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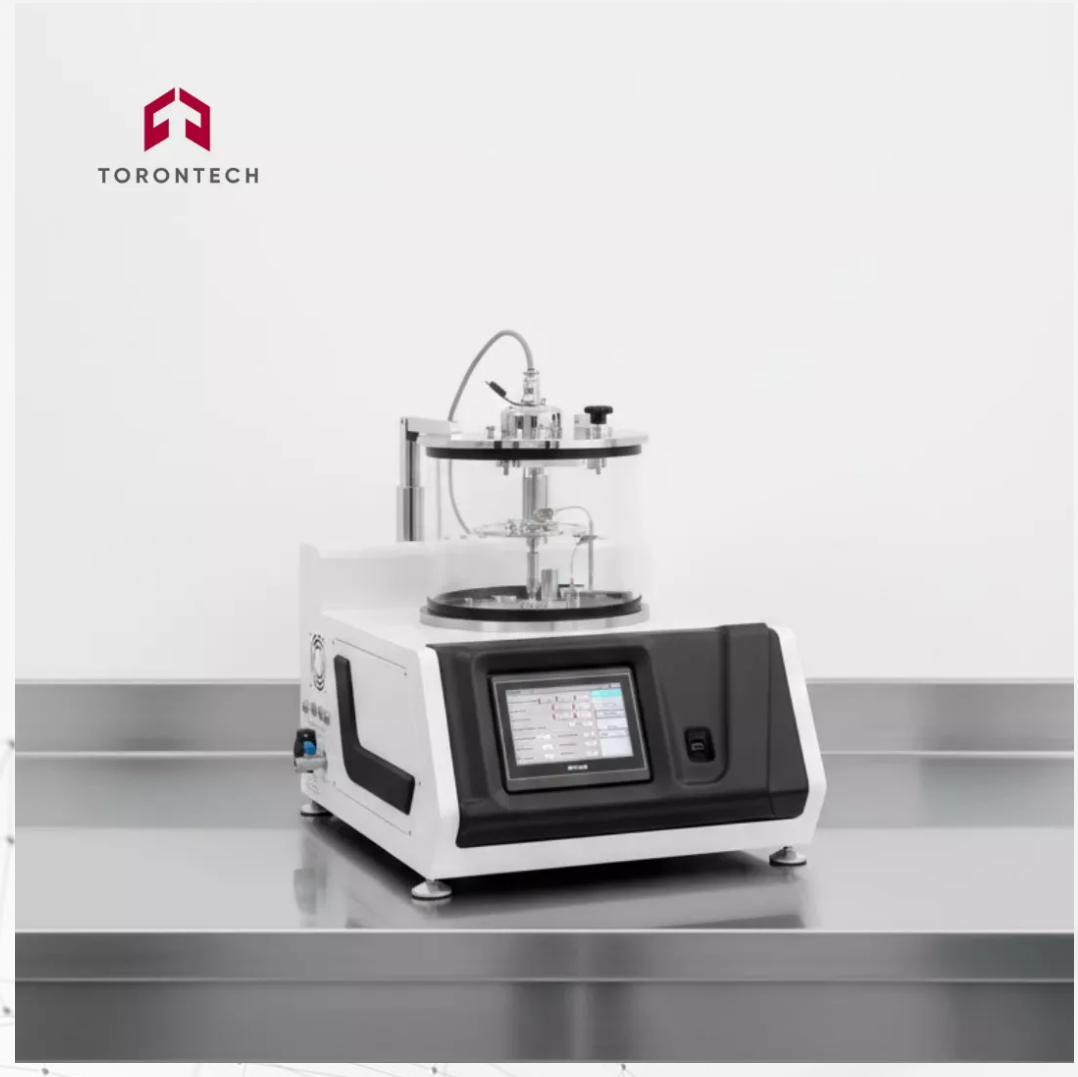

TURBO PUMPED CARBON COATER AND THERMAL EVAPORATOR – DCT-T-300

Turbo Pumped Carbon Coater and Thermal Evaporator – DCT-T-300 is equipped with a large chamber, making it perfect for preparing samples for FE-SEM, EDS/WDS, TEM, EBSD analysis, and thin film applications. This coater operates under high vacuum conditions, ensuring the deposition of uniform carbon and metal films with fine grain sizes. These features make it ideal for specimens that demand high-resolution and high-quality characterization.

