

TAILOR MADE LABORATORY FURNACES & EQUIPMENT



Our Furnaces Power Materials That Reach Space.



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



Engineered in India. Matched Globally.

ABOUT US

VB CERAMIC FURNACES OPC PVT. LTD. 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 Furnaces, 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 FURNACES

VB CERAMIC FURNACES OPC PVT. LTD. has been at the forefront of thermal processing technology for over two decades, designing and manufacturing advanced furnaces and high-temperature systems for research institutions, universities, government laboratories, and industrial R&D centers across India.

Our furnaces have supported groundbreaking research and development activities at premier institutions including IITs, NITs, CSIR laboratories, DRDO establishments, ISRO centers, central universities, and leading industrial research organizations. From fundamental materials research to advanced ceramics, refractories, metallurgy, energy materials, aerospace components, and next-generation technologies, VBCC systems have enabled researchers and engineers to transform innovative ideas into practical solutions.

With a comprehensive portfolio covering box furnaces, tubular furnaces, vacuum furnaces, rotary furnaces, biomass pyrolysis systems, thermal cycling furnaces, raising hearth furnaces, and customized thermal processing equipment, we deliver reliable, energy-efficient, and precision-engineered solutions tailored to diverse application requirements.

Today, hundreds of VBCC furnaces are operating across laboratories, universities, research centers, and industries throughout India—supporting innovation, advancing scientific discovery, and contributing to technologies that shape the future.

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Specification

Maximum Temperature	Up to 1800°C
Working Temperature	Up to 1700°C (continuous)
Hot Zone Volume	Customizable from 150 × 150 × 150 mm to 300 × 300 × 300 mm
Heating Elements	High-quality APM Kanthal® , Silicon Carbide (SiC) , or Molybdenum Disilicide (MoSi₂) heating elements
Temperature Sensor	K-Type, R-Type, or B-Type Thermocouple ,
Power Control	Phase Angle Controlled SCR (Thyristor) from Semikron, Italy
Temperature Controller	TAIE PID Controller 8 to 18 programs and up to 144 segments
Temperature Accuracy	±1°C
Insulation	Ultra-low thermal conductivity high-purity alumina fibre board insulation
Outer Body Construction	Heavy-duty steel body with powder-coated finish mounted on wheels
Door Design	Front-loading insulated swing door
Power Supply	230 V / 415 V AC, 50 Hz (depending on model and chamber size)



Specification

Maximum Temperature	Up to 1800°C
Working Temperature	Up to 1700°C (Continuous)
Tube Size	60–90 mm ID × Up to 1000 mm Length
Number of Zones	Single / Dual / Triple Zone (Customizable)
Model Type & Configuration	Fixed Type / Split Type / Sliding Type Horizontal or Vertical
Tube Material	Fused Quartz / Recrystallized Alumina / Inconel
Heating Elements	APM Kanthal®, SiC, or MoSi ₂
Temperature Sensor	K-Type, R-Type, or B-Type Thermocouple
Power Control	Phase Angle Controlled SCR (Thyristor) – Semikron, Italy
Temperature Controller	TAIE PID Controller, 8–18 Programs, Up to 144 Segments
Temperature Accuracy	±1°C
Insulation	Ultra-Low Thermal Conductivity High-Purity Alumina Fibre Board
Outer Body Construction	Heavy-Duty Steel Body with Powder - Coated Finish mounted on wheels
Power Supply	230 V / 415 V AC, 50 Hz
Optional Accessories	Vacuum Pump, Water Chiller, Rotameter, Mass Flow Controller (MFC)



