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GreCon

Inline Weight Per Unit Area Gauge to Measure the Material Distribution

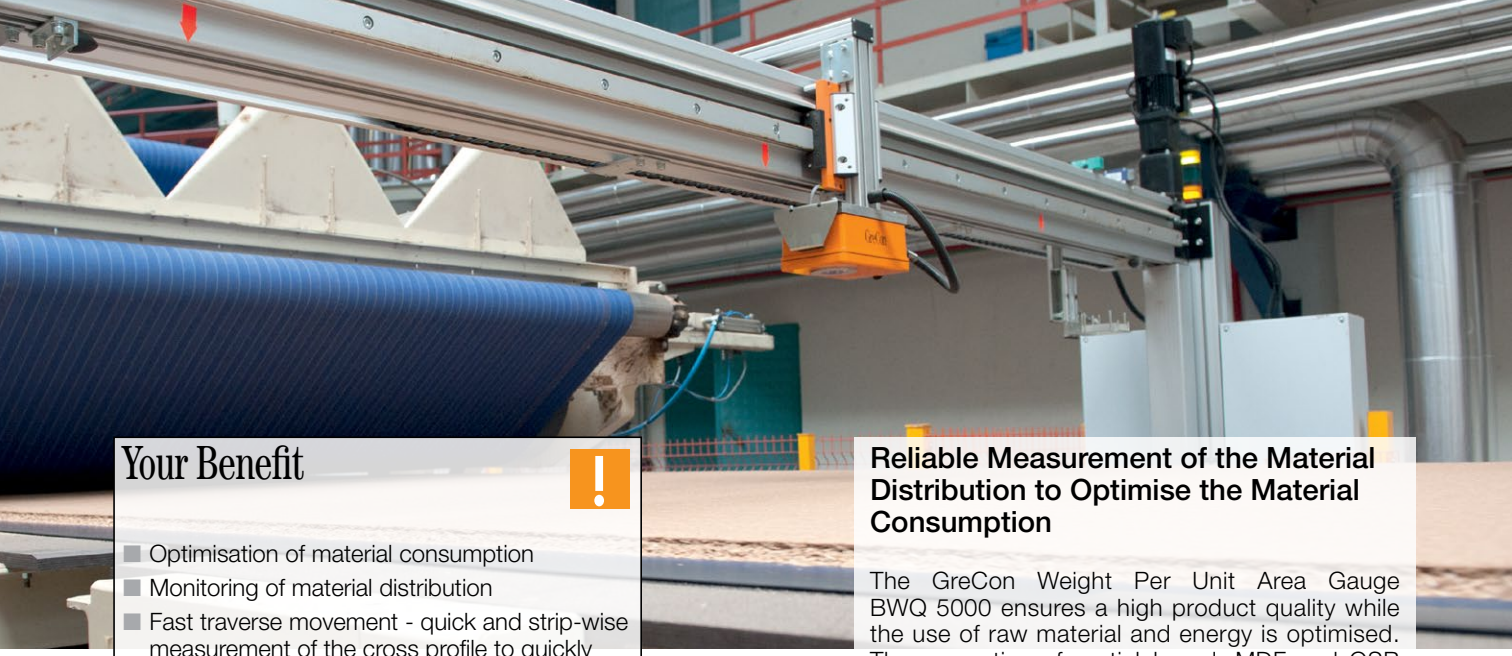
GreCon
Fire Protection

GreCon
Measuring Technology

GreCon
Service

BWQ 5000

EN | R.02 | 2015.04



Your Benefit

- Optimisation of material consumption
- Monitoring of material distribution
- Fast traverse movement - quick and strip-wise measurement of the cross profile to quickly intervene in the production process
- Measurement of the longitudinal profile for detection of systematic distribution failures lengthwise/crosswise
- Automatic calibration with homogeneous test samples for best quality of measured values
- Intuitive operation using TOUCH

