DML 5000

Inline Laser Thickness Measurement for Quality and Production Assurance

GreCon®

Production and Quality Control

On the production line fluctuations in material thickness lead to undesirable deviations from nominal values. In view of the quality standards required this leads to a reduction in quality and to waste of material. Production with permanent over tolerance also increases unnecessarily the amount of rejected material. For cost-efficient production full use must be made of the full manufacturing potential.

Optimisation of the material feed which can be controlled during the production process increases compliance with the quality standards required and lowers production costs.

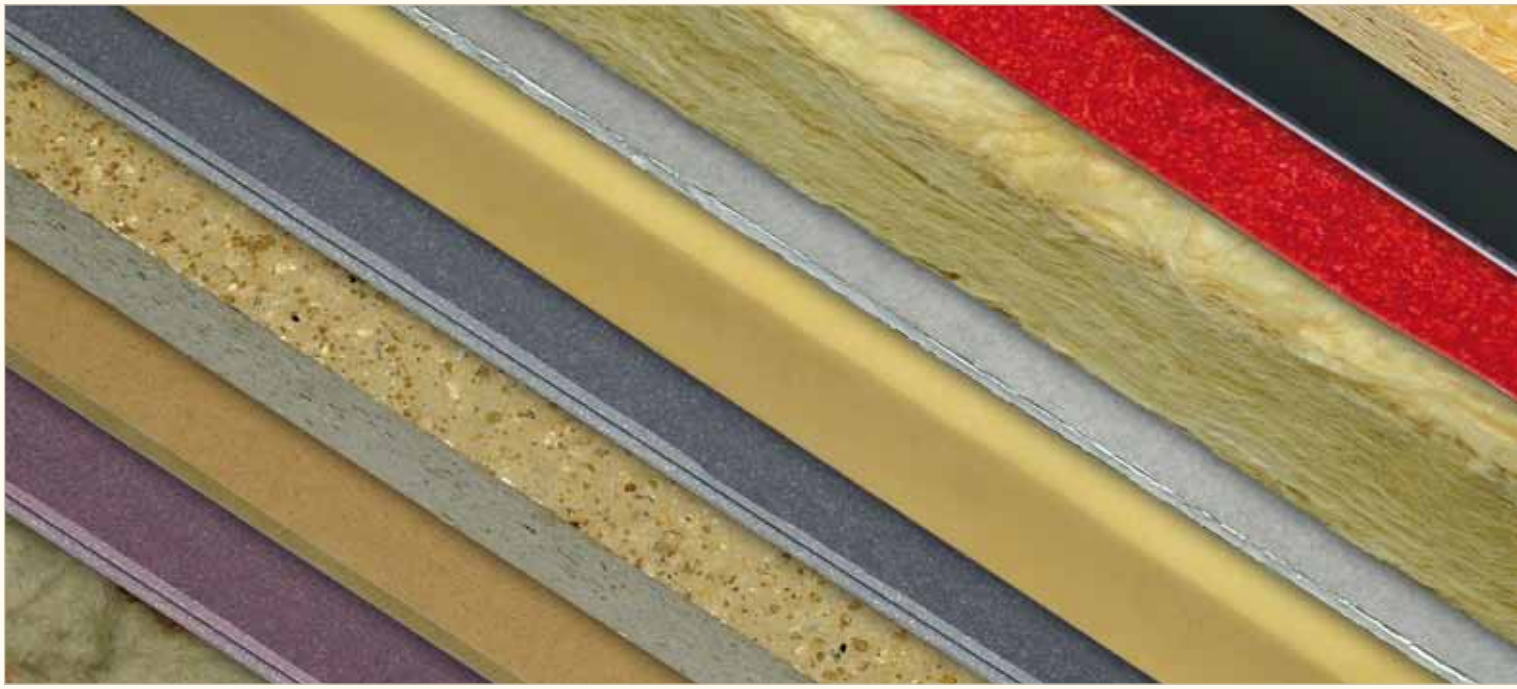
The GreCon thickness measurement evaluates the material on the production line and displays the current manufacturing process. Critical production developments are indicated at an early stage and counter-measures can be taken.

