

SYSTEM INFORMATION



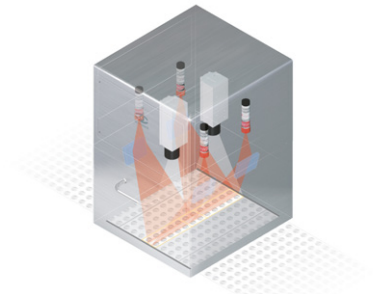
LYNX-SPECTRA 3D Product Inspection

Description

LYNX-SPECTRA 3D is a high-resolution, laser-based image processing system for the inspection of the geometry of packaging material and products to detect distortions, dents and other defects.

Operation Mode

The geometry of the inspected object is illuminated by a laser. The resulting image is captured by a high-resolution 3D line camera. The image is processed, digitalised and evaluated.



Area of Application

Examinable Objects:

- Tablets
- Oblongs
- Hard- and soft gel capsules
- Dry powder
- Aluminium blisters
- PVC blisters after filling
- Bi-layered capsules

Inspection Criteria:

- Presence
- Size
- Shape
- Perimeter
- Position
- Broken product
- Overfilling
- Consecutive error
- Geometry
- Volume

Highlights

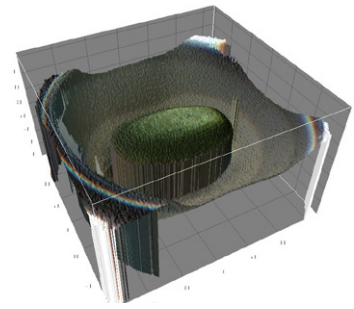
LYNX-SPECTRA 3D enables the safe inspection in the following cases:

- Double filling, both stacked and next to each other
- Broken products next to and underneath the product
- Capped bi-layered tablets
- Low-contrast environments such as grey tablet in aluminium blister
- Powder in minimal dosage

■ System

LYNX-SPECTRA 3D is particularly useful in low-contrast cases and with fragile products. Since both geometry and volume of the product are evaluated, the system offers great advantages compared to two-dimensional inspection.

LYNX-SPECTRA 3D can be combined with any vision system of the latest generation and operated via a single touch screen interface. This simplifies the use and saves space. In most of the cases the system can be equipped with additional hard- and software options.



■ Hardware

The system is available in two designs.

One version is the two-stage combination with LYNX-SPECTRA HR. Furthermore, a slim design including colour inspection and a line illumination unit will be available which enables the use of LYNX-SPECTRA 3D with limited installation space.


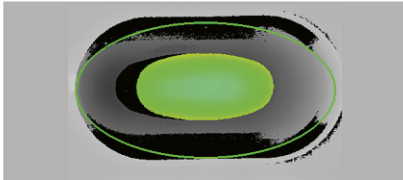
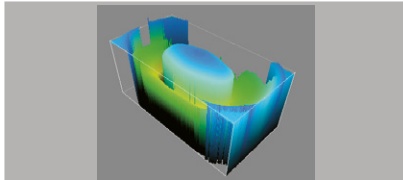

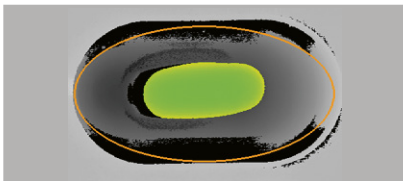
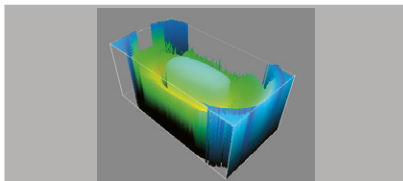

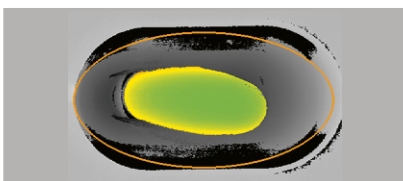
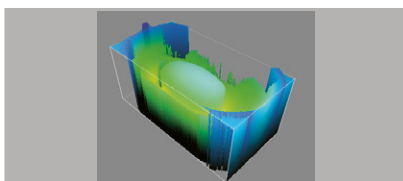

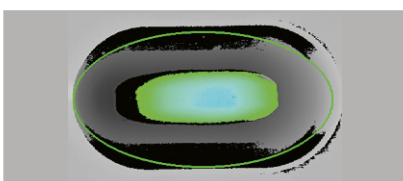
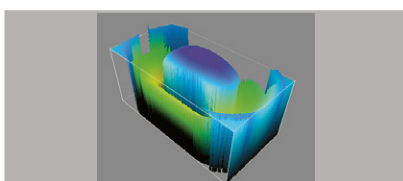

