ColourBrain® Panel

Automatic optical inspection and process monitoring for panel production.

A new dimension for panel inspection.

ColourBrain® MFC 4.0 and *ColourBrain® Panel* are the modular inspection systems for inspecting large panels after sanding or coating.

ColourBrain® – the modular system.

Fast and precise.

- *ColourBrain®* systems for panel inspection are fitted with newly developed Baumer cameras to ensure the required high resolution and fast scan rate.
- *ColourBrain®* systems use patented technologies by scanning with multiple angles of illumination, to detect every defect safely.
- Innovative LED lighting systems, with exactly aligned light colour, make it possible to detect process deviations, such as heatlines and resin boils.

Modular.

- *ColourBrain®* systems in coating or sanding lines use the same cameras and have the same type of control for standardised quality settings and configuration.
- *ColourBrain® MFC 4.0* is specialised in detecting all defects in coating with interfaces for all production lines.
- *ColourBrain® Panel* is specialised in the safe detection of all defects on the raw board, before or after cutting and sanding, with classification of defects based on their cause in the process.

Two-sided surface inspection in the press line.
ColourBrain® MFC 4.0 checks melamine-coated furniture or flooring panels for damages or coating defects.
Q-brain® matches all deviations automatically to the cause in the process so an alarm can be raised with process-based defects.
The results are saved in the *Q-live®* database for later analysis and production optimisation.

Surface inspection and colour measurement in the coating line.
ColourBrain® monitors high-gloss coated panels for smallest pinholes or scratches and measures the colour of coating with an accuracy of $\triangle E$ 0.3.
All defect positions are identified and marked with a fast marking system to decide whether a defect can be repaired.
ColourBrain® calculates – based on prior defined cutting pattern – the best cutting solutions.

ColourBrain® – the integrated system.

ColourBrain® is a modular optical inspection system, the modules can be combined with identical components for use in inspecting raw or coated panels so the best possible defect detection is ensured.
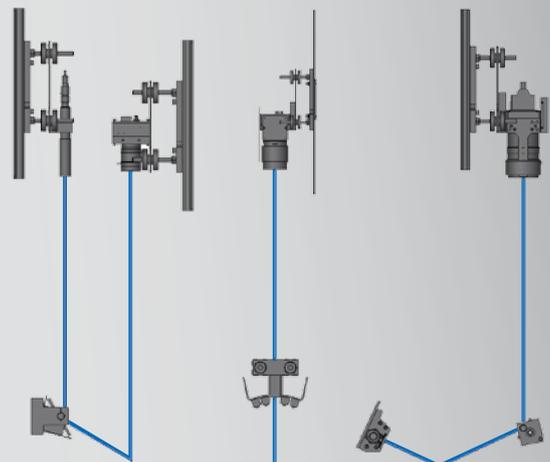
More Advantages:
- Combination of fast colour, reflex and laser scanners to guarantee the best inspection result on each application.
- Identical operation, defect evaluation and database for all *ColourBrain®* systems.
- Optimal spares inventory through use of identical cameras.

Optimised modules for each surface.

ColourBrain® systems inspect the panel surfaces with modular optical systems - fast line-scan cameras or laser scanners. The heart of these modules are the hypersensitive cameras developed by Baumer Inspection, which provide best possible defect detection.
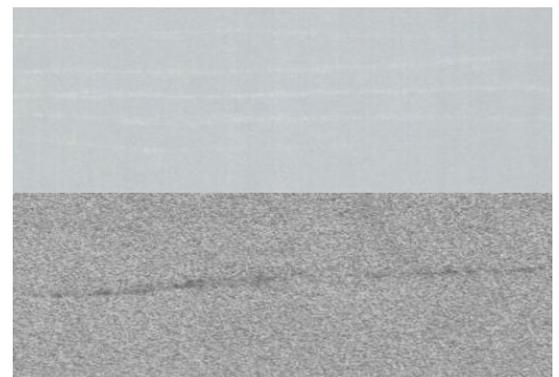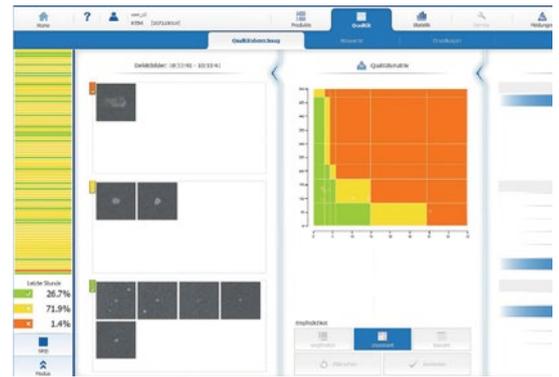
As such, an optimal automatic optical inspection is guaranteed for any surface, coating and type of damages.

