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The Promise of Vacuum System Technology (VST)

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Our engineering team, with over 40 years' experience, is offering custom made, deposition systems including but not only: Sputtering, EB gun, Thermal, Ion Beam, Plasma, ALD – PLD and Low Temperature organic materials. With reputation for excellence - hundreds of satisfied customers in the high vacuum and ultra-high vacuum industry, research labs and scientific community around the world.

VST developed cluster tools with robot sample transfer often integrated with Inert Gas Glove Box and encapsulation for OLED processes.

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SVC Society of Vacuum Coaters

TechCon 2024 Chicago

VST

The Promise of Vacuum System Technology (VST)

Table of Contents

Global Provider of Tailor-Made Vacuum Solutions

VST is a Global Provider of Vacuum System Technologies and Services for over 40 years.

VST specializes in customized solutions.

Among VST customers are research institutes and nanoscience centers around the world such as HUJI Nanofabrication Center, BIU Institute of Nanotechnology and Advanced Materials, Technion - Israel Institute of Technology, Warsaw Institute of Electron Technology, The Centre for Process Innovation (CPI) in UK, Indian Space Research Organization (ISRO), and dozens of companies and startups in the Defense industry, Electrooptic, Microelectronic, Semiconductors, Lithium batteries, Automotive, Healthcare and more.

VST Tailor-Made solutions maximize Client ROI


More to come in 2024!
APEL
lighting the future
LUBBE
LLC
ARGMAX
VST
INNOVATIVE VACUUM TECHNOLOGIES
its
ITS SCIENCE
& MEDICAL
AL FAHIM
HEALTHCARE
SOLUTIONS L.L.C
ARGMAX
Global Coverage
VST 's Growing Global Presence

VST Exemplar Projects 2024

Vacuum Systems Technologies

V.S.T. (Services) Ltd. www.vacuumltd.com info@vstser.com 03-9247710 v10

Integrated Glovebox Lab

General Purpose or Tailored for Specific Research (Semiconductors, MEMS, Display Panels, etc.)

