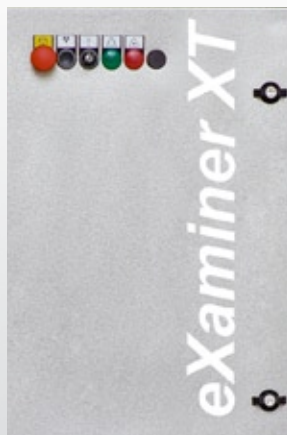


FOREIGN OBJECT INSPECTION

HEUFT eXaminer XT



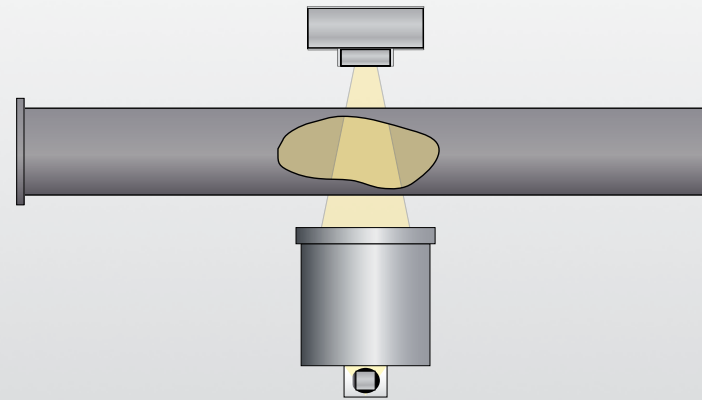
A precise look into the pipe



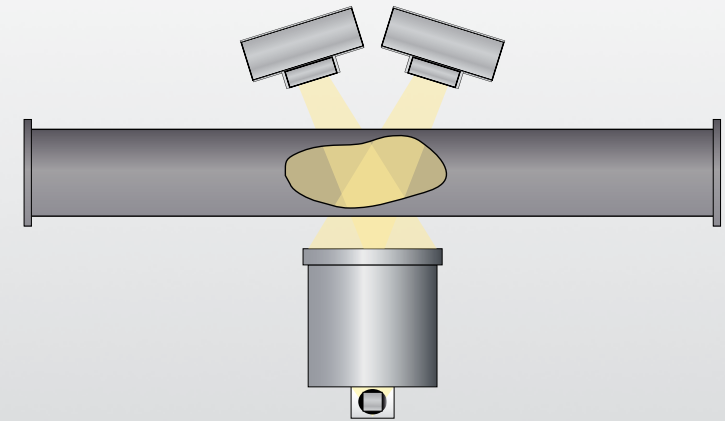
The liquid or paste-like product mass is transported through a specially constructed, hermetically sealed pipeline which is screened by means of particularly low-radiation X-ray strobes. The extremely short exposure time reduces motion blurs to a minimum: high-resolution pictures are produced even at high / fluctuating transport speeds. These are digitised and passed on to the HEUFT *reflexx* high-performance image

processing system for analysing. The HEUFT *eXaminer XT* is clearly superior to metal detectors. It is more precise when detecting metal foreign objects because the product effect caused by the salt / acid content does not have a negative effect on the detection performance. Furthermore the system also identifies high density, non-metal contaminants such as glass splinters or particles made of PTFE and other plastics.

The system emits a corresponding signal if a risk to the product safety is detected so that the partial quantity in question can be reliably removed from the production flow. The amount discharged is restricted to the actual contaminated section.



