

The Whole Range

Spark Detection and Extinguishment Systems
and Measurement Systems



GreCon®

Spark Detection and Extinguishment / Machinery Protection

Delamination Detection and Process Optimisation

Thickness Measurement

Moisture Measurement

Weight Per Unit Area Measurement

Steel Belt Protection

Density Profile Measurement

Weight Measurement

Surface Inspection

Cyclone Blockage Detector

			<ul style="list-style-type: none"> ■ BS 7 Spark detection & extinguishment system ■ BS 7 Planer protection ■ BS 7 Protection of the hot press 	4
			<ul style="list-style-type: none"> ■ UPU 4000 ■ UPU 5000 	6
			<ul style="list-style-type: none"> ■ DMR 4000 ■ DML 5000 ■ DMR 5000 	8
			<ul style="list-style-type: none"> ■ IR 5000 ■ MWF 5000 ■ MWF 5000 LM 	10
			<ul style="list-style-type: none"> ■ DIEFFENSOR ■ BWQ 5000 ■ BWS 5000 	12
			<ul style="list-style-type: none"> ■ DIEFFENSOR 	12
			<ul style="list-style-type: none"> ■ STENOGRAPH ■ DAX 5000 	14
			<ul style="list-style-type: none"> ■ HPS 5000 ■ GS 5000 ■ CS 5000 	16
			<ul style="list-style-type: none"> ■ SUPERSCAN 	18
			<ul style="list-style-type: none"> ■ ABC 7 	19

Spark Detection and Extinguishment Systems as well as Machinery Protection

Fire and machinery protection of production equipment ensures an uninterrupted production and avoids damage to property and persons. GreCon fire prevention systems offer you this protection. The modular systems with their manifold configuration possibilities can be adapted to a wide range of different industries and requirements.



Higher-ranking, statistical information systems assist the fire prevention even further by analysing the events and adaptation of process parameters.



BS 7 Spark Detection and Extinguishment

The GreCon spark detection and extinguishing system is a fire prevention measure. In all areas where combustible materials are processed mechanically or thermally, the mechanical and pneumatic conveying systems are monitored with regard to ignition sources. Upon detection of sparks or glowing particles, the spark extinguishing system automatically activates suitable extinguishing measures. The preferred one is water whereby a fine water mist is activated as long as sparks are detected. Depending on the process and on the duration of sparks flight, this may be realized even without production interruption. All events are recorded to the millisecond, stored and visualized in the national language. By analyzing this data, the main danger zones are easily identified.

BS 7 Planer Protection

By means of a GreCon early fire detection, combined with automatic extinguishing systems, the risk of fire created by planers or moulders can be effectively met. Besides spark extinguishment within the exhaust pipes, a water extinguishment is also used in the planer cabin or in the covering hoods of the planer or in the bottom engine bed. An optical sensor is installed underneath each roller and conveyor roller. This optical sensor monitors the interior space of the planer and activates suitable water extinguishing devices. If an adjustable danger threshold is exceeded, adjoining extinguishing devices are also activated. The tool positions are exhausted. Spark detectors are positioned in the central exhaust pipe. Upon detection of sparks, water extinguishing devices for pipe systems are activated to protect downstream filters.

Your Benefit



- GreCon spark detection and extinguishing systems ensure an uninterrupted production.
- They help to avoid damage to property and persons.



BS 7 Press Protection

The GreCon Press extinguishment system detects - at an early stage and safely - fire events at double-belt presses, calendar presses or single opening presses and the hydraulic systems belonging to them. The system eliminates these hazards directly at their point of origin and avoids spreading to other production systems. The UV/IR sensors offer high security against fraudulent alarms and activate the scheduled fire fighting measures without any delay. Depending on the construction of the object to be protected, it is divided into different fire zones. This allows graduated measures to be taken leading - in the final stage - to an activation of all extinguishing devices. Events are recorded by the central fire alarm system exactly to the millisecond which makes the analysis of a fire, for example, very easy. Not only every action, such as detection and extinguishment, are recorded and stored but also the operator reactions.

