

technews

HEALTHCARE • FOOD • BEVERAGES

INSPECTION IN PERFECTION

Tracking down burn marks

The new HEUFT *spotter PH* removes ampoules and vials which are damaged or contaminated with foreign matter from circulation. The straight-through system without change parts finally makes maximum detection reliability, high throughput rates and fast brand changeovers reality in the healthcare sector too.



Newly filled pharmaceutical packaging such as ampoules or vials have to meet the highest quality standards. Product safety suffers if they are contaminated with foreign matter, faulty or leak; the patient's health is at serious risk. HEUFT has developed an innovative end of line system for the optical complete inspection of transparent pharmaceutical containers in order to identify such risk sources whilst still on the production line and to sort them out in time: the HEUFT *spotter PH*.

The system tracks down the smallest particles and contaminants such as dust, foil remnants or glass splinters inside pharmaceutical packaging filled with transparent liquids. Deviations in shape as well as chips, scratches or cracks on the container itself are also reliably detected. Burn marks are identified, among other things, during the ampoule head inspection. Missing, damaged or non-brand vial crimp caps cannot escape the inspection system specially developed for the pharmaceutical industry either.

... discover more on page 2

Sharp pictures for certain

The HEUFT *eXaminer XB* is convincing due to maximum detection reliability even where conventional X-ray scanners have to pass: it is predestined for use in the single-lane, high-speed transport section around the flow packer due to its superior inspection technology. However the end of line system is also extremely well suited for the specific inspection of the integrity and completeness of products which are differently or not yet packaged.

The pace is fast where all types of products are packaged in flow packs. The single-lane conveyors are often so fast in this section of the packaging line that classic line scanners quickly reach their limits: the X-ray images become blurred – dangerous foreign objects are just as difficult to detect as missing or faulty product and packaging components. Therefore an

inspection system is needed in this case which produces detailed X-ray images rich in contrast and without motion blurs. Such a device is now finally available with the HEUFT *eXaminer XB*.

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Innovations for interpack 2011

Whether food, drink or healthcare: HEUFT SYSTEMTECHNIK GMBH can provide cross-industry solutions for increased safety, quality and efficiency during the production and packaging process. The technological leader will be presenting three new groundbreaking products with

- the HEUFT *spotter PH*,
- the HEUFT *eXaminer XT* and
- the HEUFT *eXaminer XB*

for sustainably checking the quality of packaged and unpackaged products at interpack 2011 under the motto "Inspection in Perfection" (see detailed reports).

However the range on stand C38 in Hall 11 at the Duesseldorf Exhibition Centre is far from exhausted with this: innovative inline systems will also be shown there for confectionery, drinks and dairy producers live and in action from 12 to 18 May. Some of these are listed below

- the HEUFT *moCheck*, which carefully examines empty moulds for the production of confectionery and reliably identifies product residue as well as faults
- the HEUFT *squeezer QS* which checks plastic containers filled with drinks or dairy products for leaks and fill level deviations and makes automatic brand changes possible at the push of a button
- the HEUFT *VX OCR* which verifies the presence and the correctness of the contents of coding and marking on packaging for all types of products
- the HEUFT *STRATEGY GATE* database server which centrally records elementary production data along a production line

See these solutions for yourself which guarantee a safe and economic packaging process during the production of food, drink and healthcare products.

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Tracking down burn marks

For this a belt drive guides the previously separated packages straight past several optical detection modules and aligns each of them in the course of this so that the bases, sidewalls, neck and head areas can be completely examined. They are optimally illuminated using LED technology. Three CCD cameras below the belt carry out the base inspection and three further cameras above the belt check the sidewalls and the ampoule heads. Each pharmaceutical packaging is rotated by 120 degrees after every station. The result: an all-around coverage of the complete container volume.

of the individual cameras and therefore the system also manages without any change parts at all - another unique feature of the new development. Thus brand changes are carried out at the push of a button within a very short time. Maintenance and storage requirements and the costs involved are thus reduced to a minimum compared with rotary systems with numerous change parts.

