

# **TENDER DOCUMENT**

## **Retrofitting & Conversion of** **Existing Bogie Hearth Type Producer Gas Fired Heat** **Treatment Furnace to Natural Gas Fired Furnace,** **Plan No. 1-030 Block-5**

**NIT No.: WEX/SP/NG/1-30/NIT/2013-14 Dt.30.04.2013**



**BHARAT HEAVY ELECTRICALS LIMITED,  
HEEP, RANIPUR, HARIDWAR-249403**

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HEEP, RANIPUR, HARIDWAR**

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**CONTENTS OF TENDER DOCUMENT**

<b>S. No.</b>	<b>Description</b>	<b>Page Numbers</b>
1.	Tender Notice (NIT)	01
2.	Special Instructions for Vendors	02
3.	Check List	03
4.	Scope of Supply, Scope of Work and Terms & Conditions for Tender	04-16
5.	Pre-Qualifying Requirement (PQR)	17
6.	Un-price Bid Format	18
7.	Price Bid Format	19



**BHARTAT HEAVY ELECTRICALS LIMITED  
HEEP, RANIPUR, HARDWAR-249403**

**OFFICE OF MANAGER (WEX-DG&PGP)**

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**TENDER NOTICE**

Open Tender in Sealed envelope are invited for **Retrofitting & Conversion of Existing Bogie Hearth Type Producer Gas Fired Heat Treatment Furnace to Natural Gas Fired Furnace, Plan No. 1-030 Block-5** in two part bid (Techno-commercial & Price Bid) through Registered Post/ Courier/ By Hand **up to 01:45 PM on dated 04.06.2013** in the tender box kept in the Tender Room of Purchase department at the 4<sup>th</sup> floor of the Main Administrative Building of BHEL, HEEP, Haridwar.

**Last date of receipt of Tender : 04.06.2013 upto 01:45 PM**

**Date of opening of Tender : 04.06.2013 at 02.00 PM**  
*(Techno-commercial bid only)*

**Place of opening of Tender : Tender Room, 4<sup>th</sup> Floor,  
Main Administrative Building, HEEP  
BHEL, Ranipur, Haridwar-249403**

<b>NIT No. &amp; Date</b>	<b>Name of work</b>	<b>Earnest Money (Rs)</b>	<b>Tender Cost (Rs)</b>
<b>WEX/SP/NG/1-30/NIT/2013-14 Dt. 30.04.2013</b>	Retrofitting & Conversion of Existing Bogie Hearth Type Producer Gas Fired Heat Treatment Furnace to Natural Gas Fired Furnace, Plan No. 1-030 Block-5	1,00,000/- (One Lac)	1,000/-

**Manager(WEX-DG/PGP)**

(Sign & Seal of Party)

**NIT No.: WEX/SP/NG/1-30/NIT/2013-14 Dt.30.04.2013**

**SPECIAL INSTRUCTIONS**

1. Tender shall be submitted in two part bid (Techno-commercial & Price Bid). Both the bid shall be sealed in separate envelopes. Both the envelopes of Techno-commercial & Price Bid shall be sealed in third envelop. All the envelops shall be superscripted with NIT No., Name of work, Name of Party/Contractor, their offer No. and date of opening.
2. **Tender cost of Rs. 1,000/-** shall be submitted in the form of cash or Bank Draft of any nationalized Bank in favour of Accounts Officer (Finance), HEEP, BHEL, Ranipur, Haridwar and should be kept in bid envelop. The tender cost may be deposited in the form of Cash at BHEL Cash Counter & receipt of the same to be kept in Bid envelope. The Tender documents shall be downloaded from BHEL website i.e. [www.bhel.com](http://www.bhel.com)
3. **Earnest Money for Rs. 1,00,000/- (One Lac)** shall be submitted in the form of Bank Draft of any nationalized Bank in favour of Accounts Officer (Finance), HEEP, BHEL, Ranipur, Haridwar payable at Haridwar and shall be placed in the Bid envelope.
4. The bid shall be opened on **04.06.2013 at 2.00 PM** in the presence of interested authorized representatives of the parties available at the time of opening of the tender.
5. The party shall sign each page of tender document along with their seal.
6. The rates must be quoted in figures as well as in words.
7. Tenders which are not received in the above manner shall be rejected.
8. All subsequent amendments / changes shall only be notified on BHEL website [www.bhel.com](http://www.bhel.com)

**Manager(WEX-DG/PGP)**

(Sign & Seal of Party)

## CHECK LIST FOR TENDER

**NIT No.: WEX/SP/NG/1-30/NIT/2013-14 Dt.30.04.2013**

Vendor shall ensure that following documents / particulars have been enclosed with tender. Submit this check list with techno-commercial bid.