From Each System – Access Door to Inert Environment and to Atmosphere

Thermal PVD

Low Temperature PVD for Organic materials

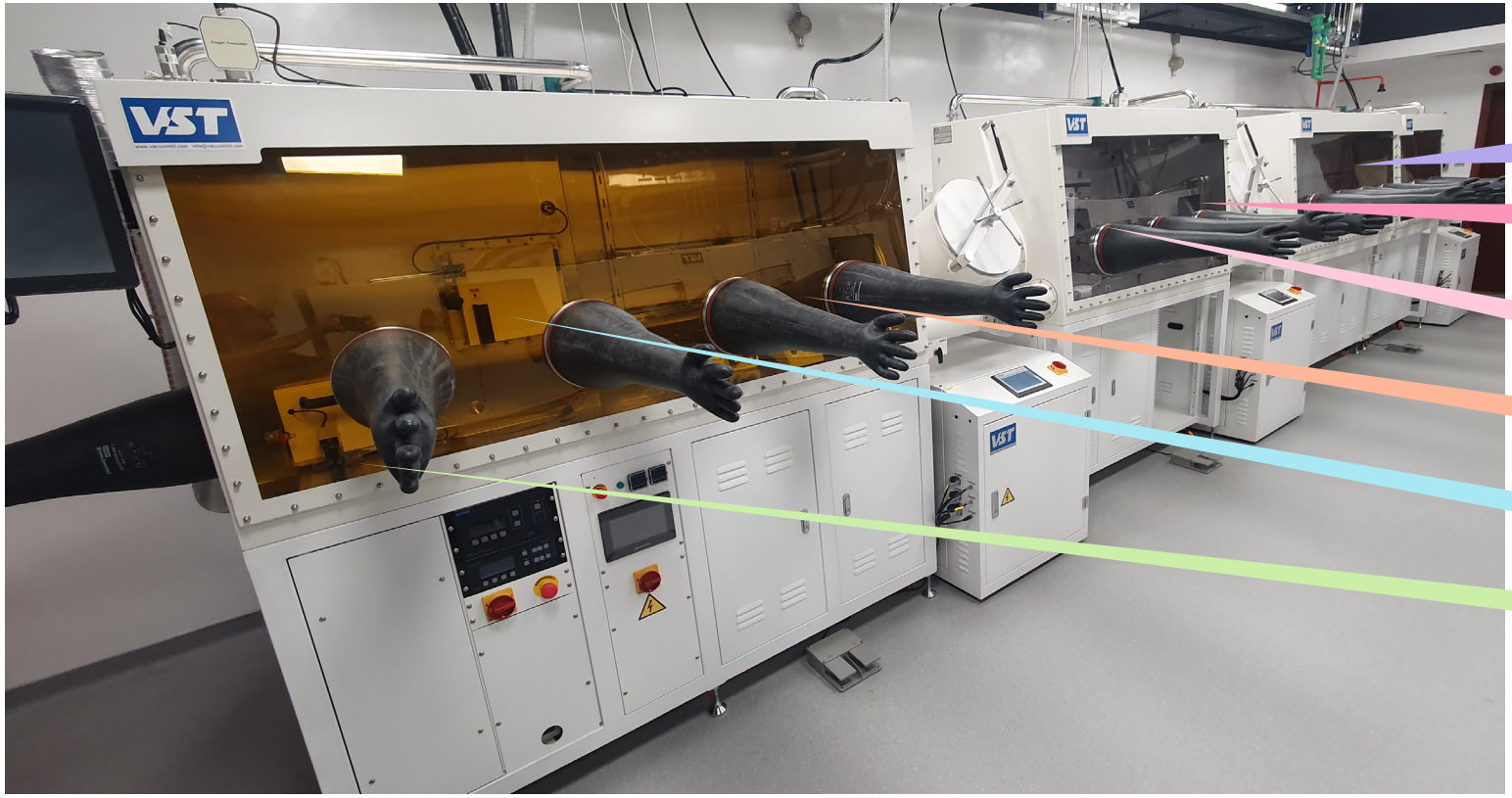
Sputtering

E-Beam

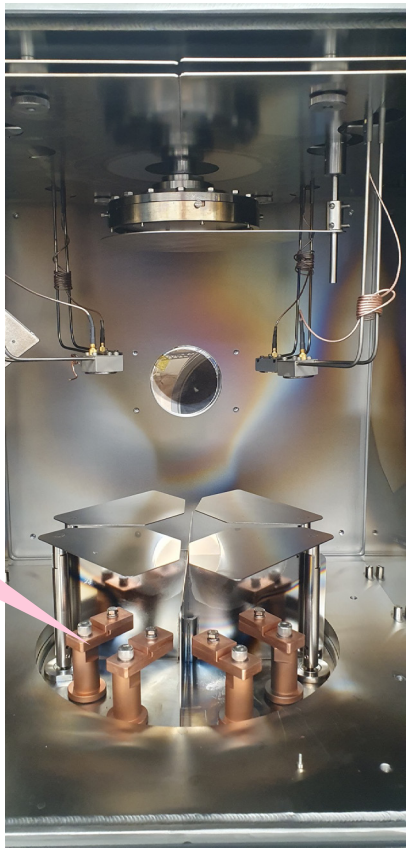
Atomic Layer Deposition

Integrated Glovebox Lab

Complementary Equipment for Encapsulation and Characterization



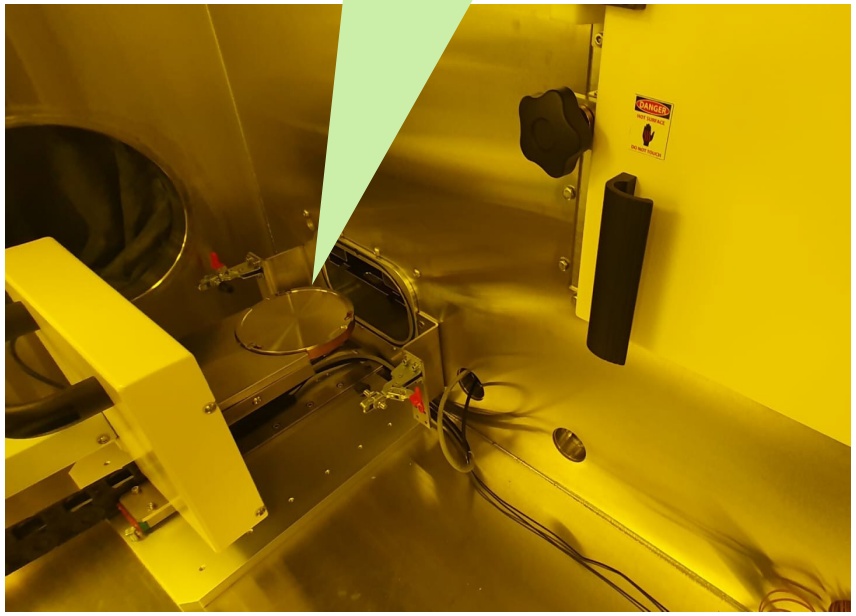
Thermal PVD



Low Temperature PVD for Organic materials

Sputtering

Atomic Layer Deposition access from inside the glovebox