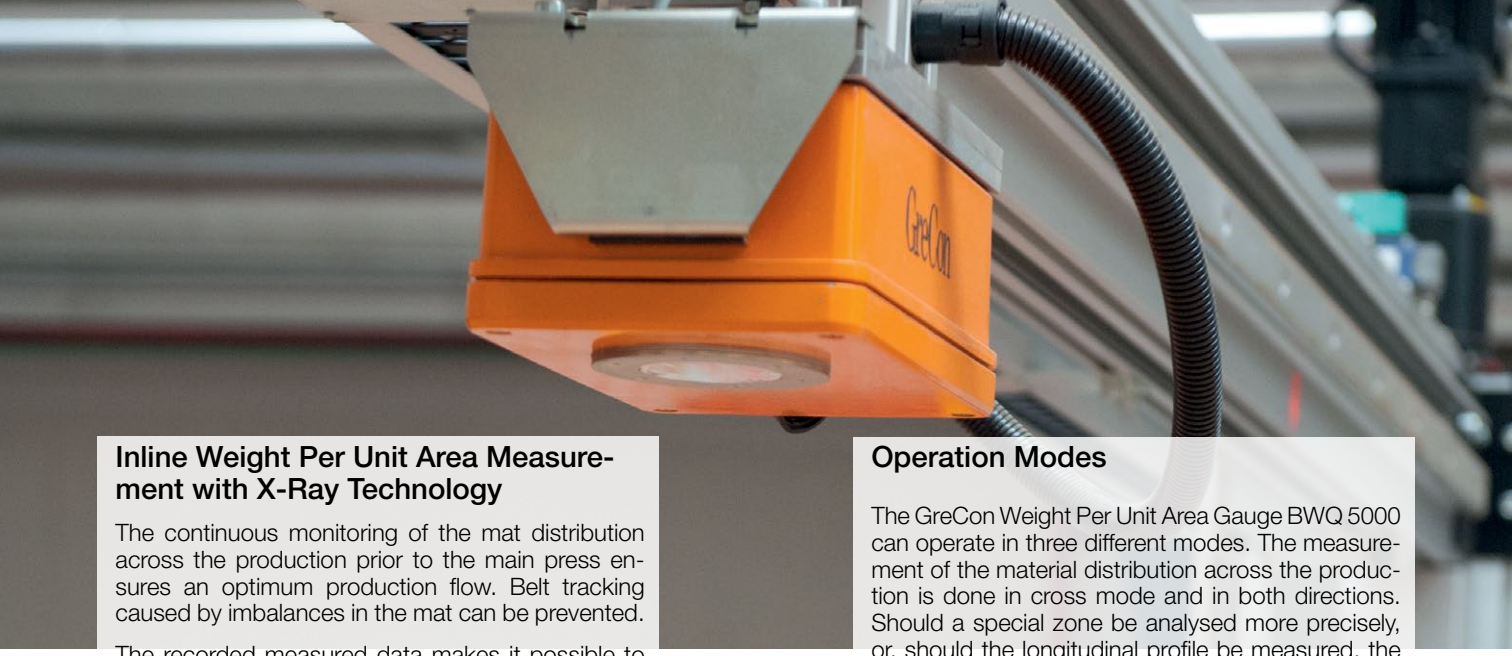
Why GreCon

- Display of optimisation potentials
- Flexible use with various products
- Additional possibility for weight per unit area measurement
- 3 operation modes:
  cross, stationary and step mode
- Variable traversing speed in cross mode

Reliable Measurement of the Material Distribution to Optimise the Material Consumption

The GreCon Weight Per Unit Area Gauge BWQ 5000 ensures a high product quality while the use of raw material and energy is optimised. The properties of particleboard, MDF and OSB board depend on the precise spreading of the mat. The main goal of using a BWQ 5000 is the optimisation of material consumption. A heavy board is still acceptable to the end customer, but the material and production costs are much too high for the manufacturer. A board that is too light has only poor quality properties.

The BWQ 5000 monitors the material distribution of loosely spread or pre-pressed wood based mats. Graphical and numeric representations enable the operator to adjust the forming process to achieve consistent panel quality while the use of material and energy is optimised.



Inline Weight Per Unit Area Measurement with X-Ray Technology

The continuous monitoring of the mat distribution across the production prior to the main press ensures an optimum production flow. Belt tracking caused by imbalances in the mat can be prevented.

