EMG
an elexis company

Inline measurement of strip & slit strip width & hole detection

EMG iCAM®

EMG iCAM®

Our solution
Better process stability & availability

The EMG iCAM® system is based on the multi camera array technology and can be used in multiple strip processing lines for the measurement of strip width and slit strip width as well as for hole detection.

The high-precision measurement of the strip and slit strip width allows the exact control of the knife distances as well as the knife positions.

This information can be used as a valuable reference for the next process step to avoid inaccuracies and improve the quality of the end products.

Furthermore due to defects or any foreign materials being pressed into the material within the running production process, holes will form on the surface of the strip, which will also cause failure and shutdown of machines. Pressing and coating processes for sheet metal require flawless base materials without holes.

Hole detection enables the selection of the required material quality in accordance with customer specifications. Material that does not meet the required quality is sorted out. The sorted-out material is not used for the pressing processes, which saves time, energy and money.

Holes must not be confused with pinholes at this point.

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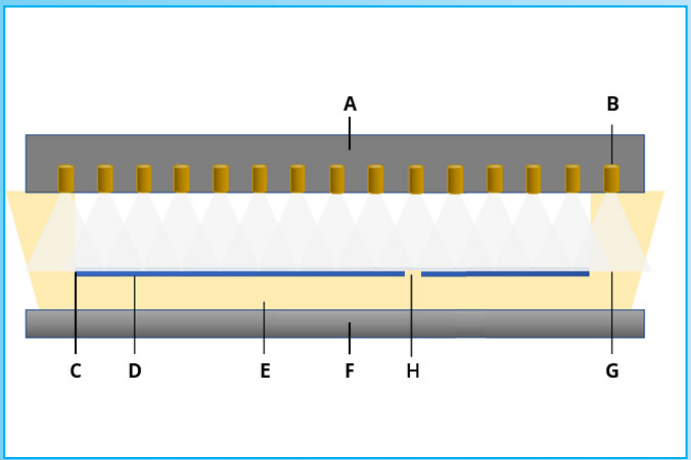
Multi-camera technology
High precision & non-contact

Measuring principle

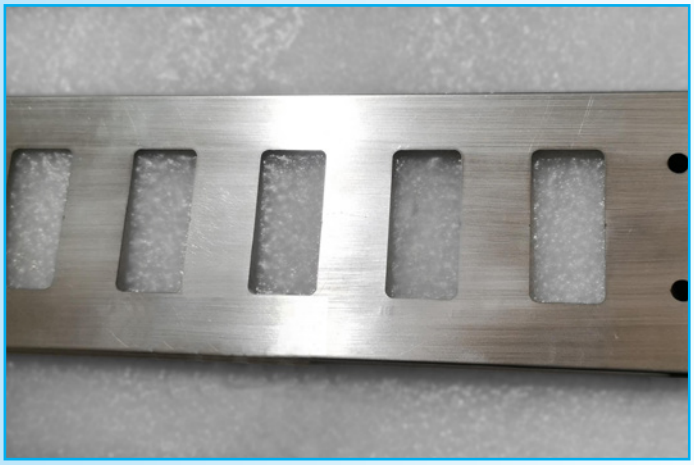
» Multi-camera detection unit above the strip
» LED-based emitter unit below the strip
» Distance of cameras to the strip
approx. 210 mm or 345 mm
» Distance of the LED backlight unit to the strip
approx. 150 mm - 200 mm
» Light detection from the backlight unit on the strip width

Performance features

» High-precision and non-contact measurement method
» High-speed data processing capability
» Modular design, and custom-made by the width and precision requirements of different production lines
» Various interface solutions to meet the needs at diifferent sites
» Small installation space
» No moving parts, low maintenance cost



A: Multi-camera detection unit / B: Camera / C: Strip edge / D: Strip / E: Infrared light (850 nm) / F: LED backlight unit / G: Detection area of cameras (FOV) / H: Slit or hole



Calibration stencil for the realisation of high-precision strip / slit strip width measurement

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Flexible camera system
Compact & insensitive

Compact camera system

» Light detection using a monochromatic CMOS chip
» Fast image data processing based on FPGA technology
» Various camera lenses available, which can be selected according to the application
» Almost complete avoidance of extraneous light influences
» Number of camera arrays customisable to the width and requirements of the various production lines (see application examples)