Specification

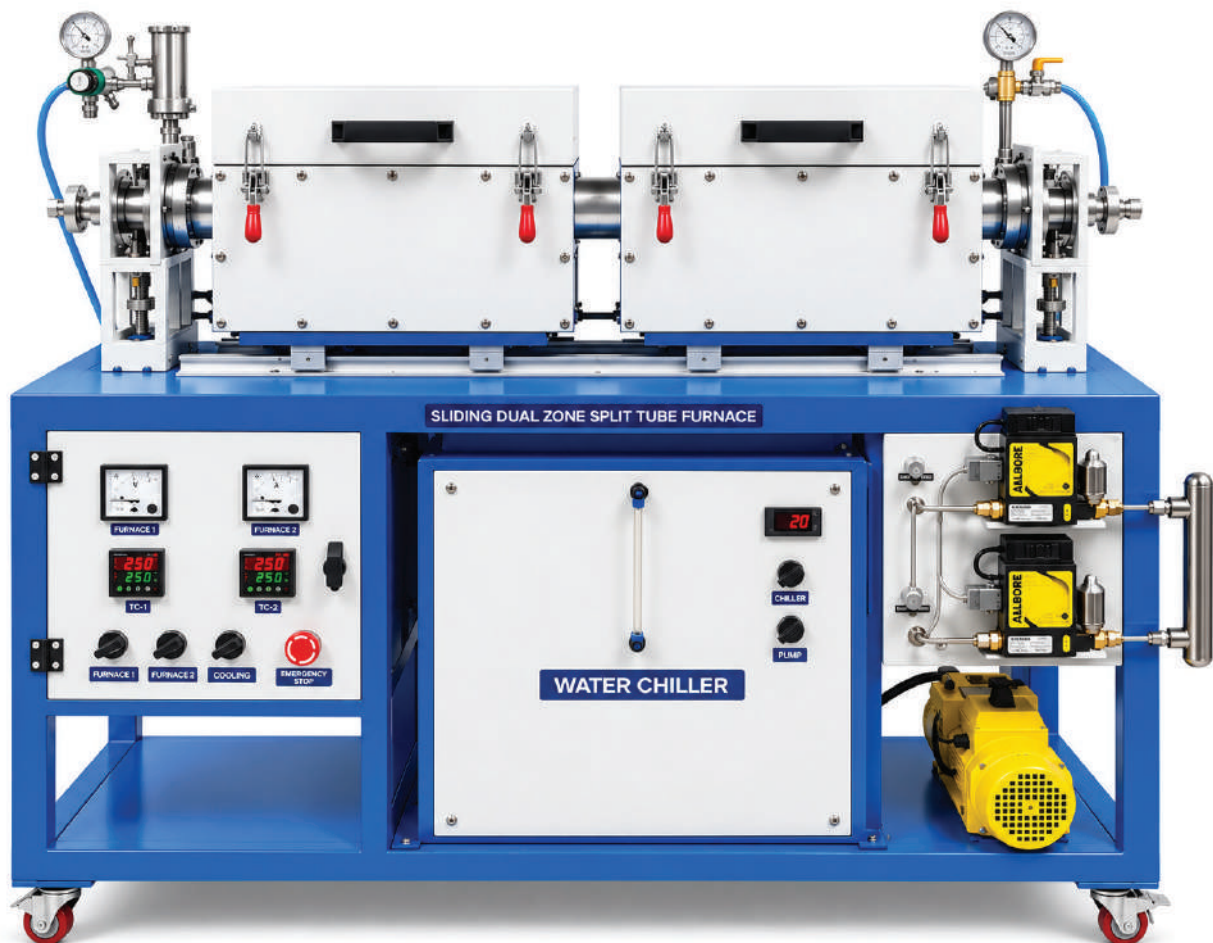
Maximum Temperature	Up to 1200°C
Working Temperature	Up to 1100°C (Continuous)
Chamber Volume	150 mm³ to 300 mm³
Chamber Material	Inconel
Heating Elements	Kanthal Heating Elements
Temperature Sensor	K-Type Thermocouple
Power Control	Phase Angle Controlled SCR (Thyristor) – Semikron, Italy
Temperature Controller	TAIE PID Controller, 8–18 Programs, Up to 144 Segments
Temperature Accuracy	±1°C
Vacuum Level	Up to 10 ⁻² mbar through Rotary Vacuum Pump
Insulation	Low Thermal Conductivity High-Purity Alumina Fibre Board
Cooling System	Water Chiller, 50 L Capacity
Outer Body Construction	Heavy-Duty Fabricated Mild Steel Body with Powder-Coated Finish
Door Type	Front Loading Vacuum Sealed Door
Power Supply	230 V / 415 V AC, 50 Hz



CHEMICAL VAPOUR DEPOSITION

Specification

Furnace Type	Tubular Chemical Vapour Deposition (CVD) Furnace
Furnace Configuration	Single / Dual / Multi-Zone
Working Tube	Recrystallized Alumina / Quartz
Maximum Temperature	Up to 1700°C
Working Temperature	Up to 1700°C, depending on tube material
Heating System	APM Kanthal®, SiC, or MoSi ₂
Vacuum Range	10 ⁻² to 10 ⁻⁵ mbar
Mass Flow Controllers	AALBORG make digital mass flow controllers
Required Gases	H ₂ / N ₂ / Ar / CH ₄ ; other gases as required
Gas Handling System	SS gas lines, valves, fittings and gas mixing manifold
Temperature Control	Programmable PID temperature controller with independent zone control
Control System	PLC-based control with HMI/SCADA and process data logging



