

Annexure-A

Scope for Reconditioning, Upgradation & Retrofitting of Two Nos. of Electrical Chamber Furnaces (Plan Nos.7-049 & 7-051) Installed in Heat Treatment Shop Block-3, HEEP, BHEL, Haridwar – 249403

Furnace Details

| | Plan No. 7-049 | Plan No. 7-051 |
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| Furnace Type | Electrical Chamber Furnace | Electrical Chamber Furnace |
| Application | Hardening, tempering, Annealing, Normalising, Stress relieving | Hardening, tempering, Annealing, Normalising, Stress relieving |
| Overall Physical Dimension | 1355+135(L) mm x 1155(W) mm x 980(H)mm | 1355+135(L) mm x 1155(W) mm x 980(H)mm |
| Working Space inside Furnace | 1180(L)mm x 500(W) mm x 360(H) mm | 1180(L)mm x 500(W) mm x 360(H) mm |
| Rating | 50KW | 50KW |
| Mains Voltage | 415 VAC,3Phase | 415 VAC,3Phase |
| Max. Operating Temperature | 1200°C | 1200°C |
| Charge Weight | 200Kg | 200Kg |
| Rate of Rise of Temperature | Depending upon job setting rate of rise of temperature varies from 10°C/Hr to 200°C/Hr. | Depending upon job setting rate of rise of temperature varies from 10°C/Hr to 200°C/Hr. |
| Cooling | Both natural as well as controlled cooling is done (maximum cooling rate will be equivalent to natural cooling). | Both natural as well as controlled cooling is done (maximum cooling rate will be equivalent to natural cooling). |
| Number of Zones | One | One |
| Existing arrangement of electrical power distribution in zone | 8 Elements installed on both side walls, 4 elements installed in the bottom and all 12 elements connected in star for three phase load. | 8 Elements installed on both side walls, 4 elements installed in the bottom and all 12 elements connected in star for three phase load. |

Note:-Above dimensions are indicative only. Before taking up the actual Reconditioning, Upgradation & Retrofitting work after placement of work order, vendor shall take accurate measurements of external & internal dimensions in order to ensure existing working area.

SCOPE OF SUPPLY

| Sl. No | Description | Quantity for Furnace:- 1 (Plan No.-7-049) | Quantity for Furnace:- 2 (Plan No.-7-051) | Accepted (Yes/No) | Deviation | Remarks |
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| 1. | <u>INSULATION SYSTEM :</u> | | | | | |
| 1.1. | FOR SIDE WALLS: | | | | | |
| (i) | 300 mm Ceramic Fiber Modules. | | | | | Vendor to offer the quantity & other technical details |
| 1.2 | FOR ROOF | | | | | |
| (i) | 300 mm Ceramic Fiber Modules. | | | | | Vendor to offer the quantity & other technical details |
| 1.3 | FOR DOOR: | | | | | |
| (i) | 1 st Layer - Ceramic Fiber Blanket (CFB) 128 Kg/M ³ (RTZ Grade) 100 mm thick | | | | | Vendor to offer the quantity & other technical details |
| (ii) | 2 nd Layer - Ceramic Fiber Blanket (CFB) 96 Kg/M ³ (RTZ Grade) 50 mm thick. | | | | | |
| (iii) | Fasteners for mounting items (i), (ii) as above | | | | | |
| 1.4 | BOTTOM PORTION : | | | | | |
| (i) | Layer-I : 75 mm thick, 1S8 bricks (55 – 60 % Al ₂ O ₃ shape-bricks of Fe content < 1% and sintering Temp. >1300 °C) | | | | | Vendor to offer the quantity & other technical details |
| (ii) | Layer-II : 75 mm Hot Face Insulation type bricks | | | | | |
| (iii) | Layer-III : 75 mm Cold Face Insulation type bricks | | | | | |
| 1.5 | Modifications required in External dimensions will have to be taken care by the vendor, so that with the new insulation system working space inside the furnace shall be retained and the same has to be approved by BHEL. | | | | | |
| 2. | HEATING ELEMENT | | | | | |
| (i) | Heating elements of total capacity 50 kW suitable for mounting on Ceramic Fiber Modules. | | | | | Vendor to offer |
| (ii) | Make : Kerfa / Kanthal AF | | | | | |
| (iii) | No. of Zones : One | | | | | |

