



EMPTY CONTAINER INSPECTION

HEUFT *InLine*



What is the definition of an empty container inspection?



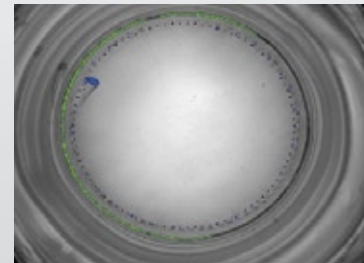
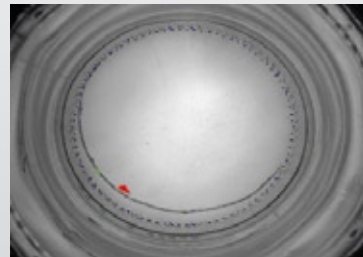
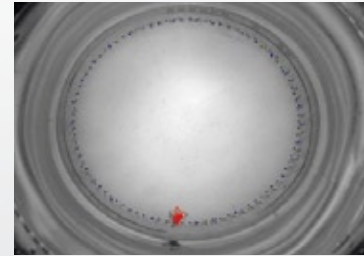
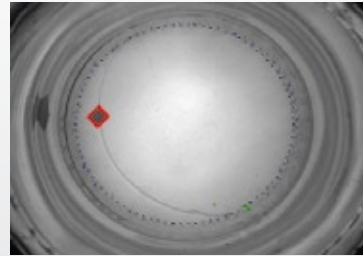
An all around inspection of healthcare containers before filling - the HEUFT *InLine* solves this task using a minimum amount of space whilst providing maximum inspection quality.

It is possible to detect small faults even in difficult areas by means of the HEUFT *reflex* image processing system. Whether transparent faults on the base of PET or HDPFE containers or at the sidewalls of glass containers such as flacons, jars or

bottles - the HEUFT *InLine* is impressive because it reliably detects faults with an extremely low false rejection rate.

HEUFT offers this top-class technology in a linear machine. This reduces the investment and maintenance costs involved. The operating advantages e.g. during a product change are a further plus factor which have made this system so successful.

HEUFT redefines the state of the art in the empty container inspection sector again and again. Standards are set by combining extensive practical experience and the use of the latest technical possibilities. New techniques are regularly offered as retrofits so that this level of technological development is always achieved. This makes the HEUFT *InLine* a future-proof investment.



