



WORLD MARKET LEADER IN MEASURING SYSTEMS



IMS-CCS

Camera Cluster System

A Revolution in Strip Dimension Measurement

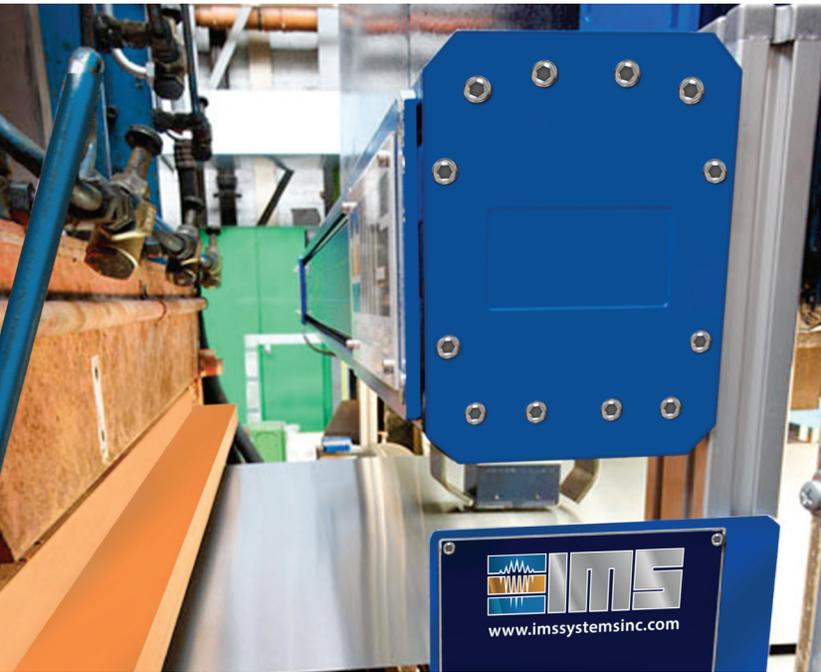
FLATNESS • WIDTH • EDGE CRACK • HOLE

www.imssystem.com

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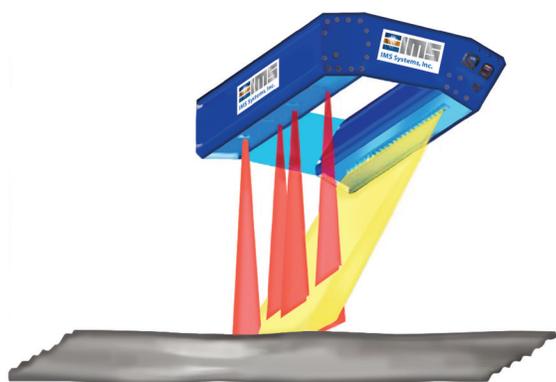
Setting the Standard for Optical Measuring Systems

At affordable prices, our patented Camera Cluster Systems (CCS) Gauges are easy to use and offer a wide range of features and benefits not found in other measuring systems. Using infrared light, this most advanced technology measures strip:

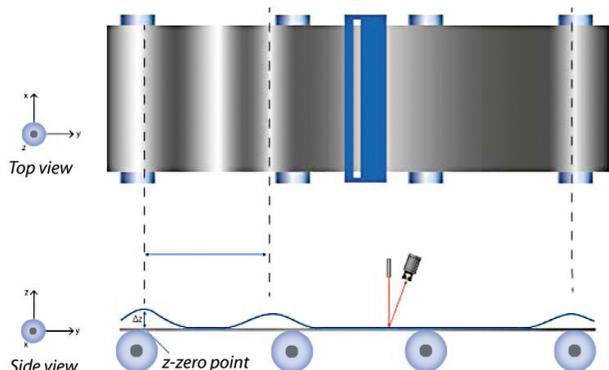
- > Flatness
- > Width
- > Edge Crack
- > Pinhole Size
- > Contour

To make sure your ferrous or non-ferrous product meets customer specifications, depend on IMS.

