed design.



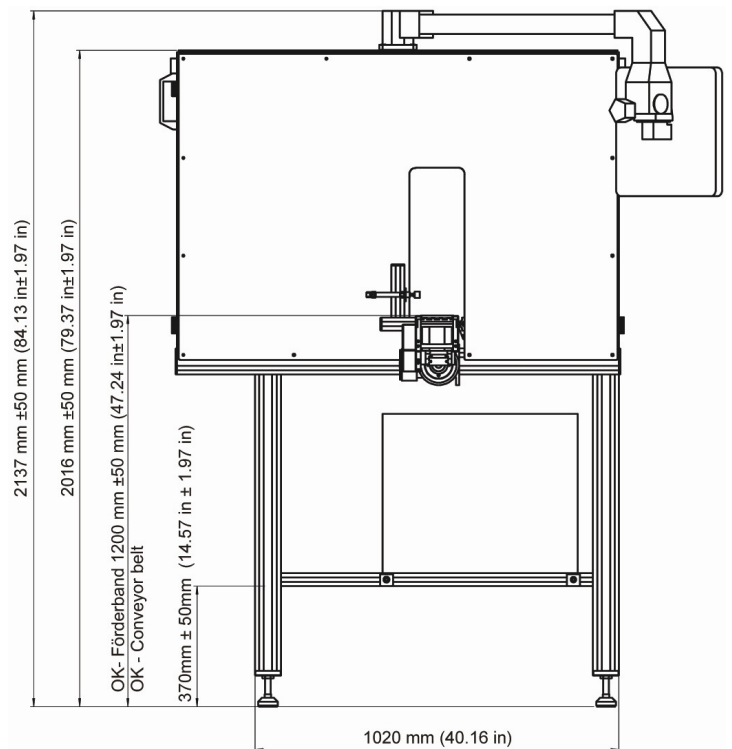
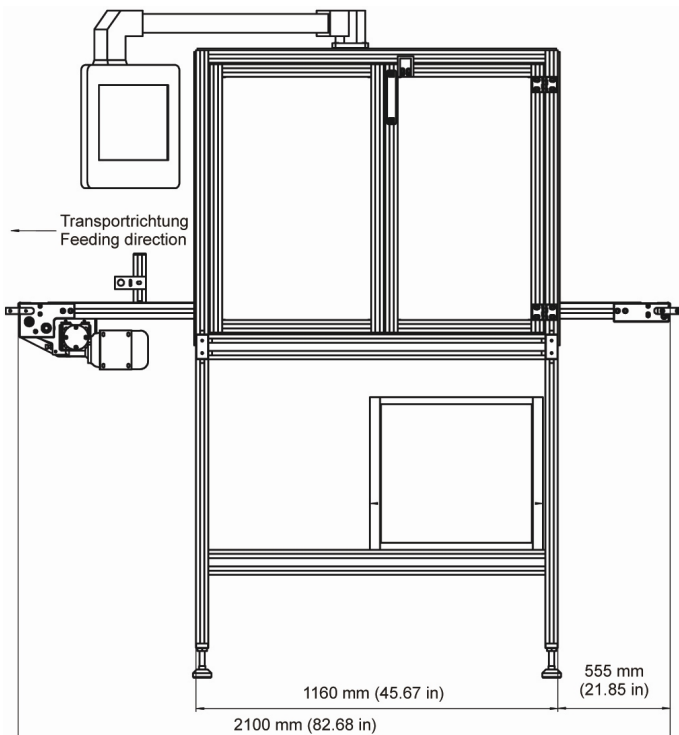
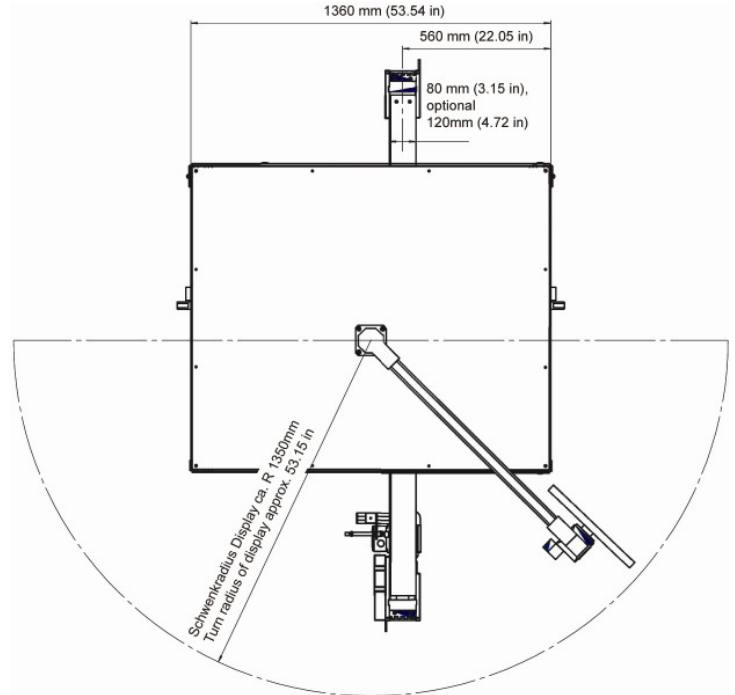
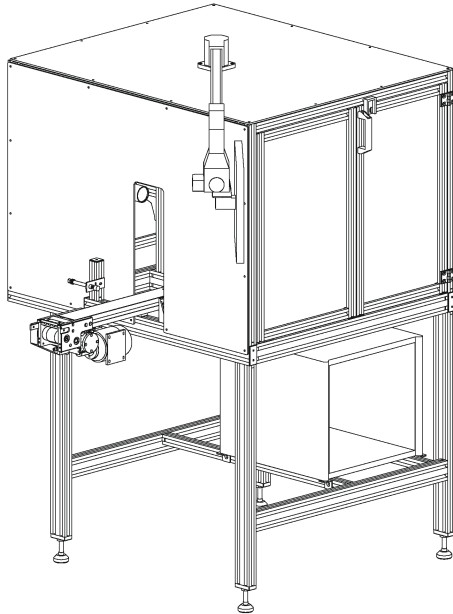
left-handed