Typical faults on the container base



Base inspection

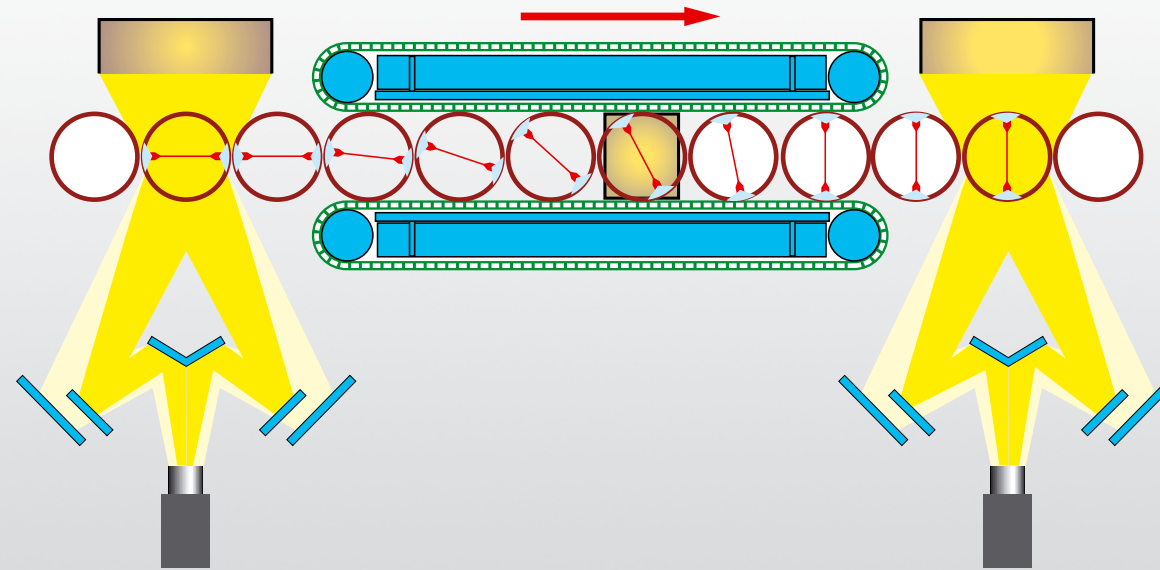


The base inspection checks the inside and the outside of the container base. An in-focus and extremely high-contrast picture of the base is taken by means of the stroboscope illumination. Existing container structures such as embossing, incised marks, raised manufacturer markings and glass type numbers or injection points are filtered out during the subsequent picture analysis. Contamination or damage as regards the base

are marked as objects and evaluated. It is even possible to find transparent contamination which can hardly be identified by the human eye due to the use of optical filters.

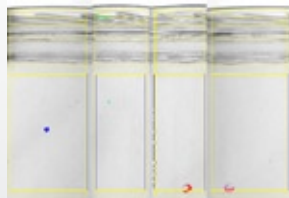
HEUFT uses a sophisticated centring method for the base picture so that this also functions when the container material is not optimal. The selectivity between a small fault and tolerable fluc-

tuations in the container material therefore achieves an impressive quality.



Double sidewall inspection with a 90° rotation

Sidewall inspection



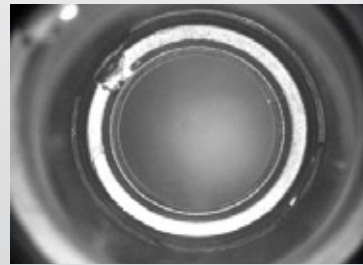
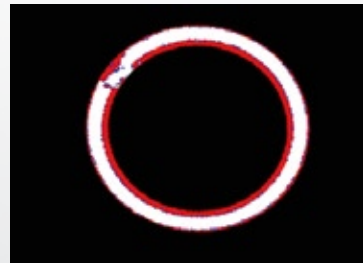
An all around view of a container is a basic requirement in order to detect all possible contamination and damage. A picture is taken, the container is rotated and another picture is taken in the HEUFT *InLine* so that the edge areas of one view are in the centre of the picture in the next view.

The existing structures are examined in the pictures in order to clearly dif-

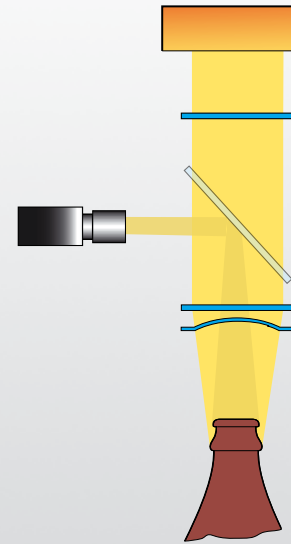
ferentiate these from possible existing faults. Embossed marks which occur in an undefined position can be localised by means of the finely staggered sectioning of the picture signal. The image processing system is thus in a position to detect faults which are hidden behind such structures. Differentiating between desired structures such as fill height markings and undesired opaque and transparent faults is now possible due

to the development of intelligent filters - independent of the container alignment.

Therefore HEUFT has set another milestone towards optimal detection reliability with a minimum false rejection rate.



The sealing surface inspection



The sealing surface inspection



Damage to the sealing surface can jeopardise the quality of a product and can present a health risk to the consumer. The HEUFT *InLine* has a wide range of analysis tools in order to reliably detect critical faults.

The optical arrangement with a powerful stroboscope illumination and a high resolution camera provides a clear picture of the finish.

The picture of the finish is optimally centred first which is an important requirement in order to be able to carry out an exact picture analysis.

The centred picture is then examined using extensive evaluation algorithms in order to be able to detect the different types of fault.

The result is a clear differentiation between the usual tolerances and quality differences in the material on the one hand and actual faults such as chips, which lead to the rejection of the container, on the other hand.



The HEUFT *reflex* image processing card

The HEUFT *reflex* image processing system



Combining two camera pictures in real time can only be achieved with an extremely powerful image processing technology. The calculating speeds of image processors available on the market are quickly exhausted in this connection. Therefore HEUFT develops its own image processing systems which are exactly tailored to the requirements of the inspection devices.

