

ATS 500 BOX COATING SYSTEMS



THIN FILM SYSTEMS FOR RESEARCH & PRODUCTION

ATS 500. The flexible research & production thin film deposition system from HHV Ltd.

ATS 500 is designed for research and small batch production in OLED and organic electronics applications, photovoltaics, semiconductor devices, lenses and optical filters.

The system features a full-colour, touch-screen PLC with integrated process recipe control and data logging functions.

PC control is available as an option.

ATS 500 is offered with a wide range of process options including:

- Resistance evaporation sources
- Temperature controlled evaporation sources for OLED and organic photovoltaic applications
- Electron beam sources for high-rate evaporation and lift-off processes
- Ion-beam assistance for optical applications or substrate cleaning.
- DC, RF and pulsed DC for sputtering of metals and dielectrics with upward or downward sputter processes
- Combination systems featuring two or more of the above



Features and benefits

- Flexibility – wide range of processes in a single system package
- Ion beam processes - for optical coating applications
- Cost – ATS 500 is designed as an affordable, versatile system

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PROCESS FLEXIBILITY

System control

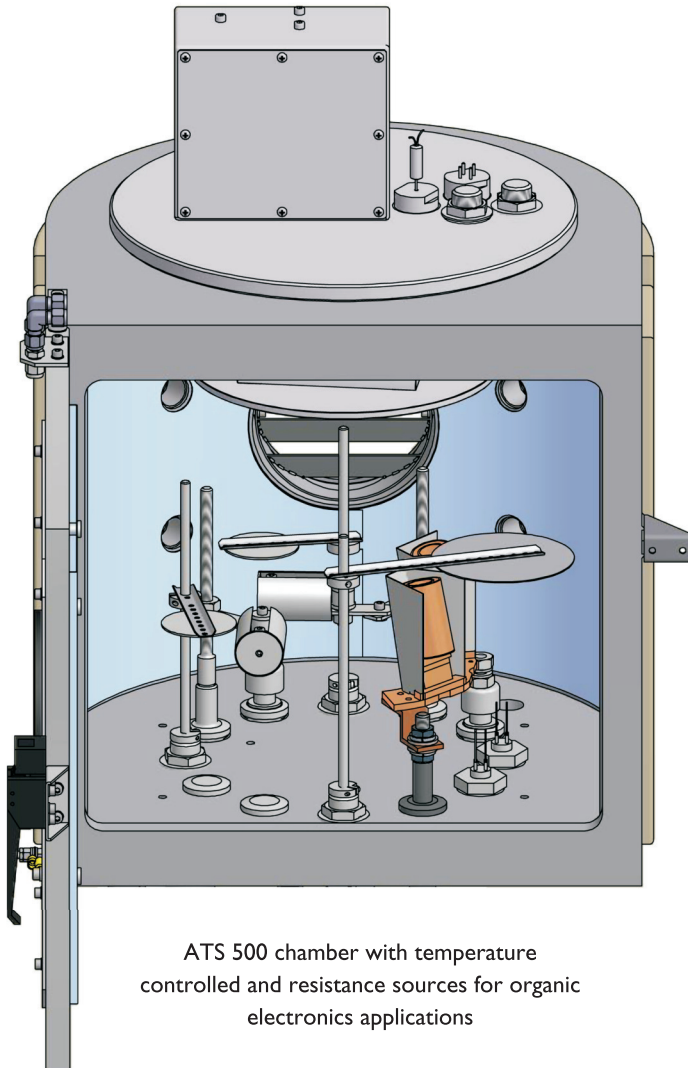
ATS 500 is fitted with a full-colour, touch-screen PLC-based HMI. The system features recipe control for single or multi-layer films plus full manual control where required. Data logging is provided along with remote support and assistance.

An optional PC-based system is provided for users requiring process report generation.

Thermal evaporation.

The ATS 500 chamber can be fitted with one or more thermal resistance sources. HHV's thermal sources can be adjusted to almost any position in the chamber for optimum performance.

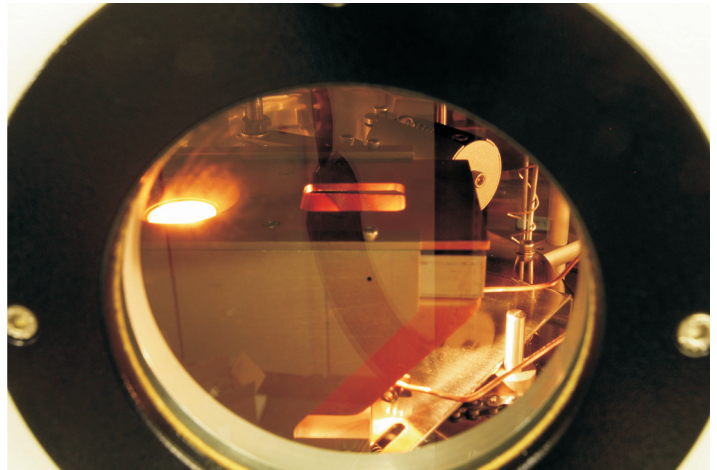
ATS 500 also accommodates temperature-controlled, low-temperature evaporation sources for specialist research applications.