Single beam technology



Dual beam technology

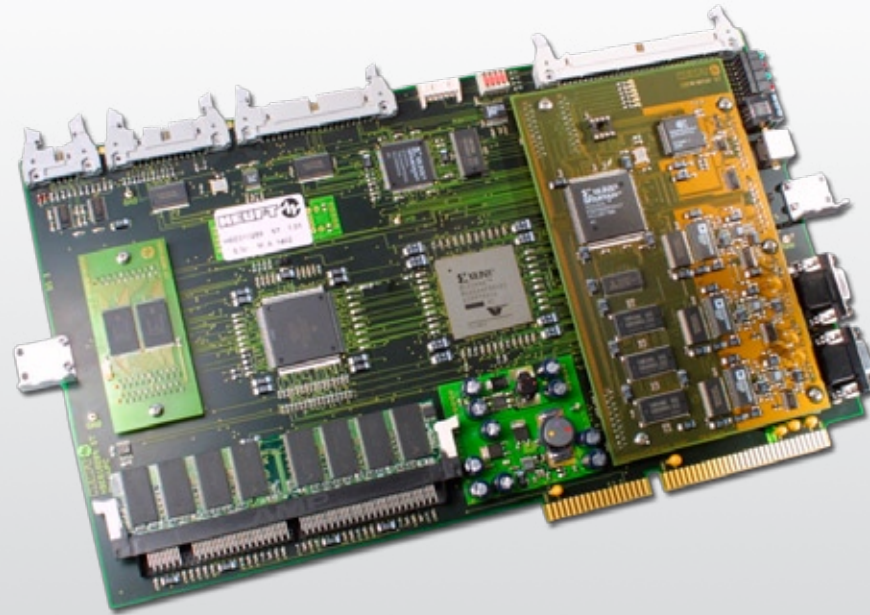
Minimum radiation and maximum detection reliability



The speed-independent, pulsed radiometric measurement is a unique feature of the HEUFT technology for a specific foreign object inspection. The specially developed X-ray strobes reduce the radiation exposure by a factor of 100 when compared with devices with continuously radiating X-ray sources. No radiation is emitted at all during stand-stills and gaps in the production flow.

The HEUFT *eXaminer XT* is equipped with an X-ray generator as standard. The pipeline inspector can be extended with an additional strobe as an option for an even better detection performance. This dual beam technology makes the analysis of two overlapping individual pictures possible and with that a 3D reconfirmation of the result of the examination from different

angles of vision. Thus the second picture improves the result of the inspection. This increases the sensitivity of the pipeline inspector and thus its detection reliability. In addition the proportion of false rejections is also reduced because real faults are differentiated even more clearly from completely harmless product irregularities.



The HEUFT *reflex* image processing card

The HEUFT *reflex* image processing system

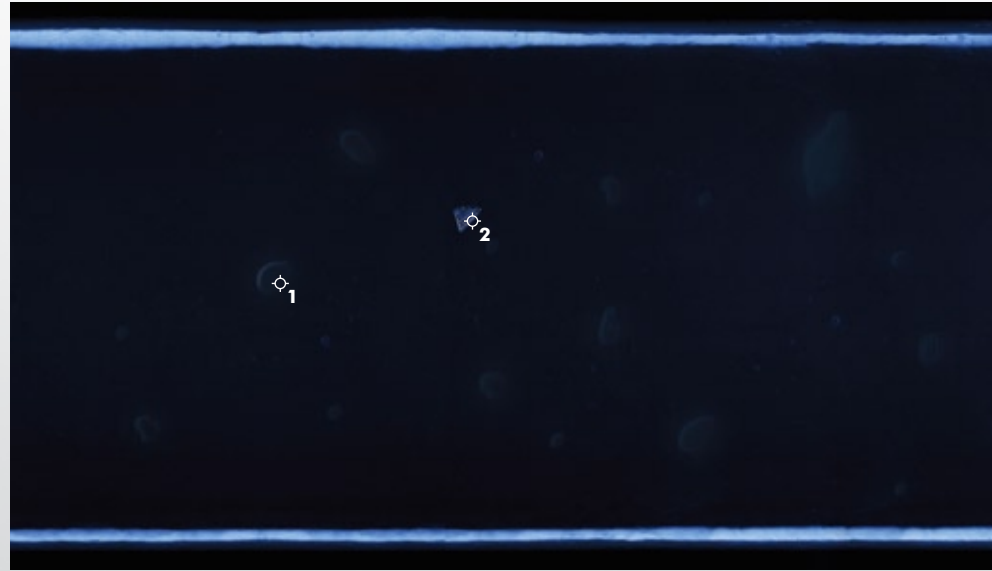


Evaluating X-ray pictures in real time can only be achieved with an extremely powerful image processing technology. The calculating speeds of image processors available on the market are quickly exhausted in this connection and can only meet these requirements at low production outputs.