The new development is equipped with the proven HEUFT *reflexx* high-performance image processing system

intervals using special test container programs. Information about malfunctions diagnosed during the course of this can be saved in the system just as detection pictures of the products identified as faulty, details about standstills and interference and all other relevant production and batch data. This can be retrieved at any time from the device itself as well as from each office PC connected to the network. Connection to a higher-level database, production data acquisition and MES systems makes the long term archiving of these facts which are decisive for the efficiency of the complete installation possible. The possibility of time and cost saving remote maintenance by means of the HEUFT *TeleService* is an additional advantage of the networking capability.

Simple operation

The multilingual HEUFT *PILOT* graphical user interface with integrated auxiliary tools makes operating the HEUFT *spotter PH* intuitively understandable. User related, password protected access rights protect the system against unwanted changes to the adjustments and make all intervention traceable. These features, together with the monitoring, self-test and archiving functions mentioned, help to ensure that the inline inspection system fulfils the fundamental FDA, GMP, GAMP 5 and 21 CFR 11 requirements.

You wish to know more? Then simply contact Martina Stirner our expert in the field of optical inspection of empty and full containers.



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HEUFT has transferred its know-how as the number one with regard to the inspection of empty and full containers during the production of food and drink to the special requirements for the inline quality control of pharmaceutical packaging when developing the compact system which is easy to integrate into existing lines. Proven, repeatedly tried and tested modules and technologies have been combined with new ones during the course of this. The result: a linear system without change parts which is impressive even at high transport speeds due to maximum detection reliability and which provides numerous useful validation and documentation functions.



The new HEUFT *spotter PH* identifies burn marks, damage to the ampoule head and many other defects in filled pharmaceutical packaging.



Foreign objects as well as the incomplete or faulty elements of crimp caps and other types of closures are clearly identified.

An additional sidewall inspection has been integrated into the HEUFT *spotter PH* just before the outfeed so that such faults which the belt may cover are also identified: two cameras produce a total of four views of these areas using a mirror cabinet. A final optical module in the outfeed checks the closures from above.

A straight-through system without change parts

In contrast to conventional pharmaceutical inspectors the HEUFT development team has implemented the device not as a rotary but as a straight-through system. The result: particularly high throughput rates of up to 1,200 containers per minute. The height and passage width of the servo-controlled belt drive can be adjusted automatically in the same way as the positions

in order to ensure an optimal inspection quality even in the high-speed section with a gap of only 5 mm between the individual containers. The result: maximum detection reliability with a minimum false rejection rate. In other words: only those pharmaceutical containers are removed from the production flow, by means of an in-house developed rejection system, which are really faulty.

Consistent product tracking

The HEUFT *spotter PH* has been equipped with tools for specifically tracking the product and verifying the rejection in order to make sure that each individual product is inspected and each faulty product really rejected. Furthermore it validates its own detection performance at regular, freely configurable

HEUFT *spotter SF*

The advantages which the new HEUFT *spotter PH* offers during an optical full container inspection along pharmaceutical lines are also in demand in the drinks industry.

Therefore there is a version of this system especially for this sector which also tracks down foreign objects and defects in such container areas which have been deemed impossible to be inspected until now: the HEUFT *spotter SF*.

The system even identifies faults hidden behind the dome or covered by the base edge and other material structures extremely precisely in glass and PET bottles filled with transparent drinks - thanks to a specially developed detection technology. The same applies to low



density foreign objects, such as foil remnants and bits of paper, insects and mould, which float freely in the product. Scratches, cracks, inclusions, chips and breaks can also be detected during the complete base and sidewall inspection with the HEUFT *spotter SF*.

A precise look into the pipe

Whether juices, sauces, fruit preparations, sausage meat or cheese spread: there is always a danger of contamination due to foreign objects when raw materials are processed into a liquid or paste-like product mass. There is an innovative, X-ray based pipeline inspector available immediately for all cases where these have to be detected before the product is packaged: the HEUFT *eXaminer XT*.

The greatest safety is offered by an end of line inspection of the already packaged product such as that provided by the HEUFT *eXaminer XAC* full container inspection. The risk of later contamination due to glass splinters, pieces of metal, wood and bone fragments or objects made of HDPE, PTFE or other types of plastic is more than improbable in the case of closed food containers. However an inspection of the liquid or paste-like product mass is sometimes essential beforehand for example when the packaging format is oversized or the packaging material so valuable that one does not wish to dispose of it together with the product in the event of contamination due to foreign objects. Sub-suppliers may also frequently only deliver such goods which have already been inspected. The HEUFT *eXaminer XT* is now available especially for such requirements.

