

## Automatic Sputter Coater

AGB7341, AGB7341SE



**Compact benchtop high resolution coating unit with pumping system for automatic coating of SEM samples**

The Agar sputter coaters are ideally suited for routine sample coating applications. Simple and economical to operate, the compact bench top units offer rapid pump down times, fine grain coatings and negligible sample heating.

The sputter coaters are supplied complete with a pumping system for use with an alternative pump. The pumping system can be readily interchanged and shared with the Agar carbon coater. Alternatively, the dual pumping system with changeover valve enables two Agar coating units to share the same pump.

The Agar range of film thickness monitors can be added to measure coating thickness.

## Sputter Chamber

The fully annealed Pyrex work chamber is sealed with wide section 'O' rings to the base-plate and hinged top- plate. The standard working chamber dimensions are of 120 mm diameter x 120 mm height for AGB7341 and of 150 mm diameter x (165 to 250 mm) height with Telescopic Top Plate Support for AGB7341SE. If one of the optional sample stages is part of the configuration, then the height is lower. Target shutter has been added to condition special targets prior to coating for AGB7341SE.

The base contains the large area pumping port and a feedthrough port for the optional Manual Film Thickness Monitor or Terminating Film Thickness Monitor. The standard specimen table accepts up to 12 stubs of ½" diameter. The height of the table is adjustable to give working distances through 60mm. A Rotary Tilting Stage is available as option for AGB7341. A Rotary-Planetary-Tilting Stage and a Rotary Tilting Stage are available for AGB7341SE.

## Sputter Head

The hinged top-plate contains the 'cool' planar magnetron sputtering head with a quick change of 57mm dia 0.1 mm thickness gold target delivered standard.

Other targets such as gold/palladium, platinum, platinum/palladium or silver can be readily interchanged. Targets of 57 mm dia can be delivered with a thickness of 0.1 mm or 0.2 mm. A vacuum safety interlock prevents operation with the chamber open.

## Control System – Automatic Sputter Coater

The complete operating cycle including pumping, argon flushing, timing and venting is carried out under microprocessor 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. Manual operation is also possible, and this mode is used to set the operating parameters. Further automation can be achieved with the addition of the thickness monitor with terminator. With this fitted, the automatic coating thickness can be terminated when the pre-set coating thickness has been reached. The terminating capability can only be used with the automatic coating unit.

## Pumping System

The compact pumping system is mounted on an anti-vibration platform and is designed to sit on the bench top 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.

## Thickness Monitors

The Agar film thickness monitors are designed for use with the coating units. Each monitor has a four digits LED display, push button zero and crystal lifetime check.

The density of two different target materials can be stored in the memory. The tooling factor compensates for differences between the specimen and crystal positions in the chamber. The monitor can also be used with the Agar carbon coater.

Resolution of measured coating thickness is better than 0.1nm for any material.

## Specifications

<b>Chamber size</b>	120mm (4.75") dia x 120mm (4.75") high for AGB7341 150mm (5.9") dia x 165mm (6.5") to 250mm (9.8") for AGB7341SE
<b>Sputter target</b>	Gold target $\varnothing$ 57 x 0.1mm fitted as standard. Optional targets: Au/Pd, Pt, Pt/Pd, Ag 57mm dia. x 0.1mm thick, or 57mm dia. x 0.2mm thick
<b>Sample table</b>	Holds 12 SEM ½" (12.5 mm) stubs delivered as standard, height adjustment through 60mm. R-T stage available for AGB7341, R-T and R-P-T stage available for AGB7341SE.
<b>Sputter supply</b>	Programmable digital control, microprocessor based Safety interlocked Current control independent of vacuum, 10 - 40mA
<b>Sputter head</b>	Low voltage planar magnetron type with quick target change Wrap-around dark-space shield
<b>Analogue metering</b>	Vacuum: atmosphere - 0.001mb, Current: 0 - 50mA
<b>Control method</b>	Automatic operation of gas purge and leak functions Automatic process sequencing Full manual override Digital timer (0-300 sec) with pause Automatic vent
<b>Dimensions</b>	420mm Wide x 295mm Deep x 287 mm Height
<b>Weight</b>	11Kg
<b>Power consumption</b>	45 VA max. (excluding rotary pump)

## Pumping System

<b>Rotary pump</b>	High speed, direct drive, 2 stage
<b>Pumping speed</b>	3.0/3.6 m <sup>3</sup> /hr (50/60Hz) Pump downtime to 0.1mb is 20/25 sec
<b>Bench top system</b>	Vacuum pump is mounted on Benchtop compatible anti-vibration table with stainless steel bellows coupling system
<b>Dimensions</b>	330mm Wide x 215mm Deep x 210mm (270mm with filter) Height 210 mm
<b>Weight</b>	15 Kg
<b>Power consumption</b>	130 VA

## Services required

<b>Supply</b>	100 – 120 or 200 – 240 VAC, 50/60Hz (to be specified on order)
<b>Power</b>	175 VA max.
<b>Argon Gas</b>	Purity min. 99.9%
<b>Pressure</b>	Regulated 7 – 8 psi (0.5 – 0.6 bar) Hose connection: 6.0 mm (1/4")

## Thickness Monitors (optional)

<b>General spec</b>	4 digit display, push button zero 6MHz crystal with lifetime check 10/sec update rate
<b>Thickness range</b>	99.9nm to 999.9nm
<b>Resolution</b>	Better than 0.1nm
<b>Density range</b>	0.50-30.00gm/cm <sup>-3</sup>
<b>Tooling factor range</b>	0.25-8.0
<b>Crystal check</b>	Lifetime display, 0.0 to 999.9KHz shift
<b>Parameter setting</b>	Non-volatile parameter memory with automatic acceleration of scrolling rate

**Data change facility** 2 source memory (e.g. Au sputter and C evaporation)

**Supply** 100 - 120 or 200 - 240 VAC @ 4 VA, 50/60Hz

**Dimensions** Width 208mm (8.2"), Height 76mm (3.0"), Depth 160mm (6.3")

**Weight** 1.7Kg (3.75 lbs)

**Terminate facility** (only AGB7349) Push button enable/disable Termination range (only AGB7349) 0 - 999.9nm

**Termination output** SPCO relay contact, voltage free rated 0.5A @110 VAC, 1A @ 24 VDC

### Ordering Information

Automatic Sputter Coater	AGB7341 or AGB7341SE
Rotary Tilting Stage	AGB7365 for AGB7341 or AGB7251 for AGB7341SE
Rotary Planetary Tilting Stage (AGB7341SE only)	AGB7231
Desktop pumping system	AGB7366
Dual pumping system	AGB7736
Film thickness monitor	AGB7348
Terminating Film Thickness Monitor	AGB7349
Thickness monitor crystals (Pk 10)	AGB7732
Gold target (ø 57 x 0.1mm)	AGB7390
Gold target (ø 57 x 0.2mm)	AGB7390-2
Gold/Palladium target (ø 57 x 0.1mm)	AGB7391
Gold/Palladium target (ø 57 x 0.2mm)	AGB7391-2
Platinum target (ø 57 x 0.1mm)	AGB7392
Platinum target (ø 57 x 0.2mm)	AGB7392-2
Silver target (ø 57 x 0.1mm)	AGB7394
Platinum/Palladium target (ø 57 x 0.1mm)	AGB7395
Platinum/Palladium target (ø 57 x 0.2mm)	AGB7395-2