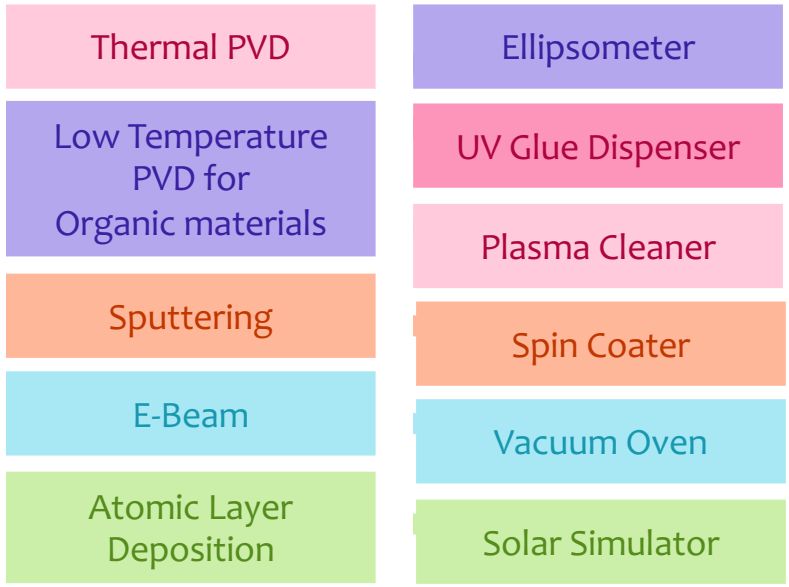
Integrated Glovebox Lab

Complementary Equipment for Encapsulation and Characterization

- Concatenated gloveboxes at any layout
- PVD : E-beam, Sputtering, Thermal, LTE, PLD
- Atomic Layer Deposition Dry and wet gloveboxes
- Characterization glovebox
- Antechambers between gloveboxes with access door
- HMI for each system

Notable Customers:

- Perovskite lab of Lioz Etgar, HUJI, Israel
- Applied Physics Research Institute, Vilnius, Lithuania
- Khalifa University Glovebox Lab, UAE