S. No.	Particulars	YES/NO	REMARKS
1.	<b><u>Sealed Envelop-1</u></b> : Following documents <ul style="list-style-type: none"> <li>• Techno-commercial Bid (<i>Annexure 'A'</i>)</li> <li>• Pre-Qualifying Requirement (PQR) related documents (<i>Annexure 'B'</i>)</li> <li>• Un-price Bid (<i>Annexure 'C'</i>)</li> <li>• Earnest Money Deposit</li> <li>• Tender Cost</li> <li>• Copies of valid Sales Tax, Excise &amp; Service Tax registration</li> <li>• Checklist</li> </ul>		
2.	<b><u>Sealed Envelop-2</u></b> : Price Bid ( <i>Annexure 'D'</i> )		
3.	<b><u>Sealed Envelop-3</u></b> : Envelop-1 and Envelop-2 as above		
<i>(Note : All the envelops should be super-scribed with NIT No., Name of Work, Parties Name &amp; Address and Date of Opening)</i>			
4.	<b><u>Compliance</u></b> to all the points of the Scope of Supply & Work and terms & conditions		
5.	<b><u>Tender Cost of Rs. 1,000/- (Rupees One Thousand Only)</u></b>		
6.	<b><u>Earnest Money Deposit (EMD) of Rs.1,00,000/- (Rupees One Lac Only).</u></b> <b>Note :</b> <ul style="list-style-type: none"> <li>i) No other ground for waving of EMD is acceptable other than if the company is joint venture company of BHEL / Central /State PSUs / Government Deptts).</li> <li>ii) Offers without EMD will be rejected and will not be considered for evaluation)</li> </ul>		

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## Scope of Supply and Work

### Retrofitting & Conversion of Existing Bogie Hearth Type Producer Gas Fired Heat Treatment Furnace to Natural Gas Fired Bogie Hearth Type Heat Treatment Furnace, Plan No. 1-030 Block-5

S.No.	DESCRIPTION OF BHEL REQUIREMENT	Vendor's Remarks/Compliance (Yes/No)
<b>1.0</b>	<b><u>PURPOSE OF PROJECT &amp; BASIC REQUIREMENT</u></b>	
	<b>Retrofitting &amp; Conversion of Existing Bogie Hearth Type Producer Gas Fired Furnace to Natural Gas Fired Bogie Hearth Type Heat Treatment Furnace</b>	
1.1	Conversion of Producer Gas Fired system to Natural Gas fired system for Heat Treatment Furnace	
1.2	After modification, Heat Treatment Furnace <ul style="list-style-type: none"> <li>• Maximum Designed furnace temperature = 1000<sup>0</sup> C</li> <li>• Furnace Operating Temperature = 950<sup>0</sup> C</li> <li>• Heating Rate = 200<sup>0</sup> C/hour (approx.)</li> <li>• No. of Zone = 2nos.</li> </ul> Above parameters are at full load (10.0 MT Load) condition.	
<b>2.0</b>	<b><u>SPECIFICATIONS OF EXISTING HEAT TREATMENT FURNACE</u></b>	
2.1	Type of furnace – Producer Gas Fired Type furnace	
2.2	Gross Connected Zones – Not Available	
2.3	No. of Thermal Zones – 01 No.	
2.4	Location of Burners – in both side wall	
2.5	Total No. of Burners – 06 Nos.	
2.6	Type of lining in sides & Roof – Refractory Brick lining	
2.7	Type of Temp. Control – Manual Valve Operation based Temperature Control	
2.8	Designed Furnace Temperature – 1000 °C	
2.9	Furnace Operating Temperature – 950 °C	