These basic processing steps can be carried out in a very short time on a

hardware level by using the HEUFT *reflex* image processing card which has been specially developed for such tasks. This leaves more time for the software controlled analysis of the X-ray images.

Using the HEUFT *reflex* technology further reduces the radiation intensity - and that completely without detriment to the detection performance.



The HEUFT *nbx* technology reliably distinguishes between an air bubble (1) and a foreign object (2).

The HEUFT *nbx* - filter technology

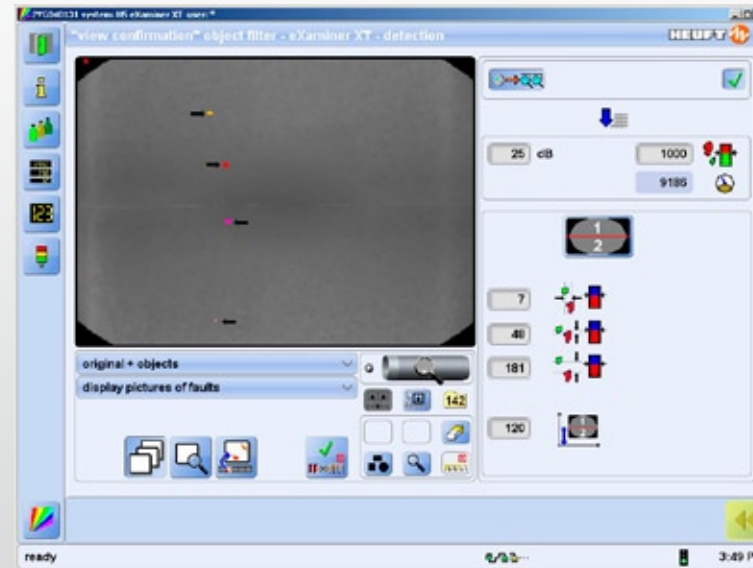


Inhomogeneities, air bubbles, hollow spaces or other structures in the product mass result in an uneven absorption of the X-radiation. This has to be detected and taken into consideration by the software so that these effects do not result in false detections.

The HEUFT *nbx* technology provides filters which identify such tolerable deviations and clearly differentiate them

from dangerous foreign objects. In this way even the smallest foreign objects, such as those in sections of the product flow affected by a higher material density, are reliably detected.

This increased sensitivity drastically reduces the proportion of false rejections.



The HEUFT eXaminer XT validates its own performance using test programs.

Checking its own detection performance



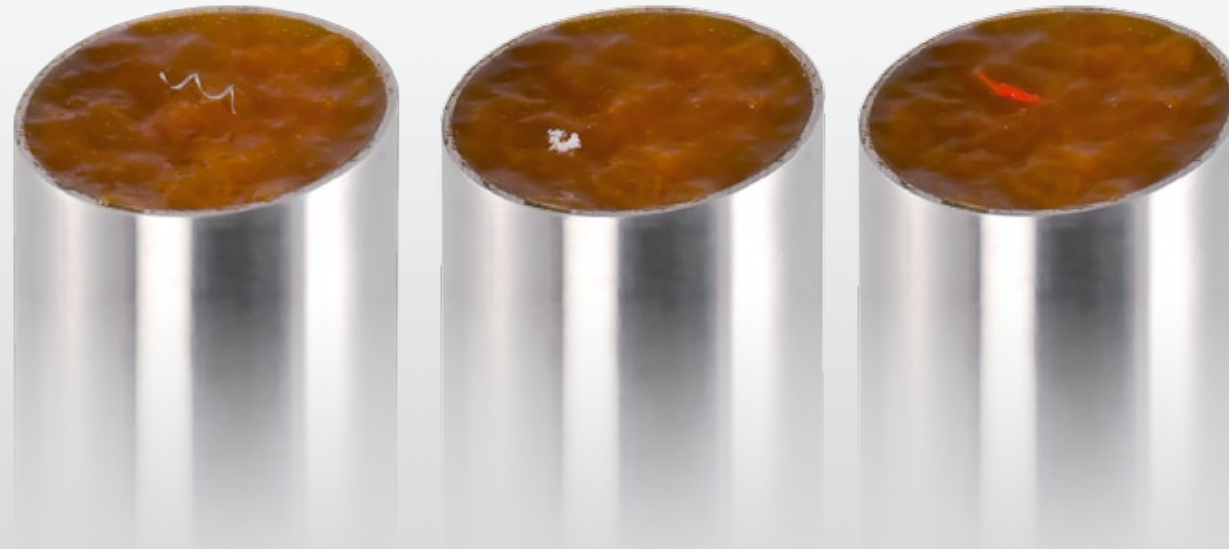
Comprehensive documentation, analysis and self-diagnosis functions ensure the optimal operational reliability of the pipeline inspector.