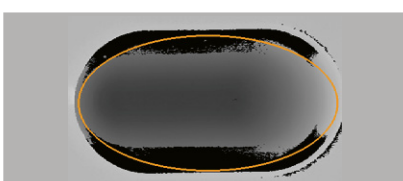
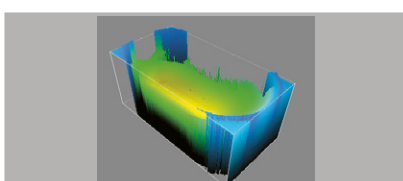

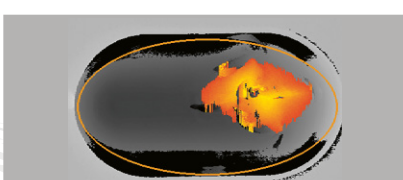
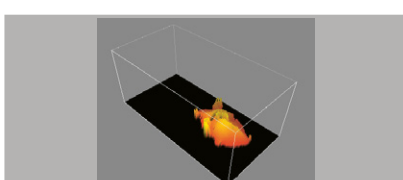


Evaluation Unit	19 inch built, 42 TE
Standard I/O System	DIO8/16/32/48/64
Extended I/O System	TCP/IP , EtherCAT
Integrated PLC Interface	
Ports	2xCOM, 3xUSB, 2xEthernet, VGA/HDMI
Hard drive	16 GB SSD
Frame grabber	scanware, for matrix and line camera BW/Colour
Multiplexer	up to 15 cameras




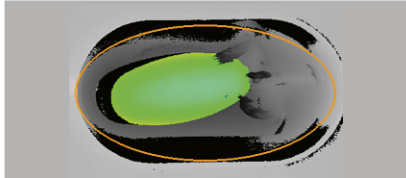
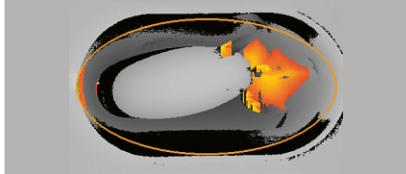
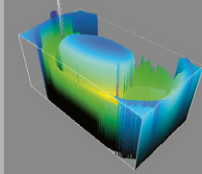
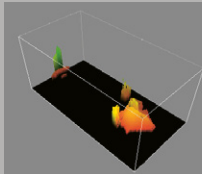

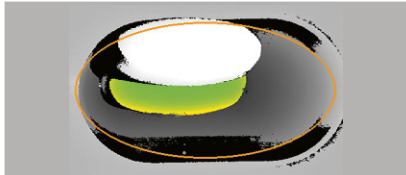
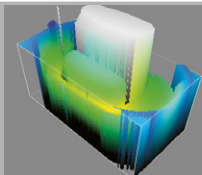

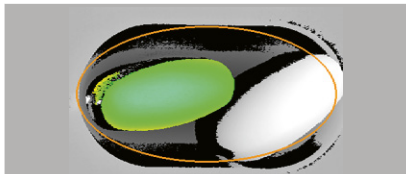
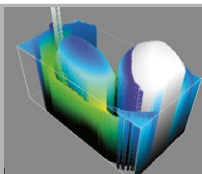

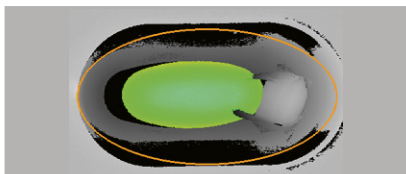
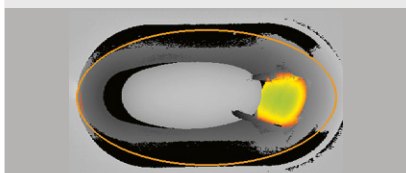
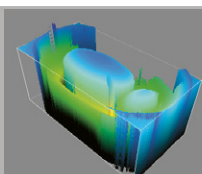
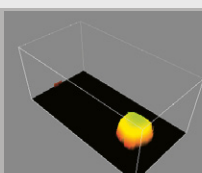
Evaluation Examples

¹ Pxl = Pixel (Surface Pixel), ² Vxl = Voxel (Volume Pixel), **text** = recognized as good, **text** = recognized as incorrect