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2.10	Rate of Temperature Rise = 200 °C/Hr	
2.11	Purpose of the Furnace – Heat Treatment for Forge Components	
2.12	Working dimension(L x W x H) – 6000 x 2000 x 2000 mm	
2.13	Furnace Batch Capacity – 10.0 MT	
2.14	Fuel – Producer Gas with a Calorific Value of 1100 KCal/N Cu.M.	
2.15	Furnace pressure Control – Manual by hand operated damper	
2.16	Fuel Ratio Control – Manually controlling the valves	
2.17	Data Acquisition – Not Provided	
2.18	Burner Ignitions – Manually ignited	
2.19	Flame Monitoring- Not provided	
2.20	Bogie Size Length (L x W x H) - 6000 x 2000 x 900 mm Rail Size : 60 lbs/yard	
<b>3.0</b>	<b><u>SCOPE OF SUPPLY</u></b>	
3.1	<b><u>Pipe Line Modification</u></b> <ul style="list-style-type: none"> <li>• Modification of existing pipe lines complete with flanges, valves, gaskets, fittings and other accessories from existing air blower to the individual burners.</li> <li>• Necessary pipe lines required for modification shall be in scope of vendor</li> </ul>	
3.2	<b><u>Electricals Control System &amp; Instrumentation</u></b>	
3.2.1	All the new electrical control, power and instrumentation cabinets shall be accommodated within the space vacated by the old panels.	
3.2.2	Thickness of Steel used: 2 mm thick Cold Rolled Steel sheet.	
3.2.3	Cable Entry: Bottom entry in the cabinet floor.	
3.2.4	Degree of Protection : IP54	
3.2.5	Paint Shade: Powder-coated Siemens Gray.	
3.2.6	<b><u>Power &amp; Control Cabinet :</u></b> Cabinets fitted with the following and completely wired:	

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	<ul style="list-style-type: none"> <li>• Mains incoming supply via bus bars properly supported in the panel with insulating bush.</li> <li>• Bottom entry for supply cables to be terminated at bus bar ends.</li> <li>• MCCB and power contactor</li> <li>• Semiconductor Fuses</li> <li>• Voltmeter 0-500 VAC with 3 phase selector switch for monitoring line voltage.</li> <li>• Ammeters for monitoring line currents for each phase.</li> <li>• Auxiliary contactors, relays, MCB's, MPCBs, Fuses, LED-type Indicating lamps, push buttons etc. for furnace control.</li> <li>• Control transformer of suitable rating for Furnace Control Circuit if required</li> <li>• Micro Annunciators</li> <li>• Cooling fans of ebm nadi make of adequate rating for proper cooling of the panel.</li> </ul> <p><b>(Note : All above mentioned switchgears should be of Siemens/ABB/L&amp;T/GE make only. No other make are acceptable)</b></p>	
3.2.7	<p><b><u>Cabinet for Instrumentation:</u></b> Separate cabinet for Instrumentation fitted with the following and completely wired</p> <ul style="list-style-type: none"> <li>• Temperature Controller (PID) &amp; Temperature Recorder</li> <li>• Isolation transformer of suitable rating for Instruments.</li> <li>• Individual MCB's of appropriate rating for Instruments.</li> <li>• Cooling fans of ebm nadi make of adequate rating for proper cooling of the panel.</li> </ul>	
3.2.8	<b><u>PID Temperature Controller</u></b> of Eurotherm/Chino/ Yokogawa / Honeywell-make only	
3.2.9	<b><u>Temperature Recorder</u></b> of Eurotherm/Chino/ Yokogawa / Honeywell -make only	
3.2.10	<p><b><u>Thermocouples</u></b> Simplex type 'K' type for control and recording conforming to tolerance of relevant ASTM as per IPTS 90 standards will be supplied by party along with compensating cables. The outer projecting tube shall be made out of recrystallised Alumina (KER710).</p>	
3.2.11	<p><b><u>Cabling</u></b> Party shall provide all the power and control cable of copper from furnace to electric panel of LAPP/SAB/IGUS make only.</p>	
3.2.12	<p><b><u>Earthing</u></b> Earthing of equipment will be done with GI/MS Flat/Wire and will be connected to existing earthing system.</p>	
3.2.13	Party shall provide new <b>Limit Switches</b> for over travel protection of reputed make	

