

The logo for CVD Equipment Corporation features the letters 'CVD' in a large, bold, red serif font. Below this, the words 'Equipment Corporation' are written in a smaller, white, sans-serif font. The background of the slide is a dark blue grid of hexagons, with some hexagons glowing with a bright blue light and connected by thin white lines, creating a network-like pattern.

**CVD**

**Equipment  
Corporation**

*enabling tomorrow's technologies™*

**13<sup>th</sup> Annual NYC Investor Summit 2024**

December 17<sup>th</sup>, 2024

**NASDAQ: CVV**

# Safe Harbor Statement

The Private Securities Litigation Reform Act of 1995 provides a "safe harbor" for forward-looking statements. Certain information included in this press release (as well as information included in oral statements or other written statements made or to be made by CVD Equipment Corporation) contains statements that are forward-looking. All statements other than statements of historical fact are hereby identified as "forward-looking statements," as such term is defined in Section 27A of the Securities Exchange Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. Such forward looking information involves a number of known and unknown risks and uncertainties that could cause actual results to differ materially from those discussed or anticipated by management. Potential risks and uncertainties include, among other factors, market and business conditions, the success of CVD Equipment Corporation's growth and sales strategies, the possibility of customer changes in delivery schedules, cancellation of, or failure to receive orders, potential delays in product shipments, delays in obtaining inventory parts from suppliers and failure to satisfy customer acceptance requirements, competition in our existing and potential future product lines of business, including our PVT systems; our ability to obtain financing on acceptable terms if and when needed; uncertainty as to our ability to develop new products for the high power electronics market; uncertainty as to our future profitability; uncertainty as to any future expansion of the Company; uncertainty as to our ability to adequately obtain raw materials and components from foreign markets in light of geopolitical developments; and other risks and uncertainties that are described in the Company's Annual Report on Form 10-K for the year ended December 31, 2023 and the Company's other filings with the Securities and Exchange Commission. For forward-looking statements in this release, the Company claims the protection of the safe harbor of the Private Securities Litigation Reform Act of 1995. The Company assumes no obligations to update or supplement any forward-looking statements whether as a result of new information, future events or otherwise. Past performance is not a guarantee of future results.

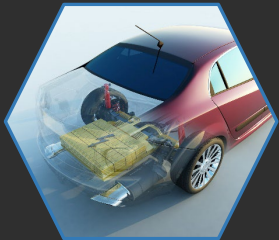
# Key Markets



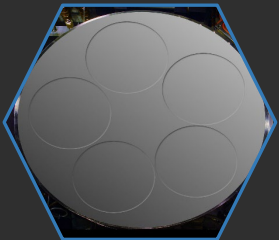
Aerospace & Defense



High Power Electronics



EV Battery Materials/Energy Storage



Industrial Coating Equipment

# CVD Equipment Corporation

CVDE designs and manufactures a broad range of chemical vapor deposition, thermal processing and physical vapor transport equipment to Aerospace & Defense, High Power Electronics, Energy Storage, and Industrial Materials markets

## About CVDE:

- Manufacture application-specific and turn-key systems for Advanced & Energy Efficient Materials
- Serving customers with demanding material performance requirements
- Provide relentless commitment to customer satisfaction
- Deliver competitive advantage to our customers through innovation, market focus and operational excellence



We are located on Long Island and in Saugerties, New York, USA



## CVDE's Value Proposition:

- 40+ Years Providing Equipment & Process Solutions to blue chip leaders, innovative startups & leading research institutes
- Decades of experience in Aerospace & Compound Semiconductor applications
- Launched six new products in 2024
- Vertically Integrated Manufacturing
- Robust customer engagement and global account management
- High Touch Customer Service

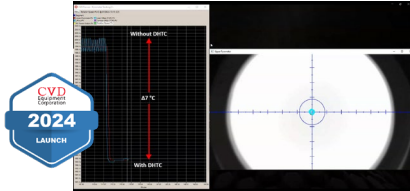
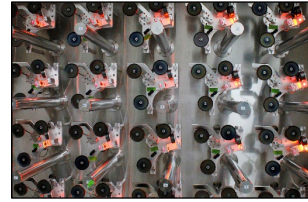
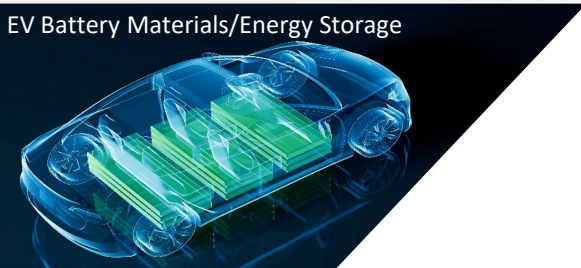
**40+ YEARS IN PROCESS EQUIPMENT**

