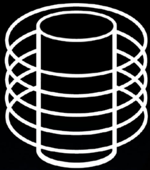
CVD Equipment Corporation

SiBondCoat 200™

Production Scale Silicon Bond Coat LPCVD System


RF Induction Heating Process Temperature up to 1500° C

Vertical, Quartz Process Chamber

Substrate Rotation for Improved Deposition Uniformity

Multiple Gas Injectors with Independent Flow Control

Low Pressure System for High Thickness Uniformity on 3D Parts

SiBondCoat 200™
Low Pressure Chemical Vapor Deposition System

SiBondCoat 200™ provides uniform deposition of silicon coatings onto the surface of ceramic matrix composites (CMCs).

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SiBondCoat 200™

CVD Equipment's SiBondCoat 200™ is a low-pressure chemical vapor deposition (CVD) system designed for industrial production applications for the deposition of silicon coatings as a bond coat on silicon carbide composite materials. This process is used to improve adhesion of subsequent coatings and is often used prior to the deposition of Environmental Barrier Coating (EBC) layers.

The SiBondCoat 200™ enables uniform deposition, achieving high purity and maintaining uniformity over the surface of three dimensional components and parts having complex shapes and geometries, providing a conformal interfacial coating/layer to enhance the adhesion of EBCs.

The system controllably doses a halide precursor into the high temperature reactor where the chemical reactions occur to deposit the uniform Si coating. Several options are available for chemical vapor delivery including reactive gas or vapor delivery, direct liquid injection, and bubbler source injection. Separate, independently controlled gas injectors are implemented to control dosing in the lower, middle, and upper zone of the reaction chamber for greater control of process uniformity. The SiBondCoat 200™ can be automatic or manually sequenced for optimum control over deposition. RF induction heating of the process retort leads to rapid heating for improved cycles times and throughput. Multi-chamber configurations are available to further enhance throughput.

SiBondCoat 200™

Features and Options

- For applying a silicon (Si) layer onto 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
- Substrate loading/unloading facilitated by motor driven access
- Temperature control of ±1 °C
- Substrate rotation up to 10 RPM
- Hazardous gas leak detection & alert systems
- Optional gas delivery cabinets
- Optional liquid abatement system
- Designed for ease of maintenance
- Safe handling of pyrophoric by-products in exhaust system

Powered by our CVDWinPrC™ process control software

PureCursor™ Liquid Delivery System

Technical Data

Work Zone	up to 8” ID & 8” H
RF Power Supply	up to 35 kW
Operating Temperature	up to 1500 °C
Operating Pressure	1 to 500 Torr

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