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GreCon
HPS 5000

GreCon

Non-Contact
High-Precision Scale to
Measure Panel Weight and
Material Distribution

GreCon
Measuring
Technology

GreCon
Fire
Protection



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HPS 5000



Your Benefit



- Complete (100 %) non-contact measurement
- Detection and optimisation of material consumption
- High accuracy and flexibility due to fine resolution and tareless measurement
- Weight measurement of the entire panel and grid evaluation in a selectable resolution
- Fluctuations in weight along and across production are immediately detected and can be corrected
- Product classification
- Confidence against underweight panels or panel sections
- Possibility for optimum nominal value adaptation

Why GreCon



- Little space required for installation
- Measuring reliability due to quick calibration
- Parallel measurements and comparison of laboratory cuts by HPS and in the laboratory
- Calculation of raw density in combination with a thickness gauge
- Optional linkage with DIEFFENSOR for automatic regulation

High-Precision and Reliable Measurement of Material Distribution and Weight Per Unit Area for Production Optimisation

The high-precision scale „HPS“ by GreCon measures, in high resolution and across the entire material width, the weight per unit area distribution of finished materials (panels) directly after the press or saw. With this, minute deviations in the weight per unit area distribution can be detected.

The HPS uses the absorption measuring method. One or more x-ray sources are installed above the material flow. High-precision detectors below the material flow measure the residual radiation that has not been absorbed by the material. The weight per unit area and the material distribution can be determined from the degree of attenuation and the specific density of the penetrated material.

The panel weight is calculated from the measured weight per unit area considering the panel dimensions. Without interrupting production, the panels are weighed. Gross is net, no tare is being deducted. Even light or short panels can be weighed, independent of the production speed.



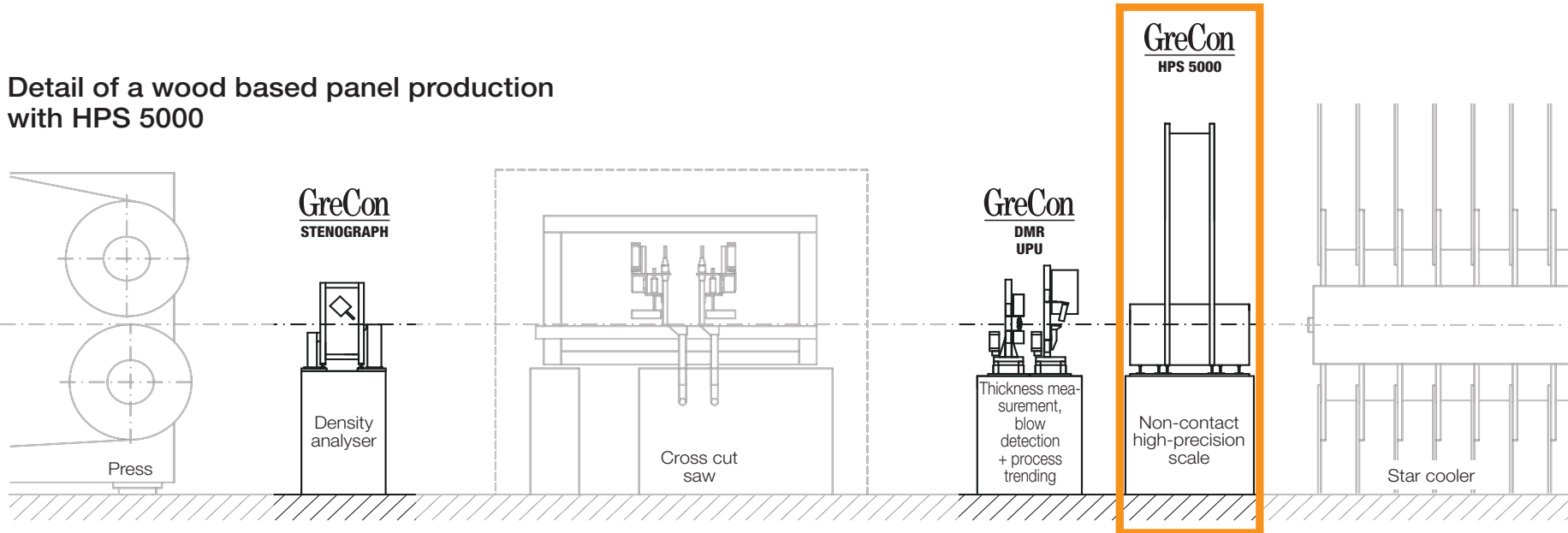
HPS after the Press or Cross Cut Saw

The HPS is the optimum solution for production lines running at very high speeds, for an unfavourable ratio of tare and panel weight and/or for small spaces.