**NASDAQ: CVV**

**~120 Employees Worldwide**

# CVD Equipment Corporation At a Glance

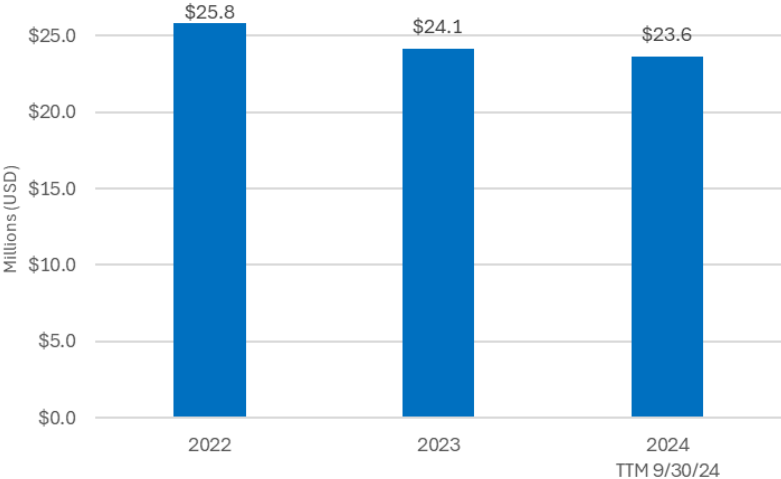
- We have served our growing customer base for over 40 years
- Focused on strategic markets that have significant growth potential
- Providing enabling and reliable equipment & solutions to our customers
- Developed multiple products in each marketplace
- Six new product launches in 2024
- Proven track record of customer engagement and satisfaction through on-time delivery and customer support



# Financial and Operational Snapshot

## Revenue

TTM 9/30/24  
Revenue:  
\$23.6 million



## Cash

Cash and cash equivalents at 9/30/24:

**\$10.0 million**



## Debt

Debt outstanding at 9/30/24:

**\$0.3 million**



Equipment loan

## CVD Equipment Central Islip



Vertically integrated manufacturing facility - from raw materials, to machine centers, to final test