Optimal use of your raw material is attained by signalising any tolerance deviations.

With their order-specific evaluation protocols and historical data GreCon laser measuring systems provide documented evidence of the production quality supplied.

Various GreCon measuring systems can be combined according to a modular principle to create a quality centre. A combination of a GreCon thickness gauge and a GreCon weight per unit area gauge provides important guideline values for production such as average raw density.

Data retraceability of the GreCon measuring system to a process control system makes the development of an optimum control process possible. Run-in times for product changes can be kept to a minimum.



Selection of materials which can be measured with the DML 5000

After the Calender

For METZELER Technical Rubber Systems GmbH in Mannheim, a leading manufacturer of rubber composites, sheeting and boards, GreCon supplied a traversing laser thickness gauge for installation after the calender to check the opening of the calender. By adjusting the calender to a different thickness the correct dimension can be set and controlled faster. When combined with retraceability of the recorded values for controlling the calender, this process can be automated.

Laser measurement of plastic film at Metzeler

After the Extruder

Simona AG, a market leader in the manufacture of semi-finished thermoplast products, has installed a traversing GreCon laser thickness gauge after the extruder. The resolution of values measured laterally was selected according to the positioning of the extrusion nozzles. In this way it is possible to control and adjust the setting of the nozzles with the aid of the graphic evaluation displayed.

Traversing laser measurement of PVC sheets at Simona

Laser Technology

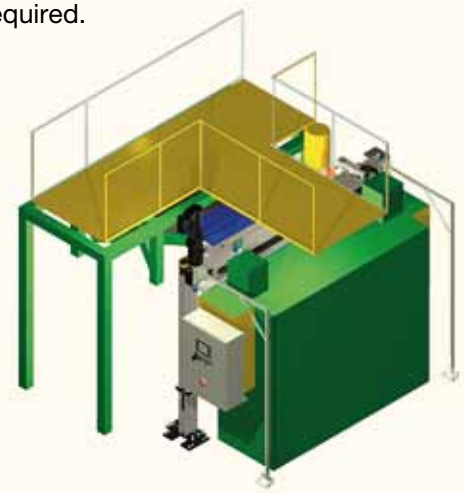
Measurements with laser technology are non-contact, thus making the evaluation of soft and moist materials possible. The measuring ranges can extend to the very edge of the material.

Depending on the requirements, measurements can be made at stationary points or a traversing measuring gauge can cover the whole width of the material. Traverse measurement enables control of a maximum amount of material and shows clearly any deformation of the material.

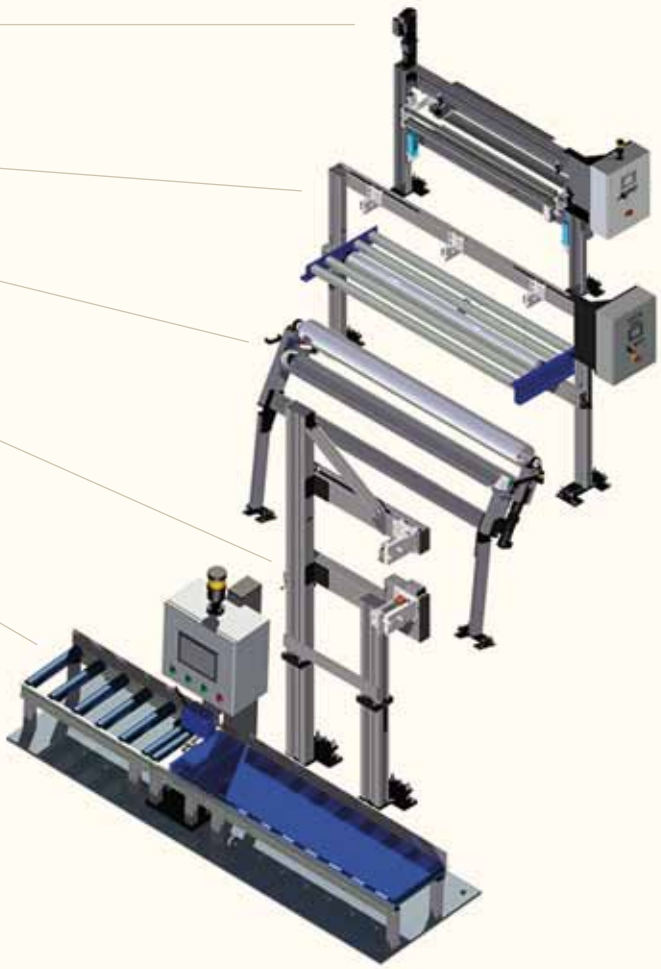
The selection of laser technology for measurement procedures is specified according to material and adjusted to local conditions.