Optionally, the HPS can be linked with a GreCon Thickness Gauge to calculate the average raw density as well as its distribution within the panel and to optimise the production process. Thus, all production reserves can be exploited for optimisation.

Besides weight measurement, the material fluctuations of each panel are determined along and across the production direction. The weighing technology in the forming line can be monitored. The measured values are visualised and stored in a database and can be used to adjust and optimise the production process with the goal to reduce material consumption.

Detail of a wood based panel production with HPS 5000





Software Functions

The visualisation software of all GreCon measuring systems is based on Windows.

■ Network Connection

For the data transmission to higher-ranking process control systems, different network connections, such as OPC or ODBC, are available. Profibus and Profinet are available on demand.

■ Visualisation

The core of the software package is the visualisation software. It records, stores and graphically represents all measured data. The simple menu structure, which is identical for all GreCon measuring systems, provides intuitive operation. Clear information and graphics enable the operator to quickly and effectively adjust the production process.

■ Recipe Management

Process fluctuations are indicated by recipe-specific comparison of nominal and actual values. Precise measured values and their clear numerical and graphical representation allow a timely intervention in the production process to ensure consistent product quality while the consumption of material and energy is optimised.

■ Database

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

■ Reporting

The measured values allow a quick view of the production trend at any time. Long-term evaluations graphically show the effects of changes in production parameters. Reports for additional analysis can be generated from the evaluated process data (provision of the values for control systems).

Visualisation and operation surface of the HPS 5000 (left screen)

- ① Cross profile of current panel
- ② Weight per unit area distribution of current panel
- ③ Long-term distribution of the weight per unit area
- ④ Proportion of underweight areas
- ⑤ Test cut - Segmentation of virtual cut of samples in the HPS software

HPS control console with visualisation like in control station





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.

Technical Specifications

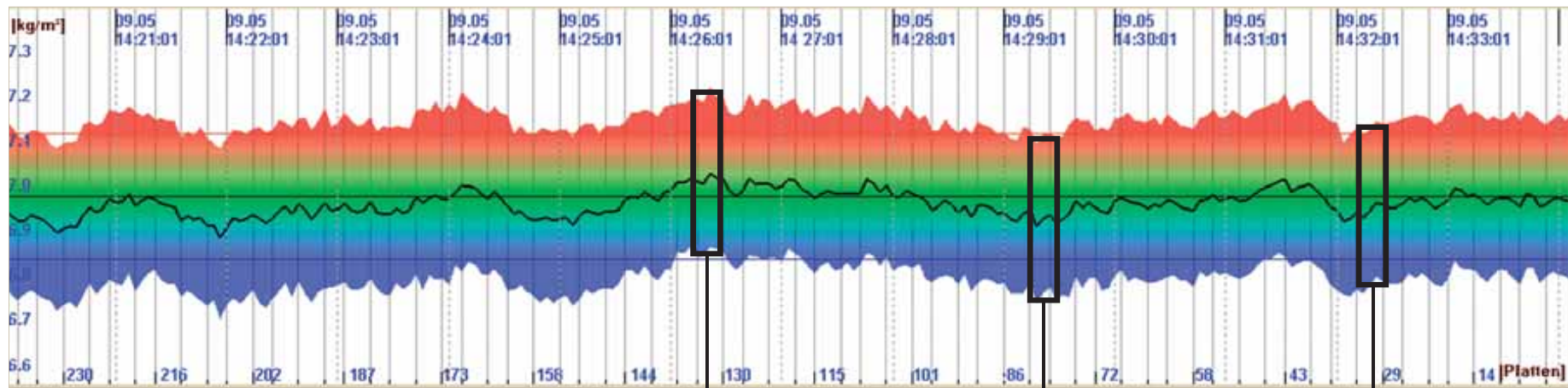
- Measuring range.. 1 to 40 kg/m² (0.2 to 8 lbs/ft²)
- Panel speed < 240 m/min (720 ft/min)
- Panel length..... > 2 m (6.56 ft)
- Measuring accuracy ± 0,5 %
..... (of actual weight)

or

- Measuring accuracy ± 25 g/m²
..... (0.005 lbs/ft²)

