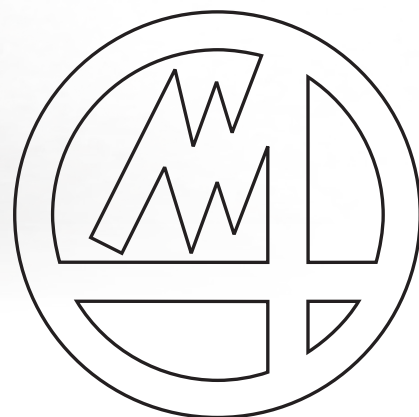
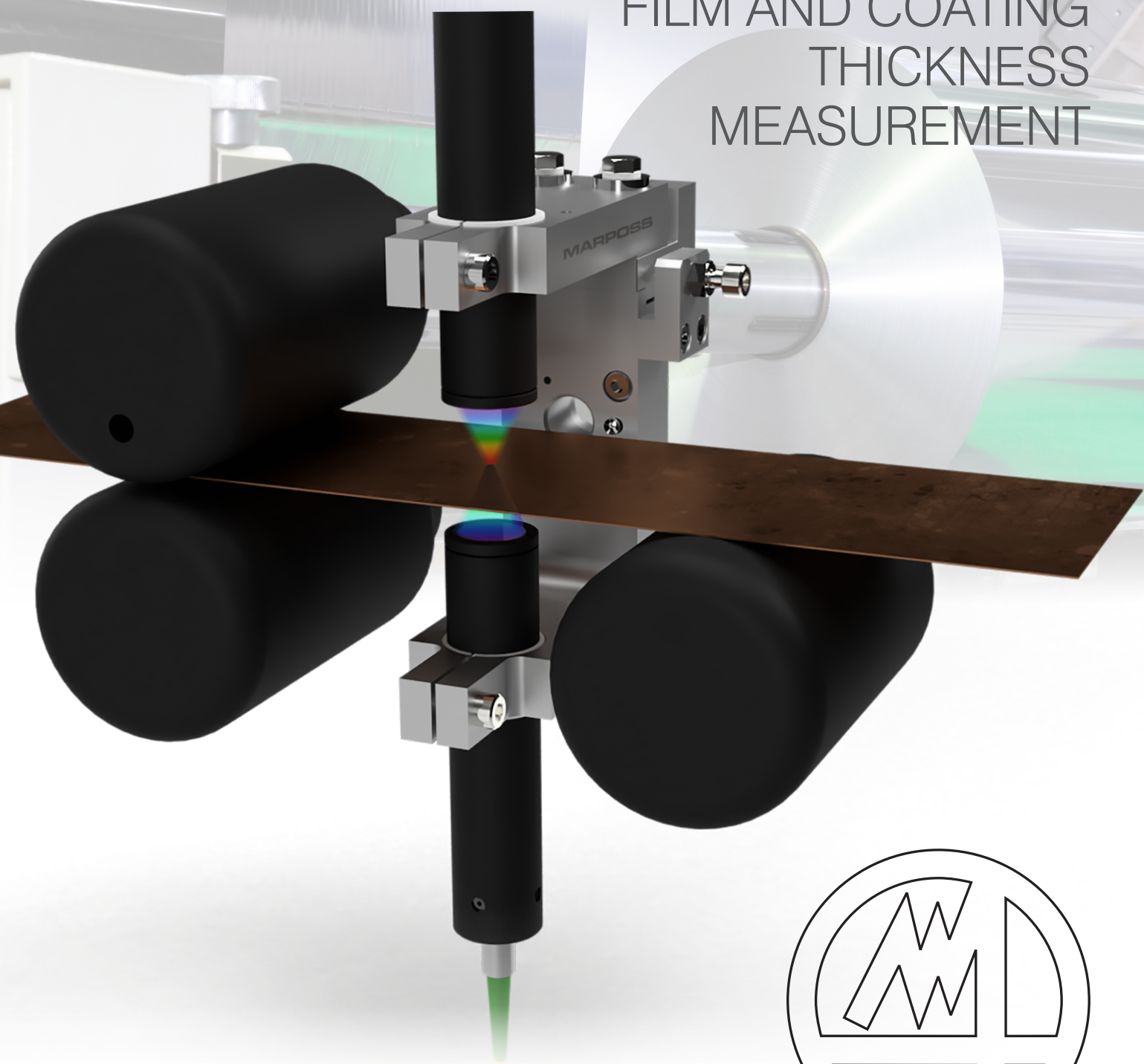




