VacTechniche
PROBLEM SOLVED

# Desk Sputter Coater – DSR1



## DSR1

**Single Magnetron Cathode Desk Sputter Coater**

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## Disclaimer

The components and packages described in this document are mutually compatible and guaranteed to meet or exceed the published performance specifications. No performance guarantees, however, can be given in circumstances where these component packages are used in conjunction with equipment supplied by companies other than VacTechniche Ltd.

# Desk Sputter Coater DSR1

**The desk SEM coater model DSR1 is a compact coating system able to coat noble metals such as gold (Au), palladium (Pd), platinum (Pt), and gold/palladium (Au/Pd) thin films on non-conductive or poorly conductive specimens. Uniform thin films with fine-grain sizes can form in a fast cycle time, which makes it an ideal coating system for sample preparation for scanning electron microscopy (SEM) analysis.**



**The desk magnetron sputter coater (DSR1) is a high productivity tool that delivers consistent and highly repeatable results in the fully automated system. The ergonomic design and small footprint of the DSR1 SEM coating system allows easy use of the system.**

**The DSR1-170 is configured as a sputter coater suitable for Scanning Electron Microscope (SEM) sample preparation.**

**The DSR1 with a 2'' magnetron cathode, 80 W switching DC power supply, could be used for research and different thin film applications.**

**DSR1 can be equipped with a water-cooled cathode which make it suitable for long time deposition.**

**The maximum size of substrates in this model could be 4 inches.**

# Features

## Hardware:

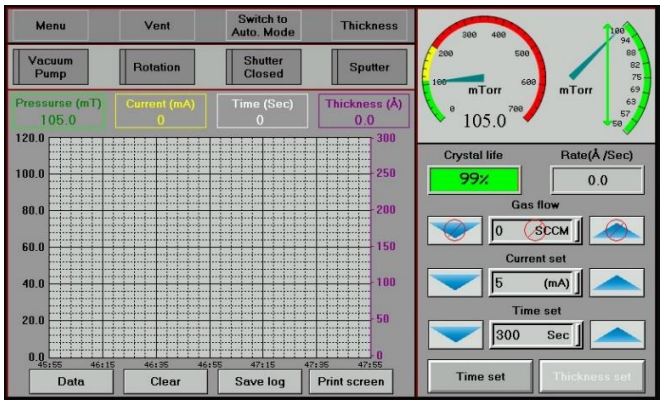
- **Two-stage, direct drive rotary vane pump 6 $m^3$/h (can be ordered or purchased separately)**
- **80 W switching DC power supply**
- **Quartz crystal thickness monitor with precision of 1 nm and resolution of 1 Å**
- **One 2-inch magnetron cathode**
- **Electronic gas valves**
- **Sample rotation, height, and tilt adjustable**
- **Equipped with electronic shutter**
- **Easy-to-change specimen stages (Rotation stage as standard)**
- **Two-year warranty**
- **CE conformity**

## Automation:

- **Intuitive touch screen to control the coating process and rapid data input**
- **User friendly software, updatable via network**
- **Controls coating rate to achieve finer grain structures**
- **Semi-full automatic coating process (Optional)**
- **Repeatable and programmable sputtering process in the automatic mode**
- **Manual or automatic timed and thickness deposition**
- **Able to record and plot coating parameters graphs**
- **Storing coating recipes for repeatable depositions**

# Touch Screen Control

**DSR1, the desk sputter coater, is equipped with a 7” colored touch-screen panel and full automatic control using a user-friendly software to control and adjust the deposition process data. The vacuum and coating sequence information can be observed as digital data or curves on the touch screen. The last 300 coatings information is saved on the history page and can be transferred to PC by a USB port on the device.**




# Sample Holder Stages

**The DSR1 can be equipped with different sample stage configurations depending on the user requirements. The standard sample stage is rotatable with adjustable height and angle and can be changed easily. The rotary planetary sample stage is a good choice for uniform coating of porous specimens (Optional).**