An image can be saved of each section of the product mass which has been detected to be contaminated. Connecting to production data acquisition systems makes it possible to archive and analyse important performance indicators

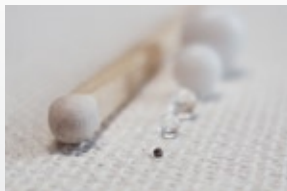
in order to increase line efficiency. Online remote maintenance via the HEUFT *TeleService* saves time and money with regard to diagnosing and solving malfunctions.

Performance validation by means of test logs during running production is a key advantage which clearly distinguishes the HEUFT eXaminer XT from other inspection systems: the system checks its own

detection performance at regular, freely configurable intervals. An alarm signal is emitted / production is immediately brought to a halt if a test foreign object is not identified.



Specifications



The HEUFT eXaminer XT, which is protected against dust and water jets, achieves the following specification values when inspecting an unpackaged liquid / paste-like product mass.

The following are identified with a reliability of 99%:

- PTFE balls with a diameter of 6 mm (single beam) or 4 mm (dual beam)
- glass balls with a diameter of 2 mm (single beam) or 1.5 mm (dual beam)
- steel balls with a diameter of 0.8 mm (single beam) or 0.6 mm (dual beam)
- the false discharge quantity (proportion of the rejected product quantity without an identifiable fault in relation to the complete quantity inspected) approaches 0.1%

We would be pleased to provide you with the exact specification values for your product upon request.

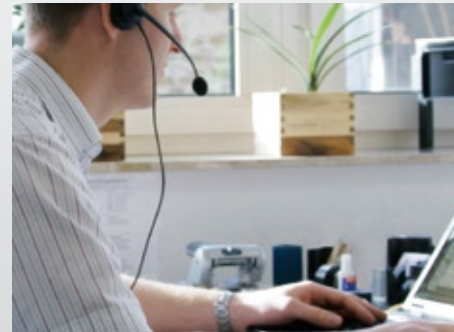


Your cost advantages with HEUFT



The HEUFT eXaminer XT combines top performance with a real potential for saving. The acquisition costs pay for themselves quickly.

- investment costs are significantly less than the burden due to liability cases and loss of image caused by faulty products
- no costly loss of already packaged, contaminated products
- only the small amount actually affected is rejected when contamination is detected
- a minimal false rejection rate which is further reduced by means of the optional double beam
- series production due to the modular design of the HEUFT SPECTRUM series
- easy integration into existing lines
- advantageous spare parts storage
- minimal standstill times
- robust and stable components
- low wear and tear
- low failure rates
- high level of operational reliability due to integrated self-diagnosis functions
- short maintenance and repair times due to the HEUFT TeleService