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| (iv) | Holding Arrangement: Non conducting pin suitable to carry the weight of elements also suitable for 1200 °C. | | | | | |
| (v) | Electrical contact assembly for heating elements | | | | | |
| 3. | ELECTRICAL SYSTEM: | | | | | Vendor to offer |
| 3.1 | Temperature Controller (Master): | 01 No. | 01 No. | | | |
| (i) | Type : Programmable Profile Controller, universal input(RTD,TC,mV,mA) | | | | | |
| (ii) | Make : Chino/Yokogawa/Shinko/Honeywell | | | | | |
| (iii) | No of program stored : 20 or More | | | | | |
| (iv) | No. of segment per program:-10 or More | | | | | |
| (v) | Controller size: 96mmx96mm | | | | | |
| (vi) | Range : 0 – 1200 °C. | | | | | |
| (vii) | Input signal : Universal (Thermocouple, RTD ,mV, mA) | | | | | |
| (viii) | Display : Dual Display, 4 digits(PV&SV) | | | | | |
| (ix) | Input Supply : 220 V AC through Isolation Transformer | | | | | |
| (x) | Output Signals : 1) Analog 4 – 20 mA DC (2Nos) 2.) Relay type 3 amps, 230VAC | | | | | |
| (xi) | Accuracy : + 0.1% FSV | | | | | |
| (xii) | Control Accuracy : $\pm 1^{\circ}\text{C}$ | | | | | |
| (xiii) | Temp. Repeatability : $+ 0.5^{\circ}\text{C}$ | | | | | |
| (xiv) | Alarm : 230V, 1A Resistive | | | | | Vendor to offer |
| (xv) | Alarm setting : 02 | | | | | |
| (xvi) | Memory : EEPROM | | | | | |
| (xvii) | Ambient Temperature : 0 - 50°C | | | | | |
| (xviii) | Tuning : Auto Tuning | | | | | |
| (xix) | Manual setting of Temp : To be provided for setting the operating temperature of furnace manually in case of failure of the auto mode | | | | | |
| (xx) | Shall have retransmission feature | | | | | |
| (xxi) | Calibration certificate required | | | | | |
| 3.2 | OVER TEMPERATURE CONTROLLER: | 1No. | 1No. | | | |
| (i) | Type : P.I.D. Controller | | | | | |
| (ii) | Make : Chino/Yokogawa/Shinko/Honeywell | | | | | |
| (iii) | Range : 0 – 1200 °C. | | | | | |
| (iv) | Input signal : Universal | | | | | |
| (v) | Display : Dual Display, 4 digits(PV&SV i.e. Process value & Set value) | | | | | |
| (vi) | Input Power : 220 V AC through Isolation Transformer | | | | | |
| (vii) | Output Signal : Relay type 3 amps, 230VAC | | | | | |
| (viii) | Accuracy : $\pm 0.1\%$ FSV | | | | | Vendor to offer |

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| (ix) | Control Accuracy : $\pm 1^{\circ}\text{C}$ | | | | | |
| (x) | Temp. Repeatability : $\pm 0.5^{\circ}\text{C}$ | | | | | |
| (xi) | Alarm setting : 02 | | | | | |
| (xii) | Memory : EEPROM | | | | | |
| (xiii) | Ambient Temperature : $0 - 50^{\circ}\text{C}$ | | | | | |
| (xiv) | Calibration certificate required | | | | | |
| 3.3 | TEMPERATURE RECORDER : | | | | | |
| | Temperature Recorder for Job: 6 channel paperless graphic digital temperature recorder with USB port of Eurotherm/Chino/ Yokogawa/ Honeywell –make | 1No. | 1No. | | | Vendor to confirm, specify and submit complete details of the recorders |
| (i) | proper software for data recording & analyzing | | | | | |
| (ii) | Type : Paperless Graphic Recorder | | | | | |
| (iii) | Display : Minimum 10" display | | | | | |
| (iv) | No. of Inputs : 6 Points Simultaneous Display | | | | | |
| (v) | Type of Input : Universal field Programmable(TC, RTD, mV, mA) | | | | | |
| (vi) | Data Memory : Compact flash card 2 GB & USB memory stick of minimum 4 GB | | | | | |
| (vii) | Accuracy : $\pm 0.1\%$ or better | | | | | |
| (viii) | Recorder shall have LAN Network Capability | | | | | |
| (ix) | No. of Colours : Six different for all different inputs | | | | | |
| (x) | Burn Out : Up/Down | | | | | |
| (xi) | Scale & Range : Field Selectable | | | | | |
| (xii) | Power Supply : 230 Volt $\pm 10\%$ | | | | | |
| (xiii) | Back up Battery : Support time minimum 1 year with recorder unpowered | | | | | |
| (xiv) | Response Time: 125 ms or better | | | | | |
| (xv) | Calibration certificate required | | | | | |
| 3.4 | THYRISTOR/IGBT POWER CONTROLLER : For 50 KW | 1 No. | 1 No. | | | |
| (i) | Make : Eurotherm / AEG /Chino | | | | | Vendor to specify Make/Model/R ating details of the thyristor controller & offer |
| (ii) | Rating : Minimum 50 kW; 3 Phase | | | | | |
| (iii) | Vendor to submit Product Catalogue | 1No. | 1No. | | | Vendor to confirm |
| (iv) | Thyristor Controller shall have the facility to run the furnace with the loss of one phase. | | | | | Vendor to confirm |