BATTERY ELECTRODES R2R PROCESS

FILM AND COATING
THICKNESS
MEASUREMENT



MARPOSS

Introduction

R2R is a family of manufacturing techniques that involves continuous processing of a flexible substrate that is transferred between two moving rolls of material where additive processes can be used to build film structures in a continuous manner.

In the field of electronic devices, Roll-to-Roll processing (R2R) is a method of producing flexible and large-surface electronic devices on a roll of plastic film or metal foil.

R2R is an important class of substrate-based manufacturing processes applied nowadays in the EV market for the Lithium Ion Battery (LIB) such as:

- Metal foil (aluminium and copper) manufacturing
- Plastic film for separator production
- Printed/Flexible thin-film batteries electrodes (cathode and anode)

Description

The current needs to apply R2R processes in flexible thin-film battery manufacturing are focused on the following process operation:

- Rolling process (electrode foil production)
- R2R Coating and Drying
- R2R Calendering or Compressing
- R2R Slitting or Cutting

In all these operations is important to reduce excessive scrap rates of electrode production by means of in-line quality and control measurement such as non-contact technology sensors for thickness control.

The thickness check must be performed strictly within the production line, then carried out with non-contact technologies. In order to perform the in-line thickness measurement on delicate material that cannot be touched and measured with the traditional contact solution, MARPOSS/STIL has proposed its own non-contact technologies: Chromatic Confocal. This technology is able to guarantee the maximum precision of this measurement, even for thin non-transparent layers. The use of mechanical fork support, with two Confocal sensors, allows to measure simultaneously the total thickness of the battery electrodes and the thickness of the different layers of material. Special gauging applications can be proposed to measure the thickness in multiple positions.

Benefits

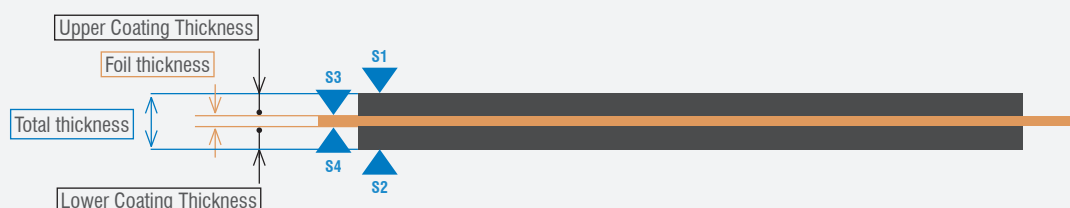
- Non-contact technology for measuring, for measurement of soft and non-transparent materials
- Capability to measure layers with a thickness starting from 5 μm
- Wide measuring range for real in-line applications
- High sensitivity and accuracy
- Possibility to supply measuring fork or complete gauging equipment
- Available statistic elaboration and data transfer with Quick-SPC software option

Versions

- Basic configuration with n° 1 measuring fork composed by n° 2 Chromatic Confocal sensors and IRIX controllers
- Optional E9066 industrial PC with QSPC software, for measurement elaboration, statistic elaboration and data transfer
- Customized gauging solutions for measurement in multiple positions

Technical Specifications

- Measured film layers starting from 5 μm thickness
- Measure of foil, upper and lower coating and total electrode thickness
- Repeatability range for total thickness within 1 μm in real application



For a full list of address locations, please consult the Marposs official website

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