Photography	2D False-colour Presentation	3D Presentation
1. Correct 	 Object area $\approx 19.000 \text{ Pxl}^{1,3}$	 Object volume $\approx 2.200.000 \text{ Vxl}^2$
2. Product size 	 Object area $\approx 14.000 \text{ Pxl}^4$	 Object volume $\approx 1.300.000 \text{ Vxl}$
3. Chipped 	 Object area $\approx 19.000 \text{ Pxl}$	 Object volume $\approx 1.600.000 \text{ Vxl}$
4. Upright 	 Object area $\approx 17.000 \text{ Pxl}$	 Object volume $\approx 2.200.000 \text{ Vxl}$
5. Empty Pocket 	 Object volume $\approx 0 \text{ Vxl}$	 Volume in Background $\approx 0 \text{ Vxl}$
6. Damaged empty pocket 	 Surface in Background $\approx 12.000 \text{ Pxl}$	 Volume in Background $\approx 400.000 \text{ Vxl}$



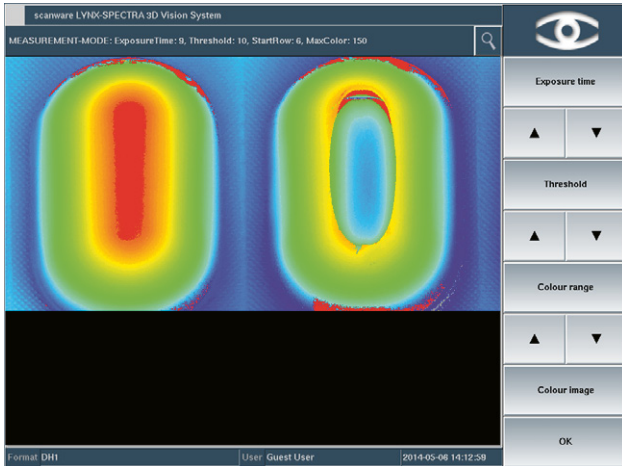
¹ Pxl = Pixel (Surface Pixel), ² Vxl = Voxel (Volume Pixel), **text** = recognized as good, **text** = recognized as incorrect

Photography	2D False-colour Presentation	3D Presentation
7. Damaged pocket + Product 	 <p>Object area \approx 19.000 Pxl</p>  <p>Surface in Background \approx 10.000 Pxl</p>	 <p>Object volume \approx 2.200.000 Vxl</p>  <p>Volume in Background \approx 400.000 Vxl</p>
8. Double filling 1 	 <p>Object area \approx 10.000 Pxl</p>	 <p>Object volume \approx 1.900.000 Vxl Volume in Background \approx 2.480.000 Vxl</p>
9. Double filling 2 	 <p>Object area \approx 19.000 Pxl</p>	 <p>Object volume \approx 2.200.000 Vxl Volume in Background \approx 2.200.000 Vxl</p>
10. Fragment 	 <p>Object area \approx 19.000 Pxl</p>  <p>Surface in Background \approx 8.000 Pxl</p>	 <p>Object volume \approx 2.200.000 Vxl</p>  <p>Volume in Background \approx 260.000 Vxl</p>

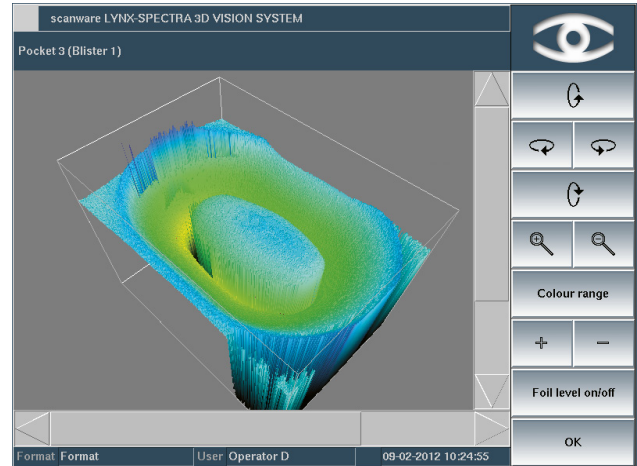


■ Software

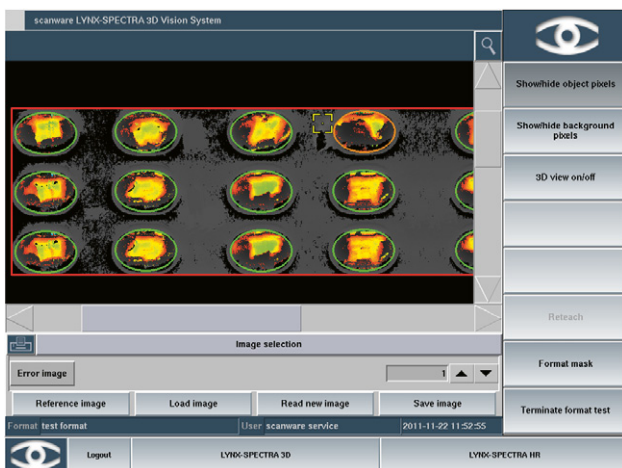
The software of LYNX-SPECTRA 3D includes numerous highlights such as the display of format parameters and documentation. Reference and error images are analysed and product-specific tolerances are set. Also, mask administration can be managed by the user.