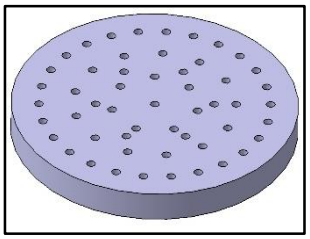
**Standard Sample Stage**

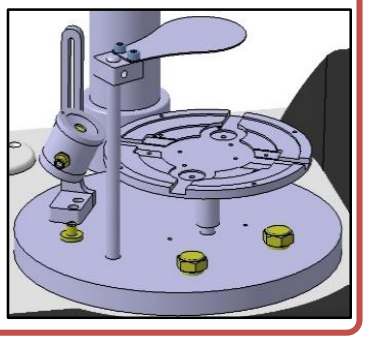


**Rotary Planetary Sample Stage**

## Newly Designed Sample Holder

**A new 4-inch rotating sample holder (with an optional gear offset) is designed for the system to increase the deposition area and the number of coating stubs in a run.**





# Applications

**The DSR1 is a scanning electron microscope (SEM) sample preparation system equipped with a rotary pump to achieve vacuum less than 50 mTorr, which is a suitable vacuum range for noble metals sputter coating.**

- **Noble metal coating for SEM and FE-SEM sample preparation**
- **Contact coating**
- **Glow discharge plasma for surface modifications and improved surface hydrophilicity (Optional)**

# Note

**For sputtering of oxidizing metals, please see the DST1 (Turbo-pumped desk sputter coater).**

# Specification

- **Suitable for deposition of noble metals**
- **Able to perform GLAD Sputtering**
- **Automatic control of the cathode's temperature to protect the lifetime of the magnets**
- **Max. power consumption: 1.5 kW**

# Options and Accessories

- **Quartz crystal sensor**
- **Planetary sample rotation stage**
- **Spare glass chamber**
- **Sputtering targets**
- **Sealing gaskets**
- **Glow discharge plasma treatment**

# Detailed Features

| | |
|---|---|
| **Dimensions** | 420 × 480 × 370 mm (H × W × D) |
| **Weight** | 30 Kg |
| **Vacuum Chamber Dimension** | Borosilicate Glass, 170 mm Dia.× 140 mm Height |
| **Display Screen** | 7” Diagonal (16:9) 800×480 High Color- Graphic TFT- LCD |
| **Data Transfer** | USB Port – For Transferring the data and graph to PC |
| **Target Dimension** | 1 Disc, Diameter ranging 50-56 mm, Thickness 0.1~3 mm (The preferred Thickness is less than 1 mm. For ferromagnetic targets thickness should be less than 0.5 mm.)<br>✓ A silver target is installed on the cathode when delivered. |
| **Sample Holder Dimension** | Standard holder with 60 mm Dia., can contain:<br>• 23×9.6 mm stubs or<br>• 14×12.7 mm stubs or<br>• 5×19 mm stubs<br>Sample holder with 100mm Dia. with Offset gear box can contain 40×12.7 mm stubs (optional) |
| **Chamber’s Lid** | Made of Aluminum and can locate 1 cathode on it. |
| **Thickness Sensor** | |
| **Specification** | Crystal thickness gauge with sensor, gold coated crystal quartz, oscillator |
| **Resolution** | ±1 Angstrom |
| **Accuracy** | ±1 nanometer |
| **Vacuum Equipment** | |
| **Vacuum Pump** | Two-stage rotary vane (can be ordered or purchased separately) |
| **Vacuum gauge range** | $10^{3}$-1×$10^{-3}$ Torr |
| **Final Vacuum** | 30×$10^{-3}$ Torr |
| **Process** | |
| **Sputtering** | Continuous Sputtering, Time, and Thickness dependent |
| **Service and other Information** | |
| **Gas** | Argon as process gas with %99.999 purity |
| **Electric Power Supply** | DC: 80 W switching DC power supply |
| **Control of Argon supply** | Electronic leak valve |
| **Shutter** | 1 piece |
| **Electrical Inlet** | Inlet: 220-240V or 110V, 50/60Hz * |

*** Single-phase AC power with appropriate earth connection is required.**