Fields of Applications

- Particleboard, MDF, OSB, waferboard, fibreboard, LVL and plywood plants, furniture industry, sawmills, planing industry, parquet flooring industry, glue lam, wood flour industry, pellet plants, wood recycling, wood cement, wood combustors, manufacturing and processing of paperboard, paper manufacturing, paper processing, chemical pulp processing, straw panels, grain, grass pellets, cotton, cork, peat, insulating materials, textile, coffee, cocoa, tea, sugar, powdered milk production, breweries, tobacco, pharmaceutical, steel, automobile, metal fibre, copper, metal recycling, garbage, glass, coal, gypsum, rubber, asphalt, synthetic materials, shoe, printing industry, colour, paint shops, battery manufacturers; - surely also possible for your application

Inline Delamination Detection and Process Optimisation

Ensure a perfect quality for your customers. Regarding inline quality control of wood based panels, GreCon offers - with their ultrasonic measuring system UPU - the suitable measuring unit to reliably detect and sort out hidden blisters. This ultrasonic measuring system is available in two different system configurations which are individually



UPU 4000

For an easy and safe detection of blisters in wood based panels, GreCon offers the ultrasonic measuring system UPU 4000. The system operates without contact and shows unbonded areas as well as air voids and marks them if required.

Position and size of defects are graphically displayed for the operator. At the same time, the defects can be classified and be statistically evaluated. This data can be used to avoid blisters.

Its modular design allows the mounting of up to 16 inspection channels on a frame. Semi-automatic calibration ensures the proper function of the UPU 4000.

tuned regarding the particular requirements of the production of MDF, particleboard, LVL or plywood panels.



UPU 5000

The GreCon ultrasonic measuring system UPU 5000 is the leading state-of-the-art measuring system to produce high-quality wood based panels at optimised expense by evaluating the panel homogeneity. The system operates without contact and shows unbonded areas as well as air voids and marks them if required. Evaluation of the defects' position and size allow the sorting of panels as per their quality.

The ultrasonic measuring signal is analysed, in high resolution, in order to avoid blisters and to optimise the production process. Graphical representation of the panel quality is made in up to 250 grades (colours). To represent a process trend, the average, the maximum and the minimum values for each panel are recorded over a predetermined time period.



Your Benefit



- Over 400 customers have already been optimising use of materials and energy through the GreCon-UPU.
- Ensure, too, a fault-free quality and reduce your production costs.

Together with the DC trend, production processes can be retraced over a longer time period. Performance reserves that have not been exploited so far are revealed and customer claims are avoided.

The “key” for this kind of measurement is the fully-automatic calibration made with an external reference sample. All inspection channels are aligned as per a uniform level. Transmitter performance and sensitivity can be adjusted separately to adapt the measuring system to the different types of products and requirements.

To achieve continuous system availability, the UPU 5000ct is equipped with a ct-frame. The system can be calibrated, maintained or - if required - repaired at any time (also during running production) by moving the ct-frames sideways out of the production line.

Fields of Application

- MDF panels
- HDF panels
- Hard-fibre boards
- OSB panels
- Particleboards
- Plywood
- Composite materials

Thickness Measurement

GreCon thickness gauges contribute to use raw materials optimally and to ensure a fault-free quality. Thickness fluctuations and deviations from the nominal value are detected in time. Waste of material, losses in quality for the processing of the materials and unsatisfied customers are avoided. Besides, feedback of the achieved measuring



DMR 4000

The inline thickness gauge DMR 4000 has been designed to measure panel-shaped materials. Two measuring heads are mounted in pairs opposite each other, whereby the final extension stage allows up to 10 measuring tracks maximum. This arrangement compensates for the bending and vibrations of the material to be measured. If required, measurement of particularly thin or flexible materials can be carried out against a reference sample, for example like a high-precision roller or cylinder.

The represented measured values are clearly displayed to the operator. Position and size of exceeded tolerances are marked in colours. At the same time exceeded tolerances can be classified, statistically be evaluated and used for automatic sorting.

results can be used to take direct influence on the production process. For an optimal adaptation to the application requirements, GreCon offers systems with different measurement transducers and measuring methods.



