



## CAPACITOR TECHNOLOGY

### DISS – Dual In-Situ Sensor

#### Introduction

In order to increase productivity and to reduce scrap of web metalizing systems, a tailor-made, real time, in-situ monitoring system is required. Such a system will enable an operator to detect all quality relevant deviations in an accurate and immediate way. Thus, necessary corrections can be performed and supervised without delay.

Especially high-technology products like metalized capacitor film, produced with maximum speed, demands tight tolerances of layer homogeneity and maximum precision of dimensions.

The sheet resistance or optical density as measurement for layer thickness and the width of the free margin are the two features of metalized capacitor film which are continuously measured during production.

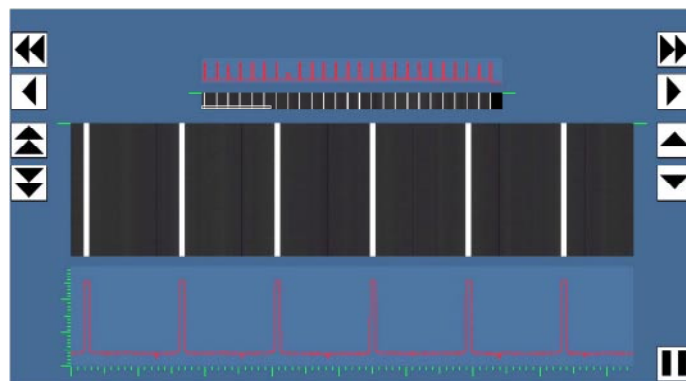


Fig 1: DISS monitor - screen shot with layer profile in transverse direction





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## Detailed Information

### Innovation

The DISS Dual In-Situ Sensor is a combination of one line sensor for layer thickness measurement and one line sensor for the measurement of free margins in one chassis. Additionally to the sensor, the DISS system is completed with a separate PC, including monitor, with a link to the machine controller.

The layer sensor measures the optical density in real time with a high spatial density of sensors and a high speed of data acquisition. The layer in active area and heavy edge is measured simultaneously. The homogeneity can be supervised in transverse and in machine direction. The dynamic range for the layer thickness goes from 0 up to 3 O.D.; the refreshing rate for a complete set (layer profile in transverse direction) of measuring values is 50  $\mu$ s. The sensor allows the measurement of pattern structures down to 3 x 3 mm<sup>2</sup>, even at theoretical process speeds of 20 m/s.

The second line sensor is used to measure all free margins simultaneously, with the same refreshing rate. Thus, the uniformity of the margins can also be controlled in transverse and in machine direction. The resolution of the width of the margins is less than 50  $\mu$ m.



Fig 2: DISS sensor





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## Detailed Information

### Advantages and benefits

- Flexibility.
  - Suitable for pattern applications with marginal parameters for structure dimensions and process speed.
  - Suitable for special processes (e.g. Al/Zn-HE – pure aluminium in active area and aluminium/zinc in heavy edge).
  - Suitable for standard processes.
- Constant product quality.
  - Real time measurement even for maximum process speed.
  - Full area supervision of homogeneity.
  - No signal drift during operation.
- Higher productivity.
  - Drastically reduced scrap.
  - Minimum effort for setup and calibration.
  - In-situ indication of symmetrical arrangement of heavy edge between free margins. No additional effort for setup after product changes.
  - Minimum effort for product development.
- Simplified design.
  - No additional hardware required to establish the condition for the measurement.

