X-ray inspection system for glass in glass detection

- X-ray inspection for food or non-food products and liquids in bottles or jars
- Detects high density materials like metal, ceramic, stone, plastic and even glass particles in glass containers
- Easy operation with autocalibration and clearly arranged functions on 17” touchscreen
- XIA software for instant analysis and detection with high accuracy and reliability
- High speed transversal pusher for glass jars included

- Real time detection with colored contamination analysis
- Masking functions to prevent false rejects
- Auto-storing of inspection data with time and date stamp
- USB and Ethernet for data transfer to PC or memory stick
- High speed reject system
- Easy maintenance and cleaning
- User-friendly menus for easy operation
- Built-in remote maintenance
- 24 hours non-stop operation
- TÜV-approved: reliable german safety standard (optional TÜV certificate)
A large touch screen and clear menus ensure easy handling in daily business.

Scope of Delivery:
▪ Xray Scanner with image processing software XIA
▪ Complete protection against radiation and PILZ safety circuit
▪ Certified test cards with soda lime glass, ceramics, steel spheres in various diameters

Accessories & Extras:
▪ Radiation counter
▪ 21 CFR Part 11 compliance
▪ BRC compliance kit

Applications:
Inspection of packaged food and non-food products in
▪ bottles
▪ jars

Industries:
▪ Food and non-food
▪ Pharma
▪ Hygiene and Cosmetics etc.

Function:
The XS GIG x-ray system is specially designed for the complicated detection of glass particles in glass or plastic containers. It also detects unwanted foreign objects such as metal, stones, ceramics or plastic with high density in the product.

The hygienic design with protection type IP66 for the product tunnel makes the XS GIG products particularly suitable for all companies and industries that have to ensure high hygiene standards.

The masking feature excludes certain areas of the image from foreign object detection, e.g. the very dense jar bottom. This improves the detection performance in the remaining product.

The adaptive software learns the structures of thousands of jars. The software recognizes in milliseconds which taught structure fits best to the current image, and subtracts that structure. As a result, glass pieces are detected even in the lid area.

Cassel’s unique AutoEdge function finds the edge between jar wall and product, even though the wall thickness varies due to production tolerances. As a result, glass pieces are detected even at the wall edge or bottom bulge.

The SuperContrast function enhances small dense (dark) structures in the image. This improves detection of small foreign bodies, which then become visible.
## Specifications:

