

DIEFFENSOR

Online Mat Scanner with Foreign Body Recognition
for Steel Belt Protection using X-Ray Technology



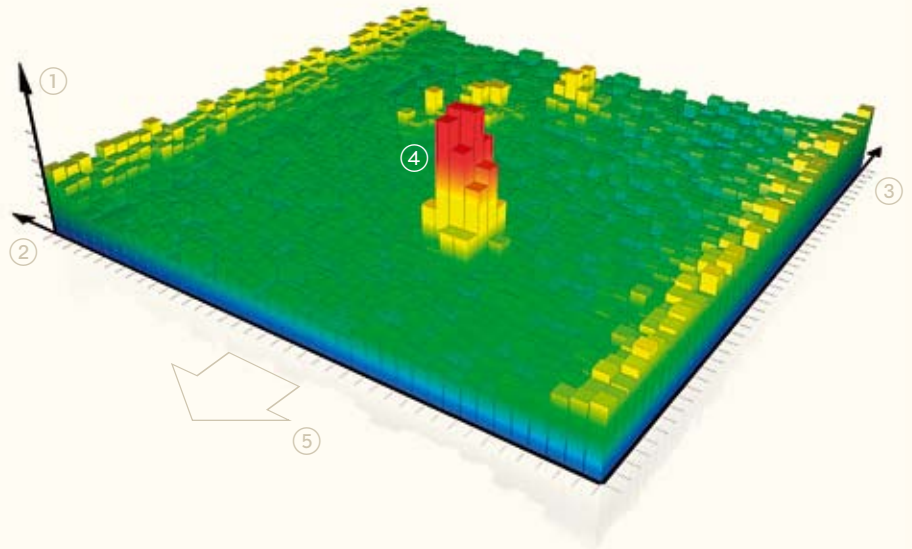
GreCon®

Steel Belt Protection

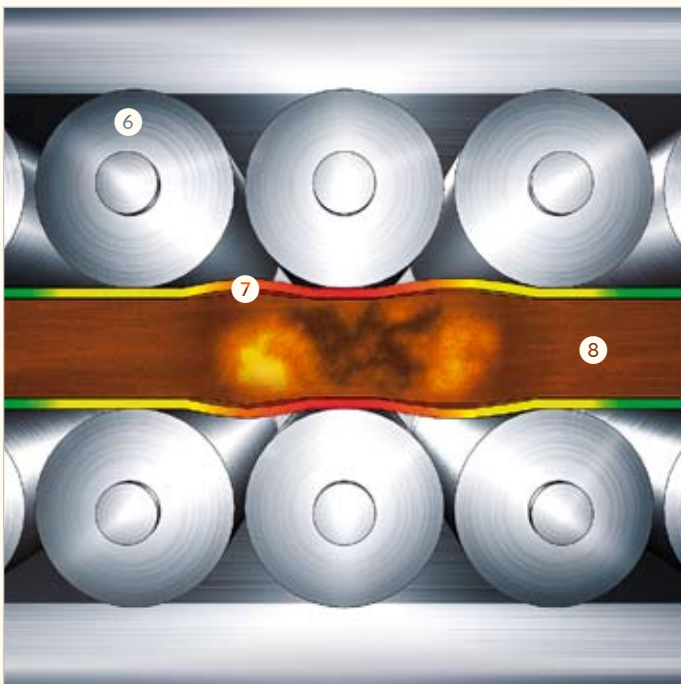
The GreCon mat scanner DIEFFENSOR precisely differentiates between harmless small foreign bodies and those which may damage the steel belt. DIEFFENSOR recognises metallic and non-metallic foreign bodies of high density located in fibre, chip or OSB mats, such as glue lumps, super-dense fibre lumps. It even detects plastic or aluminium articles which cannot be recognised with standard metal detectors or magnets. Foreign bodies may cause irreversible damage to the steel belts of a continuous press, especially when thin panels are produced. DIEFFENSOR recognises the shape and mass of foreign bodies, stores 3D pictures and trends for later evaluation.

Using DIEFFENSOR, the steel belts of a press can be effectively protected against permanent damage by high density non-metallic foreign bodies.