Design/Construction

Through the modular design of the system components almost any kind of installation solution is possible. So it is possible to make modifications and retool at a later stage if at any time relocation of the gauge is required.



- Single-track traversing laser measurement on a reference roller with pneumatic pressure rollers
- Stationary three-track laser measurement with fixed reference roller
- Single-track traversing shadow laser measurement with fixed reference roller
- Stationary single-track differential laser thickness measurement on an F-frame
- Stationary single-track differential laser measurement as offline quality control



Network Connections

For data transmission to higher-ranking process control systems various connections via networks, such as OPC or ODBC, are available.

Online After-Sales Service

GreCon measuring systems are equipped with an online support system to assist the user. Direct contact is made to the GreCon after-sales service via a modem or VPN. Enquiries with regard to settings, parameter changes, software updates and trouble-shooting can be dealt with online.

Software

All GreCon measuring systems are based on the Windows operating system. The software consists of the following program modules:

- Recipe Management
  This is a product data base in which all the different types of sheets and boards and production parameters relating to the measuring system can be filed. The data can then be called up at any time for processing a measurement.

- Visualisation
  The core of the software package is visualisation. All the data is recorded, protocolled and processed for graphic display. The simple menu set up which is the same for all measuring systems is intuitive. Clear instructions and graphics enable the user to take fast and effective action while the production line is running. Evaluation of the measurement results is displayed in 3D. If the permitted tolerances are exceeded this is signalised by highlighting the measuring value in question in a different colour.

- SQL Data Base
  The data base enables storage of the measured values and export to other data formats where required for further processing and evaluation. The uniform data structure makes access via a process control system very simple.

Measurement of impact sound insulation with the DML 5000

Measurement of foam material with the DML 5000

- Mains voltage: ..... 230 V / 115 V
- Frequency: ..... 50 Hz / 60 Hz
- Max. number of measuring tracks per electronics evaluation: 11

Resolution

Triangulation differential measurement:

- at 60 mm ..... measuring range 1 µm
- at 400 mm ..... measuring range 4 µm

Triangulation against reference piece:

- at 60 mm ..... measuring range 0.5 µm
- at 400 mm ..... measuring range 2.0 µm

Shadow method:

- at 25 mm ..... measuring range 2 µm
- at 60 mm ..... measuring range 3 µm

The accuracy depends on the product and the surroundings. Details about other measuring systems are available on request.

References

- Rock wool
- Glass wool
- Insulation materials
- Plastics
- Gypsum
- Particleboard
- MDF board
- HDF board
- OSB board
- Non-woven fabric
- Foam rubber
- Plexiglas
- Bitumen sheeting

DML 5000 in a bitumen line

Laser with air purge adapter

Why GreCon

- Fast and early detection of fluctuations in quality
- Effects of changes in production (desired or undesired) are clearly displayed
- Display of optimisation potentials
- Reliable measuring values
- Flexible application in very different production situations
- Millimetre-accurate measurement
- Prevention of rejects
- Low maintenance required
- High system availability
- Data base for recipes, measuring and calibration data, system settings

Your Benefit

- Production control within restricted tolerance limits
- Measuring data for regulation
- Combination with other GreCon systems possible
- Quick product change
- Fast amortisation

DML 5000 in an insulating material line

DML-Q 5000 in an extruder line

OUR HEADQUARTERS AT ALFELD - BUILT BY WALTER GROPIUS IN 1911

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