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| 3.5 | THERMOCOUPLES: | | | | | |
| | Thermocouples 'R' type of make Tempsons /Techno/ Baumer/ Eleind/ Detriv (With suitable casing for continuous operation at 1200°C) conforming to tolerance of relevant ASTM as per IPTS 90 standards will be supplied by party | | | | | Vendor to confirm & offer with make and other details |
| (i) | Duplex R- type Thermocouples for control and recording | 1 No. | 1 No. | | | Vendor to offer |
| (ii) | Simplex R- type Thermocouples for over temperature (safety) control | 1 No. | 1 No. | | | Vendor to offer |
| (iii) | Simplex K-type Thermocouples Flexible with stainless steel sheathing for job temperature measurement | 2 Nos. | 2 Nos. | | | Vendor to offer |
| (iv) | The outer projecting tube shall be made out of recrystallised Alumina (KER710). | | | | | Vendor to confirm |
| 3.6 | COMPENSATING CABLES: | | | | | Vendor to offer |
| | Type : R-type Compensating Cable for furnace temperature measurement & K-Type Compensating Cable for job temperature measurement | | | | | |
| 3.7 | CABINET FOR INSTRUMENTATION, CONTROL AND POWER | | | | | |
| (i) | New control, power and instrumentation cabinet shall be accommodated within the space vacated by the old panel. | | | | | |
| (ii) | Thickness of Steel used: 2 mm thick. Cold Rolled Steel sheet. | | | | | |
| (iii) | Cable Entry: Bottom entry in the cabinet floor. | | | | | |
| (iv) | Degree of Protection : IP54 | | | | | |
| (v) | Paint Shade: Powder-coated Siemens Gray/ (RAL 9002). | | | | | |
| (vi) | Cabinet fitted with the following and completely wired: <ul style="list-style-type: none"> Mains incoming supply. MCCB and power contactor Thyristor power controller as above (as per Para 3.4). Semiconductor Fuses for the thyristor-controller 1 no. Voltmeter 0-500 VAC with 3 phase selector switch for monitoring line voltage. | | | | | Vendor to offer |
| | <ul style="list-style-type: none"> Separate Ammeters for monitoring line currents for each phase. Auxiliary contactors, relays, MCB's, Fuses, LED-type Indicating lamps etc. for furnace control. Isolation cum control transformer of suitable rating for Furnace Control Circuit Isolation transformer of suitable rating for Instruments. Energy Meter of Siemens SENTRON make and having network capability with CTs for recording current energy consumption of the furnace as well as cumulative energy consumption. | | | | | Vendor to specify, offer and confirm |
| (vii) | Power cabinet shall be fitted with EBM make exhaust fan of capacity 1800 | 2Nos | 2Nos | | | |

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| | m3 per hour. | | | | | |
| (viii) | All operating push buttons, handles & annunciations for overall operation of furnace shall be provided. Suitable interlocks shall be provided for safe operation. | | | | | |
| (ix) | The control voltage in the electrical cabinet should be of 110VAC, wherever possible. It should be 24VAC / 24VDC for hand-held device. | | | | | |
| 3.8 | CABLES | | | | | Vendor to specify the cross section and make of the cables |
| (i) | Cables of appropriate length and cross section of Lapp/Sab/Igus-make only. | 1Set | 1Set | | | |
| (ii) | The average current in the cable should be 50% of its rated value. | | | | | |
| 3.9 | FAULT DIAGNOSTIC METER: | | | | | Vendor to specify, offer and confirm |
| | Clamp meter for fault diagnosis (Make-Agilent, Model-U1213A/ Make-Fluke, Model-325 True RMS) | 1No. | 1No. | | | |
| 4. | <u>OTHER ITEMS:</u> | | | | | Vendor to confirm, specify & Offer |
| (i) | Terminals of suitable rating for connecting heater studs outside the furnace. | | | | | |
| (ii) | All required Lugs for power and control wiring (of Dowell's-make only) | | | | | |
| (iii) | All required limit switches (of Euchner/Baluff/Honeywell-make) including new cams / dogs | | | | | |
| (iv) | All the material required for repairing and restoring the existing shell, Door to original condition. | | | | | |
| (v) | Paint and putty for painting the furnace from outside with heat resistant silver aluminium paint. | | | | | |
| (vi) | <i>Any other item not spelled out and envisaged in the above specifications but essentially required for efficient control and modernization of the furnace as per the objective of the project may be offered by the vendor. No changes shall be permissible after the placement of P.O./W.O.</i> | | | | | |
| 5. | DOCUMENTS : | | | | | Vendor to confirm, specify & Offer |
| 5.1 | Operation and maintenance manual of the furnace, giving all details like electrical circuit diagram, Instrumentation schematics, & heating elements, mechanical assembly drawings etc. | 3 sets | 3 sets | | | |
| 5.2 | Commissioning and service manuals of following | | | | | |
| (i) | Thyristor Controller | 3 sets | 3 sets | | | |

