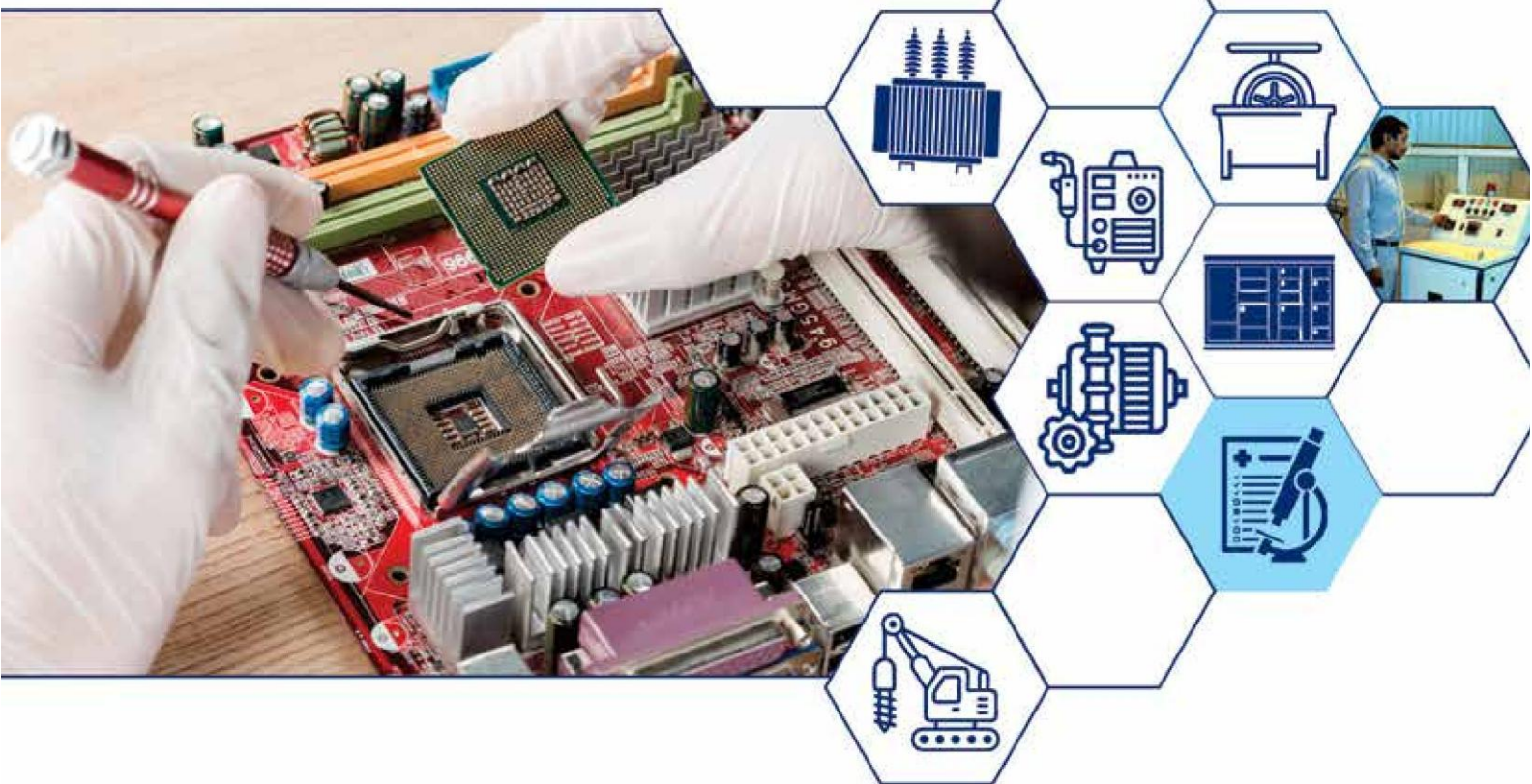


# **BHEL Testing & Calibration Services**

**A Promise of 100% Quality**



## **Technical Service Division**

### **BHEL BHOPAL**

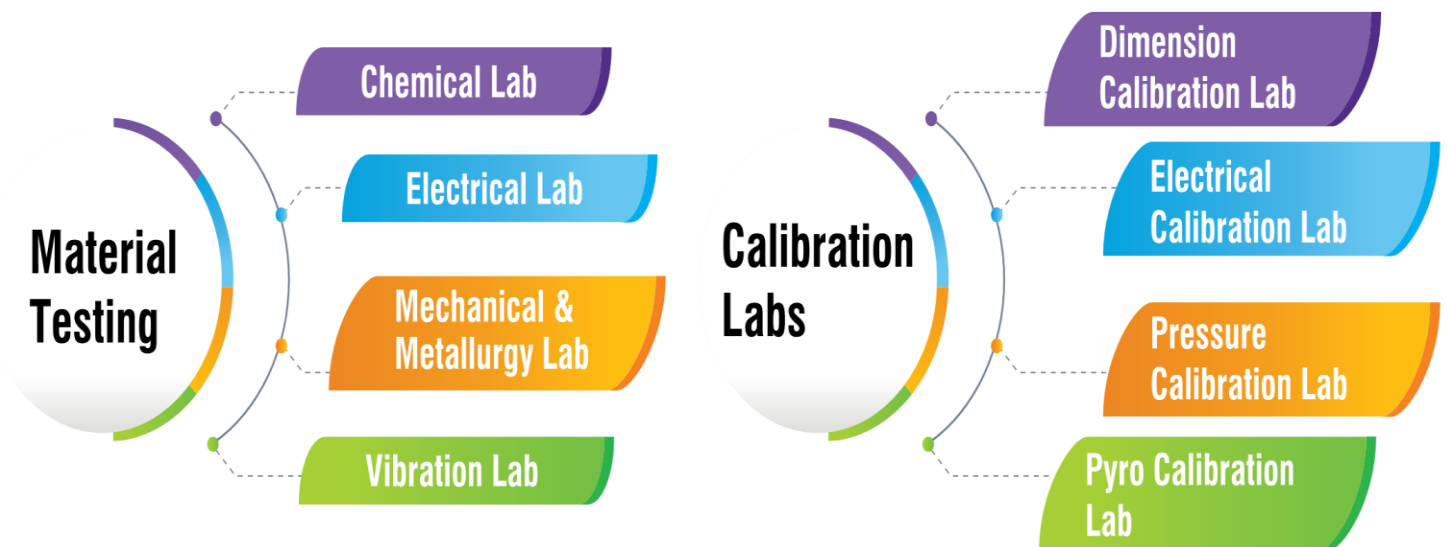
**( An NABL ISO 17025 :2017 accredited laboratory )**

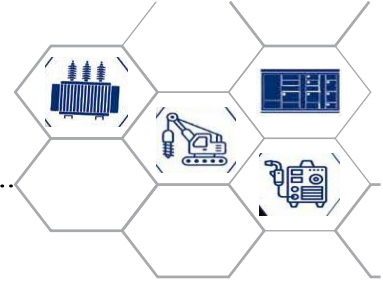


### **Achieve Quality, reliability and cost optimization with BHEL**

Material Testing & Calibration is being done by TSD in BHEL Bhopal. TSD was established in BHEL Bhopal in year 1958 to cater the material testing need. It comprises of testing & calibration laboratories. All laboratories of TSD are NABL accredited since 1996-97.

TSD is having 4 testing and 4 calibration laboratories as follow:





