

QUBE

VERSATILITY AND PERFORMANCE IN ONE BOX



SAMPLE PREPARATION

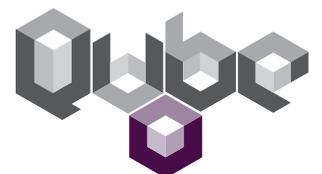
SPUTTERING

E-BEAM EVAPORATION

THERMAL EVAPORATION

GLOVEBOX COMPATIBLE

FASCINATING, FLEXIBLE AND MODULAR DEPOSITION SYSTEM FOR ADVANCED
COATINGS AND THIN-FILM DEPOSITION





The **QUBE** is an extremely exciting compact and highly flexible deposition system from Mantis Deposition Ltd.

The QUBE deposition system will fit perfectly in a laboratory, which makes it the ideal tool for a range of routine deposition processes, for small scale teaching laboratories, glovebox integration, or a cleanroom environment.

The vacuum chamber consists of a cubic six faceted frame machined from stainless steel, which makes the system extremely rigid and stable. The frame supports a large opening door and interchangeable panels, which can be easily swapped around to achieve the desired system configuration.

Depending on the type of the panel, it may serve as:

- Chamber wall (blank panel).
- Viewport (viewport panel).
- Deposition source (source panel).
- QCM (QCM panel).
- Pump or pressure gauge panel.

GLOVEBOX INTEGRATION

The panels can be mounted onto the frame in a matter of minutes, which saves a considerable amount of time whilst performing maintenance procedures or reconfiguring the system.

Replacing the front panel with an optional sliding door allows the system to be easily adapted to a glovebox.

Option: Class 10000 cleanroom compatible assembly.

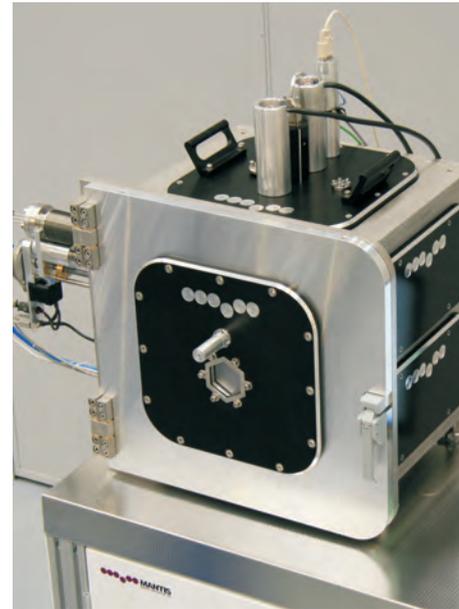
EASY ACCESS SUBSTRATE STAGE

The QUBE sample stage is designed to be reliable in operation and simple to use. It is typically placed at the top of the chamber with the sample facing downwards. A range of sample stages are available for multiple small samples up to a single large 10"/250mm sample.

The standard QUBE sample stage accepts a single 4"/100mm sample, with optional adapters for smaller samples. The stage is then available with optional rotation, heating, cooling, tilting for GLAD, mask handling and bias. These features enable the operator to customise their system to their specific coating needs. For full details, compatibility, and any special sample handling requirements please contact Mantis.

In order to change the sample simply open the front door and place the sample on the holder.

ADAPTABLE CHAMBER DESIGN



QUBE DEPOSITION SYSTEM



CAN EASILY BE ADAPTED FOR GLOVEBOX INTEGRATION



SAMPLE STAGE WITH ROTATION AND HEATING

BASIC SAMPLE STAGE



RELIABLE DEPOSITION SOURCES

The Mantis sputter sources are equipped with high performance UHV compatible SmCo magnets and accept targets with thickness ranging from 1mm to 6mm depending on the material. The typical target usage is around 43% for non-magnetic materials. The N-Type connectors allow operation with either DC or RF power supplies.

The QUAD series of mini e-beam evaporators is ideal for ultra-thin film and sub monolayer deposition with reliable process control. The source incorporates in-situ flux plates, for monitoring the evaporation rate. The evaporant can be deposited from either a rod or crucible up to 1000mm³ in volume.

The thermal boat source is available in two and four pocket configurations, both are uniquely designed for optimal film uniformity across all boats, due to their proprietary designs with common boat distance from the source central axis, ideal for both metals and organics. The operator no longer has to be limited by the performance of the outer boats.

ORMA and ORCA comcells are a new development in high control organic deposition. Whether large capacity single source (ORCA), or six pocket small capacity (ORMA) both offer precise thermal control of the evaporation process, ideal for the expert organic researcher.