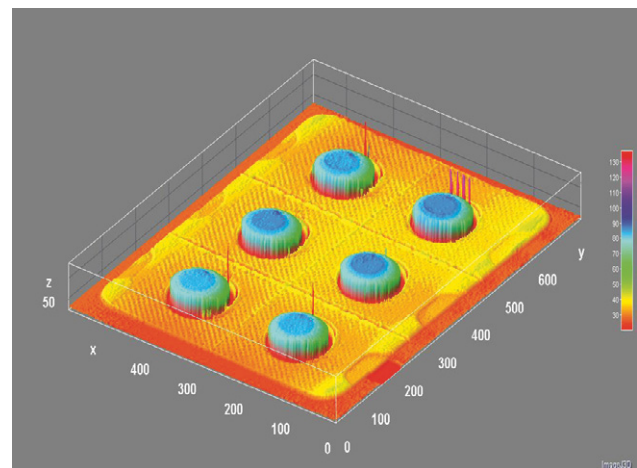
Colour view of evaluation. Every colour represents a height level; red stands for low levels, blue for higher levels.



3D view of the evaluation. This can be angled using the arrows to achieve the ideal product view.



Evaluation of powder. By adapting the standard solids 3D algorithm, the volume calculation is very precise.

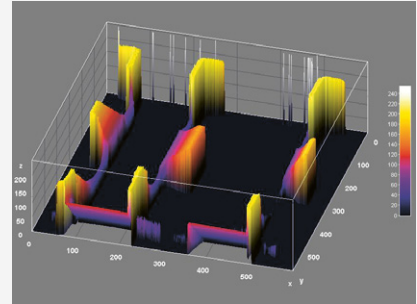
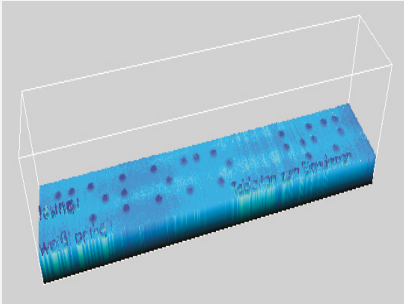


3D evaluation of a sealed blister for the recognition of sealing area and pockets.



Further Application Options

The height level recognition of LYNX-SPECTRA 3D can also be used to inspect braille, ampoules and folding box support.



Technical Data

Laser technology

- Laser class 1 (Normal operation)
- Wavelength 660 nm
- Fan angle 30°

Camera

- Free running line camera
- Sensor size 1536 × 512 Pixel

LYNX-SPECTRA	3D	3D Color
Camera Technology	3D Kamera	3D Kamera
Camera Port	Cameralink	GIGE
Camera Resolution	1536 pxl per line	4x1536 Pxl per line
Max. pictures per minute	900	360
Colour Resolution	-	256,000
Height Resolution	0.1 mm 128 greyscale height	0.1 mm 128 greyscale height
Objekts per Image	224	224
Format Storage	>1000	>1000
Number of cameras	1-3	1

The scanware Benefits

- Modular built for a multitude of installation options
- Real-time operation system QNX® for security and speed
- Uniform graphical interface and easy-to-follow menu structure
- Fully 21 CFR Part 11 compliant
- Hard- and software are expandable and upgradable
- Wear-free, electronically controllable scanware W-LED illumination
- Easy to install on all common packaging machinery
- Communication with machine via a VDMA-XML protocol
- Simultaneous use of numerous inspection parameters
- Variety of statistical tools
- Development of special tasks and requirements on your request
- Availability of all parts guaranteed for 10 years
- Service offering solutions and support within 24 hours

LYNX-SPECTRA Product Inspection

LYNX-SIGNUM Code Inspection

LYNX-FOCON Pore Inspection

LYNX-CAPA Track & Trace Solutions

scanware electronic GmbH

Darmstädter Straße 9-11
D-64404 Bickenbach
Telephon +49 6257 9352-0 Fax -22
info@scanware.de
www.scanware.de

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Quality is visible.