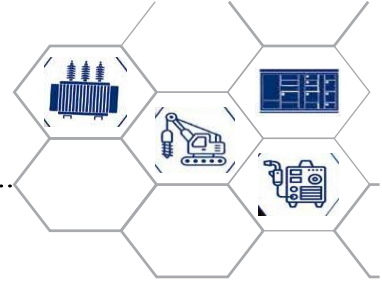
## Material Testing facilities of TSD

Material	Testing Facility	Tests
<ul style="list-style-type: none"> <li>Ferrous and Non-Ferrous Metals</li> </ul>	<ul style="list-style-type: none"> <li>UTM 10 kN to 1000 kN</li> <li>Brinell Hardness Tester</li> <li>Vickers Hardness Tester</li> <li>Rockwell Tester</li> <li>Impact Testing Machine</li> <li>Inverted Microscope</li> <li>Etching Facility</li> </ul>	<ul style="list-style-type: none"> <li>Mechanical &amp; Metallurgical Properties such as Tensile Strength, Yield, Elongation, Drift Expansion, Hardness, Micro Structure, Grain Size, Case Depth etc</li> </ul>
<ul style="list-style-type: none"> <li>Low Alloy Steel and Stainless Steel</li> </ul>	<ul style="list-style-type: none"> <li>Glow Discharge Spectrometer</li> <li>Optical Emission Spectrometer</li> </ul>	<ul style="list-style-type: none"> <li>Chemical Composition</li> </ul>
<ul style="list-style-type: none"> <li>Copper and its alloys</li> </ul>	<ul style="list-style-type: none"> <li>Oxygen Content Analyzer</li> <li>Conductivity Meter as ASME1004</li> <li>Micro hardness Meter</li> </ul>	<ul style="list-style-type: none"> <li>Oxygen content</li> <li>Conductivity</li> <li>Resistivity</li> </ul>
<ul style="list-style-type: none"> <li>Silver and Silver Alloys</li> </ul>	<ul style="list-style-type: none"> <li>Hardness Tester</li> <li>Wet Analysis</li> </ul>	<ul style="list-style-type: none"> <li>Hardness</li> <li>Silver Content</li> </ul>
<ul style="list-style-type: none"> <li>Carbon Brush</li> </ul>	<ul style="list-style-type: none"> <li>Carbon Brush Tester</li> <li>UTM 10kN</li> </ul>	<ul style="list-style-type: none"> <li>Milli Volt Drop</li> <li>Pig tail &amp; Pull Out</li> </ul>
<ul style="list-style-type: none"> <li>Resin &amp; Varnishes</li> </ul>	<ul style="list-style-type: none"> <li>Brookfield Viscometer</li> <li>Titration</li> </ul>	<ul style="list-style-type: none"> <li>Viscosity</li> <li>Epoxy Content</li> </ul>



Material	Testing Facility	Tests
<ul style="list-style-type: none"> <li>Transformer Oil</li> </ul>	<ul style="list-style-type: none"> <li>U Tube Viscometer</li> <li>Karl Fischer Titrator</li> <li>Surface Tensiometer</li> <li>Gas Chromatograph</li> <li>Flash Point Meter</li> <li>HPLC</li> <li>Viscometer System</li> <li>Hygrometer</li> <li>Oil BDV Tester</li> <li>Mega Ohm Tester</li> <li>Automatic Schering Bridge</li> <li>Titration</li> </ul>	<ul style="list-style-type: none"> <li>Viscosity</li> <li>Moisture Content</li> <li>Interfacial Tension</li> <li>Dissolved Gas Analysis</li> <li>Flash Point</li> <li>Furan Compounds</li> <li>Degree of Polymerization</li> <li>Density</li> <li>Break Down Voltage</li> <li>Resistivity</li> <li>Tan Delta</li> <li>Acid Value</li> </ul>
<ul style="list-style-type: none"> <li>Electroplated Articles</li> </ul>	<ul style="list-style-type: none"> <li>XRF Spectrometer</li> </ul>	<ul style="list-style-type: none"> <li>Electroplating Thickness of Zn, Cu, Ag, &amp; Sn</li> </ul>





