

ColourBrain[®] Furniture

Automatic optical inspection
and process monitoring



ColourBrain®

Automatic inspection and process monitoring in the furniture industry

Highlights

- Double-sided inspection of surfaces
- Process analysis and process optimization by *Q-brain*®
- Complete scanning of edges
- In-line measurement of dimensions
- Standardized quality of sorting

Your benefit

In the production line, the surfaces and edges of all furniture elements are checked in-line for smallest defects and positions of drillings as well as dimensions and angle accuracy are measured.

The sorting process is performed automatically and according to standardized quality rules, without excessive sorting and without missing defects, at production speed of up to 150m/min.

Deviations and defects are detected automatically; elements with defects are marked and sorted out.

During batch size one production *ColourBrain*® notifies the production control immediately if a defect was detected, so the damaged part can automatically be reproduced without delaying the delivery time.

Q-brain®, the classification technology by Baumer Inspection, is analysing the cause in the production process of every defect and by that is optimizing production by permanently monitoring the inspection data.

Application

Different modules with novel camera systems for the inspection of surface and edges and fast, highly precise laser scanners are combined for total solutions in laminating lines and in production lines for furniture and kitchen elements.

The systems are connected to each other and protocol the quality of each shift, each product and each production volume. The cameras continuously monitor the quality of products, detect variations and trigger alarms in case of serial defects.

In lamination lines the inspection systems automatically marks defects according to the cutting grid so that not the whole element will be rejected but only the small section the defect is on. Avoiding scrap and optimize cutting is the goal.

On the fly for lot size one: Within milliseconds the production control provides the camera system with relevant production data and loads the specific recipe with the specific settings for the next furniture element.



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Automation to assure quality improvement



Double sided inspection of body elements.



Double sided inspection of foil laminated boards.



Inspection of laminated edges.



Inspection of high gloss furniture panels after lacquering.

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In furniture production, after lamination or printing, single sided or double sided: *ColourBrain®* systems detect every defect, every print deviation and every deviation with highest speed and accuracy.

Q-brain®, Baumer's newly developed classification, is a powerful tool to analyze and optimize the production process. The base of *Q-brain®* was to analyze ten thousands of defect pictures and sort those pictures according to their cause in production process. *Q-brain®* is a guarantee for continuous high quality and longterm stability.

ColourBrain® Edge

Small and compact inspection modules with integrated camera and illumination check edge band, veneered or laminated edges. *ColourBrain®* Edge cameras are designed to be integrated in single sided or double sided edge banding machines, with interfaces for all type of edge banders and all kinds of production control systems.

With a field of view scanning from topside around the whole edge, smallest defects like chippings, blisters or damages are detected and marked.



ColourBrain® and Q-brain® technology

The patented *ColourBrain®* technology imitates human perception for checking decorated surfaces. It learns to differentiate between GOOD and BAD based on few samples. Even in case of smallest production volumes and frequent changes, the system immediately adapts to the new product.

The user deploys an intuitive user interface that is easy to understand, with clearly structured graphical menus in order to teach in new products, set tolerances and analyze the frequency and cause of defects with statistics and defect images.

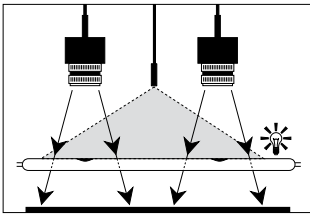


Q-brain® is the novel classification technology of Baumer Inspection. With *Q-brain®* all defects are sorted according to their cause, differentiated between single and process related defects and dirt laying on the surface separate from a real defect.

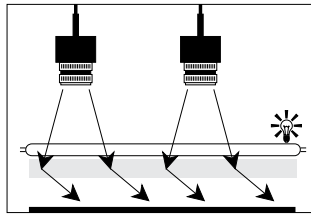
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Inspection modules for the defect detection and process monitoring

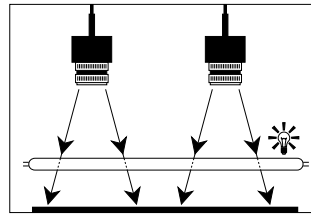
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Laser modules for the detection of surface damages and measurement of dimensions and drilling position.



Reflex modules for the detection of scratches, bumps and dents and of deviations in gloss.



Colour camera modules for the detection of printing defects and colour deviations.



Reflex modules for the detection of defects in lamination.

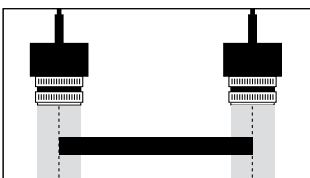
ColourBrain® Edge



Small and compact inspection modules with integrated camera and illumination check all kinds of edge processing: edge band, laquered, veneered or laminated edges.

ColourBrain Edge® cameras are designed to be integrated in single or double sided edge banding lines, with interfaces to any kind of production control.

ColourBrain® Outline



- Measurement of position of drillings
- Measurement of dimensions
- Measurement of the angle
- Measurement of thickness and warping



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