Many of the necessary image analyses are carried out by the HEUFT *reflex* technology at a hardware level. This saves time which can then be used for the subsequent analysis at a software level.

Each individual container is meticulously inspected using this procedure even in the case of lines with an output of 72,000 containers per hour.



The HEUFT *CleanDesign* - tidy and clean



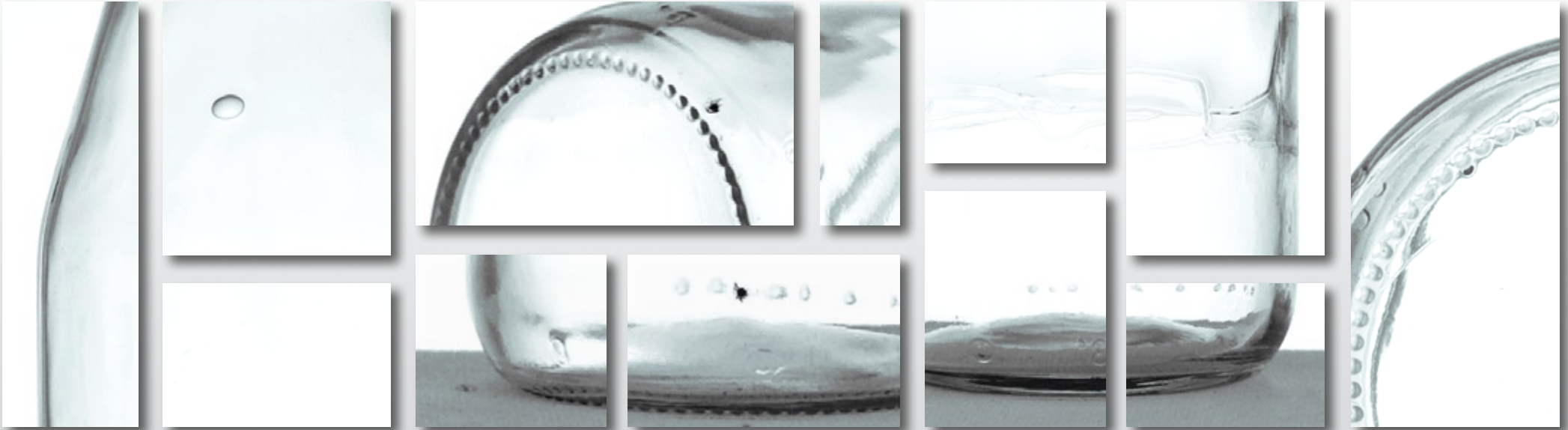
The HEUFT *InLine* is not only impressive due to its inspection results. Importance was attached to optimal hygienic conditions with regard to its construction.

The smooth machine platform which is easy to clean prevents dirt entering the drive area where it can quickly settle and build up. Smooth edges and surfaces support hygiene measures and prevent the formation of dirt.

The surfaces to be cleaned are relatively high and therefore arranged in a user-friendly manner. They are easily accessible and clearly visible for cleaning purposes. Dark corners which could be overlooked when cleaning are searched for in vain in the case of this construction.

Easily accessible maintenance and operating elements are also part of the

GMP compliant HEUFT *CleanDesign*. A central lubrication system and a motor-controlled vertical adjustment device are both examples of a clean intersection between man and machine which makes it easy to keep the empty container inspector in optimal condition during daily operation.



Specifications



The HEUFT *InLine* with HEUFT *reflexx* technology offers an optimal fault detection with a minimum false rejection rate. In this way the following foreign objects can be reliably detected and rejected in a standard syrup container:

- metal parts
- pieces made of HDPE, PET and other plastics
- foil

Glass and material faults are also detected with an extremely high degree of reliability e.g.

- inclusions or
- air bubbles

A maximum false rejection rate of 0.2% is strived for depending on the type of empty container to be examined. We would be pleased to inform you of

concrete guarantee values for detecting chips on the finish and the thread as well as soiling on the base and sidewall for standard as well as individual containers upon request.

Furthermore you can ensure that your empty container inspector is always fully operational using an automatic test container log for self-diagnosis and a qualification check.