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| (ii) | Master Temperature Controller | 3 sets | 3 sets | | | |
| (iv) | Over Temperature Controller | 3 sets | 3 sets | | | |
| (v) | Temperature Recorder | 3 sets | 3 sets | | | |
| 5.3 | List & catalogues of all bought out items | 3 sets | 3 sets | | | |
| 6. | SPARES : | | | | | Vendor to confirm, specify & Offer |
| | Party shall submit offer for following spares priced item wise: | | | | | |
| (i) | Heating Elements total set as used in the Furnace | 1Set | 1Set | | | |
| (ii) | Heating element supporting pins total set as used in the Furnace | 1Set | 1Set | | | |
| (iii) | Electrical contact for heating elements total set as used in the Furnace | 1Set | 1Set | | | |
| (iv) | Complete thyristor controller as used in the furnace | 1 no | 1 no | | | |
| (v) | Control transformer | 1 no. | 1 no. | | | |
| (vi) | Duplex R- type Thermocouples for control and recording | 1 no. | 1 no. | | | |
| (vii) | Simplex R- type Thermocouples for over temperature(safety) control | 1 no. | 1 no. | | | |
| (viii) | Simplex K-type Thermocouples Flexible with stainless steel sheathing for job temperature measurement | 1 no. | 1 no. | | | |
| (ix) | Ammeter | 1 no. | 1 no. | | | |

SCOPE OF WORK AND OTHER TERMS & CONDITIONS

| Sl. No | Description | Quantity for Furnace:-1 (Plan No.-7-049) | Quantity for Furnace:-2 (PlanNo.-7-051) | Offered | Deviation | Remarks |
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| 1. | <u>REMOVAL & DISCONNECTION</u> | | | | | Vendor to accept & confirm |
| (i) | Removal of existing heating elements, insulation & brickwork of the side walls, roof, and door. | | | | | |
| (ii) | Disconnection and Removal of all old electrical cables and control cabinets | | | | | |
| 2. | <u>FURNACE SHELL REPAIR</u> | | | | | Vendor to accept & confirm |
| (i) | Necessary repair of the furnace shell will be carried out before commencing new insulation work. | | | | | |
| 3. | <u>PAINTING:</u> | | | | | Vendor to accept & confirm |
| | The furnace shall be painted in heat resistant silver aluminium oxide paint from the outside. | | | | | |
| 4. | <u>INSTALLATION</u> | | | | | Vendor to accept & confirm |
| (i) | Installation of all supplied insulating materials on the walls, door, and the roof shall be done by the Party | | | | | |
| (ii) | Installation and masonry of all required and supplied refractory on the bottom portion of the side walls | | | | | |
| (iii) | Installation of all supplied heater elements on side walls | | | | | |
| (iv) | Installation of all supplied Electrical items, instrumentation and controls | | | | | |
| 5. | <u>CONNECTIONS :</u> | | | | | Vendor to accept & confirm |
| (i) | Laying of all required power cables & control wires | | | | | |
| (ii) | Compensating cables of thermocouples shall be laid from the furnace to temperature control instruments and the digital recorder. These cables preferably shall not have any joint in-between and if required, should be connected / terminated with appropriate K-type compatible plugs and sockets which should not interfere with the signal strength. | | | | | |
| (iii) | Compensating cables of thermocouples for job temperature measurement shall be suitably terminated in an especially constructed enclosure at operator side end with plug & socket arrangement. | | | | | |
| (iv) | Inter-connection of all electrical components | | | | | |