The rotary multi-pocket e-beam evaporator (up to 8 x 15cc) with x/y beam sweep, crucible indexer and shutter allows for the deposition of a large number of different materials without opening the chamber.

CUSP



QUAD EV-HP



TBS-4-800



ORMA



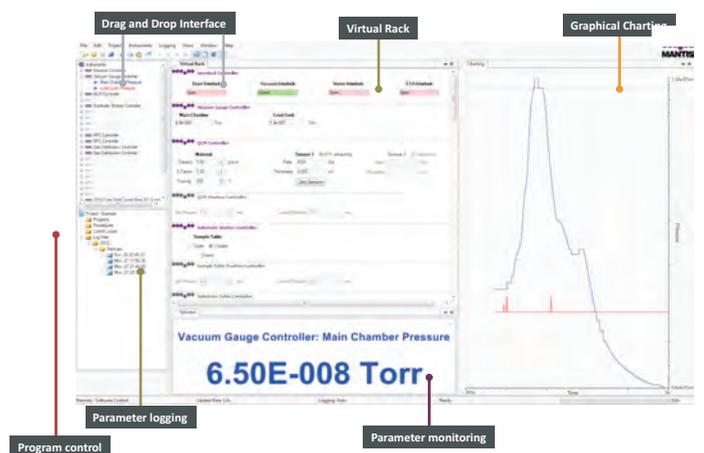
E-BEAM HEARTH



AUTOMATED SYSTEM

The QUBE is automated using our proprietary TITANIUM software suite installed on an integrated Microsoft Windows PC. The conceptual model organizes the workflow to meet operator needs at every stage of the deposition process.

The software features an intuitive user interface and simple meaningful visual display. Designed for a Windows environment it is a versatile platform for thin-film process innovation. The core of the software interface is a simple visual window that resembles the actual electronics rack with convenient toolbars which define instrument settings, and seamlessly integrates into programmed deposition sequences. It is very easy to display various parameters graphically and log data into files for further processing.



EASY TO SERVICE SOURCES
FOR USER FRIENDLY
HIGH PERFORMANCE
OPERATION

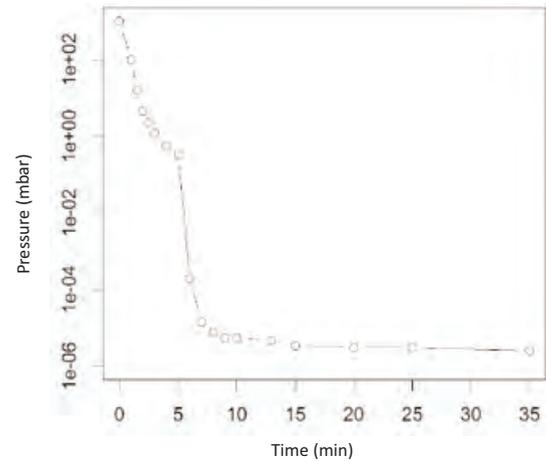


RAPID PUMP DOWN

The QUBE's pumping arrangement consists of a 265ls⁻¹ (optional 430ls⁻¹ or 685ls⁻¹) turbo pump at the bottom or at the side of the vacuum chamber, and a dry backing pump below which is "integrated" in the system cabinet. The pressure in the chamber is measured by an integrated vacuum gauge located near the turbo pump.

When pumping the system down with a 265ls⁻¹ turbo pump the base pressure reaches a guaranteed value of 5.0 x 10⁻⁶ mbar in just 15 minutes. The QUBE's ultimate base vacuum pressure is 1 x 10⁻⁷ mbar.

QUBE PUMP DOWN CURVE



OVERVIEW SYSTEM CONCEPT

QUBE CHAMBER WITH MODULAR AND RE-ARRANGEABLE SIDE PANELS

COMPUTER WITH CONTROL SOFTWARE

POWER SUPPLIES

FRAME WITH INTEGRATED RACK

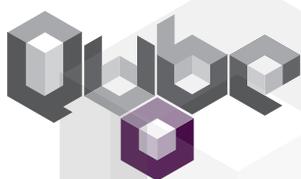
MFCs AND GAS SUPPLY

ROUGHING PUMP

Option: Class 10000
Cleanroom compatible
assembly possibility.

Compact standard footprint:
122cm x 70cm x 180cm (w/d/h).

System weight: 350kg to 400kg,
depending on the components
being installed.



Mantis Deposition Ltd is
ISO 9001 & 14001 certified



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