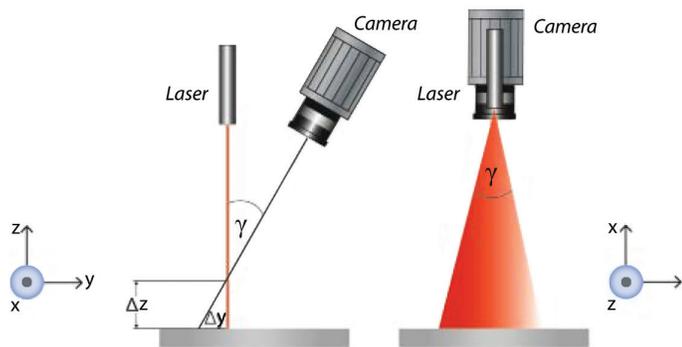




A Laser and Camera Unit are the backbone of the IMS-CCS Flatness Gauge.



An IMS-CCS Flatness Gauge uses high-performance intelligent camera clusters to measure flatness defects.



Principle Triangulation

How Flat is Flat?

The patented IMS-Camera Cluster Systems (CCS) Flatness Gauge offers a unique degree of accuracy. This gauge can help you maximize the acceptance rate of materials processed in your facilities.

How the IMS-CCS Flatness Gauge Works

This optical measuring system uses innovative camera cluster technology. Sixteen cameras per each 300mm segment are added proportional to strip width. Those lines are imaged using matrix cameras.

The intelligent camera clusters' high performance power results in real-time data image processing that detects even the smallest buckles and waves, especially on or near the material's edge.

These data generate topographical information that allows engineers and other production professionals to make informed judgments about product surface quality and determine whether the strip meets customer specifications or needs to be re-worked.

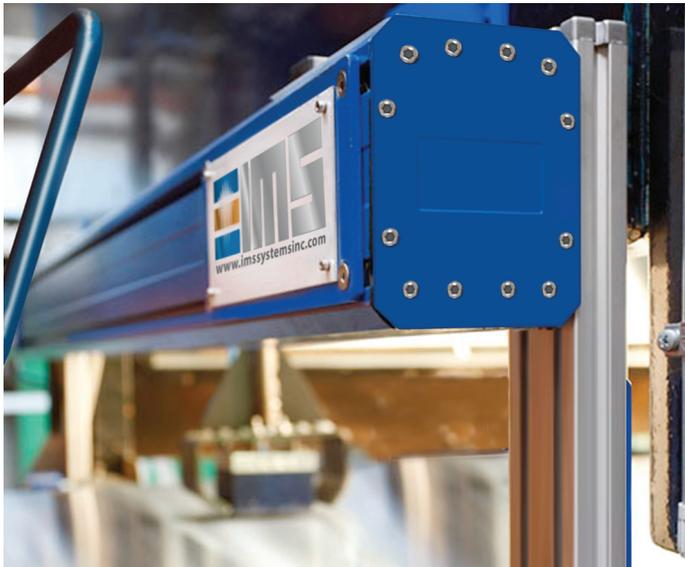
Key Features & Benefits

- > Highly Accurate, Real-Time Monitoring
- > Takes Precise Reads of All Surfaces (from matte to glossy) Independent of Strip Vibration
- > Ideal for High-Speed Processing Lines (CTL)
- > Provides High-Resolution Images of Strip Cross Direction
- > Reduces Process Disruptions, Equipment Damage & Scrap
- > Compact & Lightweight
- > Easy to Install

Performance Specifications

Accuracy in height direction	≤ 0.1mm (2 sigma)
Sampling rate	up to 1kHz*
Permitted strip fluctuation range	100mm (Standard) Higher value on request
Distance between strip & camera laser unit	Appx. 450mm
Measuring zones	200 fibers per meter (Standard) Higher value on request
Strip width	Not limited
Strip thickness	Not limited

*Depends on the material surface



The IMS-CCS Width Gauge uses the latest optical measuring technology to take real-time, point-to-point measurements that help to ensure superior strip quality.

Single Gauge Takes Four Kinds of Measurements

Besides measuring strip width, the versatile IMS-CCS Width Gauge can also evaluate edge crack, hole/pinhole size and strip contour.

Other important characteristics and advantages include:

- > Low Maintenance
- > Long Operating Life
- > No Moving Parts
- > Highly Accurate
- > Compact & Lightweight
- > Monitors for Dirt
- > Unaffected by Ambient Light

Development of the CCS Width Gauge exemplifies the spirit of innovation that has made IMS a market leader for more than 35 years. We introduced this gauge soon after launching the XR Gauge, an x-ray measuring solution designed to assess the thickness of ferrous and non-ferrous strip on a single gauge.