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3.2.14	<p><b><u>SAFETY INTERLOCKS</u></b></p> <ul style="list-style-type: none"> <li>• Gas cannot be switched ON unless the bogie is fully inside the furnace and door is closed.</li> <li>• Bogie cannot be moved unless the door is open at least 500mm.</li> <li>• Door cannot be lifted unless heating is OFF.</li> <li>• Door can be operated only when the bogie is fully inside</li> <li>• All motors will be provided with thermal overload relays along with single phase preventor.</li> <li>• Over temperature controller will switch OFF the gas in case of failure of main controller</li> </ul>	
3.2.15	<p><b><u>ALARM ANNUNCIATION</u></b>                  In the event of fault condition viz., over temperature or motor failure an audiovisual alarm communication system comprising hooter and indicating lamps will activate.</p>	
3.3	<p><b>CONVERSION OF PRODUCER GAS FIRED SYSTEM TO NATURAL GAS FIRED SYSTEM FOR HEAT TREATMENT FURNACE</b></p>	
3.3.1	<p><b><u>Burners</u></b> - Make (Eclipse/Krom Schroder /Wesman )</p> <ul style="list-style-type: none"> <li>• Burner Capacity to be decided by party to achieve furnace temperature  <i>(Heat Calculation to be submitted)</i></li> <li>• Minimum 6nos. burners for 2 nos. zone</li> <li>• Ignition: By Direct: Spark Ignition</li> <li>• Flame Monitoring: UV Scanner</li> <li>• Turndown – 1:10</li> </ul> <p>Burner Assembly consists of Basic Burner, Refractory block and holder, orifice in gas and air, Spark Plug &amp; peep sight.</p>	
3.3.2	<p><b><u>Gas Line Components</u></b>- Make(Eclipse/Krom Schroder /Honeywell/Dungs)</p> <ul style="list-style-type: none"> <li>• Manual Ball valve</li> <li>• Individual Burner Shut Off Solenoid Valve</li> <li>• Manual butterfly valve (gas line)</li> <li>• Ratio Regulator</li> </ul>	
3.3.3	<p><b><u>Main gas valve train</u></b> - Make(Eclipse/Krom Schroder /Honeywell/Waree/Audco/Dungs)</p> <ul style="list-style-type: none"> <li>• Main pressure regulator</li> <li>• Pressure gauge with isolating valve</li> <li>• Ball Valve</li> <li>• Low Gas pressure switch with isolating valve</li> </ul>	

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	<ul style="list-style-type: none"> <li>• High Gas pressure switch with isolating valve</li> <li>• Filter</li> <li>• Shut off solenoid valve</li> <li>• Vent valve</li> </ul>	
3.3.4	<b>Combustion Air Line</b> – Make (Waree /Eclipse/Krom Schroder /Honeywell/Dungs) <ul style="list-style-type: none"> <li>• Pressure gauge with isolating valve</li> <li>• Pressure switch with isolating valve</li> <li>• Motorized Controlled butterfly valve (modulating control)</li> <li>• Manual butterfly valve(air line) for individual burner</li> </ul>	
3.3.5	<b>Combustion air blower</b> - Make (Vishwakarma/Nadi, Fantec, Flact Wood) (Capacity to be decided by party as per furnace requirement)	
3.3.6	<b>Flame Monitoring</b> – Make (Eclipse/ Krom Schroder /Honeywell) <ul style="list-style-type: none"> <li>• Ignition Transformer</li> <li>• U V Scanner</li> <li>• Burner Sequence Controller</li> <li>• PID Controller</li> </ul>	
	<b>Note: Party shall supply any other item not mentioned above but required to complete the work.</b>	
<b>4.0</b>	<b><u>SCOPE OF WORK</u></b>	
<b>4.1</b>	<b><u>Removal &amp; Disconnection</u></b>	
4.1.1	Dismantling of existing gas, burners & air pipeline.	
4.1.2	Disconnection and Removal of all old electrical cables and control cabinets	
<b>4.2</b>	<b><u>Rebuilding</u></b>	
4.2.1	Modification of combustion system	
4.2.2	Modification of Pipe Line	
<b>4.3</b>	<b><u>Painting</u></b>	
	The furnace shall be painted in heat resistant silver aluminum oxide paint from the outside.	

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<b>4.4</b>	<b><u>Installation</u></b>	
4.4.1	Installation of New Natural Gas fired burner system.	
4.4.2	Installation of all supplied Electrical items, instrumentation and controls	
4.4.3	Modification of existing air pipeline and installation of pipelines.	
4.4.4	Installation of all supplies components as mentioned above.	
<b>4.5</b>	<b><u>Connections</u></b>	
4.5.1	Laying of all required power cables & control wires	
4.5.2	Inter-connection of all electrical components	
<b>4.6</b>	<b><u>Commissioning of following items shall be carried out</u></b>	
4.6.1	New Natural Gas fired burner system	
4.6.2	PID Temperature controller	
4.6.3	Temperature Recorders	
<b>4.7</b>	<b><u>Testing &amp; Furnace Calibration</u></b>	
4.7.1	Leakage test, pressure test of new installation	
4.7.2	Trial run of complete furnace to test for the performance of the furnace and all sub systems by continuously running for 72 hrs to its full capacity with respect to load and maximum temperature etc. If any break down occurs during this test, the test should be repeated for 96 hrs from that time.	
4.7.3	Furnace Calibration <ul style="list-style-type: none"> <li>• Temperature variation on the job <math>\pm 5</math> °C at working temperature of 700 °C &amp; 950 °C</li> <li>• Temperature variation between two zones <math>\pm 10</math> °C working temperature of 700 °C &amp; 950 °C</li> </ul>	
<b>4.8</b>	<b><u>Miscellaneous Works</u></b>	
	Supplier shall execute any other work found necessary to complete the work but not explicitly mentioned above, along with all required material without any obligation.	
<b>5.0</b>	<b><u>BHEL'S OBLIGATION:</u></b>	
5.1	Input Power Supply: 415 volt $\pm 10$ %; 50 Hz, 3 phases, 4wire A. C. supply at single point.	
5.2	Compressed air at a pressure of 5-6 kg./cm <sup>2</sup> gauge	