## SDC Saugerties

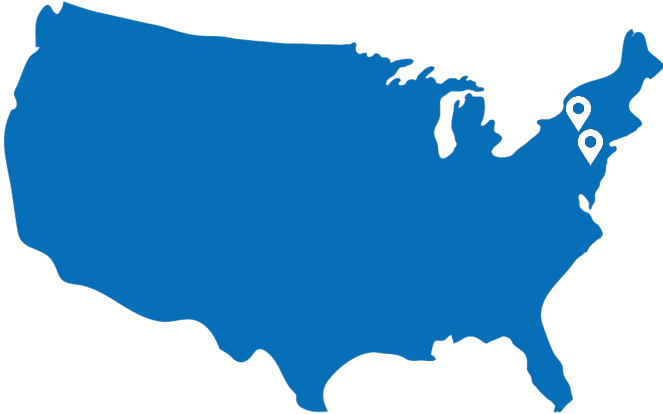


Provides a complete line of gas and chemical delivery systems

## Two facilities located in New York

**CVD**  
Equipment Corporation  
Central Islip

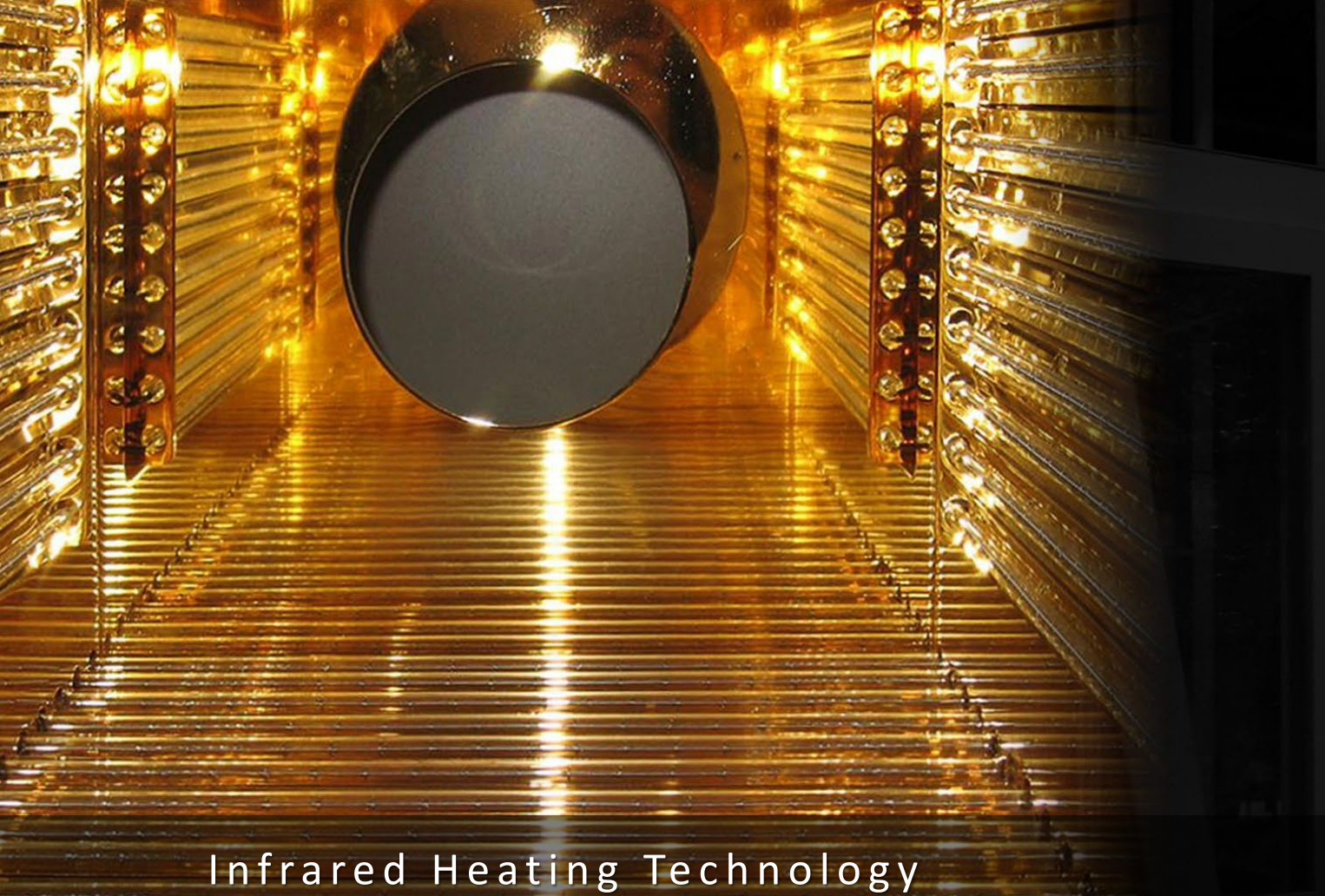
Headquarters, R&D & Manufacturing  
128,000 sf



**SDC**

Saugerties

Manufacturing & Administration  
22,000 sf



Infrared Heating Technology



Resistive Heating Technology

## Market Overview

# Growth, Strategic & Emerging Markets

## Advanced and Energy Efficient Materials



**Aerospace & Defense**

Demand for **ceramic matrix composite materials (CMCs)** for use in gas turbine engines to enable greater fuel efficiency and in hypersonic systems requiring ultra-high temperature materials for survivability.



**High Power Electronics**

EVs driving the demand for **silicon carbide wafers** required for devices used for power distribution and charging. Higher power density and efficiency than silicon-based devices increases EV range and enables faster charging times.



**EV Battery Materials**

EVs driving the demand for **advanced battery materials**. Coating graphite anode powder with silicon increases energy density, enabling expanded driving range and faster charging times.



**Industrial Coating Equipment**

Demand for production **CVD Systems to coat large graphite components with SiC** to support semiconductor market enabling increased durability and lifespan of critical graphite parts used in semiconductor manufacturing processes.