DML 5000

Thickness gauges with laser heads or transducers are used for applications with soft materials, in endless material lines or for measurements to be effected crosswise to the transport direction. These heads are mounted in pairs, opposite each other, as for the DMR. If required, measurement of particularly thin or flexible materials can be carried out against a reference sample, for example like a high-precision roller or cylinder.

The measuring systems can be equipped with a traversing unit in order to measure the thickness profile. In this case, the measuring head moves crosswise to the production direction. In addition, control programmes allow stationary measurement or step-by-step mode.



DMR 5000

The GreCon inline thickness gauge DMR 5000 has been designed to measure panel-shaped materials. Two measuring heads are mounted in pairs opposite each other, whereby the final extension stage allows up to 10 measuring tracks maximum. This arrangement compensates for the bending and vibrations of the material to be measured.

The DMR 5000 provides the operator with the required information in order to rapidly take influence on the production process to ensure a high quality standard. To achieve continuous system availability, the DMR 5000ct is equipped with a ct-frame. The system can be calibrated, maintained or - if required - repaired at any time (also during running production) by moving the ct-frames sideways out of the production line. The DMR 5000 can be installed in continuous production lines using the optional ct measuring frame.

Your Benefit



- With GreCon thickness gauges you continuously check the thickness and optimise in this way your use of material and energy.
- You ensure a fault-free quality and reduce your production costs.

Fields of Application

- Particleboards
- Fibreboards
- OSB panels
- Plywood
- Gypsum panels
- Fibreboards
- Mineral fibres
- Wood cement
- HDF panels
- Hard-fibre boards
- Solid wood
- Veneer
- Plexiglas
- Rubber
- Linoleum
- Wet fibre panels

Moisture Measurement

A permanent check of the process parameter is the basis for a cost-efficient production of high-quality products. GreCon moisture analysers indicate the product's moisture of a wide range of different materials. As there are various system versions available, GreCon offers the suitable device for each application. GreCon moisture analysers



IR 5000

The GreCon moisture analyser IR 5000 offers a continuous and non-contact moisture measurement. The measuring principle is independent of material flow speeds. If required, it is also possible to effect measurement through a glass pane. This allows effective measurement directly in mechanical conveying systems or even in processes with difficult thermal conditions. If necessary, even several measuring heads can be connected to one operating unit and be coordinated.

Through interfaces made available, the measured values are transferred, e.g. directly to a process control system where they are used for the regulation.

allow well-directed adjustment of the process to an optimal product quality and simultaneous cost savings e.g. in drying processes or regarding additives.



MWF 5000

The GreCon moisture analyser MWF 5000 is used for a penetrating measurement of the material's moisture. The measuring principle is based on microwave technology and allows the measuring field to penetrate into the product up to 10 cm. By doing so, not only the surface moisture but also the moisture content within the material is recorded, analysed and represented. The MWF 5000 is also best suited to be installed in processes with discontinuous material flow (batch process). The system automatically recognises the material to be measured. If there is a lack of material, the last measured value will be kept and displayed due to the „sample-and-hold“ function. In this way moisture measurement can even be carried out in drop chutes beneath rotary valves. Through interfaces made available, the measured values are transferred, e.g. directly to a process control system where they are used for the regulation.



MWF 5000 LM

Samples of wood based panels can be measured by the laboratory microwave measuring system MWF 5000. To do so, test samples having standard dimensions of 50 mm x 50 mm are put in the sample container and then positioned in the measuring system. Contrary to usual measuring systems (e.g. kiln-dry oven), the MWF 5000 provides an immediate measuring result. As the measuring results are rapidly available, the operators can adjust the production process in real time.

Another system version offers the possibility to measure wood fibres quickly and in an uncomplicated manner, with the same advantages.

Your Benefit



- With GreCon moisture analysers, you optimise your production and drying processes.
- GreCon moisture analysers enable you to reduce energy costs and to ensure a fault-free quality.