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5.3	Oxygen Gas & Acetylene Gas cylinders supply.	
5.4	Water Supply	
5.5	Any type of civil relate work	
5.6	Chimney of 40 meters Height for flue system will be provided.	
5.7	Lifting arrangement will be provided	
5.8	Welding Set will be provided	
<b>6.0</b>	<b><u>VENDOR'S OBLIGATION:</u></b>	
<b>6.1</b>	Vendors shall visit the site, study the furnace and hold technical discussions with BHEL before submitting their bids.	
<b>6.2</b>	Any Material or work not specified in scope of supply/scope of work but required for successful modernization of the furnace may be advised and quoted by the Party along with their bid. No changes shall be permissible after the placement of Work Order by BHEL and the same shall have to be supplied and commissioned free of cost.	
<b>6.3</b>	Party shall bring all required tools (power as well as hand tools), Meters and testing equipment as required for installation and commissioning.	
<b>6.4</b>	Party's experts shall be available at the site for a period of two weeks to supervise independent operation of the furnace after the successful acceptance of the refurbished furnace.	
<b>6.5</b>	All Welding rods and man power required for welding shall be party's responsibility.	
<b>7.0</b>	<b><u>SAFETY ARRANGEMENTS</u></b> Following safety features in addition to other standard safety features should be provided on the machine:	
<b>7.1</b>	Furnace should have adequate and reliable safety interlocks / devices to avoid damage to the furnace, job loaded inside furnace and the operator due to the malfunctioning or mistakes.	
<b>7.2</b>	Furnace functions should be continuously monitored and alarm / warning indications through lights/ alarm on the control panel should be available.	
<b>7.3</b>	A detailed list of all alarms / indications provided on furnace system should be submitted by the supplier.	
<b>7.4</b>	Emergency Switches at suitable locations as per International Norms should be provided. Oil & water pipe lines should not run with electrical cable in the same trench.	

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<b>8.0</b>	<b><u>ENVIRONMENTAL PERFORMANCE OF THE MACHINE</u></b> The Furnace system should conform to following factors related to environment:	
<b>8.1</b>	Maximum noise level shall be 85 db(A) at normal load condition, 1 meter away from the furnace with correction factor for back ground noise, if necessary.	
<b>8.2</b>	This will be measured as per international standards like DIN 45635-16, if required. Supplier to demonstrate compliance to noise level, if so required.	
<b>8.3</b>	There shall not be any hazardous emissions from the furnace during operation. The exit gases shall comply with emission norms.	
<b>8.4</b>	No hazardous chemicals shall be required to be used in the furnace.	
<b>8.5</b>	If any safety / environmental protection enclosure is required it should be built in the machine by the vendor.	
<b>8.6</b>	Paint of the furnace should be oil / heat resistant and should not get peeled off and mixed up with oil	
<b>9.0</b>	<b><u>DOCUMENTATION</u></b>	
<b>9.1</b>	Operating manuals of the furnace (03 Sets)	
<b>9.2</b>	Detailed Maintenance manual of the furnace with all drawings of machine assemblies/sub-assemblies/ parts including Electrical / Gas /Pneumatic circuit diagrams(03 Sets)	
<b>9.3</b>	All Assembly/ Sub Assembly Drawings shall be supplied with the part list also. All Electrical schematic, wiring diagram, cable layout and junction box diagram, circuit diagram and interface diagram of Electronics used in the Furnace. (03 Sets)	
<b>9.4</b>	Catalogues, Operation & Maintenance Manuals of all bought out items including like temperature controller etc. and drawings, wherever applicable.	
<b>9.5</b>	Complete list of parts/items (Bill of materials) used in the furnace in English language.	
<b>9.6</b>	One additional set of all the above documentation on CD ROM, wherever possible.	
<b>9.7</b>	Calibration certificate of all controllers is required.	
<b>10.0</b>	<b><u>PROVE-OUT OF FURNACE AS PER PARAMETERS SPECIFIED IN PARA 1.2</u></b>	
<b>10.1</b>	Vendor shall be fully responsible for prove out of component as per Heat treatment cycle as required by B.H.E.L.	
<b>10.2</b>	Vendor shall be responsible for any deviation/rejection in prove out component due to malfunctioning of the furnace during prove out of Heat treatment.	

