

2200°C GRAPHITE VACUUM SYSTEMS



Advanced Graphite Vacuum Furnace & Hot Press Systems

*Not just a
Substitute for Imports
An Export-Grade
Standard*



Engineered in India. Matched Globally.

ABOUT US

VB Ceramic Consultants is a pioneering name in the field of high-temperature research equipment and custom-engineered laboratory instruments. Under the visionary leadership of Dr. V. Viswabaskaran, a distinguished expert in ceramic engineering with over two decades of experience, we have consistently delivered cutting-edge solutions that empower advanced research and industrial development.

With deep-rooted expertise in materials science and thermal processing, we specialize in designing and manufacturing advanced equipment for ceramic testing, materials synthesis, and high-temperature applications. Our instruments are trusted by leading Indian R&D organizations and academic institutions including IITs, NITs, DRDO, CSIR, ISRO, and various public and private sector industries.

At VB Ceramic Consultants, we take pride in being a one-stop partner for the Indian ceramic and materials research community—committed to innovation, quality, and long-term support.



ABOUT OUR GRAPHITE SYSTEMS

VB Ceramic Consultants is a leading manufacturer and technology provider of advanced graphite heating furnaces, hot pressing systems, and vacuum thermal processing equipment, engineered for high-temperature precision, energy efficiency, and reliable performance in both research and industrial environments.

With a proven track record of supplying 100+ graphite-heated systems across India, our product portfolio includes vacuum furnaces, hot press furnaces, diffusion bonding furnaces, brazing furnaces, annealing furnaces, non-oxide sintering furnaces, spark plasma sintering-related thermal systems, and customized high-temperature processing solutions designed to meet demanding material development and production requirements.

Our systems utilize high-density graphite heating elements and hot zones, enabling rapid heating rates, excellent temperature uniformity, and operating temperatures suitable for advanced ceramics, refractory materials, metals, composites, energy materials, and aerospace applications. Integrated vacuum systems capable of achieving vacuum levels up to 10^{-6} mbar, combined with inert and reactive gas atmosphere capabilities, provide precise control over critical thermal processes.

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INDUSTRIAL GRAPHITE VACUUM FURNACE

▼ Specification

Maximum Temperature	Upto 2200°C
Continuous Operating Temperature	2100°C
Useful Chamber Size	200mm ³ to 600mm ³
Ultimate Vacuum	Up to 10 ⁻⁶ mbar (Vacuum Pump Make: VBCC)
Hot Zone Material	High-Density Graphite from Mersen, USA
Heating Elements	High-Density Graphite Heating Elements from Mersen, USA
Heating Rate	1 to 20°C/min (Programmable)
Temperature Control	TAIE PFU-400 PID Controller
Temperature Measurement	Imported Non-Contact Pyrometer
Temperature Accuracy	±1°C (Thyristor Make: VBCC)
Vacuum System	Rotary Pump + Roots Pump + Diffusion Pump
Working Vacuum Range	10 ⁻⁴ to 10 ⁻⁵ mbar



LABORATORY GRAPHITE VACUUM FURNACE

Specification

Maximum Temperature	Upto 2200°C
Continuous Operating Temperature	2100°C
Useful Chamber Size	100mm ³ to 200mm ³
Ultimate Vacuum	Up to 10 ⁻⁶ mbar (Vacuum Pump Make: VBCC)
Hot Zone Material	High-Density Graphite from Mersen, USA
Heating Elements	High-Density Graphite Heating Elements from Mersen, USA
Heating Rate	1 to 20°C/min (Programmable)
Temperature Control	TAIE PFU-400 PID Controller
Temperature Measurement	Imported Non-Contact Pyrometer
Temperature Accuracy	±1°C (Thyristor Make: VBCC)
Vacuum System	Rotary Pump + Roots Pump + Diffusion Pump
Working Vacuum Range	10 ⁻⁴ to 10 ⁻⁵ mbar



ULTRA HIGH TEMPERATURE SINTERING SYSTEM

Specification

Application	Advanced ceramics, carbides, nitrides, borides, UHTCs
Maximum Temperature	Up to 2200°C
Continuous Operating Temperature	Up to 2100°C
Heating Technology	High-density graphite heating elements from Mersen, USA
Temperature Accuracy	±1°C (Thyristor Make: VBCC)
Atmosphere	Vacuum, Argon, Nitrogen
Vacuum Level	Up to 10 ⁻⁶ mbar (Vacuum Pump Make: VBCC)
Heating Rate	1–20°C/min
Hot Zone Design	Multi-layer graphite felt insulation
Process Capability	Pressureless sintering of non-oxide ceramics
Materials Processed	SiC, B ₄ C, TiB ₂ , ZrB ₂ , HfC, WC
Typical Users	Advanced ceramics industries, defense labs, research institutes