Specification

Maximum Temperature	Up to 1100°C
Working Temperature	RT to 1000°C (Continuous)
Tube Material	Fused Quartz / Recrystallized Alumina / Inconel
Tube Size	Customizable
Heating Zones	Single/Multiple
Heating Elements	APM Kanthal Solid Heating Elements
Rotary Arrangement	Variable Speed Rotation
Tilting Arrangement	Pneumatic Tilting Facility for Material Discharge
Feeding System	Screw Conveyor with Digital Speed Control
Temperature Sensor	K-Type Thermocouple
Temperature Controller	TAIE PID Controller, 18 Programs × 8 Segments (144 Segments)
Temperature Accuracy	±1°C
Power Control	Phase Angle Controlled SCR (Semikron, Italy)
Vacuum System	Rotary Vacuum Pump
Gas Purging	Inbuilt Gas Purging Arrangement
Process Tube Fittings	SS310 End Fittings
Power Supply	415 V AC, 3 Phase, 50 Hz



Specification

Furnace Type	Automatic stir casting furnace with pneumatic melt discharge
Shell Size	300 × 300 × 600 mm
Crucible Capacity	1 kg
Maximum Temperature	1100°C
Working Temperature	1000°C
Heating System	Kanthal heating elements with spiral winding arrangement
Insulation	Mechanically pressed zirconia-blend ceramic fibre
Power Supply	230 V, single-phase AC
Power Rating	6 kW
Temperature Control	TAIE PFU400 digital PID controller with Type K thermocouple
Stirrer	Adjustable speed, 100–150 RPM, with zirconia-coated shaft
Melt Discharge	Fully automatic pneumatic discharge system with die casting arrangement
Models	Vacuum & Controlled Atmosphere / Ambient Atmosphere
Metals	Al / Mg