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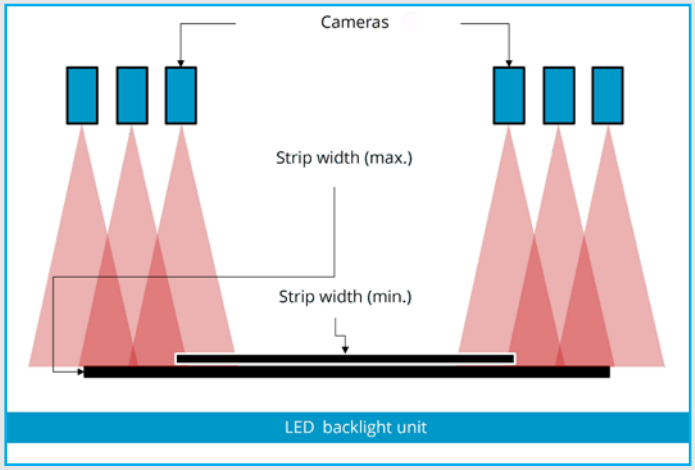
Customisable to your processes
100 % the right decision

Customer challenges

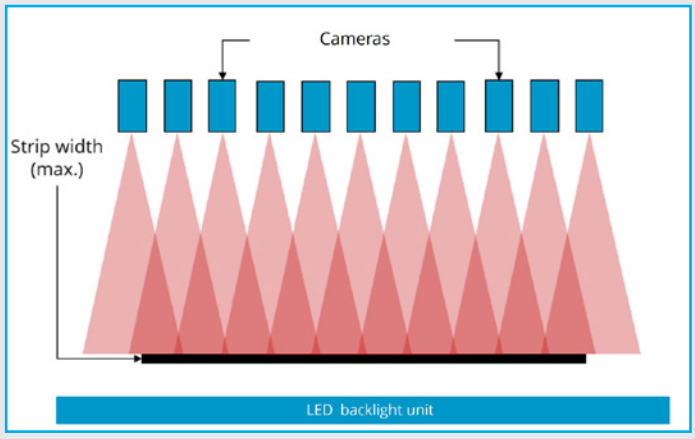
» Fast and highly accurate strip and slit strip width measurement for input / process control
» Exact detection of holes for monitoring the strip quality

Application examples



» Strip width measurement on colour coating line
  › Only edge-related measurement required
  › Reduced number of cameras
  › Focus on the strip edge area

» Slit strip width measurement
  › 100 % strip inspection required
  › Camera unit completely equipped
  › Alignment and lens type: application-based selected
  › Fully equipped also for use with application hole detection



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Technical details
100 % efficient

Measuring technology	Camera-based technology (CMOS chip)
Applications	Inline strip & slit strip width measurement & hole detection
Strip material	All metal and non-metal surfaces, almost independent of the surface finish (e.g.): » Steel (cold roll strip, hot-dip galvanized strip, electro galvanised strip) » Aluminium (uncoated, pre-treated)
Distance measuring profile / strip	approx. 210 or approx. 345 mm*
Distance emitter unit / strip	approx. 150 mm - 200 mm*
Passline detection area	19 mm (incl. strip thickness, strip edge ripple, strip waves)
Measuring range	up to 2,950 mm*
Material thickness	up to 9 mm (depends on application)
Measuring accuracy	Strip width: up to +/-0.1 mm (2 σ) Slit strip width: up to +/-0.05 mm (2 σ)
Ambient temperature	< 50 °C*
Smallest detectable hole size	up to 0.2 x 0.2 mm**
Strip temperature	< 60 °C*
Relative humidity	5 - 85 % (non-condensing)
Power supply	110-240 VAC; 50/60 Hz

* others on request

** depends on the line speed and material thickness, deviations must be taken into account for holes that are not perfectly vertical