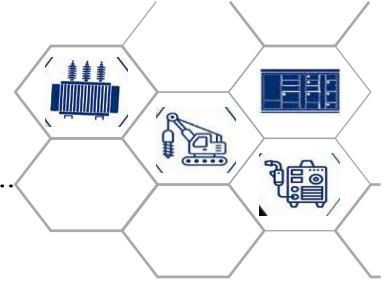
Material	Testing Facility	Tests
<ul style="list-style-type: none"> <li>• Paints</li> </ul>	<ul style="list-style-type: none"> <li>• Viscosity FC4 Cup</li> <li>• Specific Gravity Cup</li> <li>• Oven &amp; Balance</li> <li>• Scratch Hardness</li> <li>• Humidity Chamber</li> <li>• Stop Watch</li> <li>• Shade Card</li> <li>• Centrifuge</li> <li>• Paint Desk</li> </ul>	<ul style="list-style-type: none"> <li>•Viscosity</li> <li>•Mass per 10 Ltr</li> <li>•Volume Solid &amp; NVC</li> <li>•Scratch Hardnes</li> <li>•Humidity Resistance</li> <li>•Drying Time</li> <li>•Colour</li> <li>•Pigment Content</li> <li>•Pot Life, Finish, etc</li> </ul>
<ul style="list-style-type: none"> <li>• Dry Air, Nitrogen, Argon, Helium</li> </ul>	<ul style="list-style-type: none"> <li>• Dew Point Meter</li> </ul>	<ul style="list-style-type: none"> <li>• Dew Point</li> </ul>
<ul style="list-style-type: none"> <li>• Aluminium and Its Alloy</li> </ul>	<ul style="list-style-type: none"> <li>• Optical Emission Spectrometer</li> </ul>	<ul style="list-style-type: none"> <li>• Chemical Composition Check</li> </ul>
<ul style="list-style-type: none"> <li>• Tin and It's Alloy</li> </ul>	<ul style="list-style-type: none"> <li>• Optical Emission Spectrometer</li> </ul>	<ul style="list-style-type: none"> <li>• Chemical Composition Check</li> </ul>



## BHEL Testing & Calibration Services .....

Material	Testing Facility	Tests
<ul style="list-style-type: none"> <li>• Press Paper/Boards</li> </ul>	<ul style="list-style-type: none"> <li>• Conductivity Meter</li> <li>• Titration</li> <li>• Gravimetric</li> <li>• pH Meter</li> <li>• Precise Oven</li> <li>• Digital Balance &amp; Scale</li> <li>• 0-10/1000 AC DC HV test System</li> </ul>	<ul style="list-style-type: none"> <li>• Conductivity</li> <li>• Increase in acidity</li> <li>• Increase in Sludge</li> <li>• pH of aqueous extract</li> <li>• Ash Content</li> <li>• Density</li> </ul>
<ul style="list-style-type: none"> <li>• Cables, Insulating Materials like tapes, epoxy sheets, resin coated papers, PP Films etc.</li> </ul>	<ul style="list-style-type: none"> <li>• Digital Low Resistance Ohm Meter</li> <li>• Micro Ohm Meter</li> <li>• UTM for non-metals</li> <li>• Hydraulic Presses</li> <li>• High Voltage Set</li> <li>• Tracking Index Tester</li> <li>• Rubber Hardness Tester</li> <li>• Oven &amp; Balances Setup</li> <li>• AC /DC System</li> <li>• Tera Ohm Meter</li> <li>• Peel tester</li> </ul>	<ul style="list-style-type: none"> <li>• Resistivity, Conductor Resistance</li> <li>• Resistivity</li> <li>• Tensile Strength</li> <li>• Resin Flow/Pressing</li> <li>• Electric Strength/BDV</li> <li>• Comparative Tracking</li> <li>• Rubber Hardness</li> <li>• Substance, Mica, Glass, Density, Water Absorption, etc</li> </ul>
<ul style="list-style-type: none"> <li>• Magnetic sheet steel CRNGO, CRGO</li> </ul>	<ul style="list-style-type: none"> <li>• Single Sheet Tester</li> <li>• Bend Tester</li> <li>• Space Factor</li> <li>• Coating Thickness Meter</li> <li>• Precise Oven</li> <li>• EPSTEIN Tester</li> <li>• FRANKLIN Tester</li> </ul>	<ul style="list-style-type: none"> <li>• Total Specific Iron Loss, Magnetization, Anisotropy of loss etc.</li> <li>• Bend Test</li> <li>• Stacking Factor</li> <li>• Coating Thickness</li> <li>• Ageing</li> <li>• Surface Insulation Resistivity</li> </ul>