Fields of Application

- Fibreboards
- Gypsum panels
- HDF panels
- Hard-fibre boards
- OSB panels
- Particleboards
- Wood cement
- Wet fibre panels
- Mineral fibres

Weight Per Unit Area Measurement

Thanks to the continuous measurement and control of the material usage, it is possible to save and control raw materials, additives and energy. At the same time, product features as well as the product quality can be optimised. GreCon offers a broad range of weight per unit area gauges to be used for various fields of application.

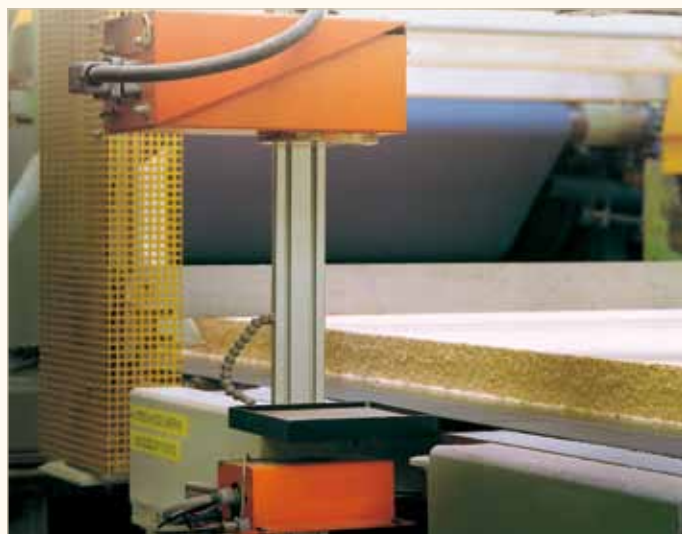


DIEFFENSOR

The inline mat scanner DIEFFENSOR with foreign body detection determines over the entire mat width the material distribution of spread materials as used e. g. in the wood based panel or insulating material industry. An uneven spreading of the material can be detected and eliminated in time. Through the optimised use of material, raw materials, additives and energy are saved, and quality is improved.

Due the measurement all over the surface, steel belts installed in continuous presses can be effectively protected against any damage. All foreign bodies or areas of high density, such as glue and fibre lumps or plastic, metal and aluminium parts, are detected and clearly indicated to the operator. Through timely adjustments, the life of the steel belts can be considerably increased.

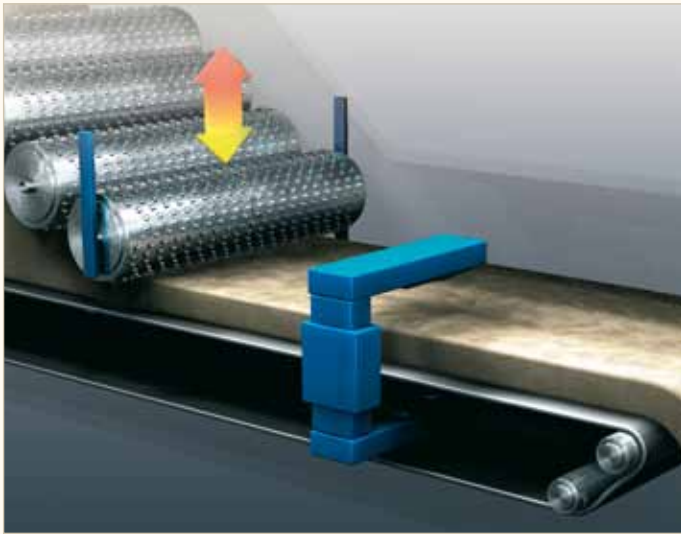
Depending on the system, this range goes from a simple determination of the material quantity by means of the weight per unit area measurement to a measurement of the cross profile and even right to a measurement of the material spreading over the whole mat.



BWQ 5000

The material spreading crossways to the production flow is measured by means of the inline weight per unit area gauge BWQ 5000. Measuring programmes used for the crosswise, stationary or stepwise operation ensure an additional adjustment of the system to the measuring job required at any time. Contrary to traditional weight per unit area gauges, the measurement is carried out in both directions due to the modern and fast operating measuring electronics. Thus twice as much information is given to optimise the production.

