# AUTO 500

Proven Workhorse for Research and Pilot Production

ADVANCED Technologies


The HHVAT Auto 500 is versatile and compact coating system which can meet the varied demands of the researchers in the thin film and nanotechnology domains. With their range of vacuum pumping options, chambers and modular Process accessories, the Auto 500 offers users a range of techniques to complement the modern laboratory.

# SPECIFICATIONS

| S No. | Specification Category | Technical Details |
|---|---|---|
| 1 | **Vacuum Chamber** | ▪ Material of construction: Stainless steel SS 304<br>▪ Electro-polished, water cooled D-shaped box chamber<br>▪ 400 mm (W) x 400 mm (D) x 500mm (H)<br>▪ Front opening quick access door for loading and unloading of the substrates<br>▪ High vacuum compatible toughened glass view port<br>▪ Easily removable stainless steel liners<br>▪ Stainless steel base plate with appropriate holes for fitting accessories. Unused holes are blanked-off |
| 2 | **Vacuum Pumping System** | ▪ Rotary pump with pumping speed of 20 $m^3$/hr<br>▪ Turbo molecular pup with pumping speed of 400 l/s<br>▪ Liquid Nitrogen trap of 1.4 Ltr capacity<br>▪ Motorized poppet high vacuum valve<br>▪ Right angle valve and vent valve included<br>▪ Pirani and penning gauges to measure $10^{-8}$ Torr<br>▪ Ultimate vacuum 5 x $10^{-7}$ Torr within 120 minutes<br><br>Option : Diffusion pump backed by dry scroll pump |
| 3 | **Electron Beam Gun with Power Supply** | ▪ Make : Edwards/equivalent<br>▪ 4 pocket x 4 cc EB source with rotatable motorized turret indexer<br>▪ 270 deg beam deflection using electromagnets/permanent magnets<br>▪ Water cooling<br>▪ Capable of evaporating high melting point materials such as Mo and W<br>▪ Integral x-y beam sweep coils<br>▪ X-Y sweep controller<br>▪ 3 kW E-beam power supply<br>▪ Electro-pneumatically operated shutter |
| 4 | **Thermal Evaporation Source** | ▪ LT evaporation electrical feed through and evaporation source holder<br>▪ 2 kW Power supply capable of delivering 200 amps at 10 volts, 100 amps at 20 volts.<br>▪ Digital panel meter for LT secondary current through current transformer<br>▪ Electro-pneumatically operated shutter<br>▪ HT operation for future |
| 5 | **Rotary Work Holder** | ▪ Rotary substrate holder<br>▪ Hold upto 6” diameter substrate or multiple number of substrates<br>▪ Substrate heating upto 250 deg. C.<br>▪ K Type thermocouple & PID controller<br>▪ Thickness uniformity better than 5% over 6” wafer<br><br>Option: Heating up to 500 deg. C |
| 6 | **Film thickness monitor cum controller** | ▪ Make: Inficon<br>▪ Insitu rate, thickness measurement and control<br>▪ Oscillator kit included<br>▪ Water cooled front load sensor head |
| 7 | **Water chiller & Air compressor** | ▪ 0.5 TR capacity water chiller for closed loop water cooling<br>▪ Suitable capacity air compressor |
| 8 | **Control system** | ▪ Touch screen HMI based PLC system<br>▪ Comprehensive safety interlocks are provided to prevent incorrect operation of the system with maximum operator safety.<br><br>Option: Industrial PC with SCADA software |

## CHAMBER CONFIGURATIONS

Thermal & Electron Beam Source

Rotary Work Holder
with Heater

## CONTROL OPTIONS


## RESULTS

Uniformity of +/- 5 % as standard. Custom designed configurations to get better than +/- 3 %

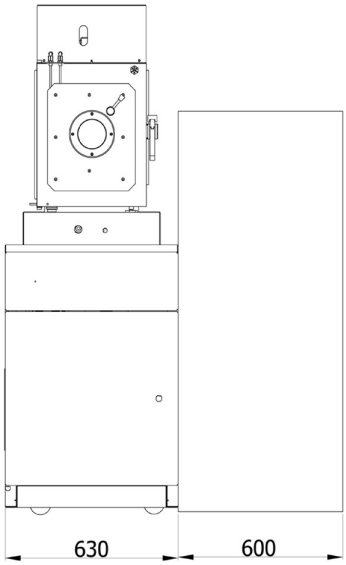
## FEATURES

- Proven design with over 500 + installations worldwide
- Range of vacuum chambers and work holders to suit applications
- Integrated film thickness monitoring and vacuum control option
- Intelligent high vacuum valve
- No pneumatics, all electronic components
- CE marked

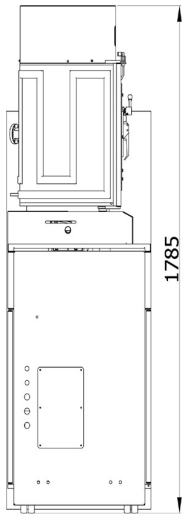
## APPLICATIONS

- Semiconductors
- Optical coatings
- Metal coatings
- Organic Electronics
- Hard coatings
- SEM and TEM sample preparation

## LAYOUT




Auto 500




Depth profile

All dimensions in mm
Representative footprints. Actual dimensions will depend on system configuration.

HHV ADVANCED Technologies

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