Multi Chamber PVD

Mini-Fab 2 Process Chamber System, with Load Lock and Transfer Robotic

Load Lock with Fully Automated Robot Transfer

Sputtering Process Chamber

Evaporation Process Chamber

Multi Chamber PVD

System with 3 Process Chambers, for J. Junctions and Super Conductive Circuits

Substrate Holder and Ion Milling

E-Beam Chamber

Ion Assisted Magnetron Sputtering

Load Lock with Robot Transfer

Multi Purpose Process Chamber

For both Evaporation & Sputtering , with Load Lock and Transfer Robot

Load Lock with Fully Automated Robot Transfer

Sputtering

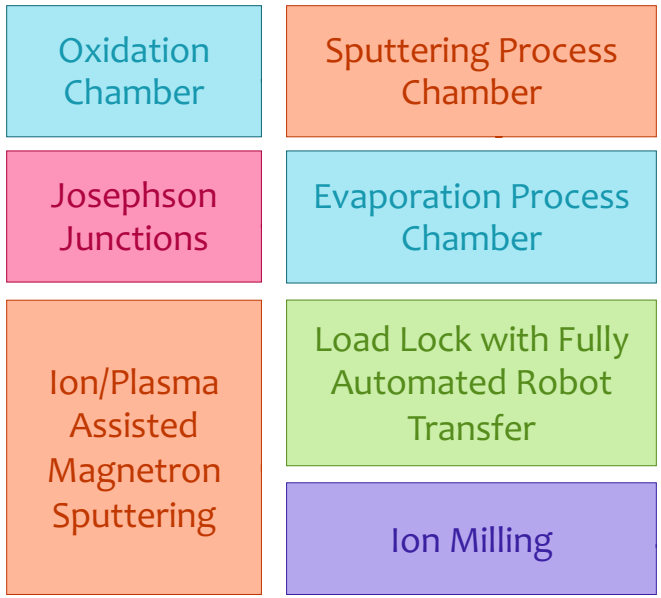
+

Evaporation

Multi Chamber Mini-Fab System

Complementary Equipment for Encapsulation and Characterization

- Sputtering process chamber with option for Ion Assisted Magnetron Sputtering
- Evaporation process chamber: E-beam, Thermal, LTE
- Fully automated robotic transfer load lock
- Josephson Junctions Features: Tilt, Ion Milling, Oxidation
- Hundreds of customizable options



Notable Customers:

- Institute of Electron Technology, Warsaw, Poland
- Indian Satellite Research Center (ISRO), Bangalore, India
- Nano Fabrication Center at Bar Ilan University, Israel

Compact PVD

Physical Deposition Systems, Evaporation and Sputtering

Fully Customized PVD systems

- TFDS 480, 482 – Compact with/wo load lock
- TFSS 840 – Mid-Sized Chamber, Feature rich
- TFDS 847 – Pulsed Laser Deposition (PLD)
- TFDS 870 – Glovebox work-flow optimized

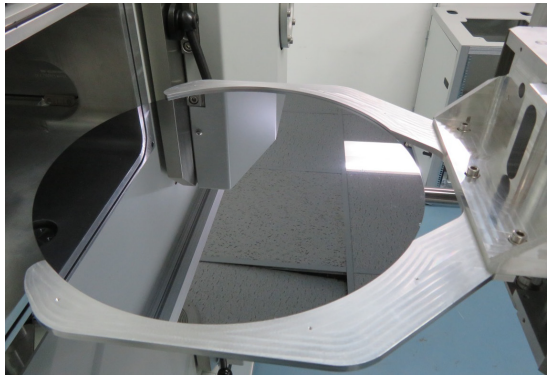
Hundreds of Customization Options

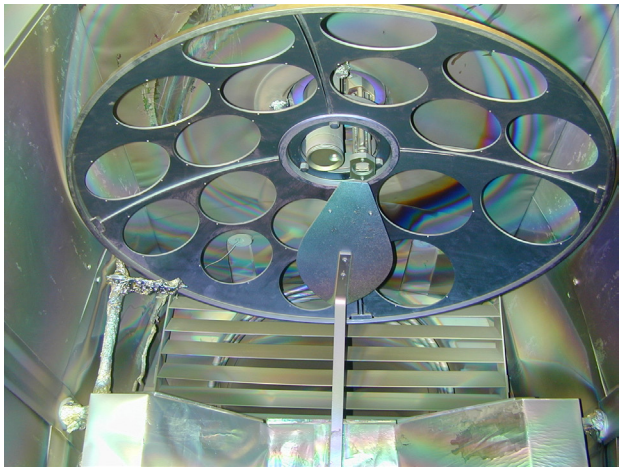
Compact / Mid-Sized Systems

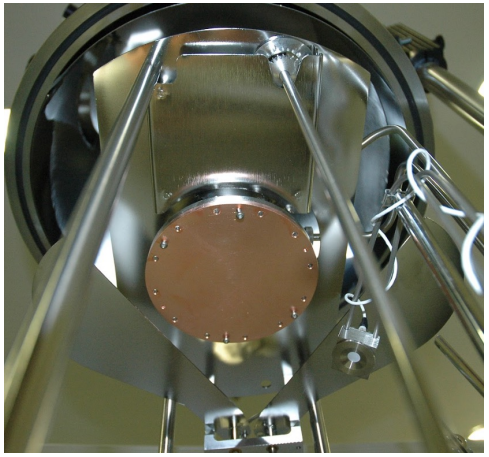
Ideal for fundamental Research , Academic applications , Small batch fab shops , Roll-to-Roll

