

## Automatic SEM Carbon Coater

AGB7367A



**Dedicated automatic SEM carbon coater with carbon rod source and integrated pumping system.**

### Introduction

The Agar automatic SEM carbon coater is a dedicated advanced design coating unit ideally suited for the routine coating of SEM and X-ray microprobe samples. It is compact, economical, simple to operate and fits easily onto a normal laboratory bench top.

The coater can be supplied with an integrated pumping system or pump connection kit for use with an alternative pump. The pumping system can be readily interchanged and shared with the Agar sputter coater. Alternatively, the dual pumping system with changeover valve enables two Agar coating units to share the same pump.

The standard Agar film thickness monitor can be added to the film thickness monitor to measure coating thickness.

## Evaporation Chamber

The fully annealed Pyrex work chamber (120 x 120mm) is sealed with wide section 'O' rings to the baseplate and hinged top-plate. The baseplate contains the large area pumping port and film thickness monitor feedthrough port.

A manual air inlet valve is situated in the top-plate.

The standard specimen table accepts up to 6 samples. The height of the table is adjustable to give a working distance between 25 and 65mm. A larger specimen table accepting up to 12 samples is optionally available and is supplied as standard with the film thickness monitor.

## Carbon Rod Source

The heavy-duty stainless steel source uses 6.15mm dia. shaped carbon rods. The unique feedback-controlled power supply gives a maximum current of 200A at 5V. The source shows exceptional re-starting characteristics giving highly reproducible coating thickness. A vacuum safety interlock prevents operation with the chamber open.

## Control Unit

All the controls are front panel mounted for easy access. The power switch initiates the pumping sequence with the vacuum registered on the meter. In the automatic mode, the voltage can be set in 0.1V increments between 0.1-5.5V. The setting is displayed on an LED read out. Evaporation time can be set on a digital timer from 1-30 secs. The coating sequence is then initiated via the start button.

In the manual mode, the voltage is set via the control knob. Evaporation is started and stopped via the start/stop button.

## Pumping System

The compact pumping system is mounted on an anti-vibration platform and is designed to sit on the desktop behind the coating unit. The pump is connected to the coater by a short stainless steel bellows with standard KF16 fittings.

Pump down to 0.1mb is 35 seconds with an ultimate pressure of  $5 \times 10^{-3}$ mb.

The dual pumping system includes a changeover valve and two stainless steel bellows for connection to two Agar coating units. Either unit can be evacuated by operation of the valve. A rotary pump connection kit is available for users wishing to use an alternative pump.

## Thickness Monitor

The Agar high resolution thickness monitor can be readily fitted using the vacuum feed through port provided.

The crystal head is mounted on the specimen table. The monitor has a four-digit LED display of thickness with push button zero and crystal lifetime check.

The density of two different target materials can be stored in the dual source memory which allows the monitor to be used with the Agar sputter coater. The tooling factor compensates for differences between the specimen and crystal positions in the chamber.

## Specifications

Chamber size:	120mm dia x 120mm high
Evaporation source:	Bradley type (6.15mm rods) heavy duty stainless construction
Evaporation supply:	Microprocessor based Feedback loop controlled with remote current/voltage sensing Safety interlocked by vacuum level Variable, 180A max, with over-current protection
Sample table:	Holds 12 SEM stubs Height adjustment 30mm
Analogue metering:	Vacuum atmosphere - 0.001mb current 0-200A
Control:	Automatic evaporation control using programmed voltage and timer. Full manual override with pulsed or continuous operation. Digital timer, 1-30 seconds Digital voltage setting, 0.1 – 5.5V Automatic vent
Dimensions:	420mm wide x 295mm deep
Weight:	11Kgs

## Pumping System

Rotary pump:	High speed, direct drive, 2 stage
Pumping speed:	2.0/2.4 cu.m/hr (50/60Hz) Pumpdown time to 0.1mb is 25/30 sec
Benchtop system:	Vacuum pump is mounted on bench top compatible anti-vibration table with stainless steel bellows coupling
Dimensions:	330mm wide x 215mm deep
Weight:	14Kgs

## Thickness Monitor

General specification:	Microprocessor based
	4 digit display, push button zero
	6MHz crystal with lifetime check
	5/sec update rate
Thickness range:	0.0-999.9nm (pos./neg.)
Resolution:	0.1nm for carbon
Density range:	0.50-30.00gm/cm <sup>-3</sup>
Tooling factor range:	0.25-8.0
Data change facility:	2 source memory for target density

## Ordering Information

Product	Order Code
Agar SEM carbon coater	B7367A
Desktop pumping system	B7366
Dual pumping system	B7736
Rotary pump connection kit	B7368
Thickness monitor	B7348
Thickness monitor crystals (Pk 10)	B7732