



HIGH VACUUM, TRIPLE MAGNETRON TARGET DESK SPUTTER COATER WITH THERMAL EVAPORATOR-DST3- TA/S



The High Vacuum, Triple Magnetron Target Desk Sputter Coater with Thermal Evaporator-DST3-TA/S, Triple Target Turbo Pumped Sputter Coater, is a versatile multi-vacuum coater system that combines both thermal evaporation and sputter coating capabilities within a single compact desktop unit.

This high vacuum system is well-suited for depositing a wide range of materials. The triple magnetron target desk sputter coater can easily switch between evaporation and sputtering modes, although it cannot perform both simultaneously.

APPLICATIONS

Desk Sputter Coater

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- Metal, Semiconductor, and Dielectric Films
- Nano & Microelectronic
- Solar cell applications
- Co-Sputtering processes
- Glad Sputtering

- Optical components coating
- Thin film sensors
- Magnetic thin film devices
- Computer memory applications
- Fine grain structural deposition for SEM & FE-SEM sample preparation

FEATURES

- Sputtering and Thermal Evaporation process in a compact system
- High vacuum level
- Equipped with DC and RF power supplies suitable for metals, semiconductors and dielectrics
- Three 2" water-cooled angled, magnetron cathodes suitable for producing alloy films (DST3-TA) and multilayer deposition
- One thermal source installation
- Two fixed and movable quartz crystal monitoring system for real time thickness measurement (1 nm precision)
- Two MFCs
- Manual or automatic Timed or Thickness deposition
- GLAD Sputtering
- Plasma Cleaning
- Intuitive touch screen to control coating process and rapid data input
- User friendly software that can be updated via network
- Equipped with 3 manual shutters
- Vac coat Products are covered worldwide by both public and product Liability Insurance in case any property damage or personal injury happens caused by the Vac Coat systems.
- Tillable and change height of rotary sample holder with ability to selection of the cathodes
- 500 °C substrate heater (optional)
- 300 V DC substrate bias voltages (optional)

- Unlimited deposition time without breaking vacuum
- Two-year warranty

Thermal Evaporation of Triple Target Turbo Pumped Sputter Coater

The DST3-T is equipped with a robust high-current power supply and a low-voltage, resistive thermal evaporation platform that's suitable for a wide range of thermal evaporation applications. This sputter coating system allows precise thermal evaporation of various materials onto a substrate. You can easily mount different types of thermal evaporation sources, such as boats, baskets, and coils, on a single holder for added flexibility.

Desk Sputter Coater

Touch Screen Control

The Triple Target Turbomolecular Pumped Sputter Coater comes with a user-friendly 7-inch colored touch screen interface that offers semi-automatic control and easy data input, making it accessible even for inexperienced users. You can view vacuum and deposition data in digital form or as graphical curves on the touch screen. Additionally, information from the last 300 coatings can be conveniently stored in the history page.

Desk Sputter Coater

Sputter Coater Sample Holder

The sample holder is designed to accommodate standard microscope slides, but it can also be customized to fit specific requirements. It features multiple clamps that securely hold small samples in place during rotation, offering a

straightforward solution for sample handling.

Desk Sputter Coater

Plasma Cleaner

The DST3-T triple target sputter coater also offers the option of a plasma cleaner. Vacuum Plasma Cleaning is a process that involves using ionized gas, known as plasma, to remove organic contaminants from a substrate's surface. This pre-cleaning step is essential before depositing a film to ensure that any contamination, such as carbon-based or oxide residues, is eliminated from the substrate's surface. This process enhances the adhesion between the substrate and subsequent layers.

Clean Vacuum of Sputter Coater

The vacuum chamber of the Sputter Coater DST3-T is made of cylindrical Pyrex with dimensions of 300 mm in outer diameter and 200 mm in height. This system is equipped with an internally mounted 90 l/s Turbomolecular Pump, which is supported by either a 1.4 m³/h diaphragm pump or a 4 m³/h two-stage Rotary Vane Pump.

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THEORY & METHOD

The DST3-T, Magnetron Desk Sputter Coater, comes with a large chamber with a 300 mm diameter and is equipped with three 2" diameter water-cooled cathodes. This design allows for extended deposition times when needed. The magnetron desk sputter coater is outfitted with both RF and DC power supplies, enabling it to sputter various materials, including semiconductors, dielectrics, and both oxidizing and noble metals.

To enhance the adhesion of thin films to the substrate and improve film quality, there is an optional feature to apply a 300 V DC bias voltage to the substrate. Additionally, the sputter coater system includes an auto-adjustable matching box, which helps minimize reflected power during the RF sputtering process.

According to state of the cathodes, DST3-T is available in two models:

Desk Sputter Coater

DST3-TA (Angled Cathodes):

The DST3-TA features three angled cathodes that share a common focal point. This sputter coater system has the capability to simultaneously or independently sputter from two or three (optional) targets. This flexibility allows for the deposition of alloys or multilayer coatings, depending on the specific requirements. In this model, the maximum size of substrates that can be accommodated is up to 3 inches in diameter.

Desk Sputter Coater

DST3-TS (Straight Cathodes):

DST3-TS with three straight 2 inches water-cooled cathodes is suitable for sputtering a single large specimen with diameter up to 20 cm or several small specimens.

TECHNICAL SPECIFICATIONS

Pumping Speed	90 l/s	350 l/s
Ultimate Pressure	7×10^{-6} Torr	7×10^{-7} Torr

- High Vacuum Turbomolecular Pump
- Two-stage rotary vane pump 4 m³/h
- Independent sputtering control rate for each cathode to produce fine grain structures
- Automatic control of deposition power independent of pressure
- Automatic control of the cathode's temperatures to protect the life time of the magnets
- Water-cooled high current electric feedthrough
- Two precision Mass Flow Controller (MFC) for fine control of Ar flow and so reactive sputtering gas
- Records and plots of coating parameters graphs
- Transfers curves and deposition process data by a USB port to PC
- 300V DC bias voltage (optional)
- Equipped to plasma cleaner (optional)
- Equipped to 500°C substrate heater (optional)
- DC power supply 0-1200V, 0-500 mA
- 0-24 V, 0-100 A high current power supply
- 300 W RF power supply with automatic matching box
- Utilities: 220V-240V, 50/60HZ, 16A
- Box Dimensions: 50 cm H x 60 cm W x 47 cm D
- Shipping Weight: 160 kg (Pump, Rack, and Box)

Options and Accessories

The Triple Target Turbomolecular Pumped Sputter Coater – DST3-T has the following options and accessories:

- Quartz crystal sensors
- Spare vacuum glass chamber
- Sputtering Targets
- Thermal source materials
- 300V DC bias voltage
- Plasma cleaner
- 500°C substrate heater



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