

E-Beam Evaporate Deposition System

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The SYSKEY Technology of vacuum system is designed for research, development and pre-production application in all branches of science and industry. Our company offers many years of experience and expertise in vacuum technology, so that we can provide you with a fully tailored system for your specific requirements

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E-Beam Evaporate Deposition System

APPLICATIONS



The evaporate system is used for thin-film preparation, metallic, oxides, semiconductor and ceramic. Our evaporating system is designed for R&D, development and pre-production application in all branches of science.

The evaporate system is completely customizable and the chamber can be designed to accept additional evaporation sources.

Applications:

- Materials research
- Thin film research
- Pilot production
- Lift off Process
- Electron Microscopy Application

OUR SYSTEMS



Our team keep developing new designs and improving the previous ones. We identify the best features in competing products and integrate them into ours.

Option:

- Ion source for plasma assisted deposition
- Substrate bias for substrate pre-cleaning
- Choice of Turbo/Cryo/Diffusion Pump available
- Substrate heating
- Load-lock with Transfer
- Glove box compatible

E-Beam Evaporate Deposition System

System Features

We are not only trying effort to provide accurate and reliable reproducibility equipments, but also offering cost-effective solutions.

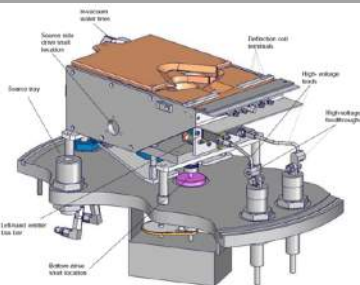
Features:

Automatic pumping sequence
10⁻⁷ Torr Ultimate vacuum by High vacuum pump
Substrate rotation: speed control
PC-base control real time record chamber data
Automated process operation
Quartz crystal rate/thickness monitor with deposition rate controller

Electron Gun

Evaporator:

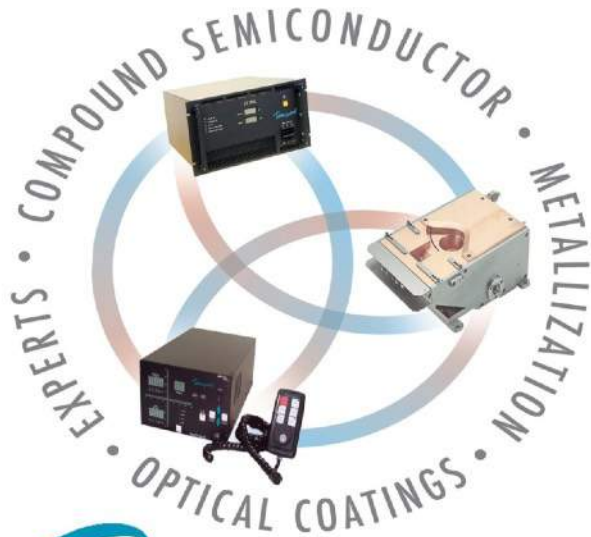
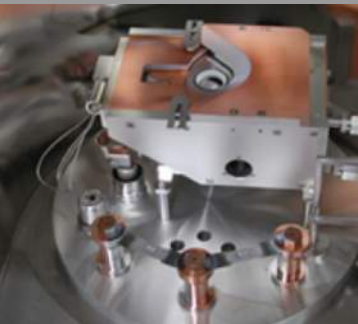
Temescal/Telemark E-Gun
Source Type: Crucible
Source Material: C, Al₂O₃, PBN etc.
Power Supply 6 kW/12 kW
4/6/8 target pockets option
Emission current regulated to within ±0.5%
HV linearly adjustable from 0 to 10 kV
Arc recovery within 2.5 ms