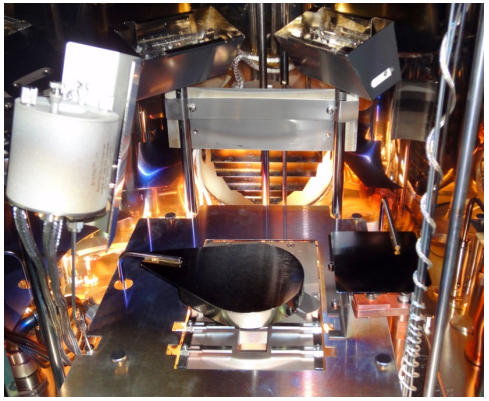
Systems Dedicated to Optics

Suited for R&D, process development and bespoke requirements such as dynamically geared masks





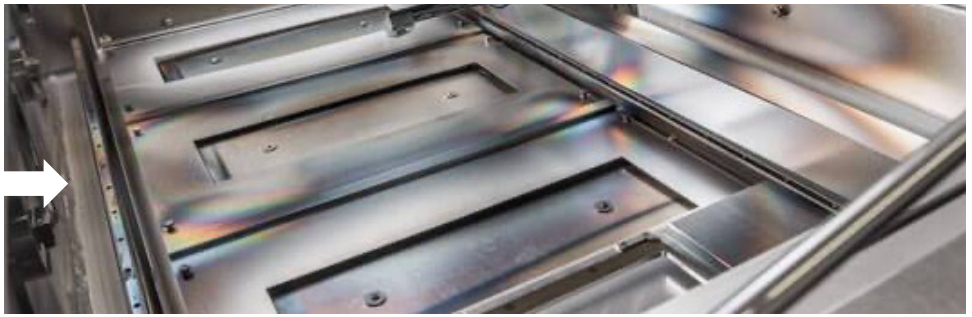




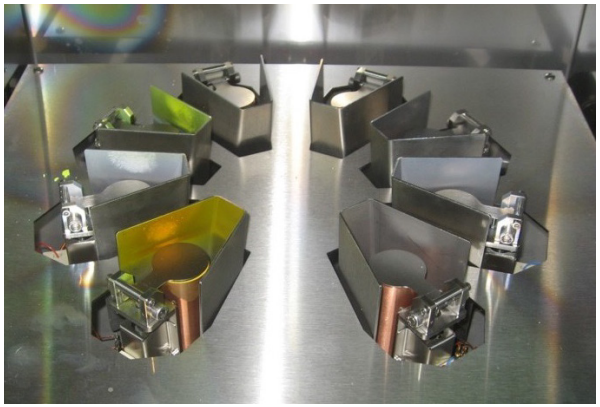
Deposition Sources

Customized Sources for PVD Systems ; more examples

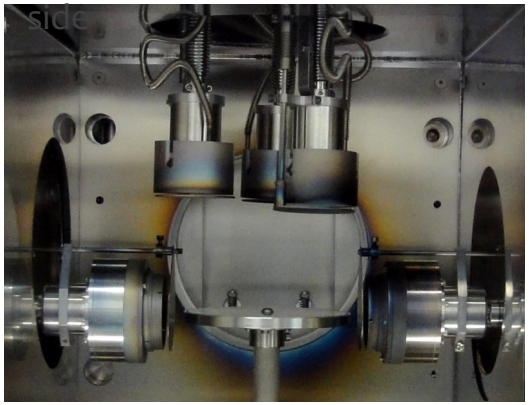
Rectangular and dual-rectangular magnetrons for high-rate linear sputtering e.g., for flat panels



8 LTE sources for with co-deposition



5 magnetrons - 3 DC pulsed and 2 RF side by side



Pulsed Laser Deposition (PLD) with target carousel

Vacuum Process Chambers

VST Vacuum Process Chambers

- TCH-340 Process Vacuum Oven
- TCH-400 Degassing System
- TCH-447 Space Simulator
- TCH -450 Glovebox Integrated Solutions
- TCH-499 Compact Environmental Test Chamber
- TCH-500 Dual Door Degassing System
- TCH-700 Lamp Production System
- TCH-864 Yael MSD Dryer
- Customized Solution – Per Demand

