



ALD TOOL FOR 3D AND HIGH SURFACE AREA OBJECTS

FORGE NANO is proud to introduce our latest ALD tool, ATHENA. Designed specifically for coating 3D and high surface area objects, ATHENA is the most flexible, cost-effective, and easy-to-use ALD objects research tool on the market.



LAB PROVEN RELIABILITY

“It’s been running *everyday* for **18 months**. It’s great, because *it just works.*”

DESIGNED FOR

- **OBJECTS COATING**
Specifically for 3D and highly porous objects
- **RESEARCH AND DEVELOPMENT**
Multiple chemistries on multiple objects for multiple research projects
- **AIR SENSITIVE MATERIALS**
Optional glovebox integration allows for inert handling of materials
- **LOW PARTICLE ENVIRONMENTS**
Clean hood integration option for particle sensitive applications

ATHENA’S cutting-edge design gives the flexibility and reliability your research projects deserve. With the ability to uniformly coat objects of various shapes and sizes, and inside pores. You’ll be publishing results in no time. Our custom tooling allows you to coat multiple objects at once, maximizing the system space and minimizing coating time by multiplexing substrates.

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TECHNICAL SPECIFICATIONS

All ATHENA systems come equipped with:

- Automated dosing system for maximum uniformity and minimum chemical waste.
- Easy to use, recipe-based control software for fast experiment execution.
- Ergonomic doors for easy access to precursor bottles, manifold components, heating, and other components.

ATHENA KEY SPECS	
ALD Chamber Inner Diameter	~7.5", 190mm
Reactor Inner Height	~8.5", 216mm
Process Temperature	20C - 180C
Precursor Channels	3 standard, more optional
Precursor Compatibility	Basic (high vapor pressure)
Footprint	24 in (L), 32 in (W), 29 in (H)
System Weight	<200lbs, <90kg
Facilities Requirements	
Space	> 128 inches (3251mm) (L) >48 inches (1219 mm) (W) >36 inches (737 mm) (H)
Power	Flexible based on country of installation. US standard is 120V / 60Hz / 20A NEMA L5-20 connector
Compressed Air	60-120 psig house air
Inert Gas	N ₂ (or Ar ₂) at 5psig, 5SLPM
Exhaust	Exhaust to outside with KF25 fitting or similar



Clean. Engineering. Expertise.



Optional glovebox integration:

Forge Nano has partnered with MBRAUN to bring you the latest in air-sensitive ALD technology. Our integrated glovebox systems allow you to work free of moisture, O₂, and CO₂, enabling you to focus on discovering new materials.

Forge Nano is a global leader in atomic layer deposition for advanced materials. Our suite of patented, high-throughput ALD processes and tools take ALD from lab-scale research, all the way through commercial-scale manufacturing. We design, build, and implement ALD systems at any scale, enabling the next generation of product technology. Our customers and partners include: Volkswagen, LG Technology Ventures, Mitsui-Kinzoku, The University of Maryland, Oakridge National Laboratory and Argonne National Laboratory among others. Visit our website to learn more about **Forge Nano**, and ALD technology. www.ForgeNano.com

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FORGE NANO
Pioneering scalable nano coating technologies