m-cat

Magnet bar & magnetron measurement system

Precise magnetic analysis and measurement of magnetrons and adjustable magnet bars

Measurement system for the production of:

Flat glass
PV modules
Flat glass coatings
Displays

matesy

smart glass measurement solutions

m-cat

Magnet bar & magnetron measurement system

Precise magnetic analysis and measurement of magnetrons and adjustable magnetbars made of tubular cathodes as used in sputtering systems for coating float glass and the solar industry.

Product Description

m-cat is a magnetic field mapper for magnetrons which measures the magnetic stray field data of magnetrons on all three spatial axes and also calculates geometric data. This allows sputtering processes to be monitored and optimized, since the setting or status of the magnetron is critical to the subsequent outcome of the coating process.

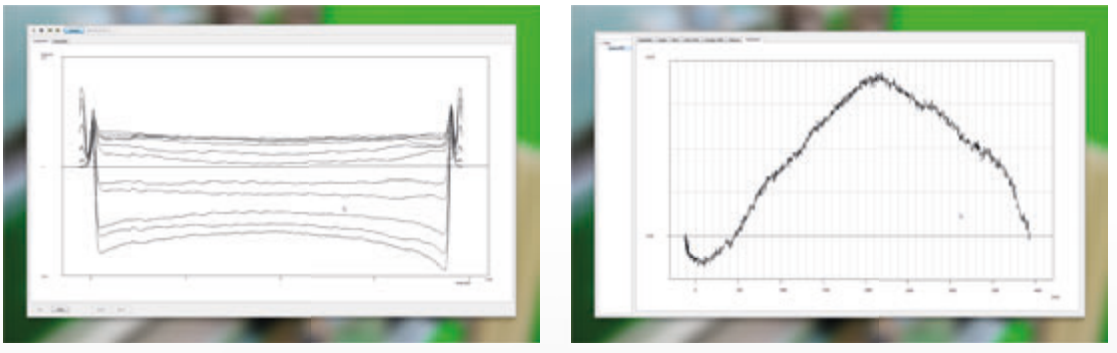
Design & Function

Sputtering on glass or silicon is associated with high-quality requirements, since even slight variations in the thickness of deposited layers can have a significant influence on the properties of the layer systems. With float glass designed for use in window and facade constructions, the color and transmission properties may change.

With glass that forms the basis for solar cell production, variations in layer thickness lead to irregularities in the electrical properties. The layer properties can be influenced by the partial pressure of the sputtering gas or the magnetic field, among other things, and the change in gas composition always influences both the layer thickness and the layer composition. Therefore, the only way to accurately correct the layer thickness is to control and adjust the magnetic field!

The m-cat system helps to gain control of the magnetic component in sputtering systems by accurately characterizing magnetrons. In addition to precise measurement and analysis of the magnetic field configuration, the m-cat system offers support with adjustable magnetrons, regardless of the manufacturer. In addition, the geometry of the magnetron (deflection) is determined to ensure error-free operation.

The m-cat system helps to gain control of the magnetic component in sputtering systems by accurately characterizing magnetrons. In addition to precise measurement and analysis of the magnetic field configuration, the m-cat system offers support with adjustable magnetrons, regardless of the manufacturer. In addition, the geometry of the magnetron (deflection) is determined to ensure error-free operation.



m-cat Software evaluation

Using m-cat allows you to increase:

- **Process reliability:** new magnetrons can be subjected to incoming inspection and defective magnetrons can be detected earlier and more reliably.
- **Layer thickness uniformity:** adjustable magnetrons can be adjusted in a controlled manner or matching magnetrons can be more easily combined.
- **The lifetime of targets:** total destruction of cost-intensive targets can be avoided.

Product Highlights

- **Capture of the full contour of the magnetic field**
- **Can be implemented into an existing manufacturing process**
- **Trim assist function for trimmable magnetrons**
- **Very user friendly**

Advantages

- **Flexible use for magnetrons from different manufacturers**
- **Extremely fast measurement (just a few seconds per measurement)**
- **Total measurement length infinitely variable from 0.4 m to 5 m (allowing measurement of magnetrons of different lengths with one instrument)**

Technical Specifications

- Graphic representation of the field development
- Detection of the minimum and maximum magnetic field strength
- Storage and export of individual series of measurements in CSV format
- Target parameters (diameter, deflection) can be captured
- Trim assist function for trimmable magnetrons
- Measuring length from 0.4 m – 5.0 m
- Magnetic field configuration: 33 channels (X, Y, Z) +/- 1%
- Geometry of the magnetron (position of the functional magnetic part): +/- 0.1 mm
- Geometry of the target (diameter, deflection): +/- 0.1 mm
- Built-in laser control unit for checking the flatness of the measuring system
- Lifecycle management software with multiple views and settings

smart glass measurement solutions

Contact & information

Matesy GmbH
Loebstedter-Str. 101-103
D-07749 Jena
Germany

Tel.: +49 (0) 03641 79799 00
Fax: +49 (0) 03641 79799 01
E-mail: info@matesy.de
Web: www.matesy.de

MCAT_EN_202409_DRUCK_DB