ColourBrain® Quality.

ColourBrain® systems are designed for reliably detecting any defect, damage or deviation on the panel surface so standardised and measurable quality is guaranteed.

To perform these tasks precisely, innovative optical modules have been developed for the new *ColourBrain*® scanners, which most importantly can detect process-related defects with very low contrast well and reliably, such as heat lines.

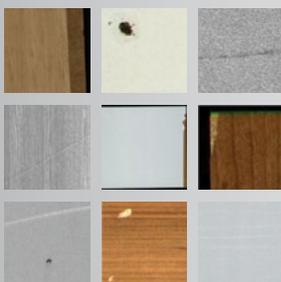# *Q-brain*® – process optimisation.

ColourBrain® systems detect deviations and defects based on standardised settings to ensure the defined standard quality. *Q-brain*® grades defects based on their cause in the production for process optimization.

More Advantages:
- Precise detection of even the slightest deviations with newly developed camera systems.
- Automatic classification of detected defects based on their cause in the production process and immediate alarm with defects in a row.
- Evaluation of the overall quality of panels depending on defect position taking into consideration the cutting pattern.
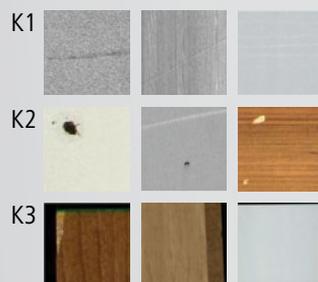
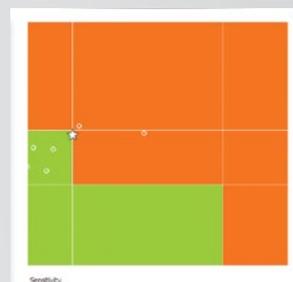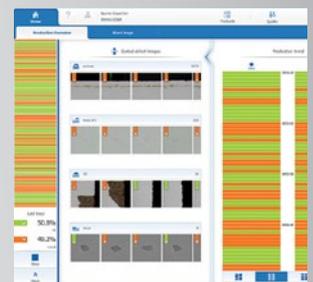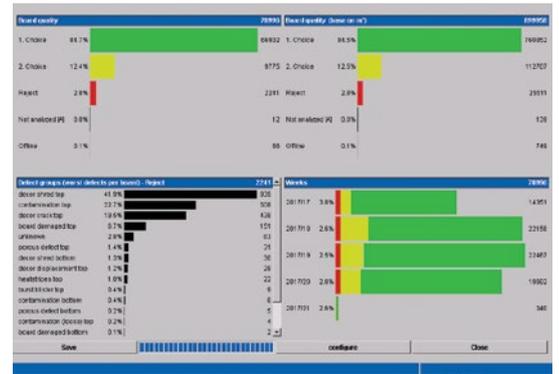| Detection	Classification	Grading	Analysis
Detection of defects by image processing.	Sorting images of defects according to their cause.	Specific grading for each defect class.	Statistics to analyse and optimize production.

ColourBrain® Technology.

The patented *ColourBrain®* technology imitates human levels of perception when differentiating between good and damaged panels.

