

Fully automatic optical inspection of web material

Inspection of bright metal strip components

The task

The production of bright metal strip components is verified on both sides immediately after the bending alignment process. Vitronic's machine vision system VINSPEC inspects the upper and lower side of the strip, and detects the following types of faults: holes, indentations impressions, cracks, edge cracks, rust marks and deformed edges.

Benefit

The rolling process can cause faults in the metal strip, which are impossible to detect manually at a production speed of 200 m/min. An absolutely reliable detection of surface faults with strip products is however essential for a smooth and consistent process chain. VINSPEC detects such faults, thereby reliably excluding quality faults in end products designed for further processing.

Implementation

The inspection of the metal strips is carried out at the same rate as conveyor belt speeds of up to 200 m/min. Two line scan cameras are used on each side to inspect the upper and lower surface. The video signals recorded line by line are built up into a two-dimensional image, and then evaluated. Any faults detected are classified on the basis of 32 defined features. This classification includes for example the position, size, contrast graduation, brightness distribution, shape, and contour descriptions.



Surface inspection of steel coils

Technical data

Cameras:	4 line cameras, each with 2,000 active pixels
Illumination:	Light and dark field for both the upper and lower sides
Resolution:	Approx. 0.2 mm x 0.2 mm
Throughput:	Bandwidth 400 mm Feed rate until 200 m/min
Image acquisition:	Continuous
Hardware / Interfaces:	I/O interface, opto-isolated

publish Oct 2008