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<b>11.0</b>	<b><u>TRAINING OF BHEL PERSONNEL</u></b>	
<b>11.1</b>	Training of BHEL furnace operators in operation of complete machine & accessories etc by the supplier's experts / engineers during their stay at BHEL works.	
<b>11.2</b>	Training of BHEL maintenance personnel in maintenance of complete furnace & accessories etc by the supplier's experts / engineers during their stay at BHEL works.	
<b>11.3</b>	Training of BHEL Instrumentation personnel in programming and maintenance of controller in detail to be provided at company's specialized training center or at BHEL works by suppliers experts/engineers.	
<b>12.0</b>	<b><u>GUARANTEE</u></b> Guarantee for complete Furnace and all supplied accessories/attachments/equipments /items for 18 months from the date of issue of certificate of furnace.	
<b>13.0</b>	<b><u>ACCEPTANCE</u></b> <b>(Tests/Activities to be performed &amp; demonstrated by Vendor at BHEL works while commissioning the furnace)</b>	
<b>13.1</b>	Demonstration of all features of the furnace, control system & accessories to the satisfaction of BHEL for efficient and effective use of the furnace including meeting all emission norms.	
<b>13.2</b>	<b>Job Proving:</b> <ul style="list-style-type: none"> <li>• The complete furnace should be tested (for the performance of the furnace and all sub systems) by continuously running for 72 hrs to its full capacity (with respect to load and maximum temperature etc.). If any break down occurs during this test, the test should be repeated for 96 hrs from that time.</li> <li>• Furnace Calibration as mentioned in para 4.7.3</li> <li>• Two weeks of supervision by Vendor for independent operation of the furnace by BHEL after job prove out (minimum 8 cycles)</li> </ul> <b>Note:-Final Acceptance shall be at BHEL, Hardwar after successful commissioning, testing of the supplied system for all operations.</b>	
<b>14.0</b>	<b><u>DELIVERY</u></b>	
<b>14.1</b>	<b>Material:</b> - Max. 3 months from the date of award of contract. Early delivery shall be acceptable.	
<b>14.2</b>	<b>Work:-</b> Within 2 months from the date of release of furnace for work	

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<b>15.0</b>	<b><u>ERECTION &amp; COMMISSIONING</u></b>	
<b>15.1</b>	Erection & Commissioning of the complete bogie hearth furnace and other accessories/attachments with all electrical & mechanical connections shall also be responsibility of the vendor.	
<b>15.2</b>	Successful proving of BHEL components by the supplier shall be considered as part of commissioning. All features and functions, as mentioned at S. No. 13.0 shall also be part of the commissioning activity.	
<b>15.3</b>	Tools, Tackles, instruments and other necessary equipment required carrying out all erection & commissioning activities should be arranged and brought by the supplier.	
<b>15.4</b>	Commissioning spares, required for commissioning of the complete furnace within stipulated time, shall be brought by the supplier on returnable basis.	
<b>15.5</b>	Schedule of Erection and Commissioning shall be submitted, after placement of order.	
<b>15.6</b>	Details of Erection & Commissioning should be furnished in detail separately by vendor.	
<b>15.7</b>	Heat Load calculation for modified furnace is to be submitted by vendor.	
<b>15.8</b>	Portion, if any, of the machine, accessories/attachments and other supplied items where paint got rubbed or peeled off during transit or erection should be repainted and matched with the original adjoining paint by the vendor. For this purpose, the vendor should supply sufficient quantity of touch-up paint of various colours/shades of paints used. The vendor shall ensure performing touching after commissioning but before final acceptance.	
<b>16.0</b>	<b><u>PRE-DISPATCH INSPECTION</u></b>	
<b>16.1</b>	Pre-dispatch inspection of all the items covered under Scope of Supply at shall be carried out by BHEL at party's works.	
<b>16.2</b>	Supplier shall invite BHEL for carrying out pre- inspection.	
<b>16.3</b>	Deputed BHEL persons shall do pre acceptance at vendor works and give dispatch clearance.	
<b>16.4</b>	Expenses of Boarding and lodging of BHEL personnel during PDI shall be borne by BHEL.	
<b>17.0</b>	<b><u>SUBMISSION OF BILL OF MATERIAL (BOM)</u></b> Before inviting BHEL for Pre-dispatch inspection, vendor shall submit to BHEL the Bill of Material (BOM) for scrutiny.	