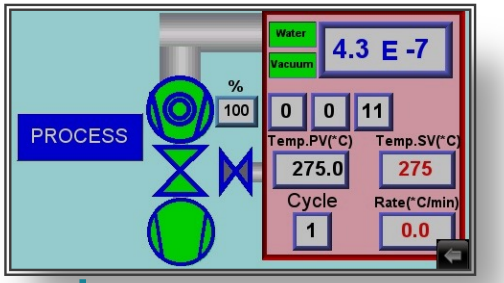
Wide Range of Process Vacuum Chambers

Fit-for-Function , Production run , Lamp sealing, Altitude and Space Simulators

Flagship Small Systems -TCH-340

General Purpose, High-Vacuum, High-Temperature Process Oven with Gas-Purging and RGA

- Heated-shelves high-vacuum oven
- Outgassing at high vacuum in the range of 10^{-7} Torr
- Temperature up to 350°C
- Purging with Nitrogen or Argon
- Automated, touch panel, vacuum and temperature control
- Programmable temperature profiles
- US FED STD 209E class 1,000 compatible
- Residual Gas Analyzer (RGA) option



HMI touch panel for full visibility and full control

Flagship Standard Systems - TCH-400

Fully Automated, High-Vacuum, Heated Degassing System with option for QCM

- Hot-wall, rugged high-vacuum oven
- Outgassing at high vacuum in the range of 10^{-7} Torr
- Temperature from 40°C to 120°C or higher
- Vacuum, heating and venting
- ISO 14644-1 cleanroom standard class ISO7 compatible
- US FED STD 209E class 10,000 compatible
- Totally dry pumping system
- Integrated Quartz Crystal Microbalance (QCM) option for Contamination Control
- Suitable air-to-water cooling chiller

- PC controlled HMI
- Operator, User and Admin modes
- Full Visibility and Control
- Operation Recording

Flagship Passthrough Systems - TCH-500

Fully Automated, High-Vacuum, Heated Degassing System

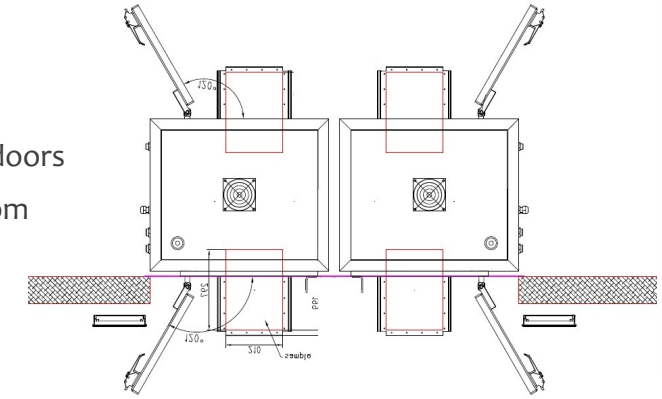
With Double Door System

- Versatile high-vacuum oven for drying, outgassing and solvent removal of samples
- Perfect for Lithium batteries research and production
- 8 heated shelves per chamber, temperature 250°C
- ISO 14644-1 cleanroom standard class ISO7 compatible
- Totally dry pumping system

Unique design front doors and back doors

Front doors - open to the Service Room

Back door – to the Dry Room

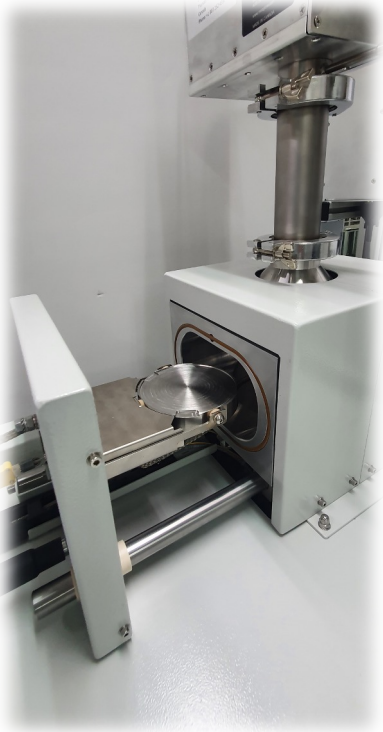


Flagship Electronics Degassing Systems - TCH-864 Yael

Moisture Sensitive Devices Vacuum Dryer (MSDVD)