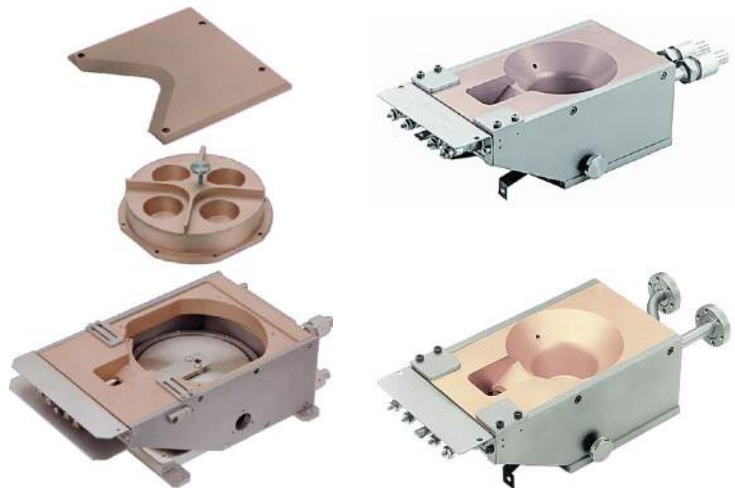


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Electron Beam



Temescal



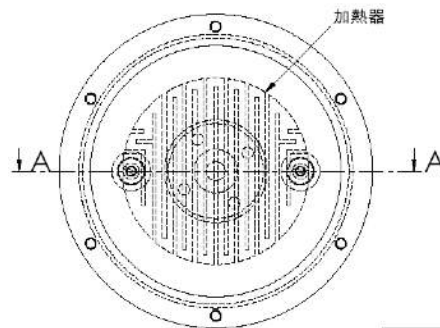
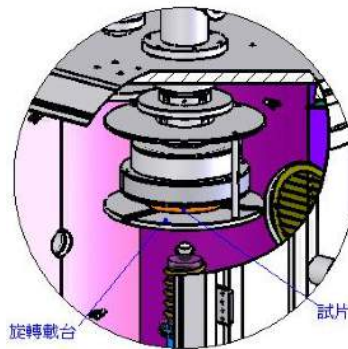
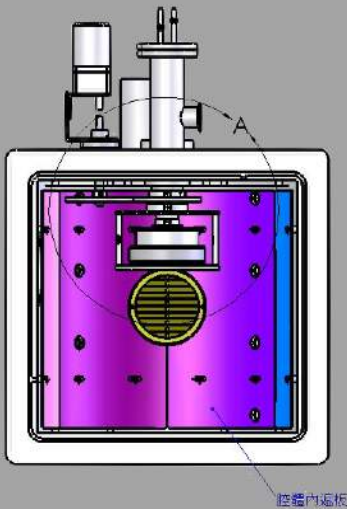
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Heating station

The substrate heaters deliver up to 1 kWatts of Mo heater or Halogen lamp to reach temperature up to (700°C @ Mo heater or 250°C @ Halogen lamp)





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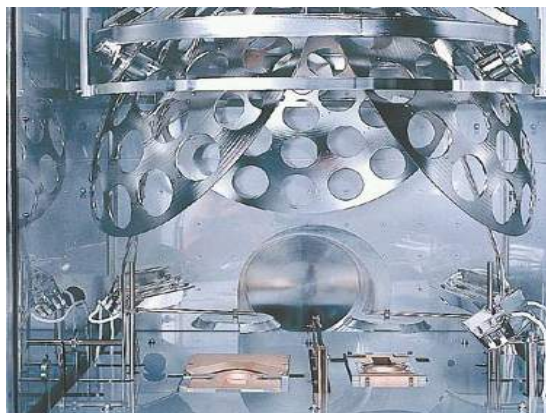
Substrate Holder

Substrate holder is customized according to customers' requirements, we can design the substrate holder for R&D and production, even for some special applications.

Turn Over:



Planet (Dual E-Beam System):



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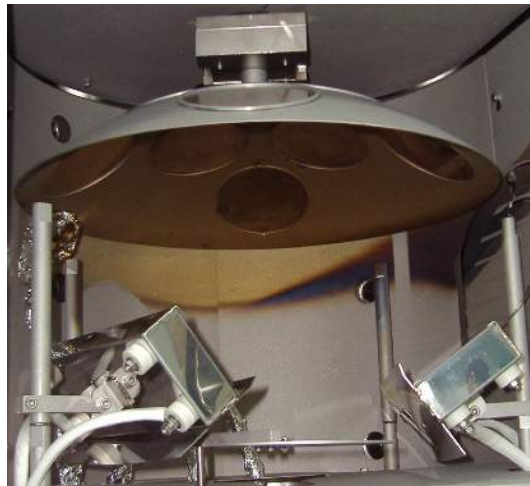
Substrate Holder

The evaporate system substrate holder is designed to suitable for customer.

Tilt:



Revolution:



E-Beam Evaporate Deposition System

Thin Film Monitor



Deposition Monitors are used to provide continuous rate and thickness data and automatic source shutter control. More advanced applications require thin film vacuum Deposition Controllers which provide enough capability to completely automate the entire deposition process

Features:

Frequency Resolution : 0.03 Hz@ 6.0 MHz
Mass Resolution : 0.375 ng/cm², (0.014 Å Al)
Thickness Accuracy : 0.5% +1 count
Thickness Display : -999 to 999.9 k Å
Rate Display : -99 to 99.9 Å/sec

Vacuum Pump



High vacuum pump:

Pumping speed : ≥ 4200 L/sec(Water)
Inlet port: ANSI 6"
Ultra pressure: 2.0×10^{-7} Torr

Oil pump

Pumping speed : ≥ 660 L/min
Inlet port: KF40
Ultra pressure: 9.0×10^{-4} Torr



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High Vacuum Valve

The evaporate system is use high quality valve to ensure the system safety.



Main Valve — HVA fast reacting gate valve

Vacuum range: Atmosphere to 7.5×10^{-9} Torr
Helium Leak Rate : 7.5×10^{-11} Torr l/s
Minimum Life Cycle > 500,000

High vacuum valve — SMC XLA series

Vacuum range: Atmosphere to 7.5×10^{-9} Torr
Helium Leak Rate : 1×10^{-10} Torr l/s
Minimum Life Cycle > 1 Million

Throttle Valve

High speed motor and gear/driver assembly provides fast response to a given set point to quickly achieve desired pressure and increase system throughput.

Speed (open/close) : 1.7 sec
Resolution : 1/12,000
Differential Pressure : 1 ATM

External leakage at shaft seal: 1×10^{-8} sccm/sec He



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Software Control

The Control system is easy- to- use graphical system and provides plenty of functionality for building customer applications. The vacuum system software provides authority manage, process control, data base link, auto service, remote monitor with "soft" valve interlocks. Also software includes chart and graph control for you to display the waveforms acquired from data acquisition device.

Available options include:

- Authority manage
- Automatic process control
- Data logging and history search
- Multi-layer
- Real time trend graphing
- Safety interlocks and alerts





Vacuum Evaporating Deposition System

Power Distribution



The evaporate system comes with 19(inch) electronic rack where all instrument equipment is mounted. The rack includes a power distribution panel with sub-unit circuit breakers for the various units.

Utility Requirements

Electricity: AC 220 V 3-phase 60Hz

Water: > 10 L/min

Pneumatic : 0.4~0.6 Mpa

Process gas: Ar、N₂、O₂(Option)

Vent gas : N₂