VACUUM HOT PRESS FURNACE

Specification

Application	Pressure-assisted sintering of advanced ceramics & composites
Maximum Temperature	Up to 2200°C
Continuous Operating Temperature	Up to 2000°C
Heating Technology	High-density graphite heating elements from Mersen, USA
Vacuum Level	Up to 10 ⁻⁶ mbar (Vacuum Pump Make: VBCC)
Atmosphere	Vacuum, Argon, Nitrogen
Pressing System	Integrated hydraulic hot-pressing system
Maximum Pressing Force	Up to 10 Ton
Press Control	Programmable pressure control with digital display
Pressing Rods	High-strength graphite pressing rods from Mersen, USA
Die System	Custom-designed graphite die and punch assemblies
Heating Rate	1–20°C/min
Temperature Accuracy	±5°C
Materials Processed	Al ₂ O ₃ , Si ₃ N ₄ , SiC, B ₄ C, TiB ₂ , WC, composites



DIFFUSION BONDING FURNACE

Specification

Application	Solid-state joining of metals and alloys without filler materials
Maximum Temperature	Up to 2200°C
Continuous Operating Temperature	Up to 2000°C
Heating Technology	Graphite resistance heating
Vacuum Level	Up to 10 ⁻⁶ mbar (Vacuum Pump Make: VBCC)
Bonding Force System	Hydraulic pressure loading system
Maximum Bonding Force	Up to 10 Ton
Bonding Platens	High-density graphite pressing platens from Mersen, USA
Tooling	Custom graphite fixtures and bonding jigs
Temperature Accuracy	±1°C (Thyristor Make: VBCC)
Heating Rate	1–20°C/min
Materials Joined	Titanium, Stainless Steel, Nickel Alloys, Copper
Process Capability	Oxide-free solid-state metallurgical bonding



VACUUM BRAZING FURNACE

Specification

Application	Vacuum brazing of aerospace and engineering components
Maximum Temperature	Up to 1600°C
Vacuum Level	Up to 10 ⁻⁶ mbar (Vacuum Pump Make: VBCC)
Brazing Environment	Flux-free brazing
Heating Accuracy	±1°C (Thyristor Make: VBCC)
Cooling System	Accelerated inert gas cooling
Atmosphere	Vacuum / Argon
Process Capability	Simultaneous brazing of multiple assemblies
Joint Quality	Oxide-free high-strength joints
Materials Processed	Stainless steel, titanium, nickel alloys
Typical Products	Heat exchangers, fuel cells, aerospace components
Automation	Fully programmable thermal cycles



DEBINDING FURNACE

Specification

Application	MIM, CIM, PM components
Maximum Temperature	Up to 1600°C
Debinding Method	Thermal debinding under controlled atmosphere
Sintering Capability	Single-chamber debinding and sintering
Atmosphere Options	Vacuum, Hydrogen, Nitrogen, Argon
Vacuum Level	Up to 10 ⁻⁵ mbar (Vacuum Pump Make: VBCC)
Gas Flow Control	Automated gas purging and flow regulation
Temperature Control	Multi-step programmable profiles
Heating Uniformity	Optimized for batch processing
Contamination Control	Clean graphite hot zone
Product Types	MIM parts, PM gears, filters, biomedical implants
Production Mode	R&D and industrial batch production



GRAPHITIZATION FURNACE

Specification

Application	Carbon and graphite material processing
Maximum Temperature	Up to 2200°C
Continuous Temperature	Up to 2000°C
Heating Technology	Ultra-high current graphite heating
Atmosphere	Vacuum / Inert gas
Vacuum Level	Up to 10 ⁻⁵ mbar (Vacuum Pump Make: VBCC)
Process Capability	Graphitization of carbonaceous materials
Product Forms	Blocks, felts, composites, powders
Carbon Purification	Removal of volatile impurities
Energy Storage Applications	Battery anodes and carbon materials
Carbon Composite Processing	C-C composites and specialty graphite
Typical Users	Battery industry, carbon manufacturers, R&D labs



WHY CHOOSE US?



VB Ceramic Consultants (VBCC) is a highly trusted manufacturer of high-quality ceramic instruments, equipment, furnaces, and kilns. Our clientele includes esteemed universities, renowned R&D organizations, and leading industries, all of whom rely on our superior offerings. With a dedicated team of experts, we offer a range of comprehensive services to ceramic industries, including product development and problem-solving solutions. Having successfully completed numerous projects, VBCC takes pride in its ability to deliver innovative ceramic products, many of which serve as import substitutes. We offer these products along with the corresponding technical know-how, providing our clients with ready-to-use solutions.

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