High Vacuum System

- Developed with **Motorola's** Material Quality Department
- **Prevents Popcorn Effect (MSD Popcorn)**
- Unerring uniformity through entire batch of reels
- Allows drying loaded reels, no need to unreel and bake
- Reduces process time
- Eliminating coplanarity and electrostatic discharge (ESD)
- Cylindrical chamber with up to 30% more space utilization
- Fully automated vacuum and temperature control

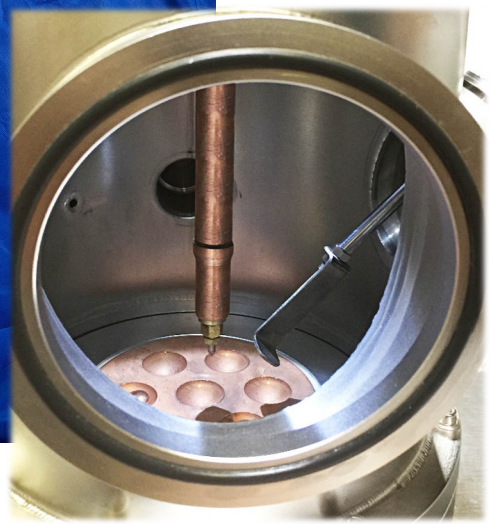


ALD / MLD

Atomic Layer Deposition Systems

Fully Customized ALD/MLD systems

- ALD 300 – Thermal Atomic Layer Deposition
- ALD 320 – Plasma Atomic Layer Deposition
  - Up to 8in Wafers and up to 6 Precursors
- ALD 330 – Atomic Layer Deposition for Powders
  - Pulse-bed , stop/flow
- MLD-340 –Molecular Deposition System –Multi Zone
  - Load-locks / View ports
  - In-Situ Ellipsometer



ARC Melting

Turnkey Compact Vacuum ARC Melting Furnace

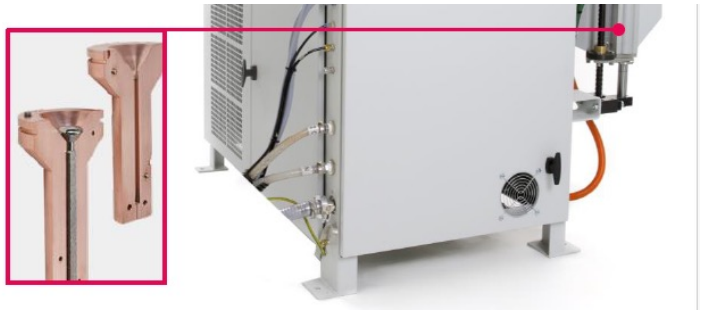
- AM 133 – Compact
- AM 134 – Vacuum Suction Casting