- ① Weight per unit area
- ② Mat width
- ③ Mat length
- ④ Foreign bodies
- ⑤ Feed direction forming line



- ⑥ Roller bars
- ⑦ Deformed steel belt caused by super-dense foreign bodies
- ⑧ Fibre mat



Strains on steel belt



DIEFFENSOR in press line

Weight Per Unit Area and Material Distribution

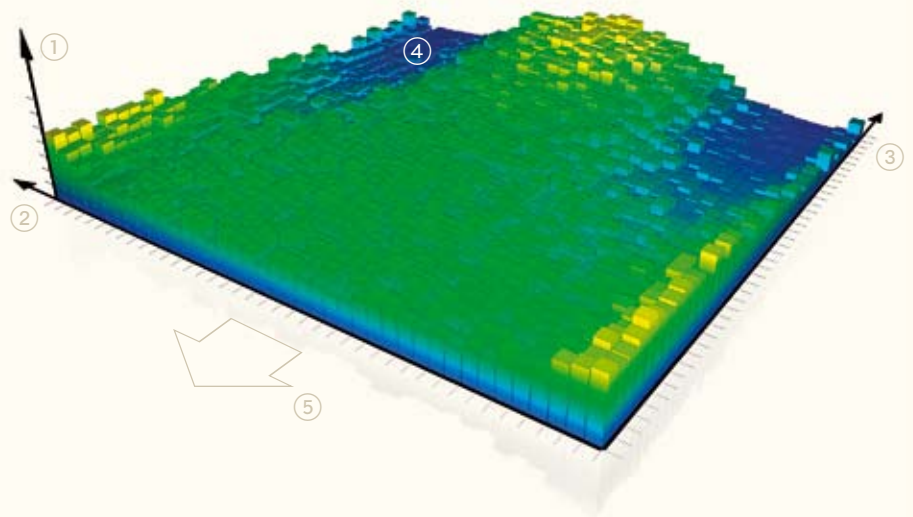
DIEFFENSOR determines, with high resolution and over the entire mat width, the weight per unit area as well as the material distribution of the fibre, chip or OSB mat.

Exact graphical and numeric representations enable the operator to adjust the forming process in due time to achieve consistent panel quality while the use of material and energy is optimised.

The permanent monitoring of the mat distribution across the production direction 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, log them, and evaluate them over time.

- ① Weight per unit area
- ② Mat width
- ③ Mat length
- ④ Deviation from weight per unit area
- ⑤ Feed direction forming line



Measuring Principle

The DIEFFENSOR works in a non-contact method. The x-ray sources are installed above, and the high-precision sensors below the material to be measured. Depending on the specific density and the amount of material, more or less x-radiation is measured by the sensors. Measured values are derived from these data.



- ① X-ray source
- ② Tube
- ③ Fibre mat

Network Connections

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

Online After-Sales Service

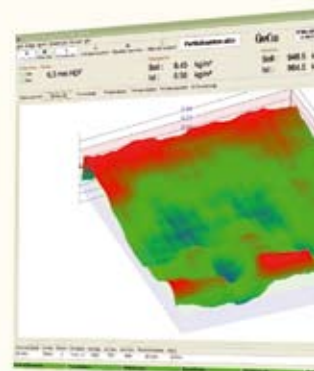
GreCon measuring systems are equipped with a modem or VPN, which provides a direct connection to GreCon service when needed. Support, changes in parameters, software updates and trouble shooting are all possible online.

Software

The visualisation software of all GreCon measuring systems is based on Windows. The software of DIEFFENSOR consists of the following program modules:

Recipe Management

This is a product data base in which different panel types and production parameters, which are relevant for the measuring system, can be stored.



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, makes an intuitive operation possible.

Clear information and graphics enable the operator to quickly and effectively adjust the running production process. The measured values are represented as a 3D picture. Out of tolerance limits are marked with changes in colour and tolerance relays, with voltage-free outputs, are activated.

SQL Data Base

This data base 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.

Steel Belt Protection

The software, specifically developed for this task, provides a highly sensitive inspection of the fibre mat for detecting unwanted foreign bodies. Adequate precautions can be activated through quick signals given to the press control.



Technical Specifications

- Measuring ranges:..... 1 to 50 kg/m²
..... 0.2 to 10.24 lbs/sq ft
- Mat speed:..... 0 to 2.500 mm/s
..... 0 to 0.1 in/s (or 5.9 in/min)
- Mat height: 0 to 500 mm
..... 0 to 20 in
- Mat width: up to 4.000 mm
..... 13 ft

