

PANDORA is Forge Nano's rotary tool designed for rapid, lab scale experimentation on powder substrates. Ready to use right out-of-the-box, PANDORA's practical design makes powder ALD more accessible than ever and offers more flexibility than a fluidized bed reactor, including static dosing, a wider range of batch sizes and basic object coating capacity.



100 mL

max batch size

Up to 6

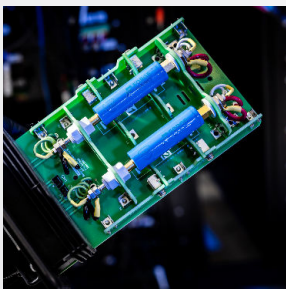
precursor & gas inlets

< 3 m²

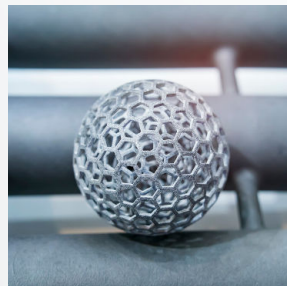
total footprint

Materials & Applications

Batteries



Additive Manufacturing



Catalysis



Pharmaceuticals



PANDORA is capable of depositing a wide range of materials, including oxides (Al_2O_3 , TiO_2 , ZnO), nitrides (TiN) and metals (Pt). Static dosing capabilities also make PANDORA uniquely suitable for performing hybrid material depositions with MLD.

Specifications & Options

Standard Specifications	
Substrates	Powders, Fibers, Objects
Process Temperature	Up to 200 °C
Main Dimensions (LxWxH)	93 x 98 x 173 in
Precursor & Gas Lines	3 included, up to 6 possible
Dosing Modes	Continuous, Static
In Situ Monitoring	Integrated Quadrupole Mass Spectrometer (QMS)
Power Requirements	200 – 240 V, 1Φ, 50/60 Hz

Options & Upgrades

Impactor for enhanced mixing
 In situ Quartz Crystal Microbalance (QCM)
 Volumetric dose control for HVP precursors
 cGMP compliance for Pharma applications

Ozone Generator
 Heated Precursor Cabinet
 Foreline Pump & Activated Carbon Filter
 Remote Plasma Generator

Case Studies



Application: Additive Manufacturing
Material: Al₂O₃



Surface modification of organic powders for enhanced rheology via atomic layer deposition

[Read the full paper!](#)



Application: Catalysis
Material: TiO₂



Towards improved conversion of wet waste to jet fuel with atomic layer deposition-coated hydrodeoxygenation catalysts

[Read the full paper!](#)