Inductive Heating Technology

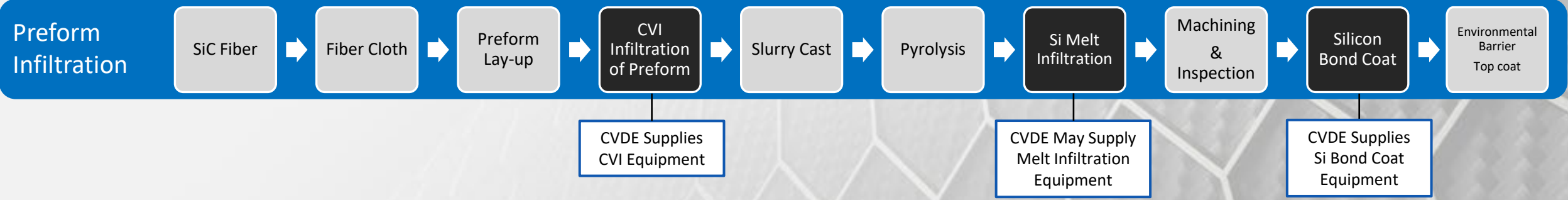
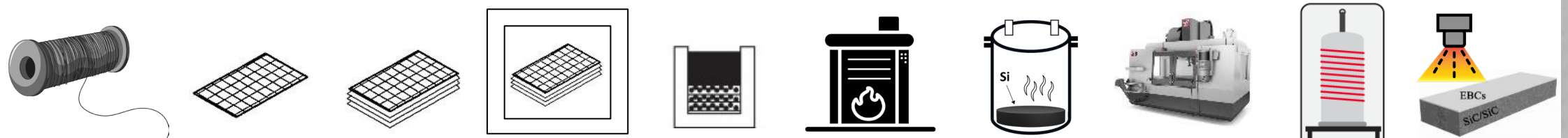
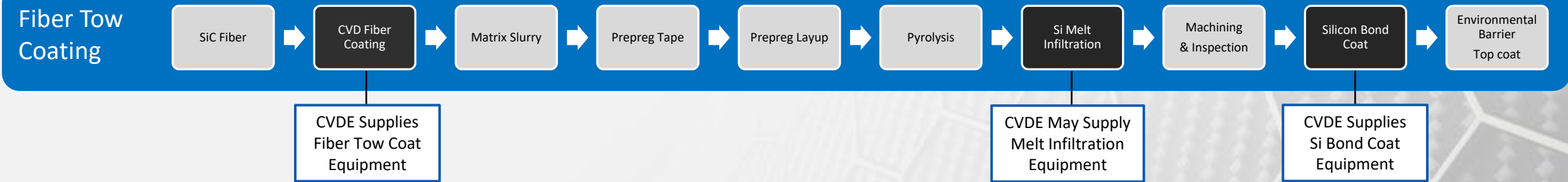
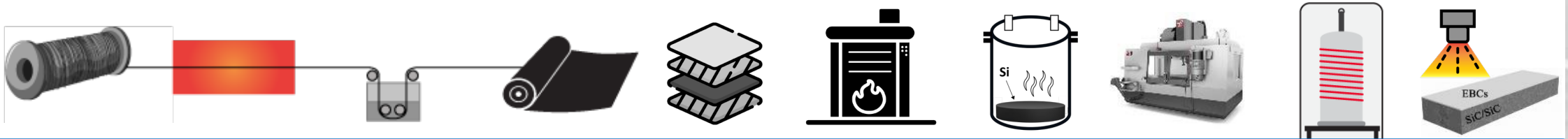


Tow Transport Technology

# Products and Technologies



# Aerospace Leading CMC Manufacturing Processes



# CVD Chemical Vapor Infiltration for Aerospace & Defense

Equipment Corporation

## CVI 3500™

### Benefits & Differentiating Features

- Five zone furnace with independent zone temperature control
- Temperature uniformity at  $\pm 6^\circ\text{C}$
- Graphite retort & heating elements
- Heating ramp rate  $>10^\circ\text{C}$  per min
- Furnace cooldown in less than 12 hrs
- Stainless steel double wall, water cooled vacuum chamber
- Coaxial gas injection
- Preheat & mixing zone
- Internal pyrolizer
- Heated exhaust line
- Cold trap for ammonium chloride byproduct
- Gantry crane to assist in reactor component and part loading



Process Chamber Up to 62" ID & 82" tall



Thermal Processing up to  $1600^\circ\text{C}$



High Power Up to 500 kW Input Power



Low Pressure Control 7 to 10 Torr



5 Zone Resistance Furnace



CVI 3500™  
Chemical Vapor Infiltration (CVI) System

## CVI200™

### Benefits & Differentiating Features

- Graphite retort & 3-zone resistive heating
- Stainless steel double wall, water cooled vacuum chamber
- Includes 2 internal chlorinators
- Temperature uniformity +/- 10 °C
- Workpiece Rotation – 1- 20 rpm
- Preheat & mixing zone
- Internal pyrolizer
- Heated exhaust line
- Cold trap for ammonium chloride byproduct
- Exhaust gas conditioning system with closed loop pH control and recirculation



