



MIMOS Ultrasonic Coater for Nanomaterial Deposition (Mi-Atomizer)

High quality ultrathin films are being produced in bulk for demanding coating applications such as smart screens, drug eluting stents, fuel cells and electronic devices. One effective method for producing quality ultra-thin coating is by way of ultrasonic nozzle spray coating. MIMOS working with a local micro-dispenser equipment manufacturer have realized an industry grade automated ultrasonic spray coater with high throughput targeted for electronic applications.

Overview

Mi-Atomizer is a commercial ultrasonic coater, a result of MIMOS collaboration with a local microdispensing equipment manufacturer. It is used for ultrathin coating applications down to a few nanometers thick. The robotic handling of the ultrasonic nozzle enables fast coating process of nanomaterials onto large substrates. Currently made for 2D coating applications using proprietary nanomaterials, the equipment is able to coat highly uniform layer almost 2nm thick over an 8-inch silicon wafer. Due to possible toxic nature of nanomaterials, the equipment is built with efficient exhaust and safety features.

Features

Mi-Atomizer solution comprises the following features:

- **Mainframe and Handler**
 - Aluminum mainframe
 - Programmable spraypath and robotic arm
 - Heated and vacuum sample holder
 - Spray height (Z): 0 to 150mm
 - Z travel resolution: 10um
 - Max XY travel: 400mm x 400mm
 - Max XY speed: 800mm/s
 - Waste bin for setup purposes
- **Spray Coater**
 - 10% resistance uniformity @ 15nm thick
 - Minimum ~2nm coating thickness
 - 120 kHz spraynozzle
- **Built-In Safety Features**
 - Fully sealed enclosure when operating
 - Transparent front cover with safety lock
 - Exhaust system
 - Heater safety control

Benefits

The main impacts of Mi-Atomizer solution are:

- **User-Friendly Programmable Operation**
 - Allows setting for different thickness and coating morphology.
- **Reproducible Coating Materials**
 - Various customised coating materials allowed.
- **High Quality Uniform Coating**
 - Non-clogging highly uniform droplet distribution reduces coating imperfection.
- **High Efficiency Spraying**
 - Highly efficient spraying reduces material usage.

Technology Summary

Mi-Atomizer

A highly efficient, accurate, programmable, user-friendly ultrathin coating equipment for various nanomaterial deposition applications.

Industries: Electronic, Energy, Medical, Textile, Automotive, Telecommunications

Features

- Mainframe and handler
- Spray coater
- Built-in safety features

Benefits

- User-friendly programmable operation
- Reproducible coating materials
- High quality uniform coating
- High efficiency spraying

Equipment



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