

GEMStar XT-S/D™ Benchtop Thermal ALD



Molecular Innovation™

The GEMStar XT™ platform is the industry's only true benchtop Atomic Layer Deposition (ALD) System, now more configurable to meet our Customer's needs and budgets

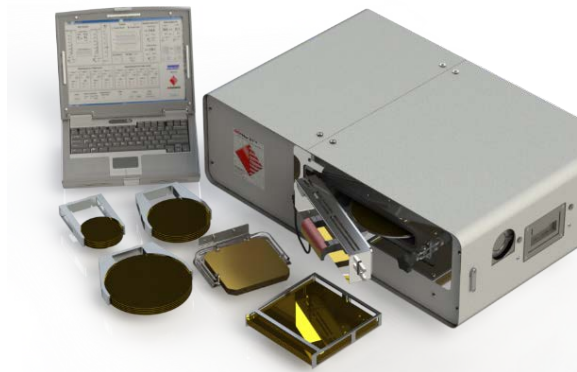
GEMStar XT™ family produces best in class ALD films from high aspect ratio particles through 200mm substrates both in single substrate and batch modes of operation

The GEMStar XT-S/D™ Thermal Atomic Layer Deposition system offers 300 °C (500 °C optional) ALD processing through the full range of substrates, including Solar Cell ALD development.

Configured standard with either a single (S) or dual (D) 200 °C manifold zones, four (S) or eight (D) high speed material ALD valve ports (one with vapor push technology), two locatable 200 °C material temperature zones and an external gas interface, the GEMStar XT-S/D™ represents one of the most configurable systems in its price range.

Key System Features

- ◆ Adjustable reactor temp up to 300°C
- ◆ Up to 200°C uniform gas distribution delivery
- ◆ Pulsed Vapor Push (PVP™) to handle very low pressure material
- ◆ Selectable flow-through and exposure modes of deposition
- ◆ Substrate configurable end effectors up to 200 mm diameter substrates, batch cassette options as well as a heated platen
- ◆ User selectable carrier gas MFC controlled input up to 200 SCCM
- ◆ Field proven GEMFlow™ Control System
- ◆ Watchdog protection and EMO interface
- ◆ Operator touch safe exterior



Ease of Operation

The Arradiance GEMFlow™ Software provides complete user control over all key operating parameters such as temperature, gas flow rate, high-speed ALD valves and vacuum isolation.

- ◆ Preloaded on business level Windows® Laptop
- ◆ User created processes can be saved enabling substrate to substrate and batch to batch consistency without sacrificing flexibility
- ◆ Diagnostic system and logging creates traceable data of all system parameters during operation
- ◆ Internal GEMStar XT USB control module

Serviceability

Modular ergonomic design with top panel access to all critical components

- ◆ Fast precursor changes and reconfiguration
- ◆ Easy access power, vacuum and gas connections
- ◆ Perfectly suited for glove box configuration

GEMStar XT-S/D™ Benchtop Thermal ALD System

| Specifications | |
|-------------------------------------|--|
| System Dimensions | 11" H x 32" W x 24" D designed to fit on desktop or lab bench |
| Door Mounted Substrate End Effector | Specify end effector diameter at time of order (200 mm default, 150 mm, 100 mm) Other sizes or batch cassettes available on request |
| Reactor/Door Thermal Zones | Two controllable zones up to 300 °C ± 1 °C 500 °C Processing available on request |
| Material Manifold | Single (S) or Dual (D) controllable manifold zones up to 200 °C Four (S) or eight (D) High Speed ALD Valve Controlled Material Ports Single Pulsed Vapor Push (PVP™) Zone controlled by High Speed ALD Valve |
| Material Bottle Heated Zones | Up to four movable zones up to 200 °C |
| Material Bottles | Up to four or six (2 STD) DOT certified 150 ML Bottles with bellows sealed valves |
| External Gas Input | Single-S or up to four (2 STD)-D Input for external gasses such as optional Ozone |
| Inert Carrier Gas | Mass Flow Controlled up to 200 SCCM |
| Control System | GEMFlow™ Control Software Windows® Professional 64-bit Laptop GEMStar XT™ USB control module |
| Metrology Port | Spare KF-40 In Line metrology port for QCM or other customer needs Spare KF-25 Reactor port for other customer needs |
| Vacuum Gauge | Convection Vacuum Gauge |
| Equipment Safety | |
| Emergency Off | Standard DB9 port to support EMO or other safety shut down requirements |
| Touch Safe | All Exterior Components thermal and electrical |
| Watchdog | System shuts down to Safe mode if communication is lost with computer |
| Normally Closed Vales | All internal valves close when power removed |
| Certification | CE Marked Designed to comply with applicable SEMI S2 guidelines CSA optional on request |
| Facilities Requirements | |
| Carrier Gas | 10-20 psig regulated VCR-4 Type Connection |
| CDA (Clean Dry Air) | 80 psig ± 5 psi regulated |
| AC Power | Dedicated 110-120 VAC 50/60 Hz 20 Amps |
| System Weight | <150 lbs. |
| Vacuum Pump (optional) | KF 50 Vacuum Connection Minimum of >= 12 cfm Fomblin Two Stage Rotary Vane Vacuum Pump or Dry Pump |