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| 6. | COMMISSIONING OF FOLLOWING ITEMS SHALL BE CARRIED OUT: | | | | | Vendor to accept & confirm |
| (i) | Thyristor controllers | | | | | |
| (ii) | Master Temperature controller | | | | | |
| (iii) | Over Temperature controller | | | | | |
| (iv) | Temperature Recorders | | | | | |
| 7. | SAFETY INTERLOCKS & PROTECTION: | | | | | As per furnace requirement |
| (i) | The furnace heating operation shall be interlocked with the Door operation so that heaters cannot be switched unless the door is closed. | | | | | |
| (ii) | Over Temperature controller should switch Off the power supply to heating elements in case of failure/breakdown of the Master controller | | | | | |
| (iii) | Safety of temperature recorder shall be ensured in the event of electrical short circuiting of the job temperature thermocouple | | | | | |
| 8. | ALARM ANNUNCIATION | | | | | Vendor to accept & confirm |
| | In the event of fault condition viz. broken thermocouple, over temperature, an indication lamps should get activated. | | | | | |
| 9. | MISCELLANEOUS WORKS: | | | | | Vendor to accept & confirm |
| | Supplier shall execute any other work found necessary to complete the work but not stated explicitly above, along with all required material without any obligation. | | | | | |
| 10. | ACCEPTANCE CRITERIA: | | | | | Vendor to accept & confirm |
| | Acceptance shall be at BHEL, Hardwar works after successful commissioning, testing and job proving and after achieving following criteria: | | | | | |
| (i) | All furnace functions shall be demonstrated. Heat treatment cycle for two components (decided by production deptt. of BHEL) shall be established by heating the furnace to load and temperature specifications. Rate of rise of temperature and cooling and soaking shall be ensured as per setting. | | | | | |
| (ii) | Uniformity of the temperature of the jobs shall be within $\pm 5^{\circ}\text{C}$. The same shall be ensured and demonstrated as part of Acceptance Criteria. | | | | | |
| 11. | DELIVERY: | | | | | Vendor to accept & confirm |
| 11.1 | Material: (i) Material: 16 weeks from the date of release of the Work order. | | | | | |
| 11.2 | Vendor to note that early delivery shall be acceptable subject to prior approval by BHEL | | | | | |
| 11.2.1 | Commissioning: 5 weeks from date of release of each furnace for work. | | | | | |

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| 11.2.2 | An activity chart shall be submitted by the vendor detailing all the activities scheduled and time taken to complete the commissioning of each furnace. | | | | | Vendor to accept & confirm |
| 12. | WARRANTY : | | | | | Vendor to accept & confirm |
| | Vendor shall stand warranty for all the materials supplied, all services provided and all the work executed for a period of 12 months from the date of successful commissioning of the furnace at BHEL, Hardwar | | | | | |
| 13. | <u>VENDOR'S OBLIGATION:</u> | | | | | Vendor to accept & confirm |
| (i) | Vendors are advised to visit the site, before submitting bid. | | | | | |
| (ii) | 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 W.O./P.O. by BHEL and the same shall have to supplied and commissioned free of cost. | | | | | |
| (iii) | Party shall bring all required tools (power as well as hand tools), Meters and testing equipment as required for installation and commissioning. | | | | | |
| (iv) | All Welding rods and man power required for welding shall be party's responsibility. | | | | | |
| 14. | <u>BHEL'S OBLIGATION:</u> | | | | | Vendor to accept & confirm |
| (i) | Crane facility and lifting tackles like slings, rope, D-Shackles shall be provided free of cost. | | | | | |
| (ii) | Electricity, welding set, Gas cutting equipment, Gases and holders shall be provided free of cost. | | | | | |
| (iii) | Machining facility required for erection & commissioning, subject to the extent available in BHEL, shall be provided free of cost | | | | | |
| (iv) | All civil work (except refractory works) shall be executed by BHEL subject to prior intimation and drawing submission by the party. | | | | | |
| 15. | TRAINING : | | | | | Vendor to accept & confirm |
| | Party shall impart training on the new systems supplied and commissioned by them in situ to BHEL technical staff, in following areas | | | | | |
| (i) | Instrumentation: For commissioning & maintenance of Digital chartless recorders, Master temperature controller. | | | | | |
| (ii) | Electrical and Electronics: For commissioning & maintenance of Thyristor controller. | | | | | |
| (iii) | Operation: For programming of temperature control for heat treatment of components on the Master Temp. Controller and overall operation of the | | | | | |