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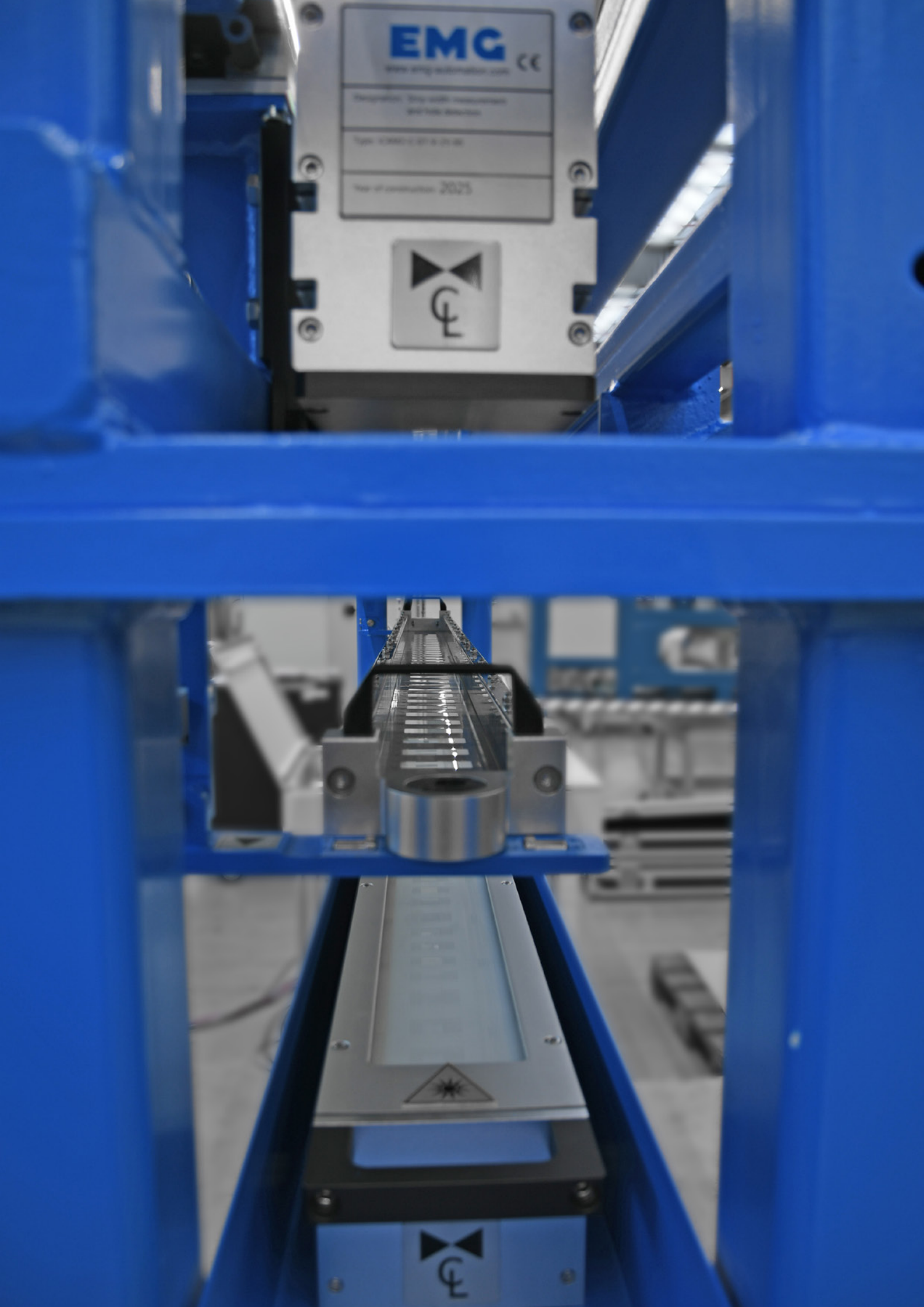
Customer benefits
Your advantages

- Fast image data processing through FPGA technology
- Almost complete compensation of ambient light influences
- Modular, scalable system design enables subsequent application extensions
- Different applications based on the same hardware
- Long-life, low-maintenance LED backlight unit
- Optimisation of the process and the material output
- Transparent incoming inspection and precise process control
- Minimisation of edge trim and efficient process release through data management and visualisation of measurement data
- Inline measurement (continuous strip measurement, logged)
- No moving components; low maintenance
- All EMG systems are based on the same hardware and software DNA: Reduction of TCO (total cost of ownership)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