

A cluster of every vacuum process...connected

# Nebula

The ultimate in automation and versatility



**e**  
**A** **ANGSTROM**  
ENGINEERING  
Your Thin Film Partner



# Nebula

## Overview

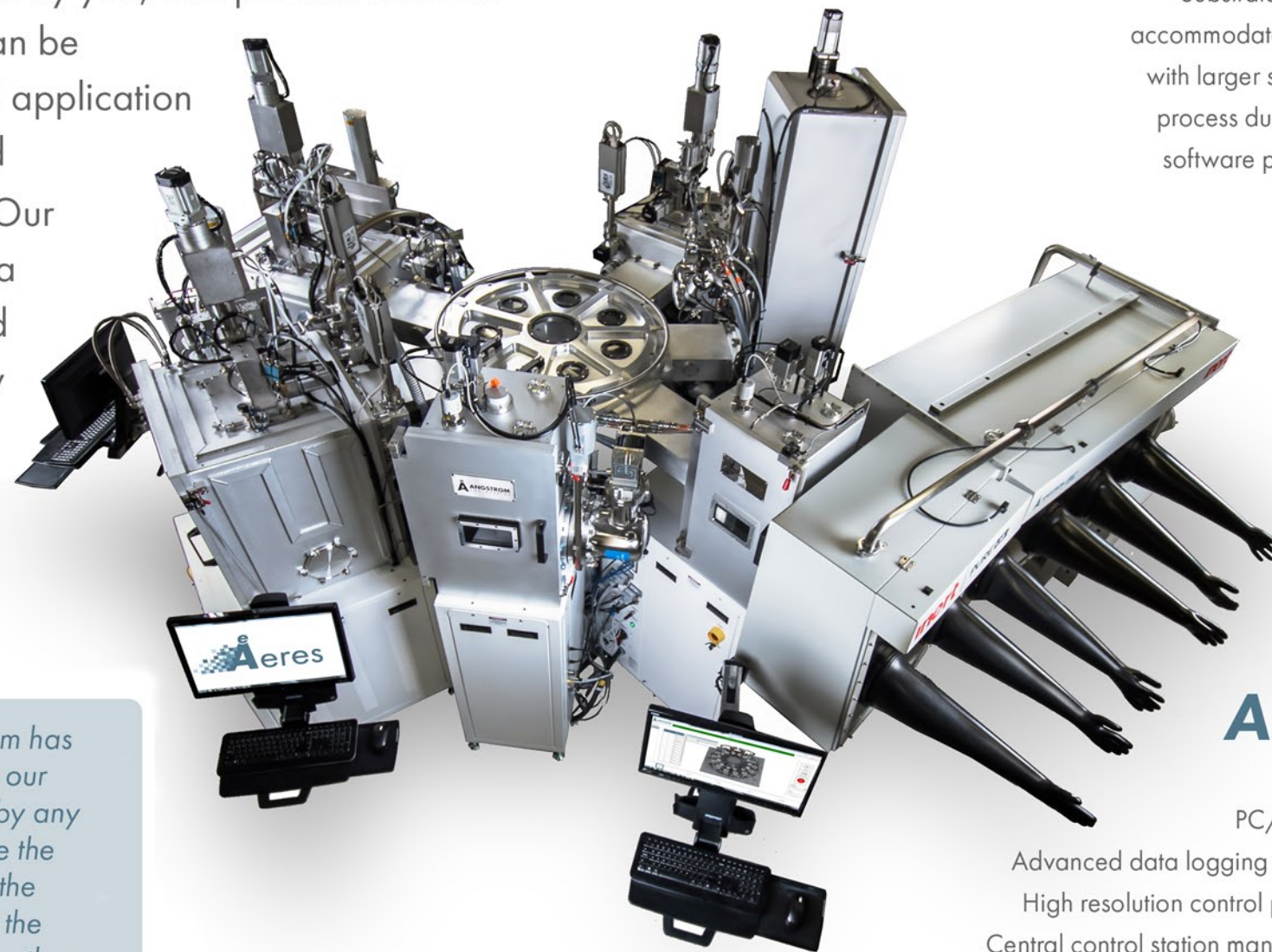
The Nebula is Angstrom Engineering's pinnacle of automation, engineering precision, and collaboration with you, our partner. These integrated vacuum systems are designed specifically to meet your process and research needs. The number and type of modules are chosen by you, and provide room for future expansion potential. Each module can be engineered to meet your technological and application requirements using proven components and



sub-assemblies. Our goal is to deliver a robust engineered system backed by our world renowned client support.