ATS 500 chamber with temperature controlled and resistance sources for organic electronics applications

Electron beam evaporation

Options range from compact 4-pocket sources to 8kW or 12kW sources with up to 8 pockets.



Electron beam deposition in operation

Sputtering

Sputter systems are fitted with tilt and height - adjustable magnetron sputter sources with integrated shutters.

Available with 50mm, 75mm or 100mm targets these sources can be fitted singly or in multiple, or even in combination with other types of source to create a truly versatile thin film deposition system.

DC, RF or Pulsed DC operation with comprehensive source switching options for process flexibility.



ATS 500 chamber with two 100mm sputter sources & ion beam source

Mass flow control

Options include:

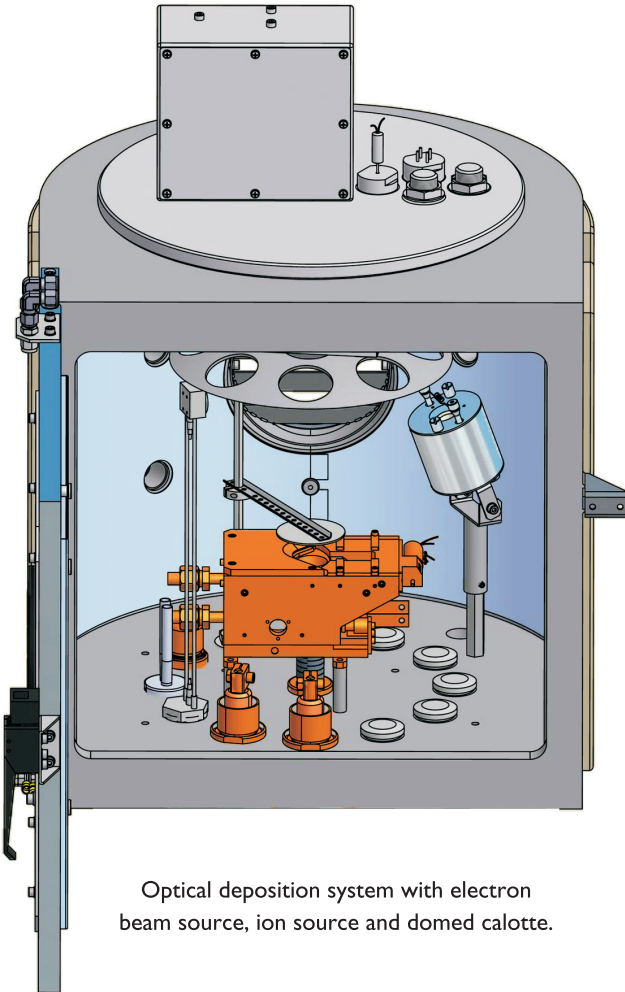
- Single, dual or multiple gases
- Pressure control systems

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COMPREHENSIVE CAPABILITIES

APPLICATION FOCUS. OPTICAL COATINGS:

By fitting a compact electron beam source and ion source, the ATS becomes a highly functional and affordable system for optical research and pilot production.



Optical deposition system with electron beam source, ion source and domed calotte.

Substrate stages

ATS 500 systems can be specified with a wide range of substrate stages:

- Plane rotary with quick-release platen
- Water-cooled rotary
- Domed calotte
- Planetary
- RF or DC bias
- High temperature heating to 800C
- Z-lift for sample transfer

Sample handling

Handler options include:

- Load lock with rotary or turbo pump
- Telescopic transfer arm
- Magnetic transfer arm
- Manual or motorised operation

Film thickness monitoring and control

Film thickness monitoring options include a two-channel rate monitor which is integrated into the touch screen. The integrated monitor includes shutter control for end point control. Conventional film thickness monitors and film deposition controllers can also be fitted.

Chamber

The standard chamber is 500mm (19") wide x 500mm tall, and is constructed from stainless steel with a wide-opening aluminium front door and viewport.

Optional extended-height versions are available for applications such as lift-off. Chambers are water-cooled where high-temperature processes are specified.

