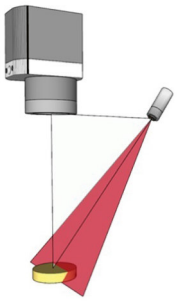
BLISTER & PRODUCT INSPECTION

SPECTRA 3D

Description

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, digitised and evaluated.

Area of Application

Applicable Objects:

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

Inspection Criteria:

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

Highlights

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

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

System

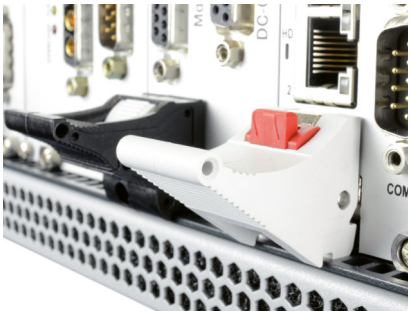
SPECTRA 3D is particularly useful in low-contrast cases and with fragile products. Since both geometry and volume of the product are evaluated, the system offers great advantages compared to two-dimensional inspection.

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 cases, the system can be equipped with additional hardware and software options.

Hardware

Evaluation unit	
Housing	42 HP, 3.5 RU
Power supply	24 V DC PELV/SELC (safety extra low voltage) 18 – 30 V max. allowed voltage range
Standard I/O System	TCP/IP, EtherCAT, Integrated PLC
Hard drive	240 GB SSD

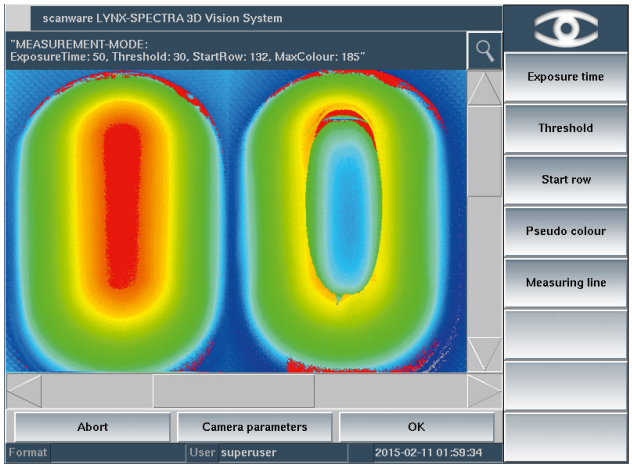
Laser Technology	
Laser class	1 (Normal operation)
Wavelength	660 nm
Fan angle	30°



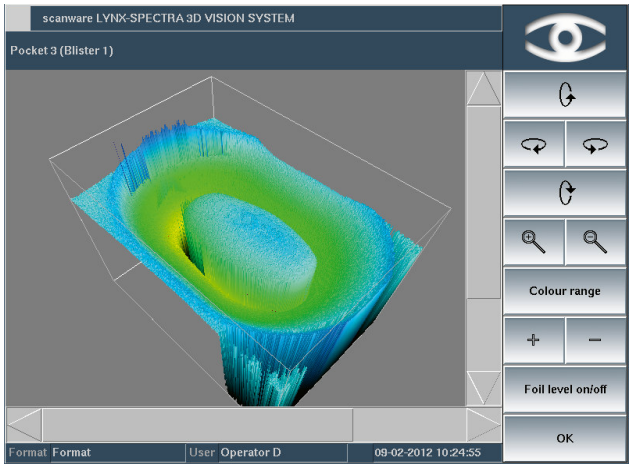
Camera	
Camera technology	3D camera
Camera port	GigE
Camera resolution	1,536 pixels per line
Max. pictures per minute	900 (at 1000 lines)
Max. foil width per camera	160 mm
Height resolution	0.1 mm 128 greyscale height
Objects per image	224
Format storage	>1,000
Number of cameras	1-3

Software

The software of **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.

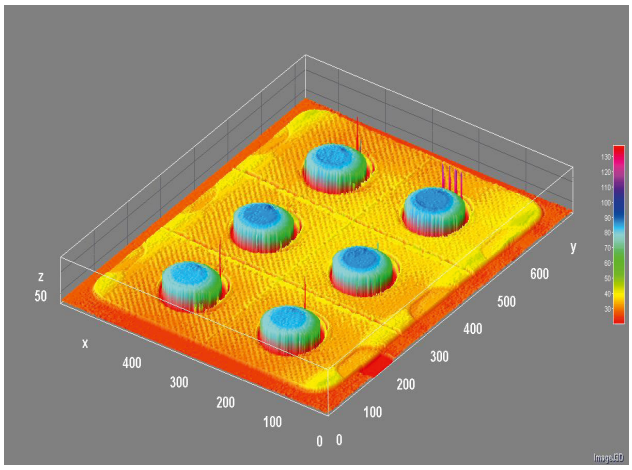


Colour view of evaluation. Every colour represents a height level; red stands for low levels, blue for higher levels.



