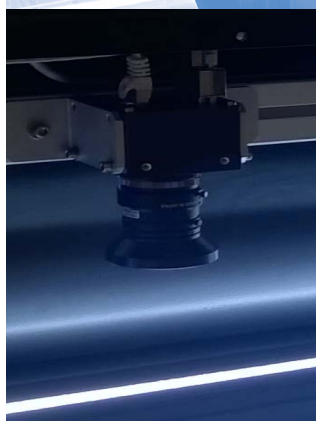




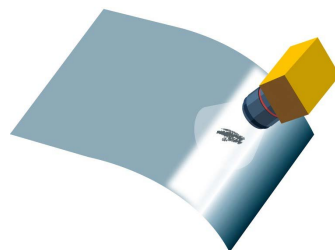
ACCURATE
ROBUST

QUALITY CONTROL FOR FLAT-ROLLED METALLIC PRODUCTS



SURFACE DEFECT INSPECTION SYSTEM

Metallic sheets used for the food packaging are produced by companies from the steel and aluminium industry. They are manufactured using rolling mills to stretch the raw material and form a steel or aluminium sheet of a few tens of microns in thickness. The stretching process can induce some surface defects such as stains, marks, scratches or bright marks. The most critical defects are very thin and can't be seen during the on-line process. Flat-rolled aluminium and steel producers are facing a trend towards zero-defect tolerances regarding surface quality. Automatic online inspection is strongly required in replacement of inspection carried out manually via physical sampling. Controlling the quality surface during the final phases of the process certifies a high level of quality and also prevents defective material from being further processed.



A set of specific light and cameras is installed over the strip in a very compact way.

The defect is detected, classified by type (shape) and calibrated (classified by size) and positioned in X, Y along the strip.

This alarm is delivered to line process system or only registered and allows to detect which part of the metal sheet is defective.

Customer benefits:

- Certify your quality:
 - defects: detection and classification (size, position, type, severity)
 - real-time result for immediate action
 - combined detection of surface defects and holes
 - classification from past experience (machine learning)
- Optimize your process & maintenance cost-cutting thanks to the result analysis
- Increase your productivity by reducing scrap

Accurate and Robust:

The patented sensor technology, its specific design and ruggedness are approved for severe environments; ambient light immunity.

ACCURATE ROBUST

Arck Sensor is a French company specialized in optical measurement in harsh industrial environments. Our mission is to provide the most robust and accurate sensors for container ports and heavy industries in the frame of automation and safety concerns. Since 1998, Arck Sensor has been constantly improving its technology to deliver long term solutions for major container terminals and metal industry companies, world-wide.

OUR EXPERTISE IN QUALITY CONTROL FOR FLAT-ROLLED METALLIC PRODUCTS

■ Pinhole detection

■ Welding detection

▶ Surface defect inspection

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SURFACE DEFECT INSPECTION

Optical technology

The principle is based on the use of a white beam of light source and fast cameras for the reception of the light reflected on the metal sheet. The same light and cameras can detect the bright field as well as the dark field.

Two patented innovations are implemented to guaranty a continuous detection.

Cameras are aligned thanks to a patented procedure which ensures:

- a periodical control and all eventual alignment corrections
- a few pixel of overlap between cameras. It gives the guaranty of a continuous control of 100% of the foil; adjustable after mechanical installation.

Machine learning

For both versions, VEGA-S5 and VEGA-D5, the customer can classify and isolate some specific defects in a database. The Artificial Intelligence system will be able to define the specific features of this group of defects. A specific classification of the defects will be achieved by the calculator using these features, in real time for the next coil to be inspected.

VEGA-S5: is an automatic detector designed to inspect 100% of the foil for the highest quality assurance.

It is dedicated to single foil processing line.

It can be used to inspect one matt side in a separator.

VEGA-D5: is an automatic detector especially designed for foil separator, testing 100% of the two foils at the exit of the separator.

It is dedicated to double foil processing line.

- Detects stain bigger than 1mm²
- Detects contamination, inclusion, bright defect (scratch or process mark), line,...
- Detects hole 1mm²
- **Bright Field and Dark Field** with one single system

- Gives the exact position of each defect, provides acceptance report
- Certifies the quality according to acceptance criteria

- Registered Patents