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| | refurbished furnace. | | | | | |
| 16. | PRE-DESPATCH INSTRUCTIONS | | | | | Vendor to accept & confirm |
| | Before despatch of the material, Party shall submit the Bill of Materials (BoM) to BHEL. Only after clearance from BHEL, shall the Party despatch the material. BoM shall be sent sufficiently in advance of the delivery date so as to enable BHEL to study the same and comment. | | | | | |
| 17. | QUALIFYING CONDITIONS: | | | | | Vendor to accept & confirm |
| 17.1 | Average Annual financial turnover during the last 3 years, ending 31st March 2014, should be at least 16 Lacs. | | | | | |
| 17.2 | The vendor must have supplied and commissioned/ retrofitted/ upgraded electrically heated furnace of minimum 50 KW capacity with modern thyristor controllers and electronic temperature controllers for Heat treatments of components in the past Seven years (on the date of opening of tender) and such furnace is presently working satisfactorily for more than six months after commissioning (on the date of opening of tender) | | | | | |
| 17.3 | The following information should be submitted by the vendor about the companies where similar furnaces have been supplied and commissioned/ retrofitted/ upgraded. This is required from the vendor for qualification of the offer. | | | | | |
| (i) | Name of the customer / company where furnace is installed. | | | | | |
| (ii) | Complete postal address of the customer. | | | | | |
| (iii) | Month & Year of commissioning. | | | | | |
| (iv) | Broad specifications of the furnace(s) supplied and commissioned/ retrofitted/ upgraded (i.e., Chamber Size LxWxH, Payload, kW rating, Maximum temp.) and its application. | | | | | |
| (v) | Name, designation, Phone, FAX no. and e-mail address of the contact person of the customer. | | | | | |
| (vi) | P.O. / W.O copies and Handing over MOM/Final MOM/Completion certificate/Performance certificate about the furnace shall be provided by the Vendor from the customer regarding satisfactory performance of furnace supplied to them. Note: BHEL reserves the right to verify information submitted by vendor. | | | | | |
| 18. | RISK PURCHASE CLAUSE: | | | | | Vendor to accept & confirm |
| | In case of delays in supplies / defective supplies or non-fulfillment of any other terms & conditions given in the work order the purchaser may cancel the work order in full or part thereof and may also make the purchase of the material / service from elsewhere / alternative source at the risk and cost of supplier. | | | | | |

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| | Vendor does not agree to above clause, their offer is liable to be rejected. In case any vendor accepts risk purchase clause initially and subsequently declines to honor the term in the eventuality of RISK PURCHASE, they may be banned for business with BHEL. | | | | | |
| 19 | LATE DELIVERY PENALTY (LD) CLAUSE:- | | | | | Vendor to accept & confirm |
| 19.1 | LD @ ½% per week subject to a maximum of 10% of the Material cost including spare parts shall be applicable for delay in deliveries. The time period from invitation date for Pre dispatch inspection from vendor to the date of arrival of Pre Dispatch Team to vendor's works and any other reasons attributed to BHEL will not be accounted for in delivery period. This period will be excluded for the purpose of calculating LD. Vendor should intimate regarding PDI 7 days in advance only | | | | | |
| 19.2 | LD @ ½ % per week subject to a maximum of 10% of the Commissioning Charges shall be applicable for delay beyond scheduled commissioning date for reasons attributed to the party. | | | | | |
| 20 | EARNEST MONEY DEPOSIT (EMD): | | | | | Vendor to accept & confirm |
| 20.1 | Vendors have to deposit Rs 1.5 Lacs as EMD. EMD may be deposited in cash, through pay order or through demand draft in favor of Accounts Officer, HEEP, BHEL, Haridwar only. . | | | | | |
| 20.2 | EMD shall be converted to Security deposit if the work is awarded. | | | | | |
| 20.3 | EMD of unsuccessful bidders shall be refunded back normally within fifteen days of acceptance of award of work by the successful tenderer. | | | | | |
| 20.4 | EMD shall not carry any interest. | | | | | |
| 20.5 | EMD by tenderer will be forfeited as per tender documents if: | | | | | |
| 20.5.1 | After opening the tender, the tenderer revokes his tender within the validity period or increases his earlier quoted rates. | | | | | |
| 20.5.2 | The tenderer does not commence the work within the period as per LOI/contract. | | | | | |