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

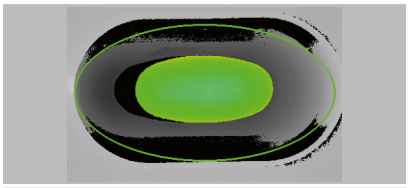
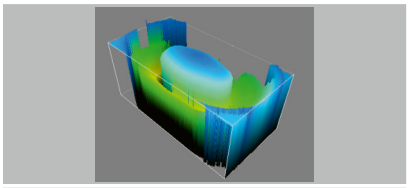
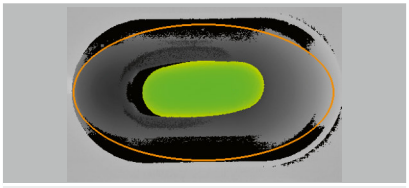
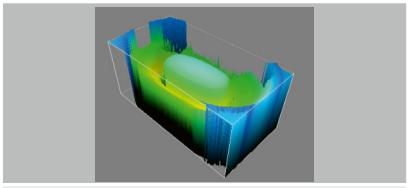
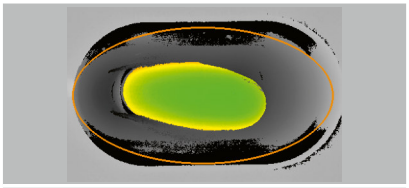
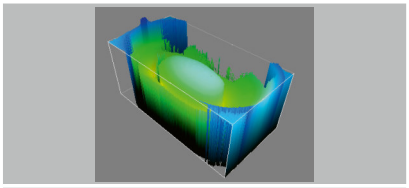
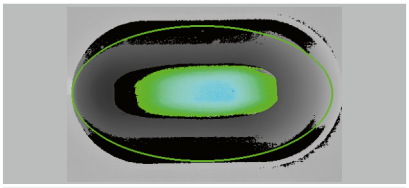
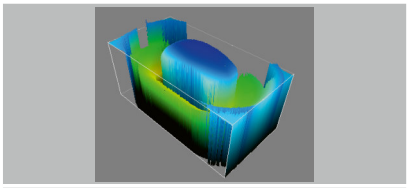
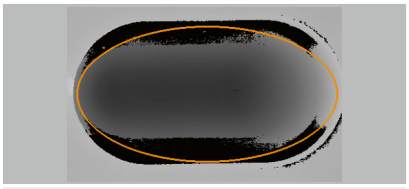
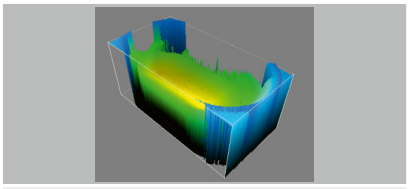
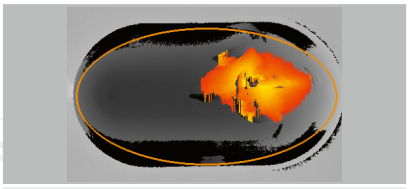
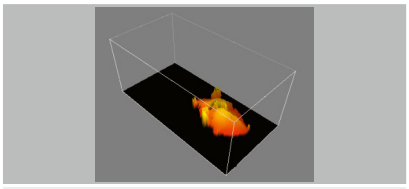
Evaluation of powder. By adapting the standard solids 3D algorithm, the volume calculation is very precise.



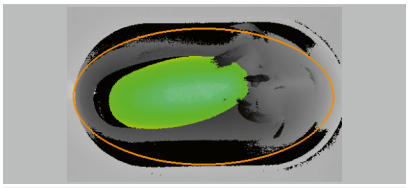
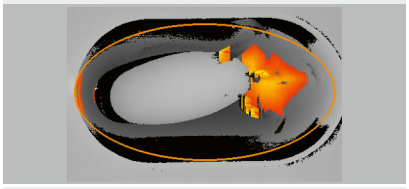
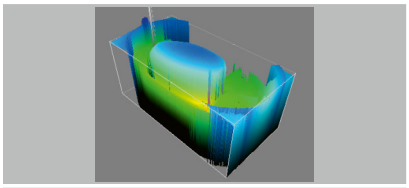
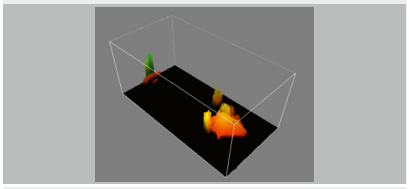
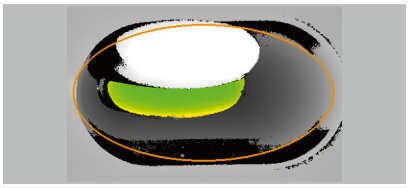
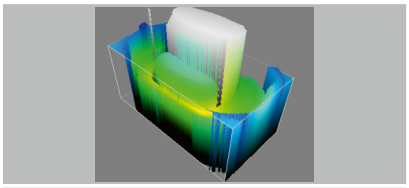
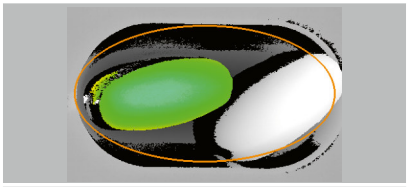
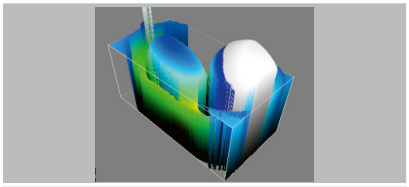
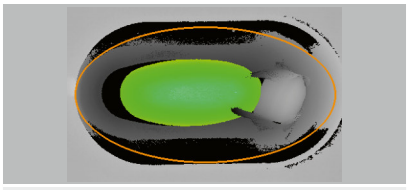
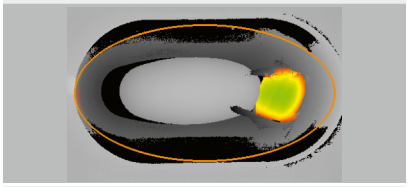
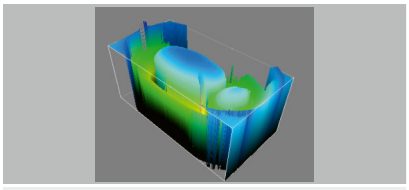
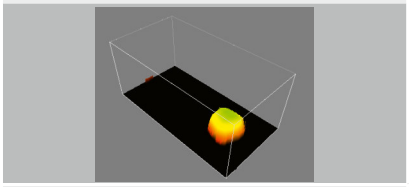
3D evaluation of a sealed blister for the recognition of sealing area and pockets.