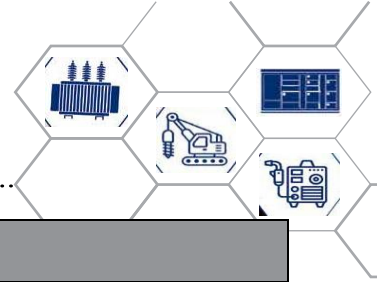


## Calibration Facilities of TSD

Calibration Facility	Calibration Parameter	Range
<ul style="list-style-type: none"> <li>Multifunction Calibrator</li> <li>Fluke 5700A &amp; 5522A</li> <li>with 50 Turns current Coils</li> <li>(Source Capability)</li> </ul>	<ul style="list-style-type: none"> <li>D C Voltage</li> <li>A C Voltage</li> <li>D C Current</li> <li>A C Current</li> <li>D C Resistance</li> <li>Temperature Simulation (Indicators/ Controllers/ Recorders)</li> </ul>	<ul style="list-style-type: none"> <li>1.0000 mV to 1000.000 V</li> <li>1.0000 mV to 1000.000 V (50Hz to 1KHz)</li> <li>10 microA to 1000 A</li> <li>30 microA to 1000 A (50Hz to 1KHz)</li> <li>1 Ohm to 100 Megaohm</li> <li>RTD Mode -200 to 800 °</li> <li>Thermocouple J Type -200 to 1200 °C</li> <li>Thermocouple K Type -200 to 1372 °C</li> <li>Thermocouple R Type 0 to 1700 °C</li> <li>Thermocouple S Type 0 to 1700 °C</li> </ul>
<ul style="list-style-type: none"> <li>Decade Meg Ohm Box, H Tinsley, Model 4720 &amp; Megadek Biddle Standard Air Resistors of 1 TΩ, 2 TΩ &amp; 5 TΩ</li> <li>(Source Capability)</li> </ul>	High Resistance	<ul style="list-style-type: none"> <li>1 kΩ to 1.0 TΩ</li> <li>1.0 TΩ, 2 TΩ, 5 TΩ</li> <li>(125 V to 5 kV)</li> </ul>
<ul style="list-style-type: none"> <li>Standard Resistance Box 4737B/C &amp; Standard Shunt</li> <li>(Source Capability)</li> </ul>	Low Resistance	<ul style="list-style-type: none"> <li>250 μΩ to 1000 Ω</li> </ul>

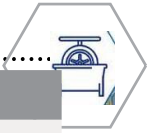


Calibration Facility	Calibration Parameter	Range
<ul style="list-style-type: none"> <li>Multifunction Calibrator, GEDPI620G, multifunction Calibrator Fluke 5522A (Measure Capability)</li> </ul>	<ul style="list-style-type: none"> <li>Temperature Simulation (Indicators/ Controllers/ Recorders) at lab/On-Site</li> </ul>	<ul style="list-style-type: none"> <li>RTD Mode -200 to 800 °</li> <li>Thermocouple J Type -200 to 1200 °C</li> <li>Thermocouple K Type -200 to 1372 °C</li> <li>Thermocouple R Type 0 to 1700 °C</li> <li>Thermocouple S Type 0 to 1700 °C</li> </ul>
<ul style="list-style-type: none"> <li>Decade Meg Ohm Box, H Tinsley, Model 4720 &amp; Megadek Biddle Standard Resistors of 1 TΩ, 2 TΩ &amp; 5 TΩ (On Site Source Capability)</li> </ul>	<ul style="list-style-type: none"> <li>High Resistance</li> </ul>	<ul style="list-style-type: none"> <li>1 ohm to 5 Tera-ohm (125 V to 5 kV) 1 kΩ to 5 TΩ</li> </ul>
<ul style="list-style-type: none"> <li>Standard Resistance Box 4737B/C (On Site Source Capability)</li> </ul>	<ul style="list-style-type: none"> <li>Low Resistance</li> </ul>	<ul style="list-style-type: none"> <li>250 μΩ to 1000 Ω</li> </ul>
<ul style="list-style-type: none"> <li>AC/DC Digital kV Meter with Potential Divider, Hypotonic KVM 100/ 200 (On Site Source Capability)</li> </ul>	<ul style="list-style-type: none"> <li>DC High Voltage</li> <li>AC High Voltage</li> </ul>	<ul style="list-style-type: none"> <li>1 kV to 200 kV</li> <li>1 kV to 200 kV (50Hz)</li> </ul>
<ul style="list-style-type: none"> <li>Digital Thermometer with SSPRT and Oil Baths</li> </ul>	<ul style="list-style-type: none"> <li>RTDs, Thermocouples with or without Temperature Indicator, Digital Thermometers, Dial Thermometers, Glass Thermometers</li> </ul>	<ul style="list-style-type: none"> <li>0°C to 270°C</li> </ul>
<ul style="list-style-type: none"> <li>Multifunction Calibrator with Standard R Type Thermocouple and Dry Block Calibrator</li> </ul>	<ul style="list-style-type: none"> <li>Thermocouples with or without Temperature Indicator, Digital Thermometers</li> </ul>	<ul style="list-style-type: none"> <li>270°C to 1000°C</li> </ul>