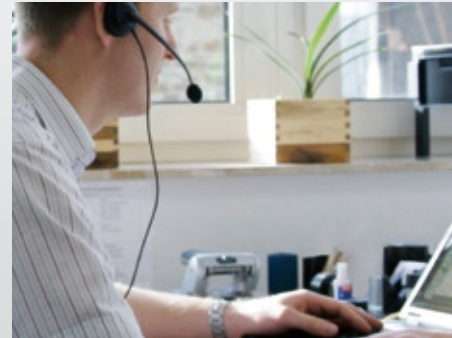


Your cost advantages with HEUFT



Using the HEUFT *InLine* for inspecting empty containers for the pharma, cosmetics and personal care sector saves real money:

- identifying faults even before the filling process avoids the disposal of filled containers with valuable contents
- the HEUFT *SPECTRUM* range with a uniform hardware and software architecture
- an in-house developed image processing system which is optimally tailored to the range of application
- easy integration into existing lines
- advantageous spare parts storage
- minimum amount of space required
- fast changeover times
- no change parts necessary
- fast trouble shooting due to the HEUFT *PILOT* operating surface
- minimum maintenance required
- easy identification of wearing parts and spare parts due to an integrated spare parts catalogue with exploded views and photographs
- robust and stable components
- long service life
- hardwearing design
- the HEUFT *TeleService* - fast trouble shooting by means of help for self-help
- a future-proof investment due to retrofit option for new technologies
- a modular system for easy retrofitting

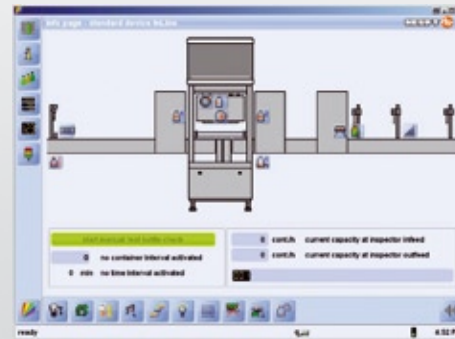


Networking

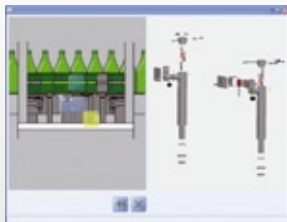


- integrated Ethernet interfaces as well as TCP / IP access to all networks
- connection capability to a pre-configured DDE interface and SQL database
- operation possible either via jog shuttle or touchscreen on the TFT screen at the device or via a network
- the HEUFT *PILOT* graphical user interface with a comprehensible menu structure for easy operating
- automatic transfer of counter readings or fault messages by SMS to a mobile phone or by e-mail if required
- firewall protected connection to the remote service via Ethernet - the

HEUFT *TeleService* can access the equipment directly and rectify faults at short notice by means of remote diagnosis if the customer wishes



The HEUFT PILOT



- multilingual, simply arranged, comprehensible menu structure with extensive help boxes and complete online user's manual - the user interface can be supplied in any language / graphic characters if required
- easy identification of spare parts with online and offline spare parts list with photographs and exploded views - the order can be sent from

the device either to an internal purchasing department or directly to HEUFT

- password-protected operator levels, can be freely adjusted to suit the tasks of the operating staff, the quality assurance department etc.
- the operator receives all the information during a brand changeover regarding the necessary steps in

order to exclude possible operating errors

- clear fault messages with service notes and support in order to avoid downtimes
- extensive documentation and log-book functions for optimal traceability

The HEUFT *flip*The HEUFT *DELTA-K*The HEUFT *DELTA-FW*

The HEUFT *rejector*

Different rejection systems are used for the HEUFT *InLine* depending on the application.

The HEUFT *DELTA-FW*

- a robust all-round system for speeds up to 1,200 containers/minute
- removal of lying containers, foreign objects and broken containers in the infeed area

The HEUFT *flip*

- a single-segment rejector for cylindrical containers
- a particularly smooth transversal acceleration of the containers
- an extremely compact, hygienic construction

The HEUFT *mono*

- a single-segment rejector for cylindrical containers

- an extremely compact, hygienic construction

The HEUFT *DELTA-K*

- a multi-segment rejector which is particularly well suited for the empty container section
- smooth rejection even of shaped or unstable containers by means of single-point guidance





The HEUFT VX

The HEUFT *squeezer QA*The HEUFT *basic*

Other HEUFT products



The following products may also be of interest to you:

