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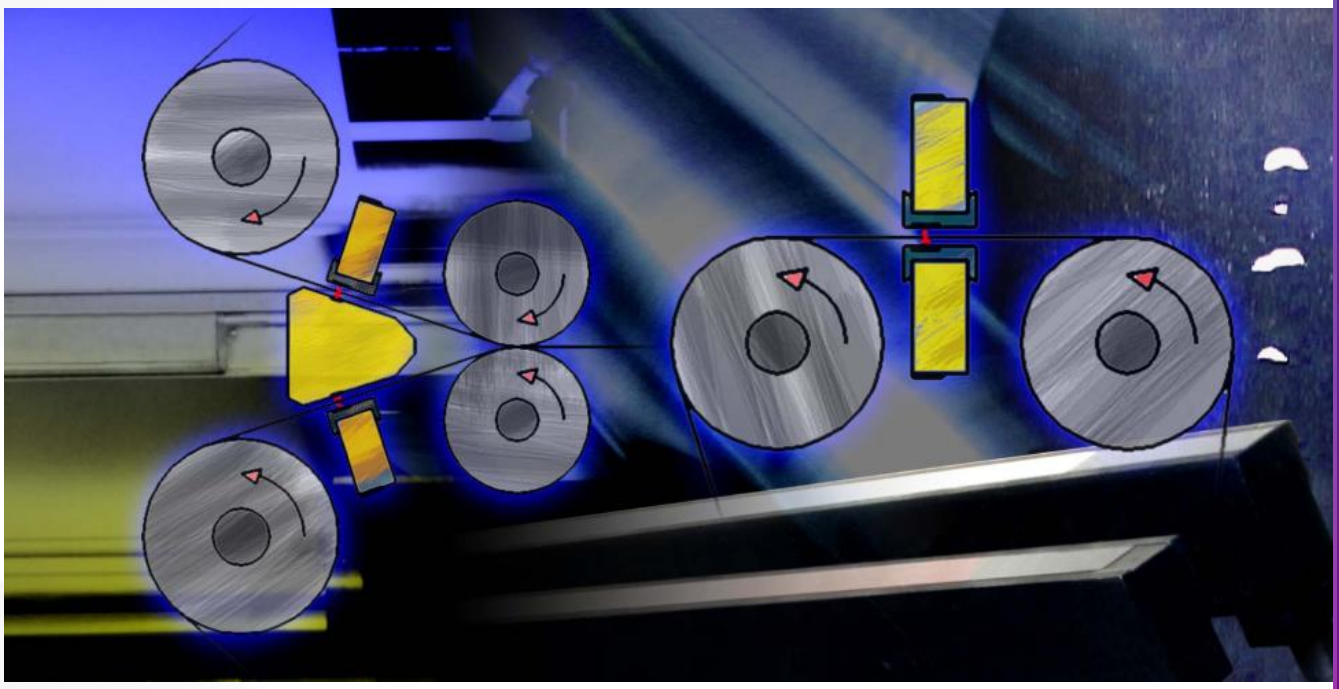
Aluminium Foil Inspection in Separators & Slitters

PHD Online Pin Hole Detector



FEATURES

- Online Pin Hole Detection in Aluminium Foil
- Installation in Separator and Slitter Machines
- 100% Coverage of Foil Surface
- Provides Pin Hole Data of Coils over Full Length
- Detects Hole Sizes down to 20µm Diameter
- Hole Grading into 2 or 3 Size Classes
- Foil Width up to 2200mm, Production Speed up to 1400m/min
- Data Archive, Shift Reports

PHD - Objectives

The special barrier property of aluminium foil is sustainably being spoiled by the occurrence of pinholes and perforations in the foil. Especially in the case of foil for dairy, pharmaceutical and cheese packaging applications even a few undetected pinholes often lead to considerable consequential damage.
The objective of PHD is to 100% check the foil for individual pinholes during the separating and/or slitting process.
For each coil the system provides a comprehensive report including size classification, pinhole counts and positions.

PHD - System

The PHD system includes the following main elements:
1. Light Emitter Bars
2. Receiver Bars
3. Data Acquisition Unit (wall mounted box)
4. Computer Cabinet (PC and machine PLC interface)

The light emitter bars generate an intense well focussed and homogeneous light line across the foil. The length of the line is computer controlled depending on the width of the foil.
The receiver bars sense the light pulses passing through individual pin holes and transmit the signals to the data acquisition electronics. The information is analyzed in order to calculate and classify the pin hole diameter. The compressed information is transferred to the computer (USB interface or optical link) for online visualisation, coil report, data archive etc.
The system is synchronized with the machine PLC in order to automatically start and stop the measurement and to measure speed independent.

PHD Technical Data

Light Source:	LEDs, optional Laser Diodes
Receiver:	Photo Diodes
Distance to Foil:	Sender 10mm, Receiver 5mm (other distances on request)
Minimum Pinhole Size:	20µm Diameter
Diameter Classes:	2 or 3, e.g. 20 ..100µm, >100µm
Production Speed:	up to 1400m/min
Cross web resolution:	typ. 25mm
Calibration:	offline, using standardized pin holes
General:	The system is suited for operation in foil separators and slitters

PHD - Results

The operator screen provides clearly arranged summary information of pinhole presence and distribution in the coils.
A simple travel map shows online the occurrence of pinholes. Different sizes and pinhole numbers (per down web length segment) are colour coded.
At end of the coil a report file is generated, displayed and stored in the data archive.
Specific foil conditions can online generate programmable warnings and alarms e.g. in the case of too many oversize pin holes, high pin hole density per length segment etc.

PHD - Benefits

- Identifies finest pin holes in aluminium foil during separating / slitting
- 100% coverage of the foil surface
- Identifies pin holes before value added process
- Supports automated quality control
- Statistically monitors the casting/rolling processes
- Generates coil data base (reports)
- Offline analysis of archived data records

PHD - References

Our engineers and technicians have extensive experience with design and commissioning of sophisticated inline pinhole detection systems in separator machines for more than 15 years. (Kampf, WT and Schmutz machines)
PHD is a new designed approach based on latest electronics components in order to achieve an excellent price/performance ratio.

Related Products

PIA Pin Hole Analyzer
PIA allows efficient and objective random sample control of thin gauge aluminium foil. Pinhole size down to 5µm.

RMD Roll Mark Detector
RMD detects online repetitive roll marks and roll holes during rolling in foil mills at full speed in the harsh mill environment.

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