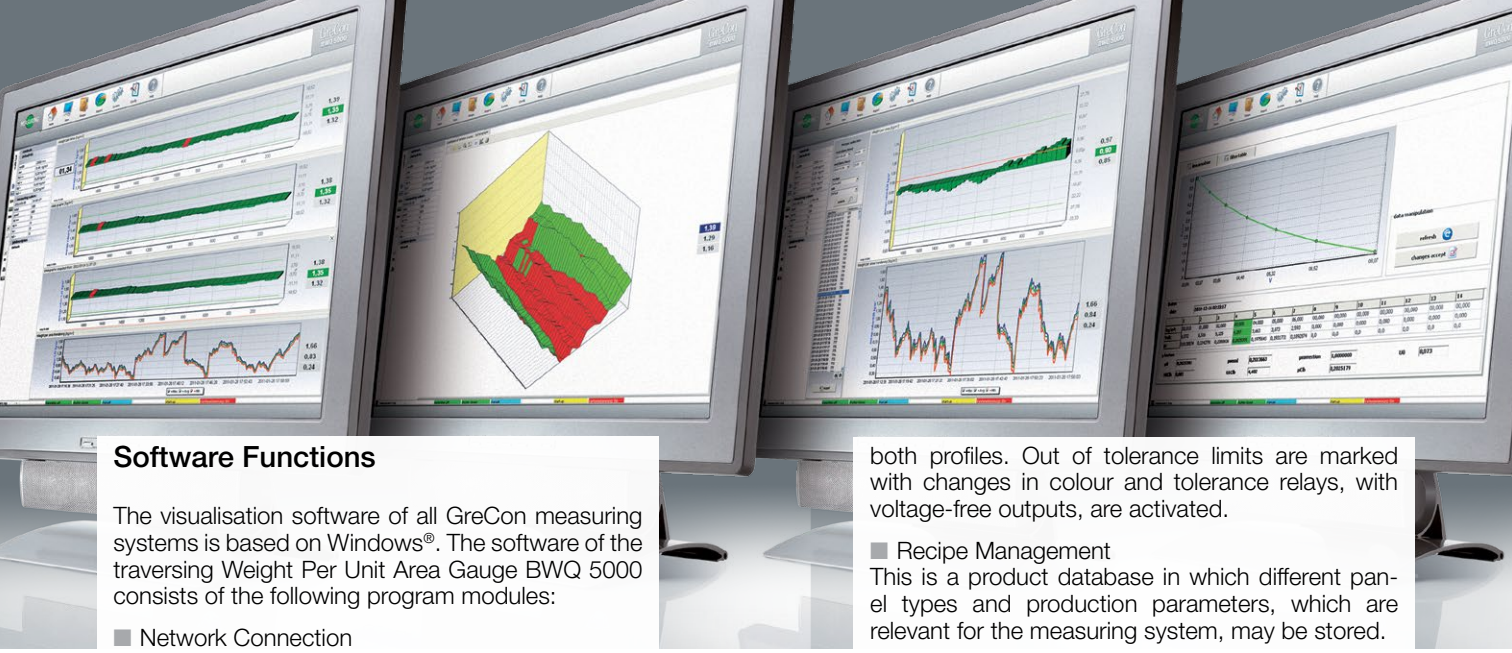
The recorded measured data makes it possible to easily trace production processes to expose optimisation potentials. With the BWQ 5000 information combined with other process data in a higher-ranking process control system, additional optimisation potentials are revealed.

Measuring Principle

The weight per unit area gauge works in a non-contact method. An X-ray source is installed below, and a high-precision sensor above the material. Depending on the specific density and the amount of the material, more or less X-radiation is measured by the sensor. This is a measure for the weight per unit area (kg/m² / lbs/ft²).

Operation Modes

The GreCon Weight Per Unit Area Gauge BWQ 5000 can operate in three different modes. The measurement of the material distribution across the production is done in cross mode and in both directions. Should a special zone be analysed more precisely, or, should the longitudinal profile be measured, the measurement transducer can measure in stationary mode at a certain position. Should several positions be analysed one after the other, this is done in step mode at predetermined time intervals or at certain points on the mat.