Process Chamber  
for parts up to 8"  
diameter and 10"  
high



Thermal  
Processing  
Up to 1600 °C



Low Pressure  
Control 5 to  
500 Torr



3 Zone  
Resistance  
Furnace



CVI200™

# CVD Chemical Vapor Deposition for Uniform Silicon Coating

Equipment Corporation

## SiBondCoat 200™

### Benefits & Differentiating Features

- For applying Si layer to 3D surfaces
- Single Chamber Processing (Multi Chamber Option)
- Multiple gas injectors with independent flow control for thickness uniformity
- Capable of direct liquid injection, bubbler source injection, and vapor/gas delivery
- Vertical Process Tube
- Optional Gas Delivery Cabinets
- Optional Liquid Abatement System
- Designed for ease of maintenance



RF Induction Heating - Process Temperature up to 1250° C



Substrate Rotation for Improved Deposition Uniformity



Vertical, Quartz Vacuum Chamber



Low Pressure System for Industrial Applications



SiBondCoat200™



# Fiber Handling System

## Benefits & Differentiating Features

- Intelligent Spool/De-Spool System
- Variable Fiber Tow Tension Control
- Vacuum rated chambers for spooling and de-spooling
- Equipped with CVD Equipment's proprietary magnetically coupled drive system
- Differential pressure transducers for pressure monitoring
- Equipped with mass flow-controlled gas purge
- Door Interlocks and Alarms
- PC with CVDWinPrC™



Variable  
Fiber Tow  
Speed Range



Fiber Tow  
Bi-directional  
Transport



Patent Pending  
Fuzz Detection



Fiber Handling System



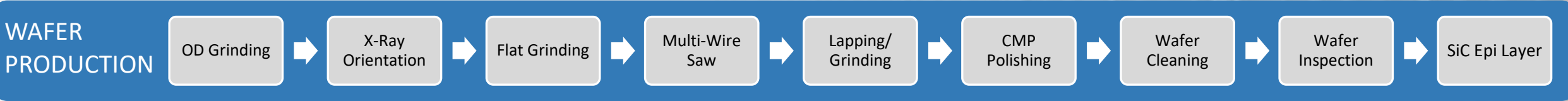
# State-of-the-Art Equipment Addressing SiC Wafer Market



2022: Launched PVT150™ Crystal Growth System  
2023/2024: Launch of PVT200™ Crystal Growth System



PVT150™ SiC Crystal Growth System launched in 2022, PVT200™ launch in 2023/2024



**CVD Positioned To Take Advantage of Key Industry Trends over next 1-2 years<sup>[1]</sup> with expanding internal capacity**

- Shift from 150 mm to 200 mm SiC manufacturing to reduce device costs
- Improve SiC quality and uniformity to increase yield and reduce costs

Present Capacity: 12 Systems/Month, Potential Capacity: 25 Systems/Month (potential annual capacity up to 300 systems)



[1] Goldman Sachs, "The Green Technology Cycle SiC" Takayama et. Al., 24 JUNE 2022

## PVT200™

### Differentiating Features & Options

- Exceptional Process Parameter Controls for Steady State & Ramp Conditions
  - Pressure Control +/- 0.5%
- Standard & Custom Coil Designs
- Custom Quartzware
- Crucible Centering
- Low Pressure Option
- Compatible with Inert & Flammable Gases
- Dynamic Hotzone Temperature Control™ for Yield Enhancement (2024)
- MES Compatible
- Typical 6 Month Delivery ARO
- Vertically Integrated Manufacturing
  - Reducing Customer Cost of Ownership
  - Ensuring Certainty of Lead Times



SiC Crystal  
Growth  
200 mm Boules



Temperature  
Control +/- 0.5 °C  
up to 2500 °C



Run-to-Run  
Repeatability



System-to-System  
Matching



Compact  
Footprint



Dynamic Hotzone  
Temperature  
Control™



PVT200™  
Physical Vapor Transport System



# Dynamic Hotzone Temperature Control (DHTC™)

Improved within Process Run, Run-to-Run & System-to-System Temperature Measurement Consistency for 200 mm & 150 mm SiC Physical Vapor Transport Systems