The Turbo Pumped Carbon Coater and Thermal Evaporator – DCT-T-300 features a cylindrical chamber with a diameter of 300 mm, enabling long-term deposition on samples up to 15 cm in diameter or multiple small specimens. Its fully automatic programmable carbon coating process ensures easy, precise, and repeatable performance.

Additionally, this coating machine offers the advantage of thermal evaporation of low melting point materials in two directions – upward or downward. The distance between the thermal source and the substrate is adjustable, further enhancing its versatility.

APPLICATIONS

The Turbo Pumped Carbon Coater and Thermal Evaporator – DCT-T-300 facilitates the deposition of carbon films tailored for SEM, FE-SEM, EDX, and TEM sample preparation. It also supports the creation of conductive layers. Additionally, users have the option to perform TEM grid plasma treatment for enhanced hydrophilicity. Furthermore, the system enables TEM aperture cleaning utilizing the thermal source holder.

- **SEM & FE-SEM Sample Preparation** – Deposits uniform carbon coatings for high-resolution imaging and accurate microstructural analysis.
- **EDS/WDS Elemental Analysis** – Produces fine-grain conductive films to improve the performance of X-ray microanalysis.
- **TEM & EBSD Studies** – Provides ultra-thin, uniform coatings that support crystallographic and transmission electron microscopy applications.

- **Thin Film Deposition** – Enables thermal evaporation of low-melting-point metals in upward or downward directions for versatile coating requirements.
- **TEM Grid Treatment** – Facilitates plasma treatment of TEM grids to improve hydrophilicity and enhance imaging quality.
- **Aperture Cleaning** – Supports TEM aperture cleaning with the integrated thermal source holder, extending instrument lifespan and usability.

FEATURES

Hardware

- High vacuum level achieved through a built-in turbo pump from Leybold, supported by a two-stage rotary vane backing pump available in diaphragm or scroll pump variants.
- An optional internal 500 W switching DC power supply for carbon fiber deposition.
- An external 1.2 kW high-current DC power supply suitable for metal evaporation and carbon rod deposition.
- A quartz crystal thickness monitor featuring a precision of 1 nm and a resolution of 1 Å for accurate monitoring of deposition thickness.
- An automatic venting valve for controlled release of vacuum pressure.
- Adjustable sample rotation, height, and tilt, particularly designed for small sample holder stages.
- An optional planetary sample holder for enhanced versatility.
- Two high-current electric feed-throughs for easy insertion of thermal sources.
- A movable thermal source holder enabling upward or downward deposition configurations.
- S-Clip sample holders on the thermal head facilitating upward deposition.
- An electronic shutter for precise control over deposition processes.
- Easy-to-change specimen stages, with a rotation stage provided as standard.
- A two-year warranty and compliance with CE conformity standards.

- Coverage under both public and product liability insurance worldwide, ensuring protection against property damage or personal injury.

Automation

- An intuitive touch screen interface for easy control of the coating process and rapid data input.
- User-friendly software that can be updated via the network for continuous improvements and compatibility enhancements.
- Optional semi-full automatic coating process for enhanced efficiency.
- The capability for repeatable and programmable carbon coating processes in automatic mode, ensuring consistent results.
- Optional pulsed or flash carbon fiber coating modes for specialized applications.
- Optional pulsed or ramped carbon rod coating modes to meet specific requirements.
- Automatic carbon fiber/rod/thermal deposition based on the set thickness value, streamlining the process.
- Recording and plotting of coating parameters graphs for analysis and optimization.
- Storage of coating recipes for easy access and repeatable depositions, promoting efficiency and consistency.