Software Functions

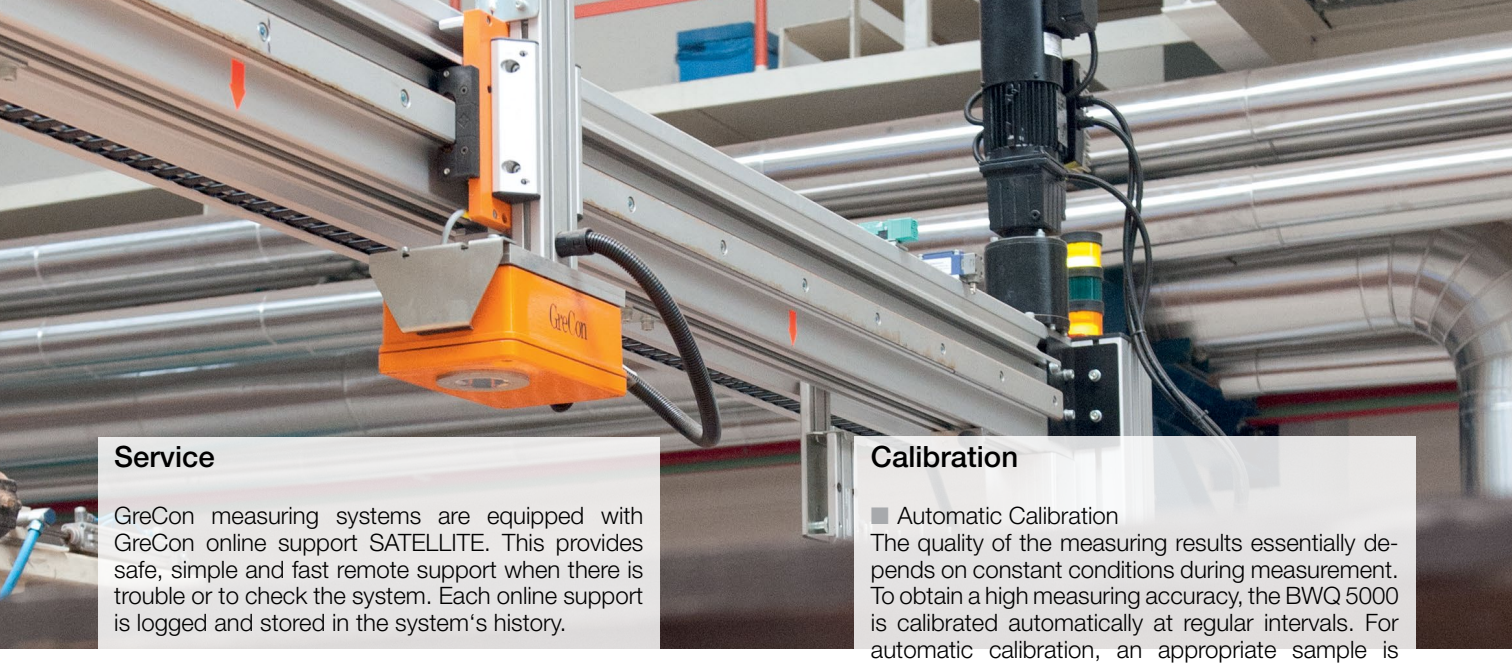
The visualisation software of all GreCon measuring systems is based on Windows®. The software of the traversing Weight Per Unit Area Gauge BWQ 5000 consists of the following program modules:

■ Network Connection
For the data transmission to higher-ranking process control systems, different network connections, such as OPC or ODBC, are available.

■ Visualisation
The core of the software package is the visualisation software. It records all measured values and processes them graphically. The simple menu structure, which is standard for all GreCon meas-uring systems, makes intuitive operation possible. Clear information and graphics enable the operator to quickly and effectively intervene in the running production process. The measured values are represented as a profile. Since measurement can be effected in three different operation modes, the mode determines how the profile is represented: as cross profile, as longitudinal profile or a combination of both profiles. Out of tolerance limits are marked with changes in colour and tolerance relays, with voltage-free outputs, are activated.

■ Recipe Management
This is a product database in which different panel types and production parameters, which are relevant for the measuring system, may be stored.

■ Database
The database stores the measured values and provides a function to export them to other file formats for further processing and evaluation. A uniform data structure provides easily accessible data for process control systems.



Service

GreCon measuring systems are equipped with GreCon online support SATELLITE. This provides safe, simple and fast remote support when there is trouble or to check the system. Each online support is logged and stored in the system‘s history.

Calibration

■ Automatic Calibration

The quality of the measuring results essentially depends on constant conditions during measurement. To obtain a high measuring accuracy, the BWQ 5000 is calibrated automatically at regular intervals. For automatic calibration, an appropriate sample is placed in the calibration position, which is located near the material flow.

Technical Specifications

- Supply voltage ..... 230 V / 115 V
- Frequency ..... 50 Hz / 60 Hz
- Power consumption ..... 1,500 VA
- Compressed air supply ..... 6 bar (90 psi)
- Measuring ranges .. 2 to 40 kg/m² (0.4 to 8 lbs/ft²)
- X-ray tube ..... max. 50 kV at 1 mA
- Repeating accuracy ..... ± 10 g/m² (± 1 σ)
- Measuring resolution ..... better than ± 20 g/m² at 40 kg/m²
  ..... better than ± 5 g/m² at 2 kg/m²

BWQ calibration unit in operation

References

- Particleboard
- MDF board
- HDF board
- Hardboard
- OSB board
- Insulating material (mineral wool and insulating board)
- Machined car parts
- Rigid foam board

Applications

In particleboard and OSB board production lines, the traversing weight per unit area gauge is installed directly after the forming station. In MDF production lines, it is used after the pre-press. An additional measurement of the completed panels is also possible. This is especially useful where the measurement of the material distribution prior to the press is impossible or additional information is desired.

Diverse application possibilities