<table>
<thead>
<tr>
<th>Model (till 04-2020)</th>
<th>XS25-L1-GIG (XBD20 Side)</th>
<th>XS25-H1-GIG (XBD 40 Side)</th>
<th>XS26-H1-GIG (XBD51 Side)</th>
<th>XS26-H2-GIG (XBD50 Side)</th>
<th>XS37-H2-GIG (XBD50+ Side)</th>
<th>XSD26-H3-GIG (XBD60)</th>
<th>XS26-H4-GIG (XBD 70)</th>
</tr>
</thead>
<tbody>
<tr>
<td>X-ray generator</td>
<td>Single beam, max. 60kV (50W)</td>
<td>Single beam, max. 80kV (480W)</td>
<td>Single beam, max. 80kV (480W)</td>
<td>Dual beam, max. 80kV (2 x 480W)</td>
<td>Dual beam, max. 80kV (2 x 480W)</td>
<td>Triple beam, max. 80kV (3 x 480W)</td>
<td>4-beam, max. 80kV (4 x 480W)</td>
</tr>
<tr>
<td>Radiation leakage</td>
<td>1 µSv/h or less variable in voltage + current</td>
<td>3 µSv/h or less</td>
<td>3 µSv/h or less</td>
<td>3 µSv/h or less</td>
<td>3 µSv/h or less</td>
<td>3 µSv/h or less</td>
<td>3 µSv/h or less</td>
</tr>
<tr>
<td>Safety</td>
<td>Special product tunnel, magnetic safety switches at cabinet doors and tunnel hatches, emergency stop push button, emergency stop in/out interfaces to safety circuits of production line, X-ray off key switch, PILZ safety circuit</td>
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<tr>
<td>X-ray detector</td>
<td>low noise line scan CCD, diode pitch 0.8 mm or 0.4 mm (optional)</td>
<td>510 mm</td>
<td>510mm</td>
<td>510 mm</td>
<td>510 mm</td>
<td>510 mm</td>
<td>510 mm</td>
</tr>
<tr>
<td>X-ray view</td>
<td>1x sideways (sideup)</td>
<td>1x sideways (sideup)</td>
<td>1x sideways (sideup)</td>
<td>2x sideways (sideup)</td>
<td>2x sideways (sideup)</td>
<td>2x sideways (sideup) &amp; 1x top down</td>
<td>4x sideways (2x sideup &amp; 2x sidedown)</td>
</tr>
<tr>
<td>Cooling</td>
<td>highly efficient, silent DC filter fans</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Housing finish</td>
<td>stainless steel grade AISI 304 / DIN EN 1.4301 (X5CrNi18-10)</td>
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<tr>
<td>Degree of protection</td>
<td>IP54 (according to IEC 60529), including touch panel and fans; product tunnel itself IP66</td>
<td></td>
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</tr>
<tr>
<td>Conveyor type</td>
<td>Metal or plastic chain</td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Belt width</td>
<td>114 mm</td>
<td>114 mm</td>
<td>152 mm</td>
<td>152mm</td>
<td>152 mm</td>
<td>152 mm</td>
<td>152 mm</td>
</tr>
<tr>
<td>Scanning height</td>
<td>250mm</td>
<td>250 mm</td>
<td>265 mm</td>
<td>265 mm</td>
<td>370mm</td>
<td>265mm</td>
<td>265mm</td>
</tr>
<tr>
<td>Conveyor speed</td>
<td>max. 0.5 m/sec</td>
<td>max. 0.5 m/sec</td>
<td>max. 1 m/sec</td>
<td>max. 1 m/sec</td>
<td>max. 1 m/sec</td>
<td>max. 1 m/sec</td>
<td>max. 1 m/sec</td>
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<tr>
<td>Max. product dimensions</td>
<td>150 x 250 mm</td>
<td>150 x 250 mm</td>
<td>150 x 255 mm</td>
<td>150 x 265 mm</td>
<td>100 x 370 mm</td>
<td>155 x 265 mm or 190 x 235 mm</td>
<td>155 x 265 mm or 190 x 235 mm</td>
</tr>
<tr>
<td>Max. weight</td>
<td>25 kg</td>
<td>25 kg</td>
<td>50 kg</td>
<td>50 kg</td>
<td>50 kg</td>
<td>25 kg</td>
<td>25 kg</td>
</tr>
<tr>
<td>Available reject method</td>
<td>High speed transversal pusher for glass jars</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Product memory</td>
<td>255 different product set-ups</td>
<td></td>
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<tr>
<td>Display</td>
<td>17” Color-TFT capacitive touchscreen</td>
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<tr>
<td>Inspection features</td>
<td>Auto Calibration, Auto adaption to density distribution, Density, Hard Contrast, Soft Contrast, Masking Technology, SuperContrast, SizeFilter, AutoEdge masking, Images AutoSave/Load, Multi Segment Inspection, Metal can and Foil inspection, Fill Quantity, Generator Energy by Product, Password protection</td>
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<tr>
<td>In-/Outputs</td>
<td>Programmable outputs (contamination, ready, emergency OFF)</td>
<td>Programmable inputs (emergency OFF, wake up, optional control signals)</td>
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<tr>
<td>Data transfer and reporting</td>
<td>Ethernet for remote support via internet, USB for external keyboard/ mouse/ memory stick</td>
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<td></td>
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<td></td>
<td></td>
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<tr>
<td>Max. weight</td>
<td>0.85 t</td>
<td>0.9 t</td>
<td>1.5 t</td>
<td>1.5 t</td>
<td>1.7 t</td>
<td>2.0 t</td>
<td>2.2 t</td>
</tr>
<tr>
<td>Power supply</td>
<td>1ph, 230 VAC +/-10%, 50/60 Hz max. 1.5 kW</td>
<td>3ph, 400 VAC +/-10%, 50/60 Hz max. 3.0 kW</td>
<td>max. 3.0 kW</td>
<td>max. 3.0 kW</td>
<td>max. 4.0 kW</td>
<td>max. 6.0 kW</td>
<td></td>
</tr>
<tr>
<td>Compressed air supply</td>
<td>without reject system 0 MPa (0 bar/ 0 ps) with optional reject system minimum 0.4 MPa (4 bar / 58 psi)</td>
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<tr>
<td>Environmental</td>
<td>0°C to +30°C / 32°F to 86°F, with relative humidity max 90%, non-condensing External cooling device: optional recommended/ needed</td>
<td>recommended/ needed</td>
<td>recommended/ needed</td>
<td>recommended/ needed</td>
<td>recommended/ needed</td>
<td>recommended/ needed</td>
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<tr>
<td>Conformity</td>
<td>CE, compliant to German x-ray regulations, specific adaptation for other countries</td>
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</tbody>
</table>

All information is based on standard devices. There possibly will be differences depending on the application. Changes to be excepted.
Example product flow concept:

CASSEL's scope of supply in this example:
- Dual beam x-ray
- Jar conveyor through x-ray (modular belt, steel plates)
- Reject system

Customers scope:
- Separation of jars
- Receive conveyor for contaminated products
- Modification at existing production line
Dimensions:

Exemplary dimensions of a XS26-H1-GIG with a u-shaped product tunnel.
Dimensions:
Exemplary dimensions of a XS26-H1-GIG with a straight product tunnel.

CASSEL quality:
Every single device is thoroughly tested during and after production.
Before leaving the factory, every device is tested for several days and subjected to a final inspection.

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