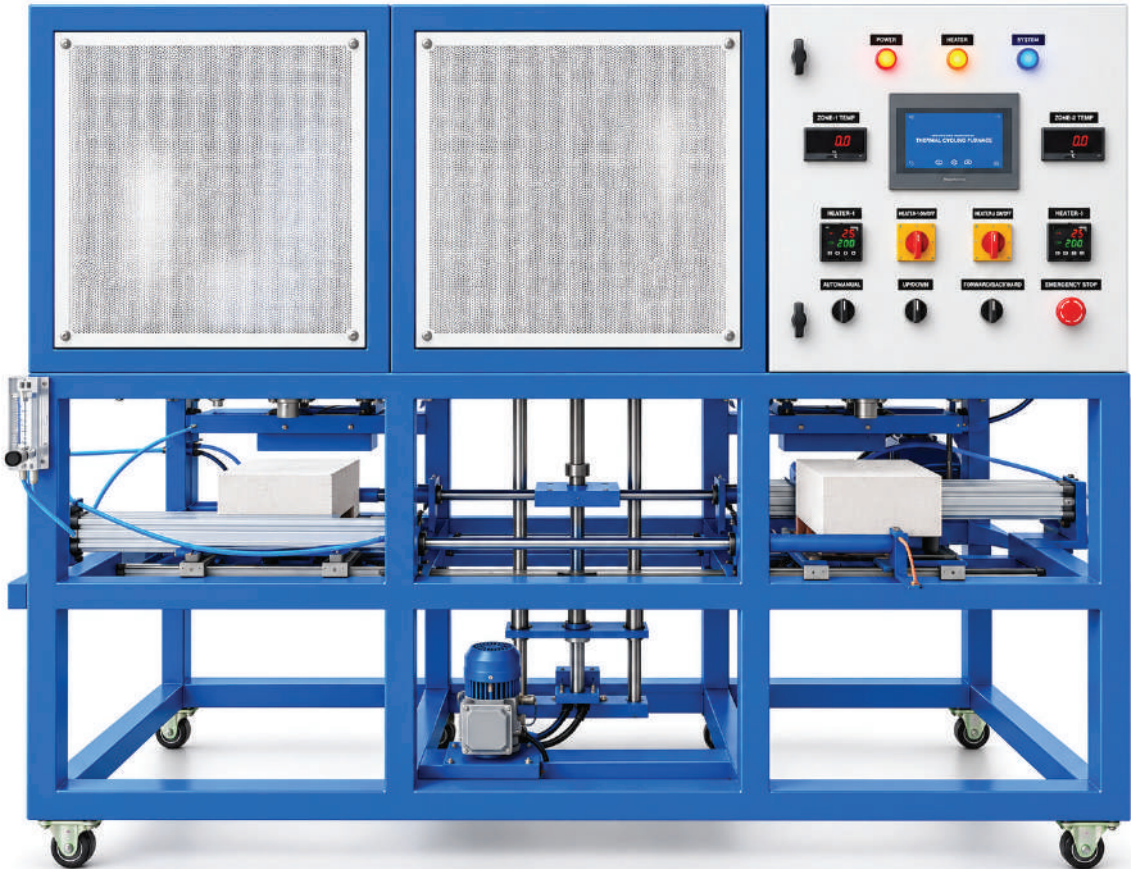
Specification

Furnace Type	Automatic bottom-loading, single chamber raising and lowering hearth furnace
Hot Zone Dimensions	300 × 300 × 300 mm
Maximum Temperature	1800°C (element temperature)
Continuous Operating Temperature	1700°C
Heating Elements	12 Nos. Molybdenum Disilicide (MoSi ₂) rods, 1800°C grade
Insulation	High-performance vacuum-formed insulation boards
Hearth Movement	Automatic motorized screw mechanism with stepper motor
Door Operation	Pneumatically operated, insulated bottom-loading door
Temperature Controller	Programmable PID controller with 144 segments
Temperature Sensor	Type B thermocouple with recrystallized alumina sheath
Temperature Accuracy	±1°C
Power Control	Phase-angle controlled thyristor drive with current feedback
Heating Rate	Programmable heating rate of 1–5°C/min



Specification

Model	Automatic Dual-Station Thermal Cycling Furnace
Chamber Volume	300 × 300 × 200 mm (L × W × H)
Shell Construction	Double-wall MS fabricated body with reinforced angle framework
Door Mechanism	Automatic motorized screw-rod system with bottom-loading arrangement
Insulation	150 mm vacuum-formed ceramic fibre boards, Zircar, USA
Heating Elements	12 Nos. L-shaped MoSi ₂ rods, 1800°C grade
Maximum Operating Temperature	1700°C
Required Power	10 kW
Power Supply	415 V, three-phase AC
Heating Rate	Programmable, 1–10°C/min
Temperature Control	TAIE PFU400 digital PID controller
Temperature Sensors	4 Nos. Type B thermocouples with recrystallized alumina sheaths
Forced-Air Cooling	EBM blowers with SS mesh-protected cooling areas
Automation & Safety	Omron PLC, Pro-face HMI, automatic station movement, over-temperature protection and emergency stop