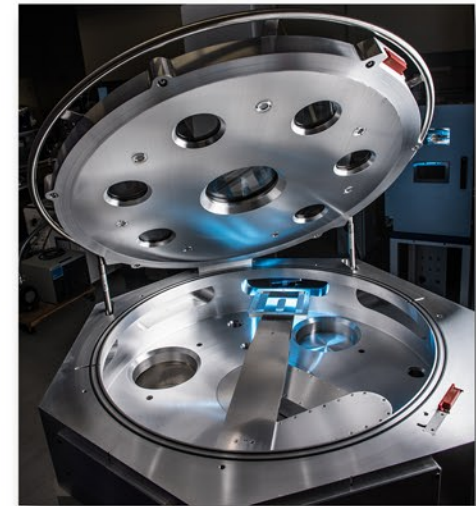
*From the time it was delivered, this laboratory system has performed nearly flawlessly, arguably extending our capabilities well beyond those currently attainable by any organic thin film laboratory in the world. I attribute the success of this entire system to the excellence of the engineering as well as the cooperative nature of the Angstrom team in taking our best designs and making them better during the system construction process.*

*Dr. Stephen Forrest  
University of Michigan*



## Process Module Options

- Substrate cleaning and preparation stations using plasma or ion beam sources
- Several vacuum deposition modules are available for PVD, CVD and ALD
- Substrate and mask storage cassettes can accommodate 25 or more as needed
- Distribution modules using SCARA robots are sized to meet your needs
- Glovebox environments can be integrated to various modules



## Substrate Size/Throughput

Substrate sizes up to 200mm x 200mm can be easily accommodated and the modules can be designed for use with larger substrates if desired. Throughput depends on process duration and complexity. However, the AERES software platform optimizes layer to layer transitions to reduce overall process time.

Our team of engineers, chemists, and nanotechnologists will help design the best tool for your process and material requirements. We offer support and can optimize your system for film thickness uniformity, film structure and material utilization. Please call us to discuss your application in detail.

## AERES Integrated Software

- Simple to use yet highly advanced integrated software platform
- PC/PLC controlled recipes for single, batch, or automated processes
- Advanced data logging and process tracking ensure consistent and repeatable processes
- High resolution control provides impressive low rate stability and consistent doping ratios
- Central control station manages each module and schedules the processes in each chamber
- Each module can be pulled offline and run independent from the system
- Complex recipes can be created and modified easily
- Automatic PID control loop tuning significantly reduces process development time



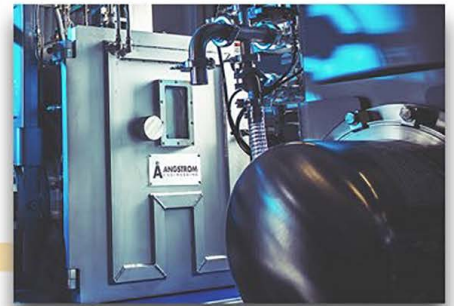
## Connectable vacuum modules:



Sample and mask  
handling chambers

Vacuum deposition  
modules

Integrated robotic sample and  
mask handling





### Service and Support: Our Commitment

An Angstrom system in your lab makes us partners; we become part of your team. We guarantee **same day** response to any service inquiry regarding parts, technical support, and software support.



 Head office and  
manufacturing facility

 Service and Support  
facilities

 Some of our existing  
systems in use



+1 519.894.4441

Kitchener, Ontario, Canada  
[www.angstromengineering.com](http://www.angstromengineering.com)

[sales@angstromengineering.com](mailto:sales@angstromengineering.com)