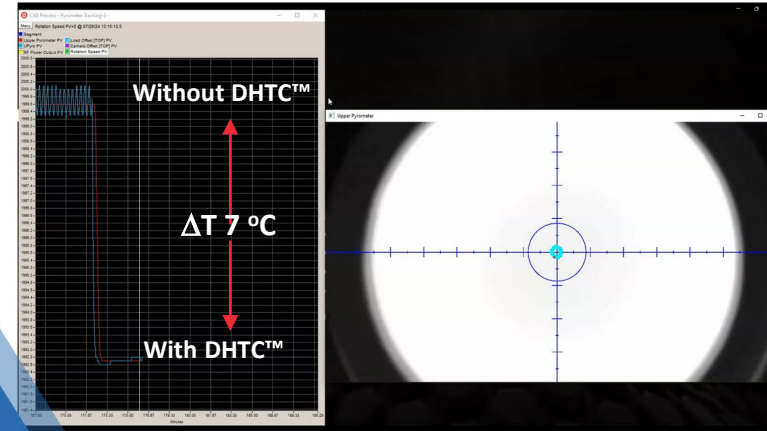
## Benefits

- Yield Improvement for SiC Crystal Boule Growth by Optimizing Temperature Measurement & Control
- Minimizing Impact of Misalignment from Hotzone Degradation, Assembly, & Loading

## Differentiating Features & Options

- Video Processing Software & Mechanical Hardware for Temperature Measurement Accuracy & Dynamic Temperature Measurement Position Tracking
- Automated Pyrometer Tracking & Alignment to Hotzone
- Offered as an Integration Option with CVDE's PVT200™
- An Integration Option Offered for Your Existing PVT System

Patent Pending



SiC Crystal Growth Yield Enhancement with DHTC Temperature Measurement & Control



DHTC™  
For SiC Physical Vapor Transport Systems



# Methods for Silicon Battery Anode Materials

Numerous techniques are employed in the industry to incorporate silicon into graphite anodes

## 1. Dry Milling & Mixing Silicon with Carbon

- Simple low-cost process
- Nano silicon readily agglomerates and is not uniformly dispersed <sup>[1]</sup>

## 2. Wet Processing

## 3. Spray Drying

## 4. Chemical Vapor Deposition/Chemical Vapor Infiltration

- Enables incorporation of silicon onto or into graphite powder
  - CVD - deposition of silicon onto carbon powder or growth of silicon nanowires directly onto powder surfaces (OneD Battery Sciences)
  - CVI - silicon infiltration within porous, carbon powder scaffolds

Since silicon expands during charge cycling, 1-Dimensional silicon nanowires are being examined to enable greater % silicon incorporation in graphite anode material with reduced susceptibility of electrode damage

**OneD**  
BATTERY  
SCIENCES

[1] <https://www.sciencedirect.com/science/article/pii/S258900422100300X#:~:text=However%2C%20the%20lower%20moisture%20level,et%20al.%2C%202013>.

[2] <https://www.sciencedirect.com/science/article/abs/pii/S000926142300622X#:~:text=Herein%2C%20we%20reported%20a%20facile,mAh/g%20for%20100%20cycles>

[3] <https://www.sciencedirect.com/science/article/pii/S2772783124000396#bib0037>

## PowderCoat 300™

### Benefits & Differentiating Features

- Powder Coating for Deposition of Nanomaterials & Thin Films
- Customizable Process Tumbler
- Tumbler Volume up to 1.2 L
- Robust System with Enhanced Process Controls
  - Pressure Control +/- 1%
- Powder Particle Size Distribution: Sub-microns to Hundreds of Microns
- Coating Thickness: A few Nanometers to Tens of Microns
- Glove Box for Unloading Sample Under Inert Conditions



Powder Infiltration & Coating for R&D



Temperature Control +/- 5 °C up to 700 °C



Rotating Tumbler for Uniform Mixing (Speed up to 50 RPM)



3 Zone Resistance Furnace



Rapid Cool-Down



PowderCoat 300™  
Chemical Vapor Deposition System

## PowderCoat 1104™

### Benefits & Differentiating Features

- Uniform Coating and Deposition of Nanomaterials & Thin Films
- Multi-Reactor Chambers for Parallel or Sequential Processing
- Inconel Chamber: Volume 250L
- Robust Production System with Enhanced Process Controls
  - Pressure Control +/- 1%
- Low Pressure CVD
- Powder Particle Size: Sub-micron to Hundreds of Microns
- Coating Thickness: A few Nanometers to Tens of Microns
- MES Compatible
- EGC 1510 HSF Gas Abatement System