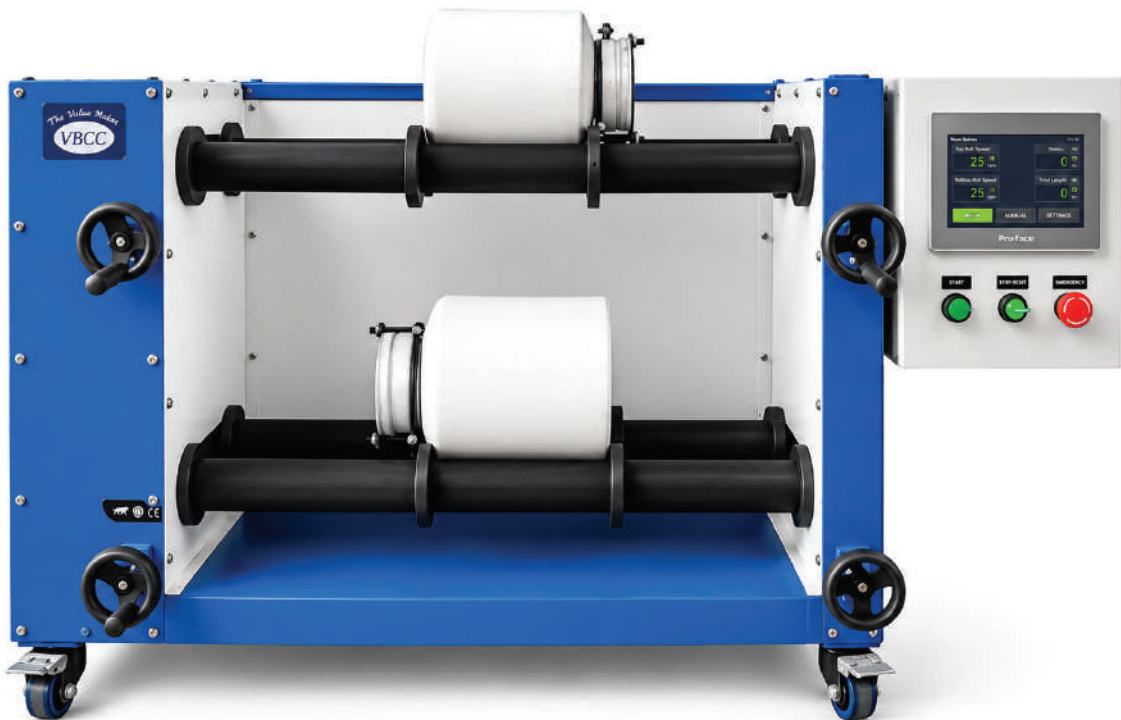
Specification

Model	Batch-Type Electrical Biomass Pyrolysis Unit, 5 kg capacity
Reactor Chamber	Inconel 600, 250 mm diameter × 300 mm height
Shell Construction	Double-wall MS body with reinforced angle framework and powder-coated finish
Insulation	Mechanically pressed zirconia ceramic fibre
Maximum Temperature	1000°C
Heating System	APM-grade Kanthal heating elements
Power Rating	9 kW
Power Supply	Three-phase AC, 230 V as specified
Temperature Control	TAIE programmable PID controller with 144 segments
Temperature Sensors	2 Nos. Type K thermocouples; accuracy ±1°C
Gas & Tar Collection	Controlled-atmosphere gas extraction, two-stage condensation and tar collection vessels
Vacuum System	Rotary vacuum pump, 240 L capacity as specified, with 760 mmHg vacuum rating
Cooling System	50 L water chiller with automatic temperature control and 10 L/min circulation



Specification

Equipment Type	Single/Two-Tier Roller Jar Mill
Construction	Mild Steel (MS) body with durable powder-coated finish
Jar Capacity	Accommodates up to six jars simultaneously across two tiers
Roller Material	Chemical-resistant rubber-coated rollers with high wear resistance
Compatible Jar Sizes	Adjustable rollers suitable for jars ranging from 2" to 8" diameter
Jar & Grinding Media Options	Customizable options in Stainless Steel (SS), Alumina, Porcelain, and Yttria-Stabilized Zirconia (YSZ)
Drive System	Heavy-duty roller chain drive with sealed ball bearings
Speed Range	30–300 RPM, adjustable through Variable Frequency Drive (VFD)
Motor Rating	1 HP, totally enclosed motor
Power Supply	415 V AC, 50 Hz
Grinding Operation	Suitable for wet and dry grinding applications
Control System	PLC-based automation with 7" touchscreen HMI and VFD
Programmable Operation	Forward/reverse operation with up to 8 programmable segments
Timer Range	1 minute to 200 hours, with programmable operation duration
Safety Features	Emergency stop, roller guards, and individual tier isolation mechanism
Overall Dimensions	Approximately 1500 (L) × 500 (W) × 1000 (H) mm



Specification

Equipment Type	Extrusion Machine for Metamaterials and Ceramic Materials
Model	Mechanized Piston-Type Extruder
Frame Construction	Robust Mild Steel (MS) frame for stable operation
Extrusion Height	300 mm from the base level
Working Principle	Piston-driven extrusion of plasticized material through a die orifice
Piston Actuation	Single-screw mechanism connected to the piston
Speed Range	10–120 RPM, adjustable
Motor Rating	1 HP motor with a suitable reduction gearbox
Barrel Material	Well-polished Stainless Steel (SS)
Barrel Dimensions	75 mm diameter × 180 mm length
Die Compatibility	Compatible with dies for cylindrical and tubular extrudates
Die Diameter Range	5–10 mm
Application	Extrusion of ceramic pastes, plasticized materials, and metamaterial feedstocks
Die Sets	Not included in the scope of supply; available as per application requirements



Specification

Grinding Operation	Suitable for wet and dry grinding
Construction	Heavy-duty Mild Steel (MS) body with MS angle framework and durable powder-coated finish
Jar Mounting	Secure safe-lock clamping mechanism with SS bolt-and-nut locking
Working Principle	High-energy planetary impact and friction
Final Fineness	Below 100 nm
Grinding Jar Material	Tungsten Carbide (WC)
Grinding Media	Tungsten Carbide balls, 10 mm diameter, 40 Nos.
Jar Volume	Approximately 500 mL, single-jar configuration
Sample Load Capacity	Approximately 10–100 g, depending on material density and process requirements
Maximum Speed	Up to 600 RPM, variable
Drive System	Belt drive with self-lubricating components
Continuous Operation	Up to 10 hours
Speed Control	Microprocessor-based speed control with digital RPM display
Motor Rating	0.5 HP
Timer	Programmable timer for controlled grinding duration
Indicators	Digital RPM display



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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