ALD 150

Atomic Layer Deposition System

HHV Ltd

Thin film deposition tools
for science and industry



The ALD 150 is a compact thermal atomic layer deposition (ALD) platform that can deposit pin-hole free films with extreme surface conformality and excellent thickness control. The systems are completely automated, and come with laptop based user interface. The platform offers two different chamber options, and can be either supplied with a cross-flow reactor, or a showerhead reactor. The source manifold can be integrated with up to six materials at a time which can be solid, liquid or gas precursors. The system is highly flexible and can be customized with a range of vacuum pumping options, and combination of sources to suit the specific end-user's applications.

CHAMBER CONFIGURATIONS



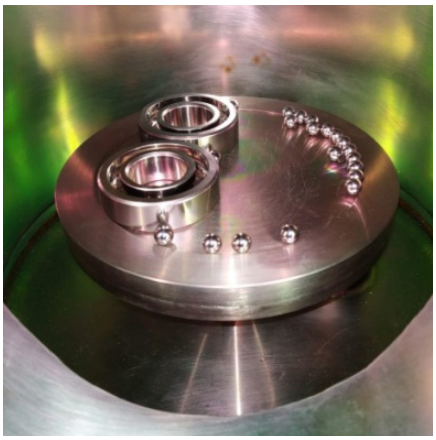
Cross Flow Reactor



Showerhead Reactor



Suitable for 2D samples

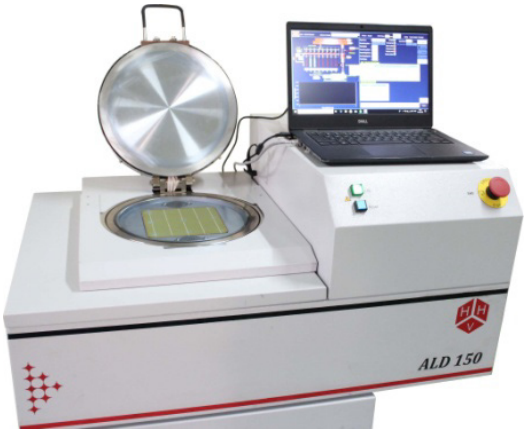


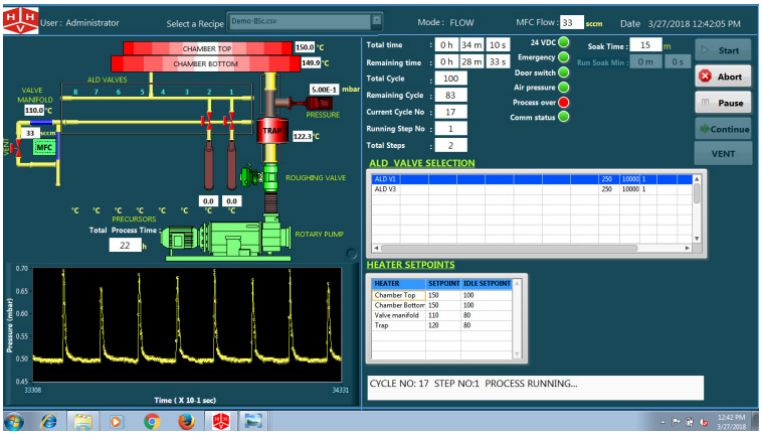
Suitable for 3D samples

SPECIFICATIONS

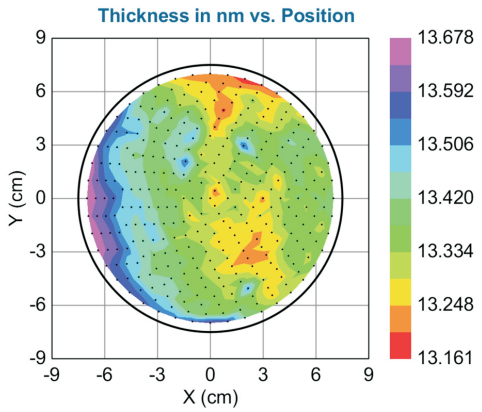
ACTIVATION MODE	Thermal
SUBSTRATE SIZE	156 mm x 156 mm x 5 mm for cross flow reactor 100 mm x 100 mm x 50 mm for showerhead reactor
SUBSTRATE TEMPERATURE	350 °C for cross flow reactor 400 °C for showerhead reactor
PUMPING OPTIONS	Rotary/Dry with vapour trap and gas purging
NO. OF PRECURSORS	2 precursor lines in basic version. Additional lines can be provided for higher versions going upto a maximum of 6 lines
VALVES	Fast-acting valves with actuating time of < 5 ms and heatable upto 200 °C
INTERFACE	Laptop with NI Labview® software
ADDITIONAL OPTIONS	Ozone Generator, Scrubber, Quartz Crystal Monitor

