

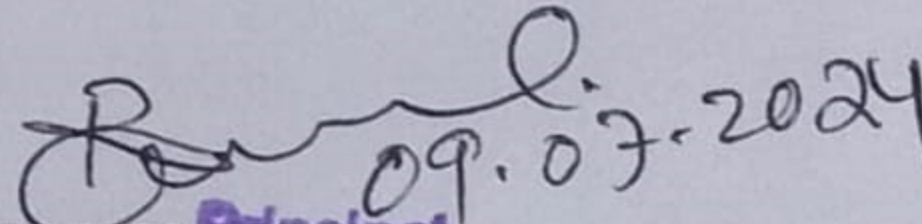
**OFFICE OF THE PRINCIPAL, GOVT. WOMEN'S COLLEGE, SAMBALPUR**

No. 2147/GWC

Dt. 09/07/2024

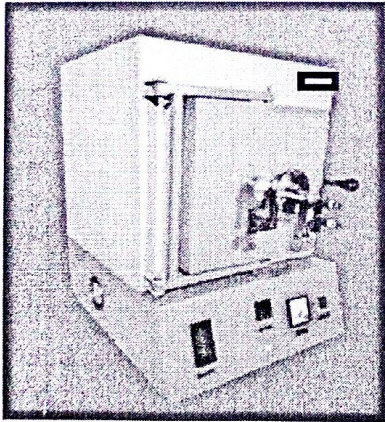
**TENDER CALL NOTICE**

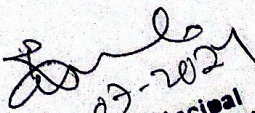
Sealed Tenders are invited from authorized suppliers/dealers/registered firms DGS&D/EPM rate contractors for supply of different Laboratory equipments under MRIP-2024. The details of the Laboratory equipment to be supplied are available in the college website [www.gwcsbp.in](http://www.gwcsbp.in). The tenders should reach the office on or before 24<sup>th</sup> July, 2024 by 4:00 p.m. The sealed tenders will be opened at 4:30 p.m. on the same day. The tender must be supported by valid GST/PAN/IT clearance, brochure details specification, model, model no. etc. The authority reserves the right to cancel any or all tenders without assigning any reasons thereof.

  
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**GOVT. WOMEN'S COLLEGE, SAMBALPUR**



Sl No	Instrument specification	Number
1	<p><b>Furnace details</b></p> <p>Furnace type            Muffle cum horizontal tube furnace</p> <p>Need                        Materials synthesis and heat treatment</p> <p>Power Source            Electric</p> <p>Type Of Furnace        Fix</p> <p>Material Loading Capacity    500 gram</p> <p>Input Voltage (V)        230 volts</p> <p>Furnace Voltage (V)    230 volts</p> <p>Voltage                    Single/Three Phase</p> <p>Power Consumption     6 kW</p> <p>Cooling Water Capacity    None</p> <p>Tube type                Quartz (Work below 1000° C) and Alumina (Work above 1000° C)</p> <p>Approximate schematic</p>  <p>Temperature              +/- 1 °C</p> <p>Accuracy</p> <p>Thermocouple Type     R</p> <p>Automation Grade        Automatic</p> <p>Door size                 20 cm x 20cm x 20 cm</p>	1

  
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**Features:**

- Maximum operation Temperature (°C): > 1400 °C
- Continuous operation Temperature (°C): at least 1350 °C
- Gas purging / vacuum / both would be available
- Dimension of tubular furnace W x L x H (mm): 500 (+1) x 750 (+5) x 700 (+5) mm
- Hot Zone OD x ID x L (mm) 99.5%
  1. Alumina Tube: 90 x 80 x 450 (+5) mm
  2. Quartz tube: 90 x 80 x 450 (+5) mm

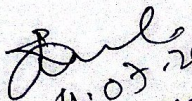
*Both the tubes should operate in same muffle port.*
- Rate of heating with quartz & metal tube: 25 °C per minute
- Rate of Heating with ceramic tube: min 5 °C per minute up to 800°C and min 3°C per minute for temperature above 800°C
- Uniformity of temperature (+/- 5°C) in 225 mm of hot zone along with radiation shield
- Double control zone would be provided, and control thermocouple is located out of work tube at center of hot zone.

**Body & Construction:**

- Construction: Dual Body construction in steel with Anti Corrosion Coating.
- Insulation type: All vacuum formed latest technology crystalline fiber board insulation, which is lightweight and heats the furnace with lowest energy consumption.
- The insulation would be fiber free so that it is not carcinogenic

**Heating Elements and Thermocouple:**

- Heating element: Alpha rod or spiral recrystallized alumina sheath
- Thermocouple type and number: R Type 2 number in recrystallized alumina sheath
- In-situ thermocouple with reader for profiling hot zone for lower temperature range along with Inconel protection sheath.

