

The Smart Box™ System For Evaporation

The Super Series Smart Box.™

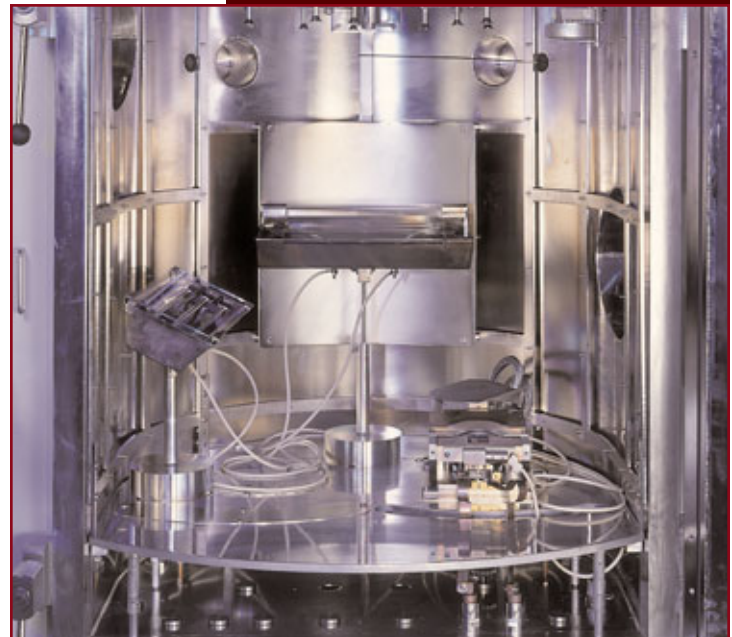
The Super series Smart Box™ is a flexible vacuum system platform that can be ordered configured for either evaporation or sputtering depending on the users specific requirements. With chamber diameters available from as small as 32" to as large as 80" a Smart Box™ can be designed to meet your production needs no matter how unique they are. Some of the benefits that are available with the evaporation configuration for the Smart Box™ are:

- Full opening front door for ease of loading
- Multiple sources, either electron beam guns and/or thermal sources for varied material requirements
- Ion-assisted deposition (IAD) for dense moisture stable dielectric films
- In-situ optical monitoring for accurate layer termination
- Dual rotation tilt or fixed planetary for precision coatings
- Single rotation domes for high system productivity
- Addition of sputter sources for unique deposition requirements
- Substrate heat for cleaner substrates and denser more homogenous films
- Gas introduction and control for reactive film deposition
- Electro-polished chamber, with in-situ heater and high speed pumping for lower cleaner partial pressure
- Source distance dynamically variable and positionable
- Production proven software tailored to meet your needs



Smart Box™

The Smart Box 32 shown above is ideal for depositing AR coatings on laser diodes. Larger versions can be used for precision optics production requirements.



T H I N F I L M D E P O S I T I O N S Y S T E M S



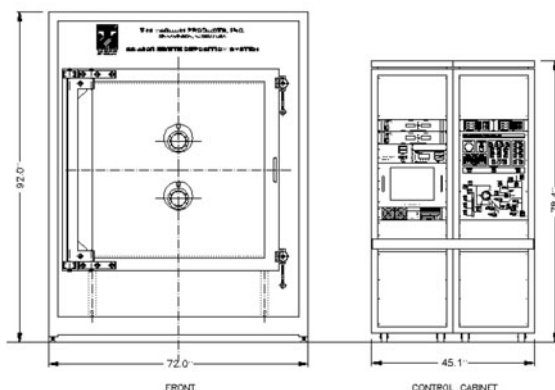
The Super Series Smart Box™ for Evaporation.

With over 40 years of experience, TM Vacuum Products offers innovative solutions for any thin film deposition requirement. The Super Series Smart Box™ is designed to meet critical production requirements. With chamber sizes from as small as 32" to as large as 80" available, almost any capacity and process requirement can be economically met. With the extensive combinations of sources and fixtures available, a Smart Box™ can be designed to meet all present needs and still have the flexibility to meet unanticipated future requirements. The Smart Box™ is designed to meet and fulfill your production needs both now and in the future.

Features and Options

Chamber size	Diameters from 18-48", electro-polished stainless steel
Chamber cooling	Double-wall full water jacket standard
Pumping	Cryopump standard, turbomolecular or diffusion pump and cryo trap available
Meissner	Port provided, internal coil and closed cycle cryogenic refrigerator available
Base vacuum	Below 3×10^{-7} Torr standard
Fixturing	Dual rotation fixed, or tilt adjustable, planetary or single rotation dome sized for specific substrates
Sources	Multiple electron beam guns and thermal sources, IAD and sputtering cathodes can be accommodated
Metrology	In-situ optical monitoring either via witness piece or substrate available. Single or multiple quartz crystal monitors as required for rate control and layer termination
Uniformity	Deposition uniformity of better than +/- 1% attainable
Capacity	Capacities controlled by chamber size and required fixturing configuration
Chamber heat	Chamber bake optional
Substrate heat	Temperatures to 400°C available
Controls	Full computer control with data logging for repeatable processes. Redundant manual control standard.

Typical System Layout



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