Calibration Facility	Calibration Parameter	Range
• Gauge Block Set	<ul style="list-style-type: none"> <li>• Calliper (Vernier/Dial/Digital)</li> <li>• Depth Gauge Vernier/Dial/Digital)</li> <li>• Depth Micro meter</li> <li>• External Micro meter</li> <li>• Straight Edge</li> <li>• Height Gauge Vernier/Dial/Digital)</li> </ul>	<ul style="list-style-type: none"> <li>• 0 to 5000 mm</li> <li>• 0 to 500 mm</li> <li>• 0 to 300 mm</li> <li>• 0 to 300 mm</li> <li>• 300 to 1600 mm</li> <li>• 0 to 1000 mm</li> </ul>
• Thread Measuring Wire	• Thread Plug Gauge Effective Diameter	• 3 to 220 mm
• Length Bar	<ul style="list-style-type: none"> <li>• Calliper (Vernier/Dial/Digital)</li> <li>• Depth Gauge Vernier/Dial/Digital)</li> <li>• Depth Micro meter</li> <li>• Height Gauge Vernier/Dial/Digital)</li> </ul>	<ul style="list-style-type: none"> <li>• 0 to 1500 mm</li> <li>• 0 to 500 mm</li> <li>• 0 to 300 mm</li> <li>• 0 to 1000 mm</li> </ul>
• Calliper Checker	<ul style="list-style-type: none"> <li>• Calliper (Vernier/Dial/Digital)</li> <li>• Height Gauge Vernier/Dial/Digital)</li> </ul>	<ul style="list-style-type: none"> <li>• 0 to 600 mm</li> <li>• 0 to 600 mm</li> </ul>
• Dial Gauge Calibrator	<ul style="list-style-type: none"> <li>• Lever Dial Gauge</li> <li>• Plunger Dial Gauge</li> <li>• Height Gauge Vernier/Dial/Digital)</li> </ul>	<ul style="list-style-type: none"> <li>• 0 to 1 mm</li> <li>• 0 to 5 mm</li> <li>• 0 to 1000 mm</li> </ul>
• ULM-400	<ul style="list-style-type: none"> <li>• Plain Ring Gauge</li> <li>• Plunger Dial Gauge LC: 0.001 mm</li> </ul>	<ul style="list-style-type: none"> <li>• 3 mm to 225 mm</li> <li>• 0 to 50 mm</li> </ul>
• ULM-1000	<ul style="list-style-type: none"> <li>• Feeler Gauge</li> <li>• Micro meter Setting Rod</li> </ul>	<ul style="list-style-type: none"> <li>• 0.03 mm to 1 mm</li> <li>• 25 mm to 1000 mm</li> </ul>
• ULM-800LE	<ul style="list-style-type: none"> <li>• Bore Dial Gauge</li> <li>• Thickness foil</li> <li>• Length Bar</li> <li>• Plain Plug Gauge</li> <li>• Thread Measuring Wire</li> <li>• Thread Plug Gauge Effective Diameter</li> </ul>	<ul style="list-style-type: none"> <li>• 0 to 1 mm</li> <li>• 0.03 to 1 mm</li> <li>• 25 to 275 mm</li> <li>• 3 to 225 mm</li> <li>• 0.17 to 5 mm</li> <li>• 3 mm to 220 mm</li> </ul>
• Gauge Block Calibration	Gauge Block Set	• 0.5 mm to 100 mm