  
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**Control Panel:**


- Programmable controller with self-diagnostic feature, Alpha numeric four-line backlit LCD screen, Robust feather-touch keypad, communications port, three limit switches configuration and Inbuilt thyristor triggering, 2 number, Phase angle fired, Thyristor based, 10 program of 30 steps or better for controlling two zones.
- Ethernet Communications Port, Inbuilt removable SDHC Memory Card based Data logger
- PC Visualization and control software
- Self-diagnostic features would have following:
  - a) Thermocouple fault detection
  - b) Under voltage detection / protection
  - c) Over voltage detection / protection
  - d) Over current detection / protection
  - e) Thyristor fault detection
  - f) Heater filament fault detection
  - g) Power transformer fault detection
- Temperature control resolution: + 1 °C
- Power rating: Maximum 6 KW, two phase, 220-230 volts, 40 Amps per phase.

**Hot Zone Tube, Flanges, Radiation Shield, Uniformity:**

- Tubes would be resistant to chemicals, volatiles, nitrogen compounds, halogens, Sulphur compounds, acids etc.
- Flanges for gas purging and vacuum: Water-cooled hinged type SS flanges for gas purging and vacuum
- Radiation shield would be combination of Recrystallized Alumina and Inconel to increase tube life

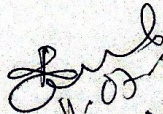
**Spares:**

- Alumina 99.5% Tray 240 ml Capacity (132 mm x 50 mm x 42 mm): 6 Nos.

  
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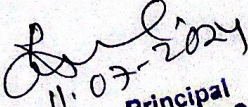


	<ul style="list-style-type: none"> <li>•High Alumina Tube 99.5% (90 x 85 x1000): 3 Nos.</li> <li>•Alumina Tray (240 ml): 6 Nos.</li> <li>•Quartz Tube (90 x 85 x1000): 3 nos.</li> <li>•No. of alumina boat (40 &amp; 500 ml): 6 each</li> </ul> <p><b>Others:</b></p> <ul style="list-style-type: none"> <li>•Warranty: at least 2 years</li> <li>•Company would provide product support for spares such as alumina 99.5% tray 240 ml capacity, high alumina tube 99.5%, alumina tray, quartz tube and alumina boat (as mentioned in spares column) for a minimum period of 10 years including 2 years of warranty period after the delivery.</li> <li>•All the thermocouples including R type and in-situ thermocouple with reader for hot zone would be accompanied with calibration certificate from a NABL certified furnace.</li> </ul>	
2	<p><b>High Precision Weighing Scale</b></p> <p>Accuracy: 0.0001 g</p> <p>Display Type: LCD Display with Backlight</p> <p>Weighing Capacity: 220 g</p> <p>Platform Size: 85 mm</p> <p>Tare Range: Full</p> <p>Working Temperature: 10-40 °C</p>	1
3	<p><b>Centrifuge (Capacity 4 x 100 ml)</b></p> <p>Type of Product: <b>Digital</b> Laboratory Centrifuge</p> <p>Capacity: 400 ml</p> <p>Rotor Capacity (ml): 4 x 100 ml</p> <p>Type of Head: Swing out Rotor Head</p> <p>Maximum Speed (RPM): 6000 RPM</p> <p>Tube type: With air tight cap</p>	1
4	<p><b>Vacuum oven</b></p> <p>Max temperature: 200 °C</p> <p>Power source electric</p> <p>Power supply 220</p>	1

  
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	<p>Capacity: 60 Liters</p> <p>Frequency: 50 Hz</p> <p>Double walled construction.</p> <p>Inner round chamber made out of stainless steel sheet.</p> <p>Exterior made out of mild steel duty finished in powder quoted paint.</p> <p>Gap between the two filled with mineral wool for temperature insulation.</p> <p>The body capable of withstanding vacuum of 760 mm Hg.</p> <p><i>With Vacuum pump fitted inside.</i></p> <p>It should contain with Digital temp. controller, indicator lamp, on-off switch, cord plug etc.</p>	
5	<p><b>Hydrothermal Autoclave Reactor: NUT &amp; BOLT TYPE</b></p> <p>is use to carry hydrothermal reaction at high pressure and high temperature. It is also known as Hydrothermal synthesis reactor, digestion or pressure melting bombs, hydrothermal synthesis reactor, high temperature and pressure digestion vessels, Teflon lined autoclave.</p> <p>Standard specifications are 250 ml capacity, hydrothermal autoclave reactor with teflon chamber of volume 250 ml.</p> <p>Maximum temperature: 220 degree</p> <p>Maximum Working Pressure: 3MPa</p> <p>Heating, Cooling rate: 5 °C/ min</p>	2
6	<p><b>Vacuum Pump</b></p> <p>With a PTFE-coated diaphragm and a pump head with FKM valves, which makes it an efficient and affordable option for applications that involve mildly reactive gases, such as solvent purifications, SPE and vacuum filtrations. 100% oil-free transfer, clean and maintenance free. Silent running (50 dB). Overheat protection. 220V/50Hz. Warranty 1 year.</p>	1

  
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