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| 20.6 | <p>Offers without EMD will be rejected and will not be considered for evaluation. However “The units registered under Single Point Registration Scheme of NSIC are eligible to get the benefits under “Public Procurement Policy for Micro & Small Enterprises (MSEs) Order 2012” as notified by the Government of India, Ministry of Micro Small & Medium Enterprises, New Delhi vide Gazette Notification dated 23.03.2012.</p> <ul style="list-style-type: none"> • Issue of the Tender Sets free of cost; • Exemption from payment of Earnest Money Deposit (EMD). • MSE suppliers can avail the intended benefits only if they submit along with their offer, attested copies of EM-II certificate having deemed validity (five years from date of issue of acknowledgement in EM-II) or valid NSIC certificate or EM-II certificate along with attested copy of a CA certificate (Format enclosed Annexure –‘C’ attached where deemed validity of EM – II certificate of five years has expired) applicable for the relevant financial year (latest audited). Date to be reckoned for determining deemed validity will be the date of bid opening (Part 1 in case of two part bid). Non submission of such documents will lead to consideration of bid at par with other bidders. No benefit shall be applicable for this enquiry if any deficiencies in above required documents are not submitted before price bid opening. If tender is to be submitted through e-procurement portal, then the above required documents are to be uploaded on the portal.” <p>Documents should be notarized or attested by Gazetted officer.</p> | | | | | |
| 21 | SECURITY DEPOSIT (SD): | | | | | Vendor to accept & confirm |
| 21.1 | Successful vendor shall deposit security. The rate of security deposit will be as below: | | | | | |
| (i) | For work Up to Rs 10 Lakhs : 10% of work order value | | | | | |
| (ii) | Above Rs 10 Lakhs upto Rs 50 Lakhs : Rs 1 Lakh + 7.5% amount exceeding Rs 10 Lakhs | | | | | |
| (iii) | Above Rs 50 Lakhs: Rs 4 Lakhs + 5% amount exceeding Rs 50 Lakhs | | | | | |
| 21.2 | 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 HEEP, BHEL, Haridwar. | | | | | |
| (iii) | Local cheques of Scheduled Banks, subject to realization. | | | | | |
| (iv) | Bank Guarantee from Scheduled Banks/Public Financial Institution as defined in the companies Act. The Bank guarantee format should have the approval of BHEL. | | | | | |

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| 21.3 | EMD of successful tenderer can be converted and adjusted against the Security Deposit | | | | | |
| 21.4 | Security Deposit shall not carry any interest. | | | | | |
| 21.5 | 100% of the Security Deposit amount shall be refunded to the vendor after final acceptance of work. SD shall be released after the submission of Performance Bank Guarantee (PBG) by the vendor. | | | | | |
| 22 | PERFORMANCE BANK GUARANTEE (PBG): | | | | | Vendor to accept & confirm |
| 22.1 | Vendor shall be required to submit a Performance Bank Guarantee (PBG) for 10% of the total work order/ contract value which shall be valid for a period of 12 months from the date of final acceptance for both the furnaces (Date of Final acceptance of last furnace will be taken for this purpose). | | | | | |
| 22.2 | The PBG shall be submitted on a non-judicial stamp paper of value not less than Rs.100/- issued by any one of the nationalized banks. | | | | | |
| 23 | PAYMENT TERMS: (Note: No advance payment shall be made to the vendor.) | | | | | Vendor to accept & confirm |
| 23.1 | Part payment will be made after completion of following milestones | | | | | |
| 23.1.1 | Payment of 80% of material cost along with 100% of all taxes & duties (Excise duty, CST/VAT as applicable) shall be payable after inspection & acceptance of material at HEEP, BHEL, Haridwar. Vendor to ensure that all relevant documents are submitted. | | | | | |
| 23.1.2 | Final payment of balance 20% of material cost, 100% of commissioning charges including service taxes as applicable amount will be made after Final acceptance of the machines (As per Clause No.-10 of Annexure-A /Part-II). The payment shall be made subject to submission of PBG (As per Clause No.-22 of Annexure-A /Part-II) | | | | | |
| 23.2 | All the payments shall be made through e-payment after submission of following documents along with first bill | | | | | |
| 23.2.1 | E-payment form duly filled (Form will be provided by BHEL) | | | | | |
| 23.2.2 | Income tax exemption letter(if applicable) | | | | | |
| 23.3 | Excise duty & CST/VAT will be paid on material cost and service tax will be paid on commissioning charges at actuals. Related original documents to be submitted for availing MODVAT credit by BHEL. | | | | | |
| 24 | GENERAL CONDITIONS: | | | | | |
| 24.1 | A point wise compliance statement shall be submitted by the party with reference to the above scope of supply against each clause/ sub-clause with relevant details & comments. Non-compliance to any of the clauses | | | | | |