The HEUFT VX

- overfill and underfill check
- monitors the filling process and provides exact production statistics
- closure detection
- checks the label presence and alignment

- verifies the applied label information such as barcodes, best-before dates and 2D codes
- serial fault detection which emits a switch-off pulse
- automatic or manual sampling

The HEUFT *squeezer QA*

- leakage check for healthcare containers made of HDPE, PET and other plastics

- closure inspection
- fill level detection for underfills or overfills

The HEUFT *basic*

- fill level detection for underfills or overfills
- closure detection
- label check
- serial fault detection which emits a switch-off pulse



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The HEUFT *InLine* empty container inspection

for containers made of glass and of plastic



- inspection specially for detecting transparent foil in the container
[more] *

FUNCTIONS

- base inspection
- inspection of the finish area
- sidewall inspection for detecting soiling, contamination and material defects such as glass inclusions and damage

THE ADVANTAGES

- series production makes short delivery times and a very attractive price possible
- modular design facilitates upgrading and retrofitting

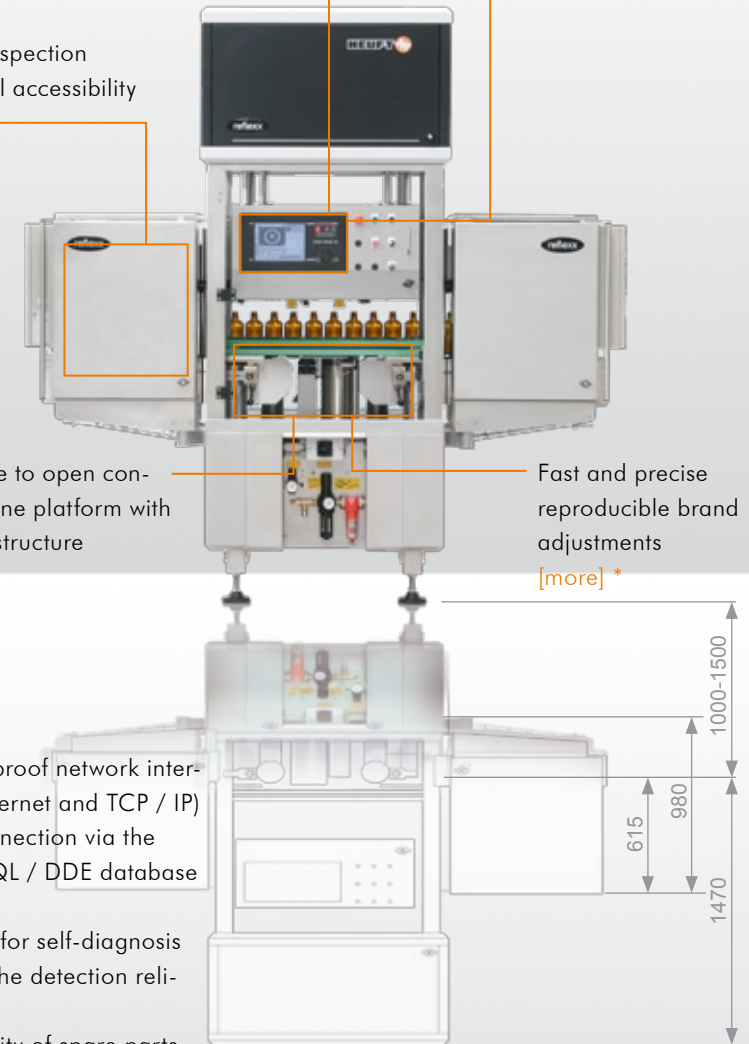
The HEUFT *reflex* image processing system for the highest inspection quality with a minimum false rejection rate
[more] *

Excellent detection quality due to tailor-made hardware and software
[more] *

Folding sidewall inspection module for optimal accessibility
[more] *

Very hygienic due to open construction - machine platform with flangeless superstructure
[more] *

Fast and precise reproducible brand adjustments
[more] *



- integrated, future-proof network interface (Industrial Ethernet and TCP / IP)
- remote service connection via the Internet and the SQL / DDE database interface
- test container logs for self-diagnosis and inspection of the detection reliability
- long-term availability of spare parts
[more] *

* [more] information on www.heuft.com/ir