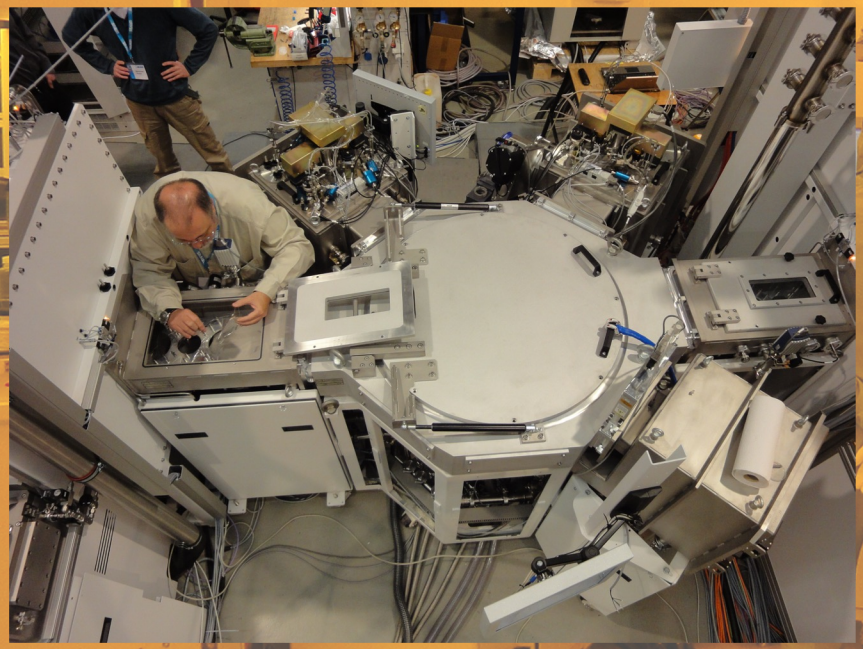
Customization Options Available

Arc Melting

Mid Sized Arc Furnace packed with features

- Button and Vacuum Casting
- Large selection of molds , or have customer ones made
- Designed for Ease of Access / Fast Loading
- Advanced Atmosphere, e.g. parameterized control or feedback based
- Large selection of modular add-ons and manipulators

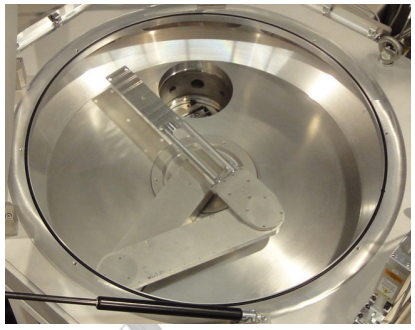


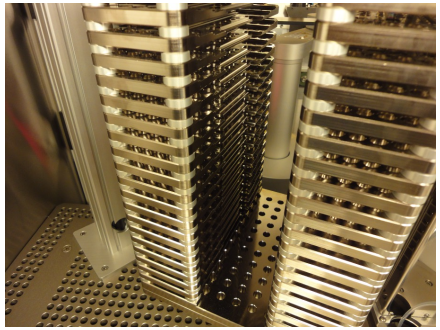


Cluster Tools

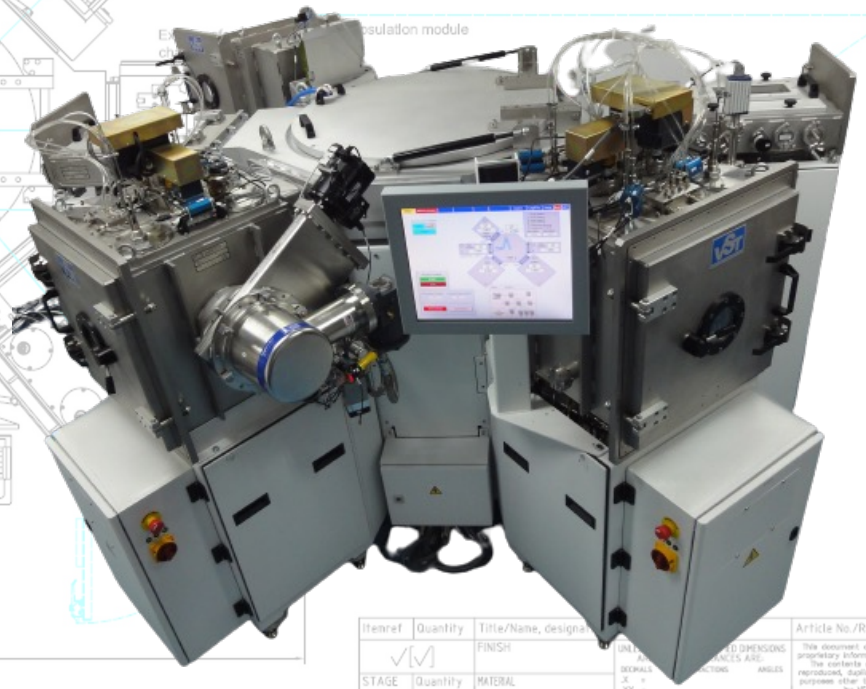
Production Systems

Cluster Tools





- 4in to 8in and 300mm Wafer processing Architecture
- Multi Wafer cassette loading systems
- 1-2 load locks + 4-5 process chambers
- Modular interface across VST's Product Range , tried and tested.
- Fully Autonomous operation ,and ease of integrating with 3rd Party tolling or control software
- Designed around Ease of Access



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VST