The X-ray system continuously monitors the safety and quality of a liquid or paste-like product mass. For this it is transported through a specially constructed pipeline which is illuminated by means of X-ray strobes. The speed-independent, pulsed radiometric measurement has an unmatched low radiation dose and generates pin sharp photographs which each picture a complete section of the production flow (see info box "X-ray strobe instead of X-ray

scanner"). These are digitised and evaluated in real time. In the course of this integrated filters ensure that harmless product structures are not mixed up with threatening faults. The system adapts optimally to creeping product fluctuations. The result: maximum detection accuracy.

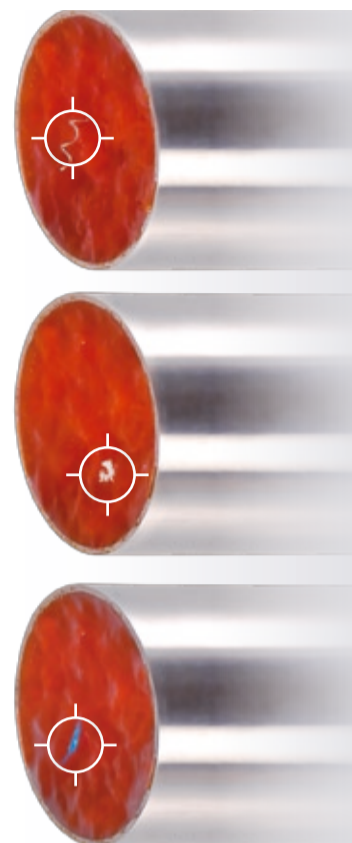
The HEUFT *eXaminer XT* can be extended with an additional X-ray strobe as an option for an even better detection performance. This dual beam technology makes the analysis of two overlapping individual pictures possible and with that a 3D reconfirmation of the result of the examination from different perspectives. In this way all types of foreign objects are identified even more reliably. In this case the HEUFT *eXaminer XT* emits a corresponding signal so that the partial quantity in question can be removed from the production flow.

The pipeline inspector has been equipped with a test program for validating the performance which checks the detection performance at freely configurable intervals. In addition the network-compatible device has, among other things, useful tools for remote maintenance and for documenting and archiving important production data. The construction protected against dust and water in the HEUFT *CleanDesign* is robust and easy to clean. The same

applies to the specially constructed pipeline which neither superheated steam nor disinfectant containing acid or lye can harm.

Therefore on the basis of these advantages the HEUFT *eXaminer XT* is the perfect alternative for all cases where liquid and paste-like products already have to be examined for foreign objects before they are finally packaged.

Whether made of metal, plastic or other materials: the pipeline inspector detects all types of foreign objects in a liquid or paste-like product mass even before it is finally packaged.



X-ray strobe instead of X-ray scanner

The HEUFT *eXaminer* systems are different to other X-ray checking devices. The unique, pulsed radiometric measurement in particular clearly distinguishes them from permanently activated X-ray scanners: radiation is only emitted



are produced even along high-speed lines due to the extremely short exposure time. This in combination with the HEUFT *reflex* high-performance image processing system ensures an above-average detection reliability with a minimum false rejection rate

when there is really a product to be inspected in the inspection area and that only in the form of one X-ray flash lasting a thousandth of a second. No product is exposed to a higher dose than is absolutely necessary. For example the HEUFT *eXaminer XB* only emits radiation for 36 seconds when inspecting 36,000 flow packs in one hour. Therefore there is no emission whatsoever during 99% of this period! On the other hand X-ray scanners emit radiation continuously for 60 minutes.

- an effect which the specially developed HEUFT *nbx* technology clearly reinforces once again. Because it provides filters on the basis of which harmless packaging structures and product irregularities can be clearly distinguished from dangerous foreign objects.

Furthermore the flashing process has a positive effect on the detection performance: X-rays images rich in contrast and completely without motion blurs

Intuitively understandable operating using the multilingual HEUFT *PILOT* graphical user interface, online remote maintenance with the HEUFT *TeleService* as well as extensive monitoring, self-test and archiving functions are also amongst the special features which ensure the network-compatible HEUFT X-ray systems their superiority.