Vacuum systems

ATS 500 provides clean, high vacuum for deposition processes:

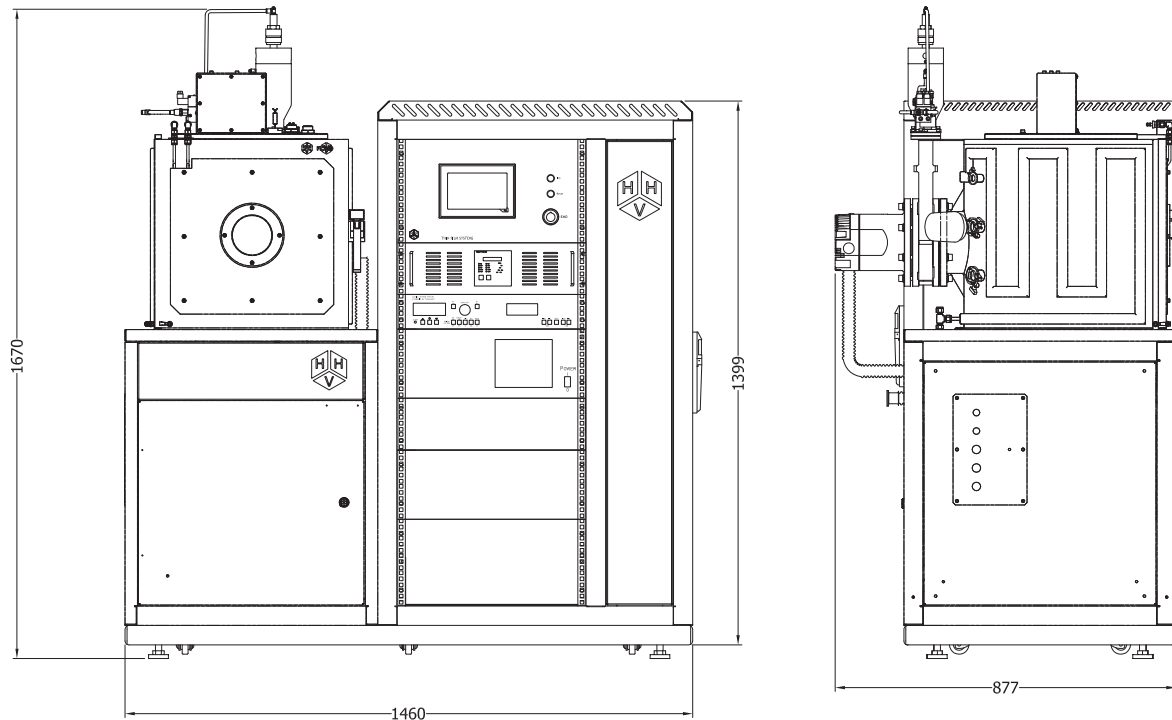
- Conventional or mag-lev turbo pumps
- Cryo pumping
- Rotary or dry scroll foreline pumps
- Optional gate valve (standard for cryo pump, sputter or ion processes)



Turbo pump and optional gate valve

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TECHNICAL INFORMATION



ATS 500 outline dimensions (mm)

TECHNICAL DATA

ATS 500

Chamber	: 500mm wide x 500mm tall. Tall options for lift-off. Stainless steel with aluminium door
Turbo pump	: 400 l/s or 1000 l/s conventional turbo. Mag-lev options
Cryo pump	: 1500 l/s cryo pump
Backing/roughing	: Rotary pump or dry scroll pump
Vacuum	: Atm to 1×10^{-6} mbar <40 minutes, ultimate vacuum better than 5×10^{-7} mbar (with 400 l/s turbo pump and clean, dry, empty 500mm chamber)
Weight	: Approx. 450kg to 500kg, specification dependant

Process accessories

Resistance sources	: Single or multiple, 1kVA or 2kVA
Organic sources	: Temperature-controlled 1cc, 4cc, 10cc, single or multiple sources
Electron beam sources	: 3kW (4 x 4cc) or 6kW or 12kW (4 x 7cc, 6 x 7cc, 4 x 15cc, 6 x 15cc, other)
Sputter sources	: 50mm (2") to 150mm (6"), fixed height, variable height, tilt
Sputter configuration	: Upward or downward
Ion sources	: Compact ion source options for etch or assisted deposition
Mass flow control	: Single gas, dual gas, multiple gas. Chamber pressure control systems
Substrate holders	: Rotary, water cooled, heated (quartz lamp or resistance heated), RF or DC bias, z-axis lift for sample transfer, domed calotte, planetary
Load lock systems	: Turbo pumped with manual or motor driven transfer arms
Combination systems	: Single or multiple techniques in same chamber



HHV Ltd

Unit 2, Stanley Business Centre, Kelvin Way, Crawley, West Sussex,
RH10 9SE, United Kingdom. Tel: +44 (0) 1293 611898. Fax: +44 (0) 1293 512277.
Email: info@hhvlt.com www.hhvlt.com

ATS 500 v1
HHV Ltd
E&OE