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| | & quoting inadequate quantity can lead to dis-qualification of the offer. | | | | | Vendor to accept & confirm |
| 24.2 | The Vendor is advised to inspect the furnace prior to quoting ascertain all the relevant details required for successful completion of the work. | | | | | |
| 24.3 | The proposed electrical schematic & Bill of material for both the furnaces shall be provided by the vendor sufficiently in advance of the delivery date so as to enable BHEL to study the same and comment. | | | | | |
| 24.4 | Vendor must compulsorily quote the quantity exactly as per the Scope of supply. No reduction in quantity as per the above Scope of supply is permissible. | | | | | |
| 24.5 | Vendor must quote the Spare parts separately in the offer as per the price bid format (Annexure-B) otherwise the offer will be rejected. | | | | | |
| 24.6 | The offers of the bidders who are on the banned list as also the offer of the bidders, who engage the services of the banned firms, shall be rejected. The list of banned firms is available on BHEL web site www.bhel.com | | | | | |
| 24.7 | The award of works will be made on basis of the total of Material cost , Spare Parts cost, Commissioning charges and all taxes, duties as applicable (Cost to BHEL) | | | | | |
| 24.8 | The Vendor should submit their best price at this stage itself and they will not be allowed to revise the price. Any revision / discount given by the vendor subsequently will be ignored. | | | | | |
| 24.9 | Check List as per Annexure 'D' must be enclosed with techno-commercial bid | | | | | |
| 25 | OFFER: The offer should be submitted in two parts and in following manner. | | | | | Vendor to accept & confirm |
| 25.1 | TECHNO-COMMERCIAL BID : | | | | | |
| 25.1.1 | The envelop shall contain the Techno-commercial Bid (ANNEXURE 'A') with technical details and commercial terms & conditions along with relevant documents like copies of ESI, PF code, PAN No., Service Tax Regn. No., TIN No., CST No., Experience Certificates, Audited Balance Sheet of last 3 years, P.O copies & Commissioning/ Performance certificates (against Pre-qualifying conditions) , Tender fees, EMD and Check List as per ANNEXURE 'D' . | | | | | |
| 25.1.2 | The envelop shall be super scribed with "Techno-Commercial Bid", Name of work & NIT No. | | | | | |
| 25.1.3 | Point-wise compliance of this scope of supply and work is to be given by vendors while submitting their techno-commercial offer in the format provided by BHEL. Each page of the compliance list has to be signed by the vendor. | | | | | |
| 25.1.4 | The vendor must note that no prices are to be quoted/ mentioned in the techno-commercial offer. | | | | | |
| 25.2 | PRICE BID : | | | | | |

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| 25.2.1 | The second envelope shall contain only the price bid with separate price for material, spares, work & applicable taxes & duties on Price Bid Format only as per ANNEXURE 'B'. | | | | | |
| 25.2.2 | Any other information in the price bid shall not be considered and the quotation is likely to be rejected. Price bid document shall be signed by the bidder at the bottom of the page. | | | | | |
| 25.2.3 | The envelope shall be sealed and super scribed with "Price Bid", Name of work & NIT No. | | | | | |
| 25.2.4 | Price bids of techno commercially accepted vendors shall be opened. | | | | | |
| 25.3 | Both the above two envelopes shall be kept in another sealed cover. The cover shall be super-scribed with "Quotation for (name of work), NIT No. & due date and and shall be submitted in Tender Box kept in the Tender room of Purchase department at the 4th floor of the Main Administrative Building of BHEL, HEEP, Haridwar and it should also contain Bidder address. | | | | | |
| 26 | COMMERCIAL TERMS: | | | | | |
| 26.1 | Prices shall be quoted on "Firm Price" basis only. The prices should be on F.O.R BHEL, Haridwar basis inclusive of Packing & Forwarding, transit insurance & Transportation charges. Applicable % of ED & Sales Tax, Installation/ Commissioning Charges & Service Tax should be clearly indicated in attached Price bid format as per "Annexure B" | | | | | Vendor to accept & confirm |
| 26.2 | Validity of offer shall be for a minimum period of 120 days from the date of Tender Opening. | | | | | |
| 26.3 | Freight & transit insurance charges from Dispatching station to BHEL, Haridwar shall be borne by the party. | | | | | |
| 26.4 | The material will be dispatched to central plant store, HEEP, BHEL, Haridwar with instructions to forward the same to SDGM (WEX-MCR) . | | | | | |
| 27. | PACKING: | | | | | |
| | Supplier shall arrange for adequate protection and packing of the consignment so as to avoid loss and damage during transit and also take appropriate measures to prevent metal parts from rusting and corrosion during transit. Handling instructions shall be clearly printed /painted on the packages. Each package should carry a detailed packing slip. Supplier shall be responsible for any loss/damage during transit due to defective/inadequate packing. | | | | | Vendor to accept & confirm |