An uneven spreading of the material can be detected and eliminated in time. Through the optimised use of material, raw materials, additives and energy are saved, and the quality is improved.



BWS 5000

The quality of wood based panels is crucially influenced by the forming of the chip and fibre mat. Fluctuations in the material distribution lead to increased production costs while quality is reduced. The inline weight per unit area gauge BWS 3000, installed in the forming station or at the forming belt, measures the material quantity along the production direction and regulates the belt speed or height-adjustable rakes. Due to the combination of several systems, data on the individual layers, such e. g. the surface layer and the core layer, can be acquired separately and evaluated.

The system can also be used for a measurement of the whole material directly downstream of the forming station. Through the optimised use of material, raw materials, additives and energy are saved, and the quality is improved.

Your Benefit



- The GreCon weight per unit area gauges optimise the use of materials and energy.
- Material spreading is improved and thus production costs are reduced.
- Thanks to the DIEFFENSOR, the steel belt of the continuous press is protected against expensive damage.

Fields of Application

- Particleboards
- MDF boards
- HDF boards
- OSB boards
- Spread materials
- Insulating materials

Density Profile Measurement

The density profile of wood based panels is an indicator for the quality as well as for costs incurring. GreCon offers two systems to be used for the measurement of the density profile - an inline one and a laboratory-type one. The inline measuring system STENOGRAPH measures the density profile quickly and continuously; the lab-type measuring



STENOGRAPH

The GreCon inline raw density profile measuring system STENOGRAPH determines the raw density profile directly after continuous presses. The measurement is carried out at one measuring point. The measuring device can be moved either manually or fully automatically to exactly analyse individual areas. Within a split second, all important information on the raw density is available to the operator. Due to this fast availability, the operator can influence the raw density profile and thus the product features of the MDF and particleboards still during the current production process. Not only is this useful for the control of the ongoing process, but also for any change in production or the development of new products and formulas. This results in an increased board quality and a remarkable saving of materials and costs at the same time.

system DAX 5000 measures the density profile very precisely and in detail. Both systems are the ideal combination to produce wood based panels of high quality and to optimise the costs at the same time.



DAX 5000

The GreCon lab-type density profile measuring system DAX 5000 provides a convenient measurement of the density profile. A high measuring speed ensures a very fast and highly precise measurement.

The preparation of the measurement to be carried out is simplified by a scale directly connected to the PC system and by a caliper gauge. The sampling data are automatically transferred to the visual display software. The samples prepared are conveniently placed in magazines which can be removed from the system.

Your Benefit



- With the GreCon density profile measuring systems, you have the density profile under control.
- You can optimise the use of materials and energy and ensure an optimum quality as well.



Once the measurement has been carried out, detailed areas can be enlarged, analysed more exactly or several samples can be superimposed. A data base stores all data acquired so that this will be available for any future use and application.

The system is rounded off by the laboratory microwave moisture measuring system MWF 3000 LM which is an available option. Thus the measured total moisture of the board sample can be included in the laboratory result.

Fields of Application

- Particleboard
- MDF board
- OSB board
- HDF board
- Hard-fibre board

Weight Measurement

GreCon weight measuring systems are used for the control of the material quantity or for the final quality control. Thanks to this technology, raw materials added e. g. to the production process can be dosed, or the weight and thus the quality of the product can be controlled following the actual production process.



HPS 5000

The HPS 5000 is the board scale with the H-factor! With high resolution, each mm² of the board surface is measured. Due to the overall measurement, any deviations, fluctuations and tolerance deviations are shown immediately and can be retrieved via an OPC interface. Based on an automatic calibration, which is also independent of the production process, the measured value is reliable. A reliable and resource-friendly production is ensured.

Resulting from the measurement philosophy, the longitudinal and the crosswise measurement of the boards becomes another useful advantage of the system. Similar to the CS 5000, there are only small installation dimensions required, and the production speed does not impair the measuring result. "H" stands for high accuracy, high availability and immediate amortisation - these are the features of the HPS 5000.