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Sharp pictures for certain



The top-down inspector reliably tracks down and rejects goods which are contaminated with foreign objects, are incomplete or damaged, irrelevant of the characteristics of the product or packaging even in the high-speed section due to the unique, pulsed X-ray technology which only HEUFT systems have to offer. Because it not only guarantees an unmatched low radiation exposure level but also extremely short exposure times (see "X-ray strobe instead of X-ray scanner" on page 3). The result: pin sharp photographs of up to 1,000 products per minute on which product and packaging faults can be clearly identified.

Only rejecting that which has to go

For this the X-ray images are processed in real time, filtered and evaluated. Actual defects are clearly distinguished from tolerable deviations during the course of this. This ensures that the integrated rejection system only removes those

products from the production flow which have to go. This reduces the false rejection rate, that is the proportion of wrongly rejected products, to an absolute minimum and thus saves money.

Great importance was attached to a hygiene-compliant and safe design during the construction of the HEUFT *eXaminer XB*: the casing is made completely of stainless steel. The integrated conveyor belt can be removed and replaced again without tools in a matter of seconds for cleaning and maintenance purposes. Plexiglas hoods protect the inspection area from intervention. The device can be integrated into the single-lane transport section around the flow packer without a problem due to its compact dimensions. But the end of line system is not just convincing there with its superior detection reliability during the top-down inspection. The system is optimally suited for solid goods lying on the conveyor such as bars of chocolate, chocolates, cheese or sliced bread as well as food and health-

care products in thermoform packaging, pouches and composite packages. Metal particles are detected but also high density non-metal foreign objects such as glass splinters, small pieces of wood and stones or foreign objects made of PTFE or other plastics. In addition the system is able to detect damaged or incomplete products as well as missing or faulty packaging components.

Consistent monitoring

The HEUFT *eXaminer XB* ensures that each product to be inspected is really inspected by specifically tracking the products throughout the complete device. None of them can evade the continuous quality check. The system has a reject verification so that products and packaging identified as being faulty are always rejected. Furthermore it regularly checks its own detection performance by means of special test programs. Information regarding faulty functions which have been diagnosed in the course of this can be stored in the system and made available network-wide just as detection pictures of the products which have been identified as being faulty and numerous other relevant batch and production data. The easy to operate device can be connected to PDA and MES systems without a problem in order to fulfil all current documentation, archiving and validation obligations. Online remote maintenance

You wish to know more? Then simply contact Dirk Henschke our expert in the field of X-ray inspection.



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using the HEUFT *TeleService* provides fast and uncomplicated help for self-help in the case of a malfunction.

The system for the top-down inspection of packaged and unpackaged products directly on the conveyor is the perfect choice around the flow packer and everywhere where solid goods have to be transported on a single lane. The HEUFT *eXaminer XB* achieves an unprecedented detection accuracy with an unequalled low radiation exposure even in the high-speed section and prevents contaminated, incomplete or damaged goods from reaching the customer.

Come, see and be amazed!

HEUFT has more than doubled its production and service areas at its premises in Burgbrohl-Weiler. The new customer centre is the heart of the 12,000 square metre extension. You can examine systems from all the device families there in detail. It is worth a visit - best of all straight after the interpack exhibition to one of our industry-specific, in-house workshops.

The perfect opportunity in order to get an idea of the new building and the devices for increased safety and efficiency during the production and packaging process which are exhibited there: three events will be starting on 24, 25 and 26 May 2011 each at 10.00 in the new HEUFT customer centre on the subject of "inline inspection". Food producers will discover on the first day how to safeguard the quality

and integrity of their products and packaging sustainably. The subject of product safety during the production of healthcare products will be in focus the next day. The final day will conclude with a workshop especially for drinks producers.

Not only theoretical content will be imparted. Priority will be given to practical applications! The advantages of the inline inspection systems presented will be explained during informed lectures as well as directly demonstrated. The spacious showroom in the new HEUFT customer centre provides ideal conditions for this: our guests can experience the respective devices there live and in action and see for themselves with which precision they identify and reject faulty products whilst still along the line.



Don't let this opportunity pass you by. Best of all, why not register today: welcome@heuft.com, +49 2636 / 56-0.

You cannot make these dates? HEUFT is always there for you! Simply arrange an individual appointment.

The showroom in the new customer centre offers the best conditions for you to see the performance of the HEUFT systems for yourself.



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