

Technical Bulletin

Conformal Coating Thickness Measurement

Introduction

Accurate conformal coating thickness measurement is critical to ensure PCB reliability, meet IPC and customer specifications, and optimise coating performance. Too thin a coating risks inadequate protection, while too thick may lead to cracking, stress, or excess weight.

This bulletin outlines the main methods used to measure conformal coating thickness: wet film gauges, dry film gauges (PosiTector 6000), and optical film thickness systems for transparent coatings such as Parylene.

Industry Standards

- IPC-A-610 requires coating thickness to be measured on flat test coupons or representative areas, not directly on components.
- ISO 2808 describes test methods for determining film thickness of coatings.
- Aerospace, defence, and medical sectors often specify their own acceptance ranges, making reliable measurement essential.

Optical Film Thickness Measurement

Optical systems such as the KR-FM20 provide high-precision, non-contact measurement of transparent coatings, including Parylene.

- **Method:** Uses spectral reflectance to measure thickness by analysing light interference patterns.
- **Advantage:** Accurate, repeatable, and non-destructive. Ideal for Parylene.
- **Limitation:** More capital investment required compared to gauges.
- **Typical use:** Parylene thickness control in aerospace, medical, and automotive electronics.



Dry Film Thickness Measurement – PosiTector 6000

The PosiTector 6000 is a handheld dry film thickness gauge widely used across electronics manufacturing.

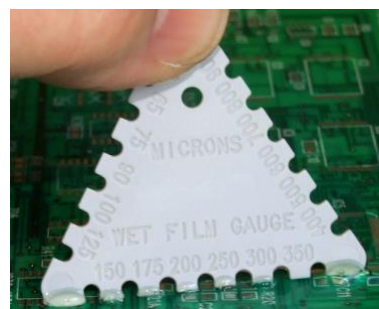
- **Method:** Magnetic and eddy-current probes measure coating thickness non-destructively on coated substrates.
- **Advantage:** Portable, quick readings across multiple points.
- **Limitation:** Less effective on thin coatings such as Parylene.
- **Typical use:** Acrylic, urethane, silicone, and epoxy coatings.



Wet Film Thickness Measurement

Wet film gauges provide a simple, low-cost way to estimate dry film thickness by measuring the coating immediately after application.

- **Method:** The comb-style gauge is dipped into the wet coating; the last notch touched indicates the wet film thickness.
- **Advantage:** Low cost, instant feedback during coating application.
- **Limitation:** Accuracy depends on coating solids content and operator skill.
- **Typical use:** Manual spray, dip, or brush coating processes.



Choosing the Right Method

- Wet film gauges: Low-cost, early process check, but less precise.
- Dry film gauges: Quick and portable, good for opaque coatings.
- Optical systems: High precision, required for Parylene and transparent coatings.

In many cases, a combination of methods is used: wet film gauges during coating application, dry film gauges for production QA, and optical film systems for advanced verification.

Why Choose SCH?

SCH offers complete thickness measurement solutions: wet film gauges, dry film systems, and KR-FM20 optical systems for Parylene. We also provide operator training, certified in-house services, and global supply support.



25+ Years of Expertise – Trusted across global industries.



End-to-End Support – From coating selection to inspection.



Scalable & Reliable – Flexible capacity with proven quality.



+44 (0)1226 249019 | sales@schservices.com