

## On-line inspection of products



### On-line production control and regulation

Manufacturing of high-quality products requires accurate and close product control in order to ensure integrity of product components and avoid foreign objects in the final product. Non-destructive control systems working on-line improve product quality and facilitate automatic production regulation. Such features reduce total production costs.

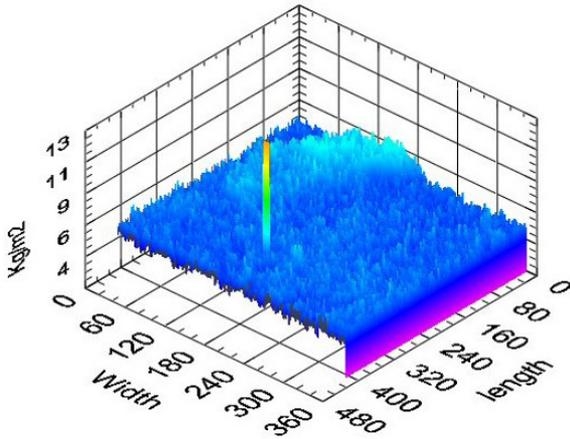
### Applications

The X-FORCE-SCAN is designed for on-line inspection of products moved by conveyor belt systems. The instrumentation uses high-resolution radiation transmission to measure

area weight distribution. The instrumentation detects and identifies:

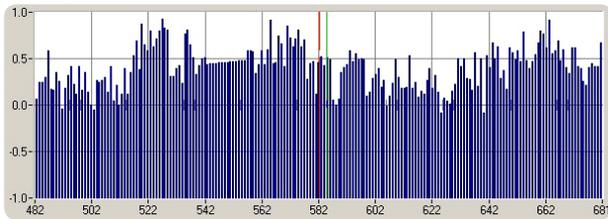
- Dimensions and shape of products
- Products of non-conforming shape or size
- Unit weight of products
- Material distribution across bandwidth
- Voids and density of products
- Packages with missing content
- Area weight and foreign objects in products.

### Example: Sizing of hidden foreign objects

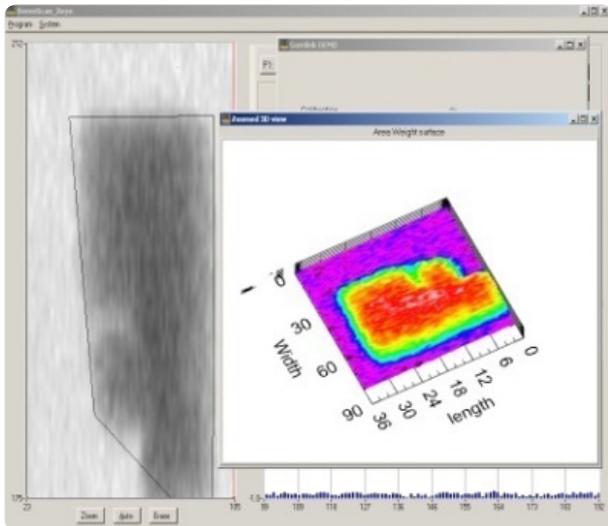


< 2 mm stone identified in a wood fibre mat for a 5,5 mm MDF-board.  
Production speed: 0,7 m/sec.

### Examples: Dimension & shape



Cross sectional view - short term, high resolution.



Piece of chewing gum identified with non-conforming shape.

### Advantages

- Automatic calibration
- Complete picture of the weight distribution
- Detect invisible defects and hidden foreign objects of deviating density
- Non-conforming products can be rejected automatically
- Protect subsequent production units against damages from foreign objects on the conveyor
- Easy integration on existing production line
- Short payback time of the instrumentation

### Description

The X-FORCE-SCAN measuring system is housed inside a chassis covered with metal plate. The measuring system includes:

- Guide-belt to direct the products through the measuring gate
- Measuring system with X-ray sources and high resolution detector arrays
- Gauging and data processing unit that also controls X-ray sources and detectors
- PC with monitor and software for generation of product library, selection of product data and presentation of results in numerical and graphical form.

The X-FORCE-SCAN is easily adapted to individual customer needs.

### Features

- Area weight distribution and weight distribution profiles
- Detection of invisible objects of deviating density
- Programmable alarm levels
- Detection of physical dimension of objects
- Detection of packing for content deviations
- Output signals for automatic production regulation
- Output signals for automatic rejection of non-conforming products
- Software for running mass detection and registration of rejected products
- Integration with process control systems
- FORCE Technology remote support

### Performance data

Conveyor speed:	0 - 1.500 mm/s
Detection width:	50 - 4.000 mm
Resolution:	1 x 1 mm <sup>2</sup>
Area weight range:	1,5 - ~100 kg/m <sup>2</sup>

### Further information

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