other ranges on request

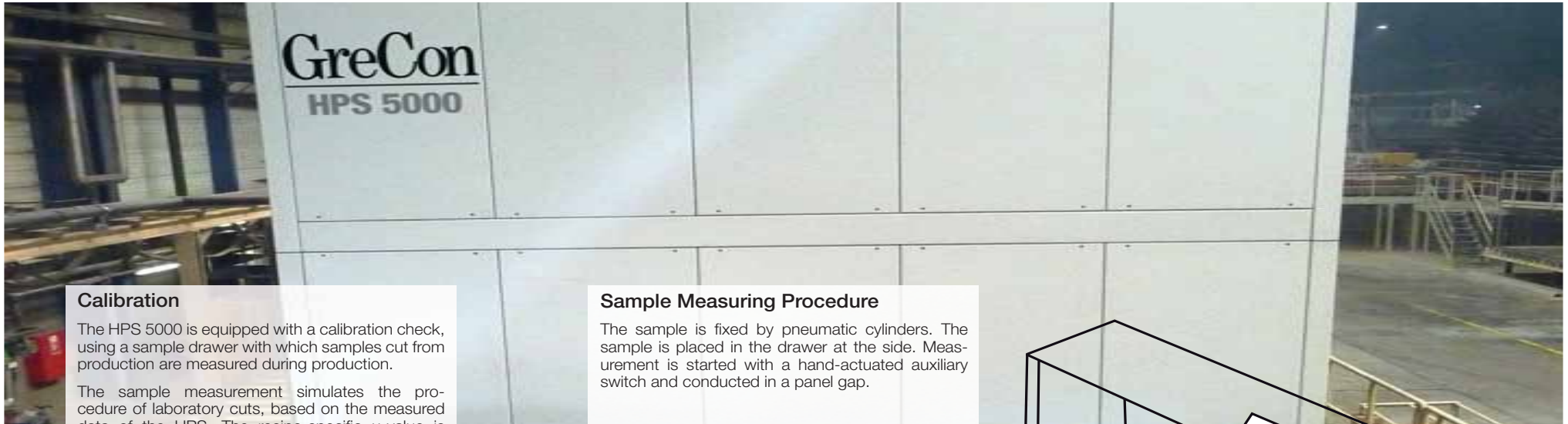
The 3 laboratory cuts show how meaningless the selected tests are



Sample 1

Sample 2

Sample 3



GreCon
HPS 5000

Calibration

The HPS 5000 is equipped with a calibration check, using a sample drawer with which samples cut from production are measured during production.

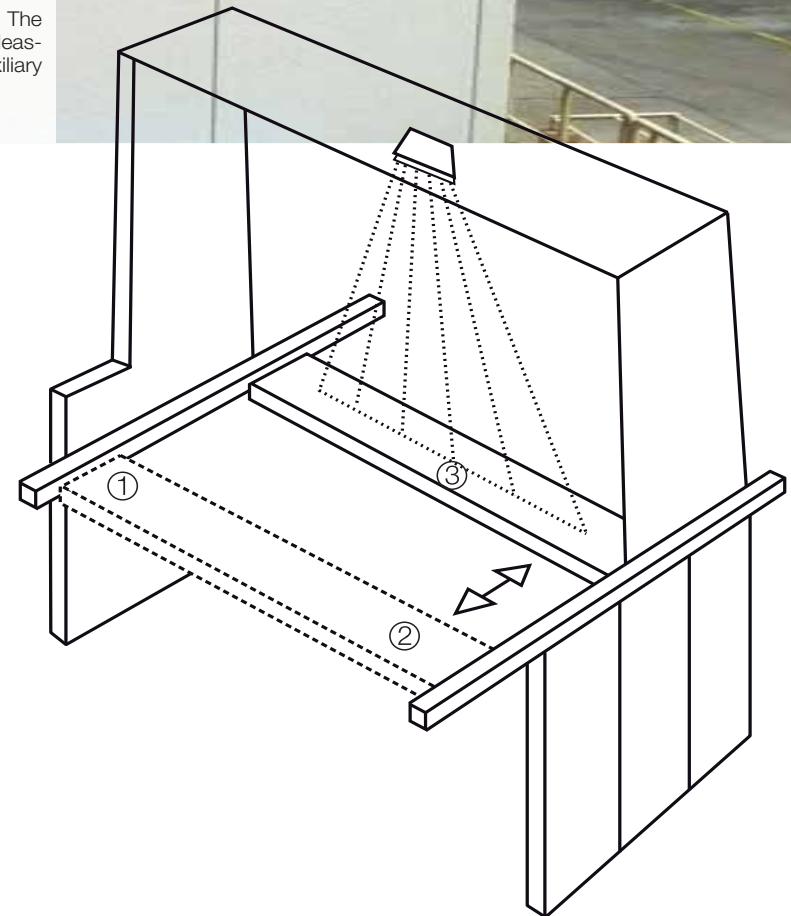
The sample measurement simulates the procedure of laboratory cuts, based on the measured data of the HPS. The recipe-specific μ -value is adjusted to the measured absorption coefficient (μ -value), which represents the material-specific attenuation of the x-radiation.

References

- Wood based panels
- Plastics
- Transformer board

Sample Measuring Procedure

The sample is fixed by pneumatic cylinders. The sample is placed in the drawer at the side. Measurement is started with a hand-actuated auxiliary switch and conducted in a panel gap.



- ① Level above panel transport
- ② Position to place the laboratory sample
- ③ Measuring position of laboratory sample