DENTONVACUUM
Enabling Innovation

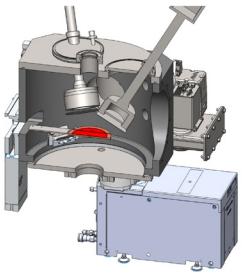
DISCOVERY

Discovery Sputter Deposition Platform

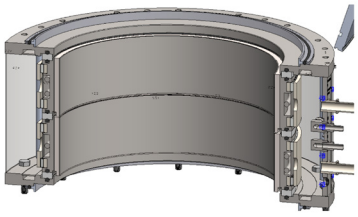
DENTON VACUUM ENABLES INNOVATION

With thousands of thin film deposition tools installed globally — including a large base of precision optical deposition systems — engineers and researchers rely on Denton's thin film innovations to drive higher throughputs, better yields, and low cost of ownership (COO). They also benefit from Denton's comprehensive service and support, and a dedicated R&D program that delivers enabling technologies.

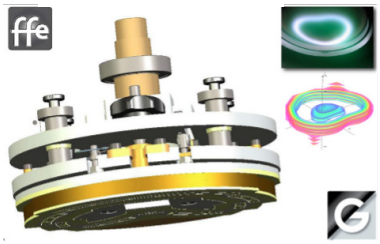
The Discovery® series of magnetron sputter deposition systems are highly configurable and can be tailored to meet the specific requirements of different applications. The Discovery magnetron sputtering platform provides a versatile, turnkey solution for confocal, planar, and inverted cylindrical sputtering geometries.



Confocal Sputter System

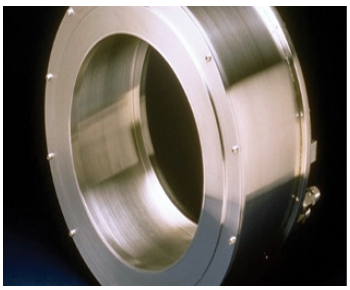


Inverted Cylindrical Sputter System



Planar Sputter System

Confocal Sputter System



Inverted Cylindrical Sputter System

Planar Sputter System

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APPLICATIONS

- Semiconductor device manufacturing
- Optical coatings
- Metal coatings
- Thin-film batteries
- Nanotechnology
- OLEDs
- Protective coatings

DENTON'S DISCOVERY SPUTTER DEPOSITION PLATFORMS

	Discovery 200/300	Discovery V	Discovery I
Magnetron Source	Discovery 200: Up to four 4" diameter confocal sources Discovery 300: Up to four 6" diameter confocal source	12" diameter cathode	Cylindrical cathode
Sputtering Type	Metal and Reactive Sputtering	Metal and Reactive Sputtering	Metal and Reactive Sputtering
Power Supply	DC/RF/Pulsed DC	DC/RF/Pulsed DC	DC/mid frequency AC
Vacuum	Cryo/Turbo	Cryo/Turbo	Cryo/Turbo
Substrate Size	Discovery 200: Up to 200mm Discovery 300: Up to 300mm	Up to 200mm	Up to 200mm
Substrate Bias	RF bias with dedicated power supply and auto matching network	RF bias with dedicated power supply and auto matching network	RF bias with dedicated power supply and auto matching network
Plasma Emission Monitor	Yes	No	Yes
Coating Uniformity	<+/-5%	<+/-2%	<+/-0.25%

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DISCOVERY V CATHODE CONFIGURATION

The Discovery V module is a high rate, highly uniform deposition module, optimized for integration on the Versa platform. It is configured with a large area planar magnetron. In a planar magnetron configuration, the cathode is mounted directly above the substrate for maximum deposition rate and productivity. Uniformity is optimized by recipe-controlled source-to-substrate adjustment.

DISCOVERY I CATHODE CONFIGURATION

The Discovery I module offers inverted cylindrical magnetron technology which provides best-in-class uniformity on flat and curved substrates. It can be configured to coat 3D substrates as well. Uniformity is optimized by recipe-controlled source-to-substrate adjustment.

DISCOVERY 200 DENTON CATHODE CONFIGURATIONS

The Discovery 200 module accommodates up to 200mm wafers and four 4" cathodes with tri-axis adjustment of radius, distance, and angular presentation to provide <+/-5% coating uniformity.

DISCOVERY 300 DENTON CATHODE CONFIGURATIONS

The Discovery 300 module accommodates up to 300mm substrates and three 6" cathodes with tri-axis adjustment of radius, distance, and angular presentation to provide <+/-5% coating uniformity.

POWERFUL CONTROL SYSTEM

Denton Vacuum Process Pro HV is a SEMI E95 compliant user interface with multi-level (password protected) access controls. Fully automated with ProcessPro recipe manager which can support remote or at the tool recipe modification The control system supports fully automated wafer handling and process module scheduler with comprehensive data logging and on tool charting with export capability. The control system is equipped with remote diagnostics and troubleshooting capability with host connectivity to SECS/GEM and other similar platforms.

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SPUTTERING FRONT END CONFIGURATIONS

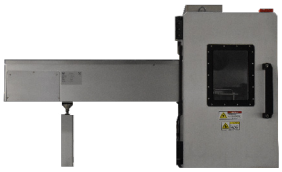
There are multiple front-end configurations available for Discovery sputter deposition platform, depending on throughput requirements.

1. Single Wafer Load Lock

Single Chamber Single Wafer Loadport

About 3 wafers per hour, 23,000 wafers per year

2. Cassette Load Lock



Single Chamber Cassette Loadport

About 24 wafers per hour, 185,000 wafers per year

3. Transfer Module – Cluster Configuration

Four Chamber/Dual Loadport Vacuum Transfer Module

250 wafers per hour, 2 million wafers per year

THE DENTON DIFFERENCE YOUR PROCESS IN OUR PROCESS

We collaborate with you to design a system that solves your exact thin film coating process needs. When we ship you a tool, it's production ready.

- Our systems scale to meet your production requirements
- We believe in customers for life
- Worldwide support network

AT DENTON, WE CARE ABOUT YOUR SUCCESS

- Factory acceptance tests
- Personalized training
- Remote, real-time support
- CE/UL/CSA compliant systems

Specifications subject to change without notice.

About Us

All Denton Vacuum solutions are backed by a 12-month warranty on parts and labor, over 50 years of process knowledge, an in-house process engineering group, worldwide representation and support, and a Global Factory Service Center.

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