CONTROL OPTIONS



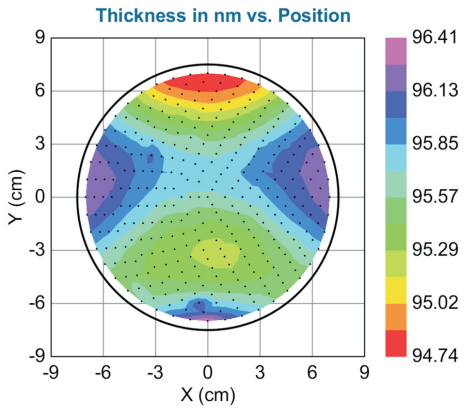


RESULTS



100 Cycles

1σ	0.098 nm
Average	13.38 nm
Thickness non-uniformity	**± 0.73 %**



800 Cycles

1σ	0.039 nm
Average	95.64 nm
Thickness non-uniformity	**± 0.41 %**

Ellipsometry mapping of film thickness for Al_2O_3 grown on 6" diameter silicon wafer

COATED SAMPLES



Recipes available: Al_2O_3, ZnO, TiO_2 and their combinations

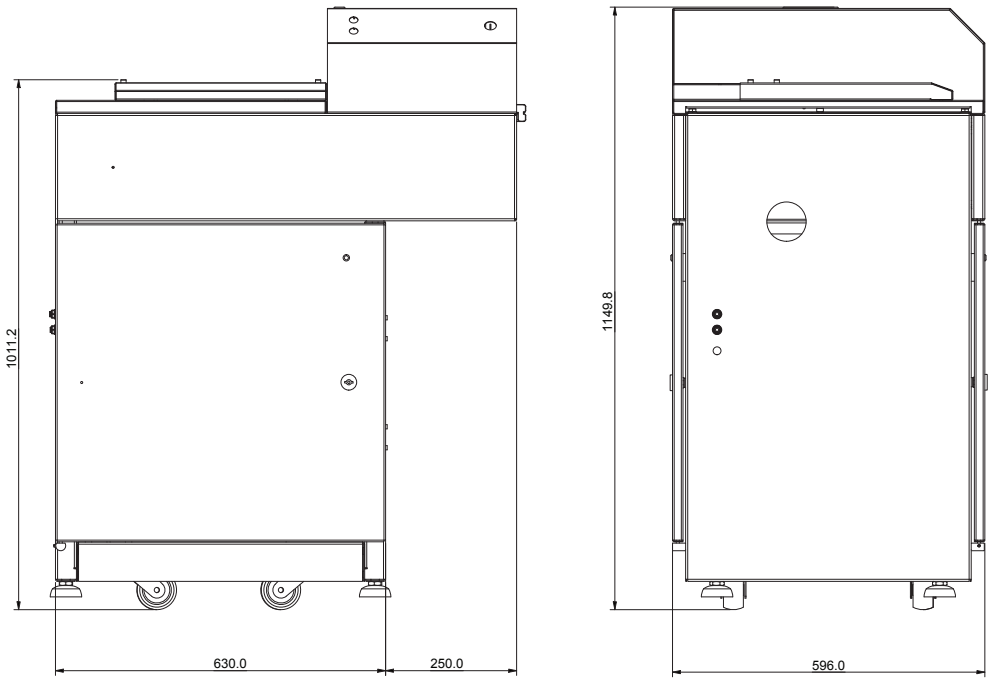
FEATURES

- Compact design
- ALD valves with integrated purging
- Complete process automation
- Built-in process recipes
- Customized design possibility
- Recipe development and process support

APPLICATIONS

- Tribological coatings
- Protective coatings
- Solar cells and batteries
- Catalysis
- High-k dielectrics
- Biomedical coatings

LAYOUT



All dimensions in mm

HHV Ltd
Thin film deposition tools
for science and industry

Unit 14, Lloyds Court, Manor Royal,
Crawley, West Sussex, RH10 9QX,
United Kingdom.
Phone : +44 (0) 1293 611898
Email: info@hhvltd.com
Website: www.hhvltd.com