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<b>18.0</b>	<b><u>PACKING</u></b> Sea worthy & rigid packing for all items of furnace, controls, mechanical movement System, all Accessories and other supplied items to avoid any damage/loss in transit. When machine is dispatched in containers, all small loose items shall be suitably packed in boxes. In case machine is dispatched in container, the container shall be brought up to BHEL, Haridwar. De- stuffing of container shall be carried out at BHEL, Haridwar by the vendor's representative. Any type of material handling equipment required for the de-stuffing of the container shall be brought by the vendor at Haridwar on returnable basis.	
<b>19.0</b>	<b><u>EARNEST MONEY DEPOSIT(EMD)</u></b>	
19.1	Vendors have to deposit Rs.1, 00,000 as the EMD. EMD may be deposited in cash, through pay order in favour of BHEL, Hardwar or through demand draft only.	
19.2	EMD shall be converted to security deposit if the work is awarded.	
19.3	EMD of unsuccessful bidders shall be refunded back normally within fifteen days of acceptance of award of work by the successful bidder.	
19.4.	EMD shall not carry any interest.	
19.5.	EMD by bidder will be forfeited as per tender document, if	
19.5.1	After opening the tender, the vendor revokes his tender within the validity period or increases his earlier quoted rates	
19.5.2	The vendor does not commence the work within the period as per LOI/contract.	
19.6	<b>Offers without EMD will be rejected and will not be considered for evaluation.</b>	
<b>20.0</b>	<b><u>SECURITY DEPOSIT (SD)</u></b>	
20.1	Successful vendor shall deposit security. The rate of security deposit will be as below:	
20.1.1	For work Up to Rs.10 Lakhs : 10% of work order value	
20.1.2	Above Rs. 10 Lakhs up to Rs. 50 Lakhs : 1 Lakh + 7.5% amount exceeding Rs.10 Lakhs	
20.1.3	Above Rs. 50 Lakhs: 4 Lakhs + 5% amount exceeding Rs. 50 Lakhs	
20.2.	The security deposit should be submitted before the start of work in the following forms:	
	i) Cash (As permissible under the Income Tax Act)	
	ii) Pay Order, Demand Draft in favour of BHEL, Hardwar	
	iii) Local cheques of Scheduled Banks, subject to realization.	
	iv) Bank Guarantee from Scheduled Banks/Public Financial Institution as defined in the companies	

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	Act. The Bank guarantee format should have the approval of BHEL.	
20.3	Security Deposit shall not carry any interest.	
20.4	EMD of successful vendor can be converted and adjusted against the Security Deposit.	
20.5	100% of the Security Deposit amount shall be refunded to the vendor after post commissioning successful running of the machine for one month. SD shall be released after the submission of Performance Bank Guarantee(PBG) by the vendor	
<b>21.0</b>	<b><u>Performance Bank Guarantee (PBG)</u></b>	
21.1	Vendor shall be required to submit a performance bank guarantee (PBG) for 10% of the total work order value which shall be valid for a period of 12 months from the date of commissioning.	
21.2	The PBG shall be submitted on a non-judicial stamp paper of value not less than Rs.80/- issued by any one of the nationalized banks.	
<b>22.0</b>	<b><u>PAYMENT TERMS: (Note: No advance payment shall be made to the vendor)</u></b>	
22.1.	Part payment will be made after completion of following milestones	
22.1.1	First payment of 80% of material cost along with 100% taxes & duties shall be payable after receipt of material at BHEL.	
22.1.2	Final payment of balance 20% of material cost, 100% of commissioning cost and refund of 100% of the Security Deposit amount will be made after post commissioning successful running of the machine for one month, subjected to submission of PBG as per Para '21.0'	
22.2	All the payments shall be made through e-payment after submission of following documents along with first bill.	
22.2.1	E-payment form duly filled (Form will be provided by BHEL)	
22.2.2	Income tax exemption letter( if applicable)	
22.3	Excise duty & CST/VAT will be paid on material cost and service tax will be paid on commissioning charges at actual. Related original documents to be submitted for availing MODVAT credit by BHEL.	
<b>23.0</b>	<b><u>COMMERCIAL TERMS</u></b>	
23.1	<ul style="list-style-type: none"> <li>• The prices should only on F.O.R BHEL, Haridwar basis inclusive of Charges of Packing, Forwarding, Freight and Insurance.</li> <li>• Applicable % of ED, Sales Tax &amp; Service Tax etc. should be clearly indicated in Price bid format.</li> </ul>	
23.2	Validity of offer shall be for a minimum period of 120 days from the date of Tender Opening.	