## BHEL Testing & Calibration Services



Calibration Facility	Calibration Parameter	Range
<ul style="list-style-type: none"> <li>Surface Plate</li> </ul>	<ul style="list-style-type: none"> <li>Height Gauge (Vernier/Dial/Digital)</li> <li>Straight Edge</li> </ul>	<ul style="list-style-type: none"> <li>0 to 1 mm</li> <li>0 to 5 mm</li> <li>0 to 1000 mm</li> </ul>
<ul style="list-style-type: none"> <li>Setting Ring Gauge</li> </ul>	<ul style="list-style-type: none"> <li>Plain Plug Gauge</li> <li>Thread Ring Gauge Effective Diameter</li> </ul>	<ul style="list-style-type: none"> <li>0 to 1000 mm</li> <li>300 mm to 1600 mm</li> </ul>
<ul style="list-style-type: none"> <li>Setting Ring Gauge</li> </ul>	<ul style="list-style-type: none"> <li>Plain Plug Gauge</li> <li>Thread Ring Gauge Effective Diameter</li> </ul>	<ul style="list-style-type: none"> <li>3 mm to 100 mm</li> <li>3 mm to 220 mm</li> </ul>
<ul style="list-style-type: none"> <li>Digital MKS Vacuum Calibrator</li> </ul>	<ul style="list-style-type: none"> <li>Absolute Vacuum Gauges</li> </ul>	<ul style="list-style-type: none"> <li>1 mmHg to 0.001 mmHg</li> </ul>
<ul style="list-style-type: none"> <li>Dead Weight Tester, make Barenberg</li> </ul>	<ul style="list-style-type: none"> <li>Pressure Gauge</li> </ul>	<ul style="list-style-type: none"> <li>1000 mbar to 10 mbar (105 Pa - 103 Pa)</li> </ul>
<ul style="list-style-type: none"> <li>Digital Pressure Calibrator DPI610, make Druck</li> </ul>	<ul style="list-style-type: none"> <li>Lever Dial Gauge</li> <li>Plunger Dial Gauge</li> <li>Height Gauge (Vernier/Dial/Digital)</li> </ul>	<ul style="list-style-type: none"> <li>120 to 1200 kg/cm<sup>2</sup></li> </ul>
<ul style="list-style-type: none"> <li>Digital Manometer, make Yokogawa</li> </ul>	<ul style="list-style-type: none"> <li>Vacuum Gauge</li> </ul>	<ul style="list-style-type: none"> <li>0 to (-) 0.9 kg/cm<sup>2</sup></li> </ul>



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## Equipment commissioned under MHI scheme



600 KN Universal Testing Machine



Optical Emission Spectro Machine



AC DC HV TEST SYSTEM



Multi-Function Calibrator



OIL BDV TESTER



## PAYMENT GATEWAY

Note: Payment is to be made in advance through e-payment "SB COLLECT".

The gateway of payment are as follow :-

1. Write <https://retail.onlinesbi.sbi/>

At home page you will get a option named **SB Collect**  
Or click on

link <https://www.onlinesbi.sbi/sbcollect/collecthome.htm>

2. Click on Industry

3. Filter by state "Madhya Pradesh"

Select " **BHARAT HEAVY ELECTRICALS LIMITED**  
**BHOPAL** Madhya Pradesh

4. Enter payment details

Starting from

Payment category- Testing Charges

IP\* TSTCH

Fill all your details in the required information and make online payment.

Share payment receipt confirmation to us for further follow up.

GST NO- 23AAACB4146P1ZN, C.S.T. Regn. No.: HEL/05/01/0004/C,

MPGST Regn no.HEL/05/01/0001/S PAN NO: .AAACB4146P,

TIN NO: .23573600001, Service Tax Registration No.:AAACB4146PST003

## FOR TESTING INSIDE BHEL

### Contact for commercial testing & Calibration to

Name	Contact No	Email
PRITI VERMA	0755-250-3397	<a href="mailto:pritikumari@bhel.in">pritikumari@bhel.in</a>
SHIKHA SAXENA	0755-250-5459	<a href="mailto:shikhasaxena@bhel.in">shikhasaxena@bhel.in</a>

For product related queries, please contact:



### BHARAT HEAVY ELECTRICALS LIMITED

Heavy Electrical Plant, Piplani, Bhopal - 462022, India

Registered Office : BHEL House, Siri Fort, New Delhi 110049, India

Corporate Identity Number : L74899DL1964GOI004281

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