

PRODUCT BRIEF

Ultrasonic Coating System

SPALAS™ (Spray Assisted Layer-by-layer Assembly)

(patents pending)

Advantages

- Precision Thickness Control
- Ambient Operation
- Wet-Chemistry Coating
- Conformal Coating
- Ease of Scale-Up
- Low Cost
- Automated

Applications

- Anti-Reflection
- Anti-Fog
- Lens Overcoat
- Medical Coating
- Solar Panel Overcoat
- Scientific Research

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Overview

Automated SPALAS™ coating system provides a new type of nano-enabled coatings. SPALAS™ coating is a wet chemistry layer-by-layer absorption process based on chemical or electrostatic interactions between the material building blocks. The coating system allows the applications of optical grade coatings on various substrate materials, including plastics and glass. Advantages of SPALAS™ coating over traditional vacuum or sol-gel based coatings include unparallel low cost, small footprint, ease to use, and scalable to very large size. SPALAS™ coating technology has a broad range of applications, including medical, solar panel light absorption enhancement, anti-reflection coating of optical surfaces, IR optical coatings, anti-fog coatings, and other nanostructured multi-functional coatings.

The system can accommodate multiple nozzles up to 10 with ultrasonic option. The liquid feeds have many pumping options.

SPALAS



Performance Specifications

Substrate Size*	up to 6"x10"
Carrier Gas	N ₂ , Ar ₂ , Air
Carrier Gas Pressure	20-40 psi
Scan Speed	programmable
Precursor Flow Rate	adjustable

* 6"x10" is for the standard SPALAS™ coating system. Larger substrates can be coated using a scaled-up coating system.

*Product dimensions may change without notice. This is sometimes required for non-standard specifications.

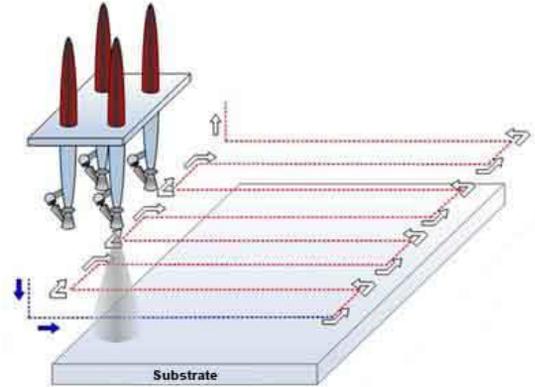
PRODUCT DETAIL

SPALAS™ (Spray Assisted Layer-by-layer Assembly) Coating System

(patents pending)

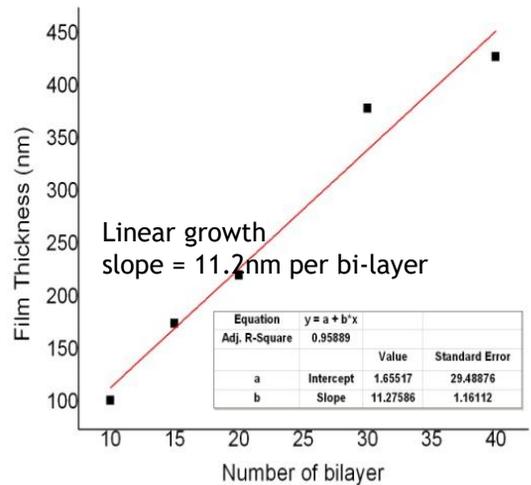
Features

- 4 easily replaced spray nozzles
- Programmed spraying for easy self-assembly coating on substrates up to 6" x 10"
- Up to half liter source solution reservoirs
- Allows application of positive and negative solutions with intermediary washing and drying
- Allows simultaneous application of multiple source solutions
- Coat complex surfaces including tubes and fiber:



The SPALAS machine was used to build Layer by Layer SiO₂ nanoparticle structures. The results, evaluated by a major research laboratory, were comparable with dip coated films. SPALAS system coating provided drastically shorter processing times.

Thickness vs. Number of Bilayers



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