right-handed

Layout

The drawing shows a left-handed design.



Technical Data and Interfaces

Bottle Dimension Limits

Mini- / maximum object height with module S	55 mm / 420 mm (2.17 inch / 16.54 inch)
Mini- / maximum object height with module MFX	55 mm / 150 mm (2.17 inch / 5.9 inch)
Maximum object width	294 mm (11.57 inch)
Maximum object depth	150 mm (5.9 inch)
Maximum neck diameter	50 mm (1.97 inch)
Minimum gap between objects	25 mm (0.98 inch)

Inspection Accuracy

Inspection module S	0,5 mm (0.02 inch)
Inspection module NC	0,1 mm (0.004 inch)
Inspection module LC/MFX	<0,5 mm (<0.02 inch)

Throughput Rate

Maximum inspection rate	8 objects per second
Maximum conveyor speed	35 m/min (114.8 ft/min)

Connections

Rated voltage PC rack, frequency inverter	230 V AC, 50 Hz
Rated current PC rack / frequency inverter	2 A / 3 A
External fuse PC rack, frequency inverter	16 A
Power rating conveyor	3 x 400 V AC, 50 Hz +N+PE
Compressed air supply	6 bar to 8 bar, oil free, filtered
Compressed air connection	plug-in connection, 6 mm
Air consumption (uncompressed)	40 NI/min (1.41 SCFM)

Dimensions

Length with conveyor	2090 mm (82.28 inch)
Depth, total	1360 mm (53.54 inch)
Depth forward (course-laterally)	560 mm (22.05 inch)
Depth to the rear (machine-laterally)	800 mm (31.5 inch)
Height	2137 mm +/- 50 mm (84.13 inch +/- 1.97 inch)

Weight

Weight, fully-equipped	240 kg (529.1 lbs.)
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Service Conditions

Temperature	+10 °C to +40 °C (50 °F to 104 °F)
Humidity	20 % to 80 % RH, non-condensing
Maximum altitude	1800 m (5906 ft)
Noise emission	70 dB(A)