Turbo Pumped Carbon Coater and Thermal Evaporator DCT-T-300 pulsed carbon fiber evaporation

PULSED CARBON FIBER EVAPORATION

- Performs pulsed carbon fiber evaporation with short, controlled bursts.
- Improves deposition control compared with conventional methods.
- Minimizes debris and ensures cleaner coating results.

Turbo Pumped Carbon Coater and Thermal Evaporator DCT-T-300 with optional carbon rod head

CARBON ROD EVAPORATION (OPTIONAL)

- Optional carbon rod head for alternative deposition method.
- Requires external 0–100 A high current power supply.
- Provides flexibility beyond carbon fiber evaporation.

Turbo Pumped Carbon Coater and Thermal Evaporator DCT-T-300 thermal evaporation platform

THERMAL EVAPORATION

- Equipped with high-current and low-voltage resistive thermal platform.
- Handles wide range of materials with precise deposition control.
- Supports multiple source types: boats, baskets, and coils.

Turbo Pumped Carbon Coater and Thermal Evaporator DCT-T-300 clean vacuum chamber

CLEAN VACUUM

- Cylindrical Pyrex chamber: 300 mm diameter × 200 mm height.
- Internal turbo molecular pump ensures contamination-free vacuum.
- Optional 6 m^3/h rotary vane pump for enhanced performance.
- Eliminates oil backstreaming common with diffusion pumps.

Turbo Pumped Carbon Coater and Thermal Evaporator DCT-T-300 touch screen control

TOUCH SCREEN CONTROL

- 7-inch color touch screen with intuitive software.
- Monitors vacuum levels and deposition sequences as data or curves.
- Stores history of last 300 coatings with easy USB export.
- Enables precise adjustment of deposition parameters.

Sample Holder Stages

The Turbo Pumped Carbon Coater and Thermal Evaporator – DCT-T-300 offers various customized sample stage configurations to meet diverse user needs. The standard sample rotation stages are rotatable and feature adjustable height and angle, ensuring ease of use and versatility. Additionally, users have the option to include a rotary planetary sample stage, which is ideal for achieving uniform coatings on porous specimens. For deposition on larger samples, an optional 6-inch rotatable sample holder stage is recommended. While this stage does not include incline adjustment, it provides ample space for accommodating sizable samples

Turbo Pumped Carbon Coater and Thermal Evaporator â€“ DCT-T-300

Standard Sample Holder

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Planetary Sample Holder

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6-inch Rotatable Sample Holder Stage

TECHNICAL SPECIFICATIONS

The Turbo Pumped Carbon Coater and Thermal Evaporator offers an optional turbo molecular pump with various pumping speeds, enhancing its performance capabilities. Key specifications include:

- Vacuum chamber dimensions of 300 mm outer diameter and 200 mm height.
- Ultimate vacuum of less than 8 x 10-6 Torr.
- Overall dimensions measuring 580 x 500 x 630 mm (height x width x depth).
- Utilities requirement of 220/110 V, 50/60 Hz with a power rating of 2 kW.
- Automatic control of pressure-independent coating processes.
- Precise vacuum pressure adjustment facilitated by an automatic leak valve.
- Real-time visualization of coating parameters through plotted data.
- Easy transfer of coating data plots to a PC via a USB port.
- Shipping weight of 46 kg.

Pumping Speed	90 l/s	250 l/s	350 l/s
Ultimate Pressure	8×10^{-6}	3×10^{-6}	8×10^{-7}

Options and Accessories

The Turbo Pumped Carbon Coater and Thermal Evaporator system includes the following components and accessories:

- Head and power supply for carbon rod evaporation
- Plasma rod and high-voltage power supply for plasma treatment
- Quartz crystal sensor for precise monitoring
- Planetary sample rotation mechanism for uniform coating
- Spare cylindrical vacuum glass chamber for backup or replacement
- Carbon fiber for deposition purposes
- Sealing gaskets to ensure vacuum integrity
- Source boats and baskets for material containment during deposition processes

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