High Volume Powder Infiltration & Coating



Temperature Control +/- 1 °C up to 700 °C



Rotating Tumbler for Uniform Mixing



5 Zone Resistance Furnace



Rapid Cool-Down



PowderCoat 1104™  
Chemical Vapor Deposition System

## CARBON+300™

### Benefits & Differentiating Features

- Production of CNTs on Foil & Rigid Substrates
- 350 mm Diameter Quartz Tube
- Custom Quartzware for easy loading/unloading
- Integrated Burn Box for Gas Abatement
- Flammable & Toxic Gas Sensors
- Powered by our CVDWinPrC™ Process Control Software
- Safety Controls



High Capacity  
Throughput  
(substrate area  
1.3 m<sup>2</sup>)



Precise  
Temperature  
Control



Rolling  
Furnace/ hot  
load/unload



6-Zone  
Resistance  
Heating to  
900 °C



Rapid  
Cool-Down



Carbon+ 300™  
Chemical Vapor Deposition System

## CVD4000™

### Benefits & Differentiating Features

- Temperature Uniformity at  $\pm 6^\circ\text{C}$
- Graphite Retort & Heating Elements
- Heating Ramp Rate  $>15^\circ\text{C}$  per min
- Workpiece Rotation – 1 - 20 rpm
- Furnace Cooldown to  $300^\circ\text{C}$  in less than 12 hrs
- Preheat & Mixing Zone
- Internal Pyrolizer



Process Chamber Up to 72" ID & 95" tall



Thermal Processing up to  $1600^\circ\text{C}$



High Power Up to 500 kW Input Power



Low Pressure Control 1 to 50 Torr



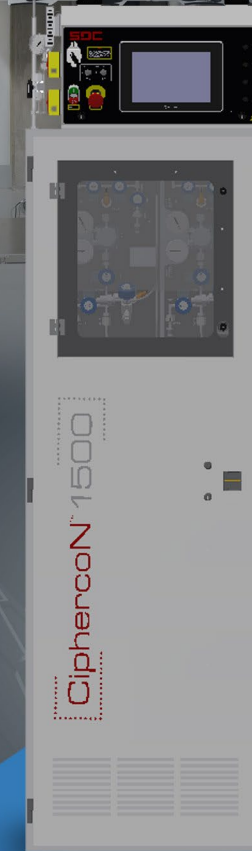
5 Zone Resistance Furnace



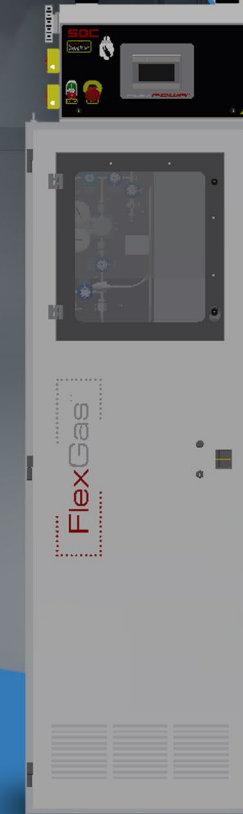
CVD4000™  
Chemical Vapor Deposition System

## SDC<sup>®</sup> Division of CVD Equipment Corporation

- Manufacturer of Ultra-High Purity (UHP) gas and chemical delivery systems for the semiconductor industry as well as high power electronics, microelectronics, nanomaterial production, and aerospace markets
- Globally recognized supplier, sustaining a leading market position
- Providing critical gas and chemical management systems to industry, R&D facilities, and academia for over four decades
- Supporting our customers with onsite and remote service, preventative maintenance contracts, spares and consumables



CIPHERCON™ 1500  
Fully-Automated  
Gas Cabinet



FlexGas™  
Semi-Automated  
Gas Cabinet

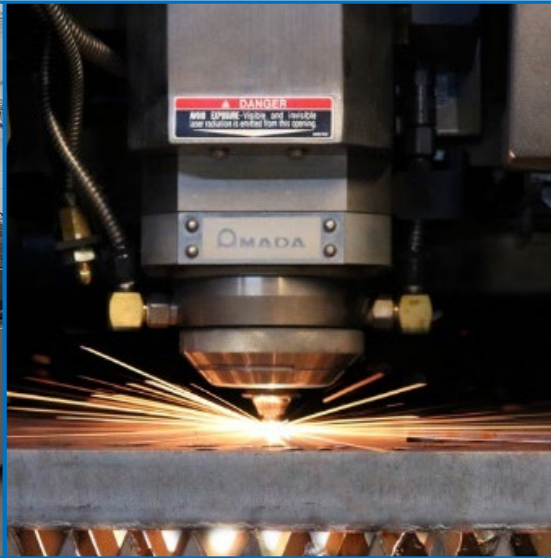
# Vertically Integrated Manufacturing - Built in the USA



