HIGH RESOLUTION
SPUTTER COATER

Introduction

The Agar high resolution sputter coater offers real solutions to the problems encountered when coating difficult samples for FEG-SEM. In order to minimise the effects of grain size the high resolution coater offers a full range of target materials with unprecedented control over thickness and deposition conditions. To minimise charging effects in the SEM, the stage design and wide range of operating pressures allows precise control of the uniformity of the coating. The high/low chamber configuration allows easy adjustment of working distance.

Sputter Chamber

Two alternative height 150 mm diameter pyrex work chambers are provided. This enables the working distance to be readily changed. The motorised specimen stage has four holders which move in a non-repetitive rotary planetary motion. A choice of 4 speeds are available and the specimen platform can be tilted from 0-90°. Specimen tables can be selected to suit a wide range of standard SEM stubs.

Sputter Head

The hinged top-plate contains the “cool” planar magnetron head. Chromium and platinum/palladium targets are provided as standard. A wide range of other target materials is also available. Targets are readily interchangeable.

Control System

The complete operating cycle including pumping, argon flushing, timing and venting is carried out under micro-processor control with user defined inputs to select the sputtering current and coating time. The sputter current is set on a digital programmer and is independent of the argon pressure in the chamber. Alternatively the integrated film thickness monitor can be used to terminate the sputtering process when the desired thickness has been reached.

The precision argon leak valve is solenoid operated and gas pressure can be closely controlled.

Pumping System

The system is pumped by a turbo-molecular drag pump backed by a rotary pump. The turbo-molecular drag pump is bolted to the main chassis and the rotary pump complete with anti-vibration platform is designed to sit on the bench behind the main unit. The system is designed to achieve a vacuum of 1×10^{-3} mb in 1 minute with a base pressure of 1×10^{-5} mb. The high capacity pumping system in combination with the precision leak valve provide the gas handling capability necessary for use with non noble metal targets.

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Specification
HR: General

Sputter chamber:	150mm diameter
Sputter target:	Cr, Pt/Pd (standard) optional: Ta, Au, Au/Pd, Pt, W
Sample Stage:	non-repetitive rotary, planetary motion with manual tilt 0-90° variable speed rotation crystal head 4 sample holders (specify when ordering see Spares and Consumables)
Sputter supply:	microprocessor based safety interlocked 80mA max current
Analog metering:	vacuum Atmos - 0.001mb current 0-100mA
Thickness monitoring:	MTM-20 terminating system
Control method:	automatic operation of gas purge and leak functions automatic process sequencing digital timer (0-300 sec) with pause automatic venting

HR: Pumping System

Configuration:	rotary pump/turbo drag pump combination
Speed:	300 lit/min at 0.1mb
Chamber pumpdown:	1 min to 1 x 10^{-3}mb
Ultimate pressure:	1 x 10^{-5}mb
Desktop system:	rotary pump is mounted on desktop compatible anti-vibration table

HR: Thickness Controller

	microprocessor based 4 digit display, push button zero 6MHz crystal with lifetime check 5 times/sec update rate
Thickness range:	0.0 - 999.9nm
Resolution:	better than 0.1nm
Density range:	0.50 - 30.0g/cm^3
Tooling factor range:	0.25 - 8.0
Terminating facility:	0 - 999.9nm

HR: Services Required

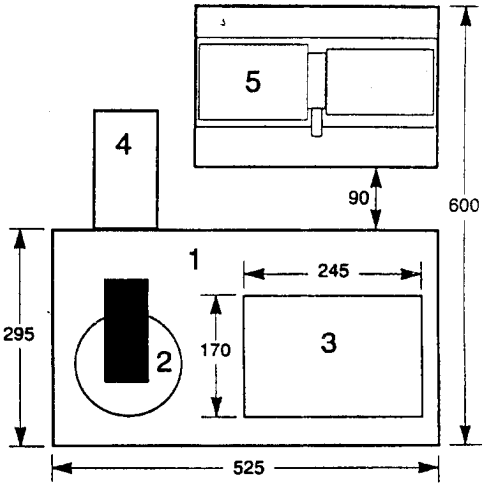
Power:	100-240 VAC. 50/60Hz, 1200 VA MAX
Gas:	Argon MIN 99.9°% purity, regulated to 7/8 psi (0.5/0.6 bar) 1/4" (6mm) ID hose

Ordering Information
Product

HR Sputter Coater
(including Cr, Pt/Pd Targets
Pumping System
Thickness Controller MTM-20
RPT Sample Stage with 4 Holders)

Targets
Gold Target (57mm x 0.1mm)
Platinum Target (57mm x 0.1mm)
Gold/Palladium Target (57mm x 0.1mm)
Chromium Target (57mm x 3.2mm)
Tantalum Target (57mm x 0.1mm)
Platinum/Palladium Target (57mm x 0.1mm)
Gold Target (57mm x 0.2mm)

Spares and Consumables
Thickness Monitor Crystals (box of 10)
Rotary Pump Exhaust Filter
Rotary Pump Exhaust Filters (box of 5)
Glass Chamber (150D x 150H)
Glass Spacer (150D x 65H)
Metal Spacer Ring
Sample holder for 6 x 12.5mm pin stubs
Sample holder for 3 x 19mm pin stubs
Sample holder for 4 x 10mm stubs
Sample holder for 4 x 15mm stubs
Sample holder for 1 x 25mm mount
Sample holder for 1 x 32mm mount



1 Control unit
2 Vacuum chamber
3 Thickness monitor
4 Turbo drag pump
5 Rotary pump and base

HIGH RESOLUTION SPUTTER COATER

- WIDE CHOICE OF COATING MATERIALS
- PRECISION THICKNESS CONTROL
- MULTIPLE STAGE MOVEMENTS
- VARIABLE CHAMBER GEOMETRY
- WIDE RANGE OF OPERATING PRESSURES
- COMPACT MODERN BENCH DESIGN