Evaluation Examples

[1] pxl = Pixel (Surface Pixel), [2] vxl = Voxel (Volume Pixel), text = recognised as good, text = recognised as incorrect

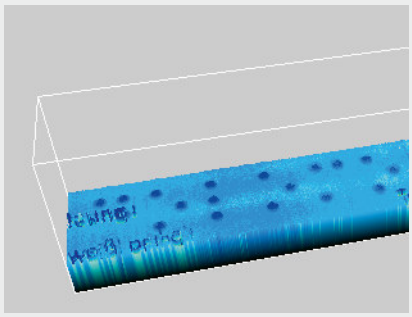
Photography	2D False-colour Presentation	3D Presentation
1. Correct		
		
	Object area ≈ 19,000 pxl[1,3]	Object volume ≈ 2,200,000 vxl[2]
2. Product Size		
		
	Object area ≈ 14,000 pxl[4]	Object volume ≈ 1,300,000 vxl
3. Chipped		
		
	Object area ≈ 19,000 pxl	Object volume ≈ 1,600,000 vxl
4. Upright		
		
	Object area ≈ 17,000 pxl	Object volume ≈ 2,200,000 vxl
5. Empty Pocket		
		
	Object volume ≈ 0 vxl	Volume in background ≈ 0 vxl
6. Damaged Empty Pocket		
		
	Surface in background ≈ 12,000 pxl	Volume in background ≈ 400,000 vxl

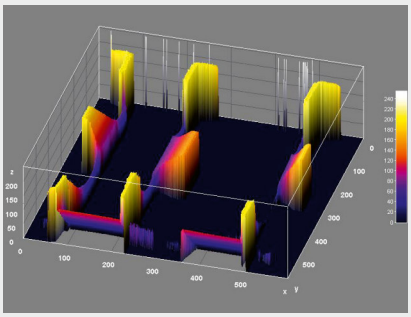
[1] pxl = Pixel (Surface Pixel), [2] vxl = Voxel (Volume Pixel), text = recognised as good, text = recognised as incorrect

Photography	2D False-colour Presentation	3D Presentation
7. Damaged Pocket + Product		
	 Object area ≈ 19,000 pxl  Surface in background ≈ 10,000 pxl	 Object volume ≈ 2,200,000 vxl  Volume in background ≈ 400,000 vxl
8. Double Filling 1		
	 Object area ≈ 10,000 pxl	 Object volume ≈ 1,900,000 vxl Volume in background ≈ 2,480,000 vxl
9. Double Filling 2		
	 Object area ≈ 19,000 pxl	 Object volume ≈ 2,200,000 vxl Volume in background ≈ 2,200,000 vxl
10. Fragment		
	 Object area ≈ 19,000 pxl  Surface in background ≈ 8,000 pxl	 Object volume ≈ 2,200,000 vxl  Volume in background ≈ 260,000 vxl

Further Application Options

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





Laser Safety

Find further information on laser safety and a comparison of 3D recording technologies in the dedicated brochure.

Quality is visible.

- Modular build for a multitude of installation options
- Real-time operating system QNX® for security and speed
- Uniform graphical interface and easy-to-follow menu structure
- Hard- and software are expandable and upgradable
- Fully 21 CFR Part 11 compliant
- Wear-free, electronically controllable scanware W-LED illumination
- Easy to install on all common packaging machinery
- Communication with machine via a VDMAXML_P or OPC UA 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

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scanware

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