## Applications Lab

New materials, coatings and processing techniques through CVD's Application Laboratory

Innovative carbon (CNT, graphene) products for energy storage, and sensing devices



## Manufacturing

CVD has expanded its internal manufacturing capabilities in 2022 with new machining centers

Vertically-integrated, >95,000 ft<sup>2</sup> of total manufacturing space



## Quartzware

Our quartzware manufacturing facility can produce prototype designs with rapid turnaround

Substrate paddles, wafer boats, process gas injectors, process tubes, quartz bubblers, bell jars, etc.



## SDC<sup>®</sup> Gas Storage & Chemical Delivery Systems

Manufacturer of ultra-high purity gas and chemical delivery systems for the semiconductor industry as well as in microelectronics, nanomaterial production and aerospace markets

**Vertical integration gives CVD a competitive advantage, reducing customer cost of ownership, ensuring certainty of lead times, and maintaining quality.**



# CVD Focus & Investment To Support The Market Growth Opportunity

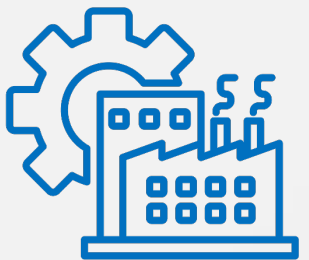
## Five Point Initiative

1



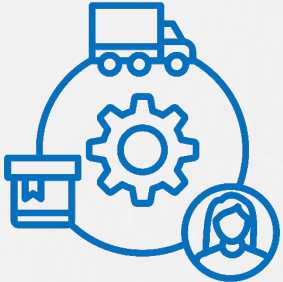
Grow market share through increased investment in sales and marketing efforts in all targeted markets

2



Expand manufacturing capacity and capability within existing facilities

3



Diversify manufacturing by leveraging in-house capabilities and external supply chain

4



New product Innovation in all served markets

5



Applications Lab process development to accompany equipment



# Seasoned Executive Team



**Manny Lakios**

*President & Chief Executive Officer*

- Appointed President and CEO of CVD January 2021
- Previously President and CEO at Sensor Electronic Technology, COO Imago Scientific, President Process Equipment Veeco
- 40 years of experience serving the aerospace, semiconductor, data storage, UVLED and optical device industries and holds multiple patents in equipment technology



**Richard Catalano**

*Executive Vice President & Chief Financial Officer*

- CFO of CVD since August 2022
- Previously an audit partner at KPMG
- Served as leader of KPMG's Metro NY Healthcare and Life Sciences Practice and has over 35 years of experience as an audit professional



**Max Shatalov**

*Vice President of Engineering & Technology*

- Joined CVD as VP of Engineering and Technology in April 2018
- Previously VP of Technology at Sensor Electronic Technology Inc.
- Over 20 years of experience in semiconductor research and devices, currently holding 120+ US patents



**Jeff Brogan**

*Vice President of Sales & Marketing*

- VP of Sales & Marketing for CVD March 2021
- Previously President & CEO of MesoScribe Technologies Corp.
- Over 25 years experience serving aerospace and defense industries, strategic sales & marketing, advanced research & technology development, currently holding multiple US patents



**Warren Cheesman**

*Vice President of Manufacturing Operations*

- VP of Manufacturing Ops at CVD since October 2022
- Previously VP of Engineering at iON Technology Solutions
- Over 25 years of management experience in the semiconductor, medical device and defense equipment sectors



**Kevin Collins**

*Vice President & General Manager SDC® Division*

- General Manager at SDC since October 1999
- Previously employed by Stainless Design Corp. as Manager of Field Operations and Product Development Advisor
- Mr. Collins attended Columbia University School of Engineering and Applied Science.

Thank You!



PowderCoat 1104™  
Chemical Vapor Deposition System



PVT200™  
Physical Vapor  
Transport System



CVI 3500™  
Chemical Vapor Infiltration (CVI) System