CS 5000

The continuous scales CS 5000 and HPS 5000 are used for a continuous control of the board weight in production lines having a very high throughput speed. Moreover, the CS 5000 ensures a measurement when the amount of space is limited, during continuous production processes or at an unfavourable tare weight (net weight) / board weight ratio. The system is of modular design. Up to 10 non-contact measuring tracks can be arranged flexibly over the whole board width. Extensive information on the board weight, the total weight of the produced panels regarding various periods of time or charges is given to the operator. Due to an optional connection to the GreCon thickness measuring gauge, a medium raw density of the boards can be determined. Tolerance deviations can be classified, statistically evaluated and be retrieved for an automatic sorting process.



GS 5000

The inline weighing system GS 5000 is used for the continuous control of the board weight. As required, either individual boards, board stacks or piles can be measured.

The system is of modular design. Consequently, the system can also be used on a separated weighing table. Weighing cells of various measuring ranges are installed in vibration-cushioned radial supports. They are applied in a great number of fields and ensure a measurement while the board is passing through the line. Extensive information on the board weight, the total weight of the produced panels regarding various periods of time or charges is given to the operator. Due to the option of connection to the GreCon thickness measuring gauge, the medium raw density of the boards can be determined. Tolerance deviations can be classified, statistically evaluated and be retrieved for an automatic sorting process.

Your Benefit



- The GreCon board scales ensure the quality of your panels.
- You get an overview of all materials used, and you can optimise their use.
- This decreases the production costs.

Fields of Application

- Particleboards
- MDF boards
- OSB boards
- Plywood
- HDF boards
- Hard-fibre boards
- Composites

Surface Inspection

The GreCon surface control technology ensures a continuous and steady quality control. The parameters are customized and independent of the daily job. Various measures can be taken with regard to further processing.



SUPERSCAN

SUPERSCAN is used for the automatic surface inspection of decorative wood based panels, such as laminate flooring, furniture panels, lacquered or printed panels. The system differentiates between minor gradations of shades in the pattern and defects that do not belong to the pattern.

The system is used directly after the laminating process and allows an action taken in time to avoid reiterating errors. A big advantage of the system lies in the consistent sorting. Quality grades can be chosen individually according to the decor and colour required. On top of this, the statistical data of the system allows conclusions of the process and thus of the production optimisation. An automatic sorting process can be effected either directly downstream of the system or downstream of the board cutting for separate, defect areas.

Your Benefit



- The complete control carried out by the SUPERSCAN ensures a consistent quality.
- Conclusions can be drawn from the statistics regarding the process, and thus the production can be optimised.

Fields of Application

- Particleboard
- MDF board
- OSB board
- HDF board
- Hard-fibre board

Cyclone Blockage Detector

It is necessary to maintain permanent detection of the material flow to ensure an uninterrupted production. The cyclone blockage detector does this job in material separators, and a signal is given just in time to avoid any blockages in the material flow.



ABC 7

Wherever cyclones are used as material separators, the rotary valve might become blocked. Material and dust will then escape through the clean air outlet. Production interruptions, pollution of the environment and extensive cleaning measures are the result. The GreCon cyclone blockage detector ABC 7 monitors the material flow. An accumulation of material is automatically detected, and conveyor fans are shut down.

To realise this, an infrared light barrier is used. The advantage of this measuring method is that the measuring signal is not impaired as far as possible by the usual material flow. Not until the density of the material flow has been increased, will an alarm be triggered. By means of variable tolerance periods and limits, the sensitivity of the system can be adjusted accordingly.

Your Benefit



- The cyclone blockage detector ABC 7 gives warning of any blockage in the material flow in real time.
- Production interruptions, pollution of the environment and extensive cleaning measures are avoided.

Fields of Application

- Particleboard
- MDF board
- OSB board
- HDF board
- Hard-fibre board
- Paper manufacturing
- Recycling / disposal
- Pellet plants



OUR HEADQUARTERS AT ALFELD - BUILT BY WALTER GROPIUS IN 1911

GreCon

P.O. BOX 1243
D-31042 ALFELD/HANNOVER
GERMANY

TEL.: +49 (0) 5181-790
FAX: +49 (0) 5181-79229
E-MAIL: sales@grecon.de
WEB: www.grecon.de