Application Fields

- Particleboard
- MDF board
- HDF board
- OSB
- Insulating materials

Hardware Advantages

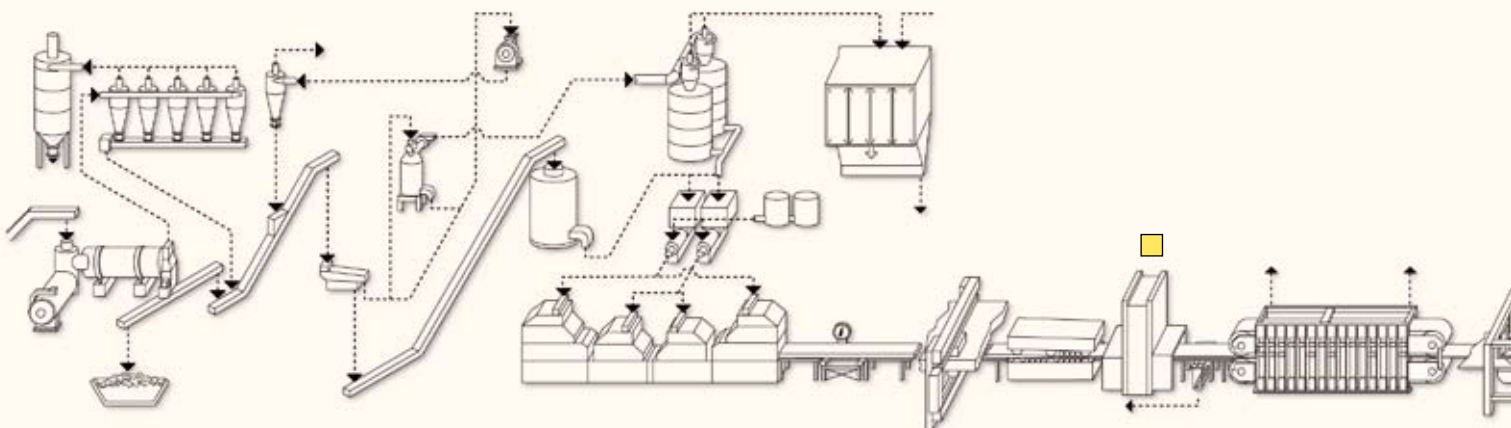
- Non-contact measurement
- Little installation space
- High-quality housing meets radiation protection standards

Software Advantages

- Recipe administration
- 3D representation
- OPC interface for connection to process technology (PLC)
- Storage of the measured data in an SQL data base
- Preparation for network connection is standard
- Telediagnostic service through GreCon after-sales service
- Visualisation with various representations of the measured values



DIEFFENSOR in MDF line



Customer Advantages

- Complete determination of the weight per unit area
- Longer life of the steel belts
- Complete picture of the spreading quality
- Investment in usual metal detection systems is not necessary
- Investment in traversing weight per unit area gauge is not necessary
- Improved product quality
- Quick return on investment
- High-resolution data storage for statistical evaluation
- Long-term storage of production data

Applications

For MDF, particleboard and OSB production, DIEFFENSOR is installed prior to the main press.

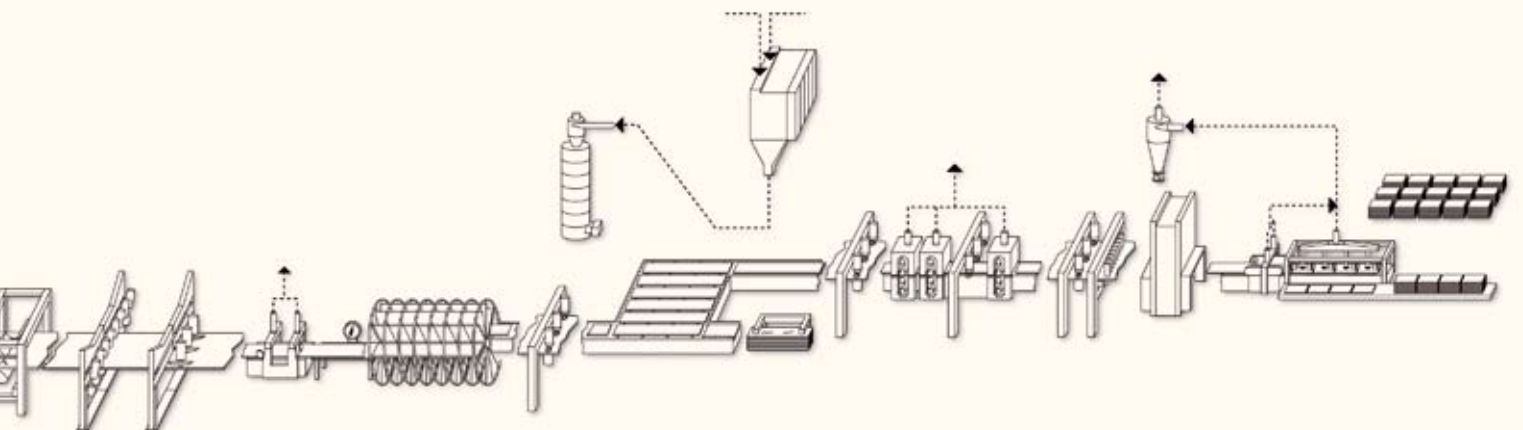
An additional application is measurement of boards that are ready pressed. This is particularly interesting when a measurement of the material distribution prior to the press is impossible or when additional information is required.



DIEFFENSOR in HDF line



DIEFFENSOR in OSB line



GreCon



Fagus Factory, constructed by Walter Gropius in 1911

GreCon, Inc.
15875 S.W. 74th AVE.
TIGARD
OR 97224

TEL: +1 (503) 641-7731
FAX: +1 (503) 641-7508
EMAIL: sales@grecon-us.com
WEB: www.grecon-us.com
