

m-cat

Magnet bar & magnetron measurement system



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Magnetron & magnet bar analysis for sputtering units

Rotating magnetrons and adjustable magnet bars can be measured and analyzed exactly within the sputtering process for float glass coating. Defective magnetrons and magnet bars are identified early and reliably. The homogeneity of the layer thickness can be increased and a sputtering-through can be avoided.

Highlights

- Acquisition of the complete magnetic field contour
- Complete measurement within 1 minute
- Geometry recognition with maximum deflection of the magnetron
- Systems for round cathodes as well as flat cathode magnetrons available
- Suitable for stiff and soft magnetrons
- Optionally measurable in the target
- Target parameters can optionally be recorded (diameter, deflection, ellipticity)

Background

Sputtering on glass or silicon requires high quality standards. Even small fluctuations in thickness of the deposited layers could influence the layer properties considerably. Float glass for window and facade constructions can be subject to certain changes in color and transmission properties. Changes in the thickness of coatings of glass, as a basis for solar cell production, could lead to asymmetries of the electrical properties.

Functionality

Layer properties can be changed by the partial pressure of the sputtering gas or the magnetic field. Since changes in the gas composition affect the layer composition likewise, for adjustments of the layer thickness solely the control and modification of the magnetic field can be applied. The m-cat system characterizes tubular magnetrons with high precision, what allows the operator to control the magnetic components in sputtering units. Besides the exact measurement and analysis of the magnet configurations the m-cat provides help for adjustable magnetrons, regardless of the manufacturer. To ensure high reliability the magnetrons' geometries (e.g. deflection) are determined.

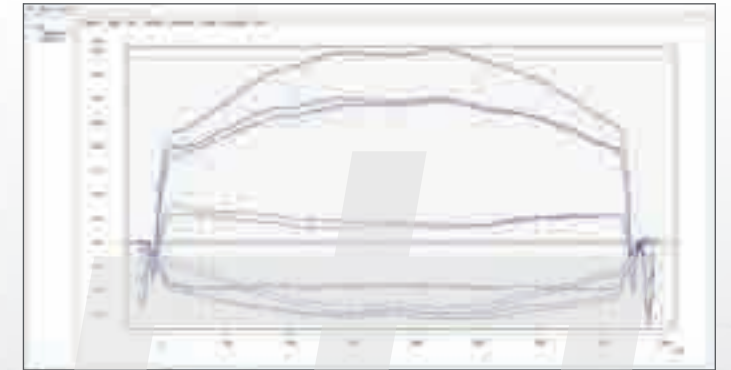


Figure: Software evaluation

Technical information

- System length: 0.4 - 4.0 m
- Magnetic field configuration: 33 channels (X, Y, Z) +/- 1%
- Detection of the minimum and maximum magneticfield strength
- Trimming aid function for trimmable magnetrons
- Graphical representation of the course of the field
- Magnetron geometry (position of the magnetic functional part): +/- 0.1 mm
- Geometry of the target (diameter, deflection, ellipticity): +/- 0.1 mm



Picture: m-cat measuring slide