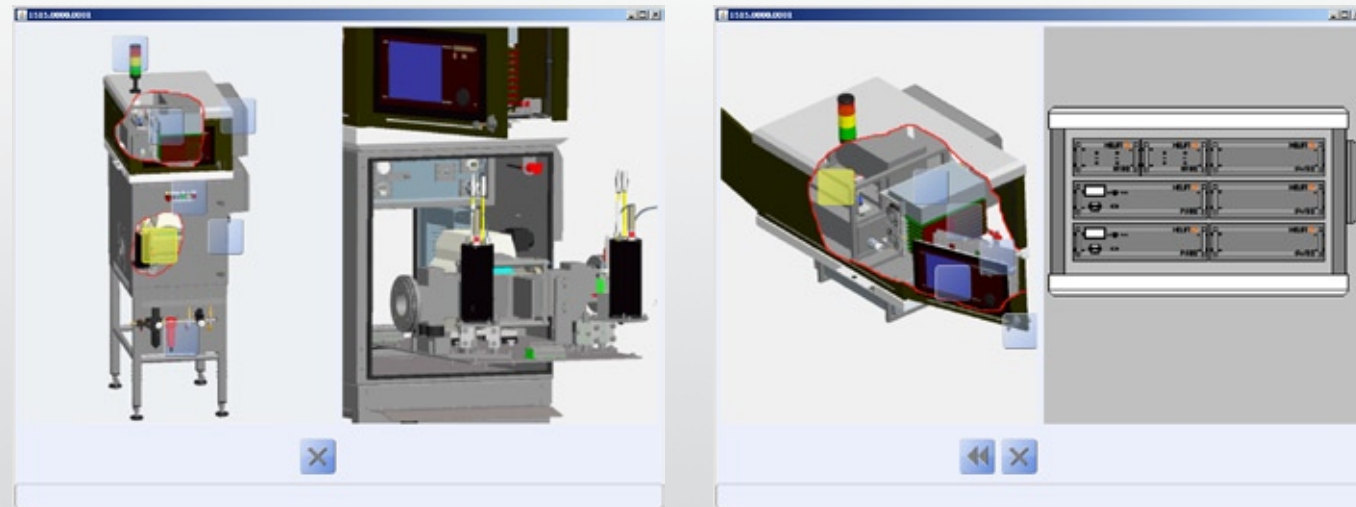


Networking



- 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 email 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



Specifically selecting and directly ordering spare parts: the HEUFT *PILOT* makes it possible.

Device operation and 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
- password-protected operator levels which can be freely adjusted to suit the tasks of the operating staff, the quality assurance department etc.
- 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
- the operator receives all the information during a production 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



The HEUFT eXaminer XAC



The HEUFT eXaminer XB



The HEUFT InLine

Other HEUFT products



HEUFT can provide further attractive solutions for a quality inspection during the production of food:

The HEUFT eXaminer XAC

- the detection of foreign objects such as pieces of broken glass, metal splinters and stones in containers filled with liquid, paste-like or spreadable products
- the detection of faults even on curved container bases

- an optional sidewall inspection
- the hygiene friendly HEUFT *CleanDesign*

The HEUFT eXaminer XB

- a top-down inspector for unpackaged and packaged products lying on the conveyor
- high degree of detection reliability and low radiation exposure due to a pulsed X-ray inspection
- clear differentiation between actual

faults and tolerable packaging structures or product inhomogeneities

The HEUFT InLine

- the inspection of empty containers before they are filled
- the detection of foreign objects, contamination and material defects
- a varied range of modules in order to fulfil specific inspection tasks exactly



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The HEUFT eXaminer XT foreign object inspection

for liquid, paste-like and spreadable food



FUNCTIONS

- detects foreign objects such as pieces of metal, glass splinters or pieces of plastic in an unpackaged liquid or paste-like product mass
 - emits a rejection signal
 - available either as single or dual beam technology for maximum detection reliability
 - checks its own detection performance by means of regular self-tests during running production
- [\[more\]](#) *

THE ADVANTAGES

- speed-independent X-ray inspection
- a higher degree of detection reliability than the inspection of the already packaged product
- an unequalled low radiation dose
- motion blurs minimised due to extremely short exposure times
- minimal rejection quantities because the contamination is precisely located in the product flow
- optional dual beam technology for a 3D reconfirmation

The HEUFT *nbx* filter technology for a clear differentiation between dangerous foreign objects and harmless product structures and inhomogeneities

[\[more\]](#) *

Compact X-ray generators

[\[more\]](#) *

Pipe connections already possible at a height of less than 500 mm above the floor

[\[more\]](#) *

Casing protected against dust and water jets

[\[more\]](#) *

- the detection performance is not restricted by the product's own signal (product effect)
 - highest sensitivity due to the use of the HEUFT *reflexx* technology
 - self-tests for performance validation during running production
 - extremely compact design
 - the HEUFT *SPECTRUM TX* basic unit with a high degree of operating convenience due to the HEUFT *PILOT* graphical user interface
- [\[more\]](#) *

* [\[more\]](#) detailed information on www.heuft.com/xt