At IMS, we take pride in designing and manufacturing innovative measuring systems that offer outstanding value.

Achieving Excellence in Strip Width Measurement

Our strip width measurement systems are ideal for cold processing environments and slitting lines. Using the latest optical measuring technology, the IMS-CCS Gauge gives you real-time, point-to-point measurements that help to ensure superior strip quality.

Width/Slit Strip Width Measuring System

Measuring Accuracy (online)	better than +/- 0.10 mm (2σ)
Measuring Accuracy (offline)	better than +/- 0.05 mm (2σ)
Sampling Rate	28 kHz
Distance between Camera & Strip	350 mm or 800 mm
Distance Between Strip & Backlight	150 mm - 300 mm
Passline Deviation	+/- 5 mm at 350 mm +/- 10 mm at 800 mm
Strip Width	Min. 200 mm Max. 2540 mm
Strip Thickness	No Limit
Slit Strip Width Measurement Distance between Slit Strips	≥ 1 mm
Slit Strip Widths	≥ 3 mm

Expanding Your Capabilities to Measure Edge Crack & Detect Holes/Pinholes

The IMS-CCS Gauge can be adapted to provide you with edge crack and hole data. These defects in strip are measured with opto-electronic semiconductor sensors. To detect an edge crack or hole/pinhole in the material being evaluated, near infrared radiation (NIR), emitted by the backlight unit beam, must pass through the crack or hole which is causing the defect. Inspection occurs across the strip's complete width and length to give you 100% coverage.

Our **Edge Crack** and **Hole Detection** capabilities are ideal for production lines required to meet the highest quality standards.

Key features and benefits include:

- > High-Speed Detection Capabilities
- > High Resolution
- > Long Operating Life
- > No Moving Parts
- > Compact & Lightweight
- > Provides Photo of the Defect
- > Monitors for Dirt
- > Air or Water Blow-Off System for the Harshest Environments

Our **Pinhole Detection** solution, an enhanced version of the IMS-CCS, is well-suited to quality control applications involving aluminum and tin plate packaging materials on variety of lines, including:

- > Inspection
- > Recoiling
- > Cut-to-Length
- > Slitting
- > Coating
- > Foil Separator

Hole Detection / Edge Crack Measuring System

Hole Size	≥ 0.5 mm *
Edge Crack Size	≥ 1 mm x 1 mm *
Sampling Rate	28 kHz
Distance Between Camera & Strip	350 mm or 800 mm
Distance Between Strip & Backlight	150 mm — 300 mm
Passline Deviation	+/- 5 mm at 350 mm +/- 10 mm at 800 mm
Strip Width	Min. 200 mm Max. 2540 mm
Strip Thickness	No Limit
Strip Speed:	No Limit

* Results at strip thickness ≤ 3 mm and strip speed ≤ 1,200 m/min

Pinhole Detection Measuring System

Pinhole Size	≥ 5 μm * (in foils) ≥ 10 μm * (in sheet)
Edge Fading	3 mm
Sampling Rate	1 kHz
Distance Between Camera & Strip	100 mm
Distance Between Strip & Backlight	120 mm
Passline Deviation	+/- 5 mm
Strip Width	Min. 200 mm Max. 2540 mm
Strip Thickness	No Limit
Strip Speed	1,400 ft./min.

Detectable hole size depends on strip thickness & strip speed. Exact details are specified on a system basis.

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A Revolution in Strip Measurement

The Global Footprint of IMS Systems



Measurements You Can Trust. Technology You Can Depend On.

IMS is a leading manufacturer of non-contact optical, x-ray and isotope measuring systems that gauge height, width, depth, profile, flatness, length, thickness, coating weight and other characteristics of hot and cold, ferrous and non-ferrous products. We operate a sales, service and production facility at our North American headquarters in Mars, PA, near Pittsburgh. We also offer gauge training and repair courses at that location. Our Southeastern Service Center, near Mobile, AL, helps customers operate and maintain their gauges in ways that optimize accuracy and productivity.

The company was founded in 1980 in Heiligenhaus, Germany, near Düsseldorf. IMS established a U.S. presence in 2000 to take advantage of market opportunities throughout the United States and Canada.

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