The operator uses an intuitive and easy-to-understand user touch-screen interface with clearly structured graphic menus to define new products, to set tolerances and to analyse the frequency and cause of defects with statistics and defect images.
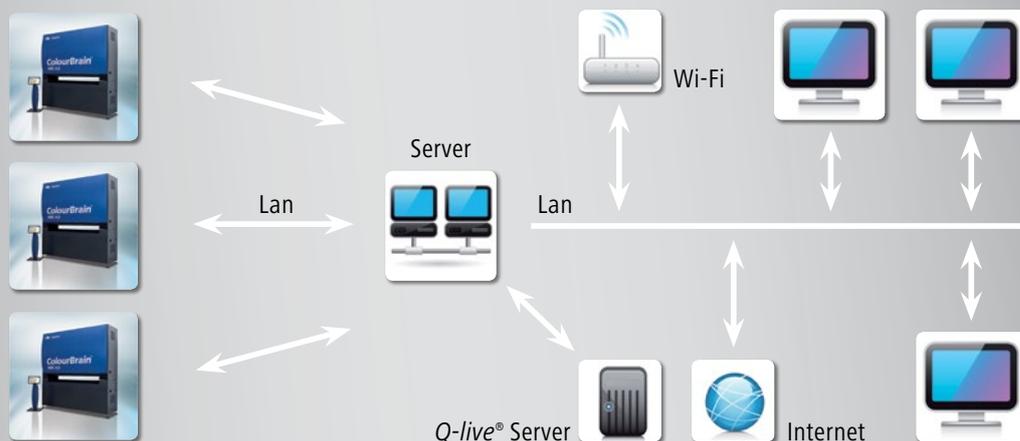

Q-live® Database – process monitoring.

ColourBrain® provides "quality – data" of the production and the fraction of rejects of each production line and production segment. Operating day and night – to specify the potential of production optimization.

More Advantages:
- *Q-live®* database on statistical analysis of defect types and frequency.
- Optimisation of production resources through reduction of reject rates.
- Standardised quality settings and management of quality for all production lines.

Q-live® Data base and statistics.

Product data *ColourBrain® Panel.*

ColourBrain® MFC 4.0

ColourBrain® Panel

ColourBrain® Panel is a moduar optical inspection system for surface monitoring, one or double-sided, on coated flooring or furniture panels, for uncoated and uncut MDF, MDP or HDF plates, for foil-coated panels and for HPL.

In *ColourBrain®* systems, special cameras developed by Baumer are used so even at a high speed rate, very high definition is guaranteed. With the patented *FlashingSky®* technology, images can be taken from different angles for all kind of surface damages to be detected.

ColourBrain® uses colour cameras, laser scanners and reflex cameras in different combinations to ensure best defect detection for each product, decor and structure. The cameras are combined depending on product width, the product and the production speed to guarantee the required resolution.

ColourBrain® inspection systems are used in serial production as well as single batch productions. The inspection system therefore switches from one product to another fully automatic change of recipe.

With *Q-live®* the grading results of the different *ColourBrain®* inspection systems are continually saved and analysed to avoid rejects, detect weak points and prevent series problems quickly and as early as possible.

Q-brain® is the innovative classification system from Baumer Inspection. *Q-brain®*, grades defect images depending on their cause and type of defect, differentiates between individual and process-caused defects and separates overlying contamination from real defects.

System	Function	Detection
MFC4.0	Inspection of melamine-coated panels immediately after edge cleaning.	All surface defects like heat lines, damages and flaws in decor.
Rawboard	Inspection of MDF, MDP or HDF panels after cutting.	All surface defects like stains, coarse chips or damages.
Painting	Inspection of coated panels in the painting line after drying.	Smallest surface defects like pinholes and scratches and measurement of colour.
Foil coating	Inspection of foil-coated panels in the laminating line.	All laminating defects like wrinkles or bubbles and monitoring of the foil joints.
HPL panels	Inspection after pressing or in further processing.	Surface defects like bubbles or dents, scratches or flaws in decor.

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More information on:
www.baumerinspection.com