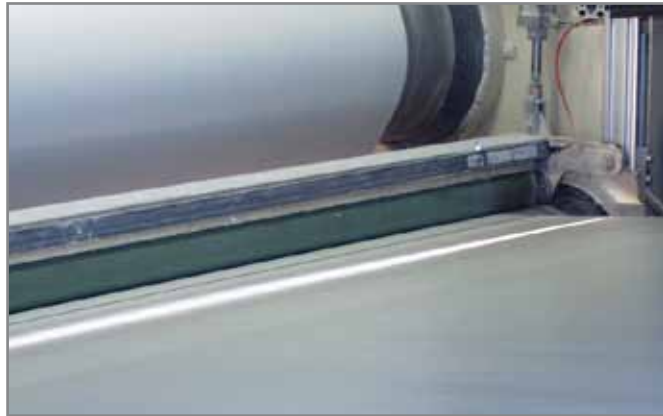


Monitoring the Grammage/ Basis Weight of Web Material

Innovative Option for:

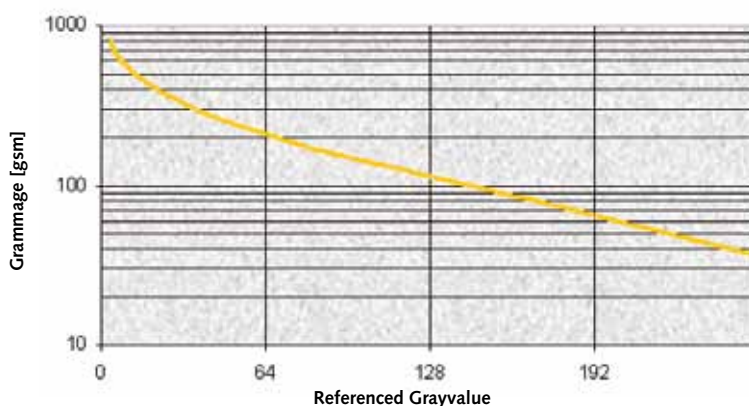
- Quality Control
- Data Collection
- Web Marking
- Process Control



Grammage Monitoring

Grammage is the density of paper expressed in terms of grams per square meter. Typical office paper has 80 g/m². Since a DIN A0 sheet of this office paper has 1 square meter, its weight is 80 grams. Respectively, a DIN A4 sheet (1/16 m²) weighs 5 grams.

All web based industries use grammage to show the robustness of a product. The grammage of a material represents the average weight of the material cut into predetermined square meter areas.



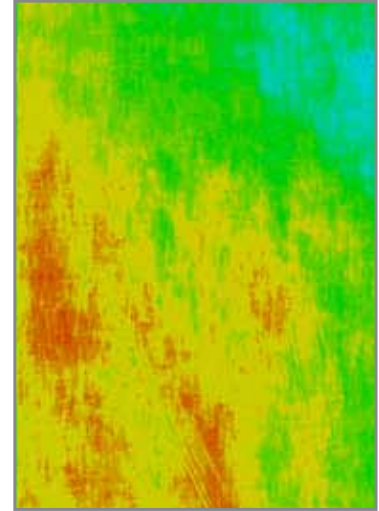
Typical grammage calibration curve

In order to guarantee a consistent grammage of the product, manufacturers can automatically monitor this measure. By using the gray scale factors retrieved from Dr. Schenk's EasyMeasure system, the grammage of a material can be calibrated to the gray scale average per square area of material. In radioactive sensors this measurement is a function of the absorbed radiation and in some cases the reflected energy. The Dr. Schenk system, however, measures the intensity of the transmitted light without the use of radioactive radiation. Further major advantages of Dr. Schenk's system over any type of sensor based system are, that the system views 100 % of the web, has no moving parts and performs much faster.

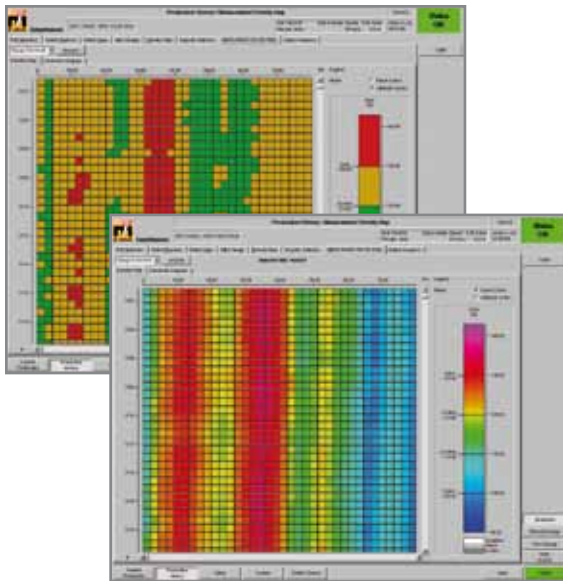
Features of EasyMeasure Software at a Glance

Software from Dr. Schenk systems provides graphical visualization of the web material's quality. By analyzing the entire material width along the running production line EasyMeasure enables short and long term optimization of the manufacturing process, which results in higher yield. Each roll produced has its own identity and quality grade, thus, eliminating shipping mistakes.

- Roll maps (Pass/Fail or false color representation)
- Recipe driven set-up
- Long term trends and short term trends
- Cross-web profiles
- Short term variations
- Real-time variation quality grade
- Quality reports with total variation calculations used for shipping decisions
- Automatic width measurement (optional)
- Roll defect markings matched to roll map (optional)



Different color values signal grammage inhomogeneities



EasyMeasure false color and control and specification limit maps

Benefits of EasyMeasure Options

- Continuous full width monitoring
- No mechanical scanners or devices
- Non-radioactive
- Full width short term variation analysis
- All process control features in one system
- Shared hardware with EasyInspect- reduce costs
- Very low long-term maintenance costs
- Highest ROI in the industry

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