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23.3.	Packing & Forwarding and Freight & transit insurance charges from Dispatching station to BHEL, Haridwar shall be borne by party.	
23.4	All the material has to be sent through BHEL approved transporter only.	
<b>24.0</b>	<b><u>GENERAL CONDITIONS</u></b>	
24.1	<b><u>Parties should fulfill Pre-Qualification Criteria as per Annexure-‘B’ for further evaluation.</u></b>	
24.2	L-1 should be decided by total landed cost (Material cost plus commissioning charges).	
24.3	A point wise compliance statement shall be submitted for above scope of supply and work.	
24.4	Parties are requested to visit the site before making an offer.	
24.5	Any material not specified in scope of supply but required for successful commissioning shall be provided by the vendor.	
24.6	Party shall provide list of complete Spare Parts with quantity and unit rate	
24.7	Party shall provide list of all bought out items with address of vendor	

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Annexure-‘B’

Retrofitting & Conversion of Existing Bogie Hearth Type Producer Gas Fired Heat Treatment Furnace to Natural Gas Fired Bogie Hearth Type Heat Treatment Furnace, Plan No. 1-030 Block-5

Pre- QUALIFYING CRITERIA

The Bidders meeting following criteria would only be considered:-

- 1.0 Experience of having successfully completed similar works in last 5 years ending upto 30/04/2013 should be either of the following
- a) **Three** similar completed works costing not less than the amount equal to **Rs.18.00 Lacs.**  
OR
  - b) **Two** similar completed works costing not less than the amount equal to **Rs. 23.00 Lacs.**  
OR
  - c) **One** similar completed work costing not less than the amount equal to **Rs. 36.00 Lacs.**

**Similar work means :** Retrofitting OR Manufacturing of Gas Fired Heat Treatment / Forge Furnaces of capacity 10.0 MT or above.

- 2.0 Bidders shall provide P.O. / work order copy and performance certificate for satisfactory operation of works as per Para 1.0 as mentioned above from his customer along with name, address & contact details. BHEL reserves the right to verify the information

(Sign & Seal of Party)

**UN-PRICE BID FORMAT**

Name of Work : **Retrofitting & Conversion of Existing Bogie Hearth Type Producer Gas Fired Heat Treatment Furnace to Natural Gas Fired Bogie Hearth Type Heat Treatment Furnace, Plan No. 1-030 Bl.-5**

NIT No. & Date : **NIT No.: WEX/SP/NG/1-30/NIT/2013-14 Dt.30.04.2013**

Bidder’s Offer No. & Date : \_\_\_\_\_

Sl. No.	Description of item	Unit	Qty	Basic Rate (in ₹)	Excise Duty (in %)	VAT/CST (in%) (VAT with FORM-17 or CST with C-FORM)	Service Tax (in %)	Total Value (in ₹)
1	Material	Set	01	“Please see price bid”	<i>To be filled by bidder</i>	<i>To be filled by bidder</i>		“Please see price bid”
2	Installation & Commissioning	Set	01	“Please see price bid”			<i>To be filled by bidder</i>	“Please see price bid”
<b>TOTAL COST (in Figures)</b>								“Please see price bid”
<b>TOTAL COST (in Words) : “Please see price bid”</b>								

**Note :** Material Cost should be inclusive of Packing, Forwarding, Freight & Transit Insurance charges

(Sign & Seal of Party)

**PRICE BID FORMAT**  
**(To be separately enclosed in Sealed Envelop)**

Name of Work : **Retrofitting & Conversion of Existing Bogie Hearth Type Producer Gas Fired Heat Treatment Furnace to Natural Gas Fired Bogie Hearth Type Heat Treatment Furnace, Plan No. 1-030 BI.-5**

NIT No. & Date : **NIT No.: WEX/SP/NG/1-30/NIT/2013-14 Dt.30.04.2013**

Bidder's Offer No. & Date : \_\_\_\_\_

Sl. No.	Description of item	Unit	Qty	Basic Rate (in ₹)	Excise Duty (in %)	VAT/CST (in%) (VAT with FORM-17 or CST with C-FORM)	Service Tax (in %)	Total Value (in ₹)
1	Material	Set	01		%	%		
2	Installation & Commissioning	Set	01				%	
	<b>TOTAL COST (in Figures) :</b>							
	<b>TOTAL COST (in Words) :</b>							

*Note : Material Cost should be inclusive of Packing, Forwarding, Freight & Transit Insurance charges*

(Sign & Seal of Party)