



BHARAT HEAVY ELECTRICALS LIMITED

INSULATOR PLANT, JAGDISHPUR
Fax No: 05361-270140,270110, 270109

TENDER DOCUMENT FOR

High Temperature Kiln Bell type / Top Hat type of capacity 5.0 M³ and max firing temperature 1700⁰C For Firing Alumina products

Tender Enquiry No: BHEL/IP/MM/CAP/OT-1/2007

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Material Description	Unit	Quantity	Tender submission Last Date & time	Tender opening date & time
High Temperature Kiln	No.	01	12-07-2007, 2.30 PM	12-07-2007 3.00 PM

BHARAT HEAVY ELECTRICALS LIMITED

Insulator plant
Industrial Area, Jagdishpur 227817
Dist. Sultanpur (U.P.)

SPECIFICATION FOR HIGH TEMPERATURE KILN

BROAD SPECIFICATIONS

1. **Product to be fired :** High Alumina powder compacted ceramic products. The details about the product is given in Annexure - I
2. **Type of Kiln:** Bell Type Kiln / Top Hat Kiln
3. **Maximum Operating Temperature:** 1750° C
4. **Normal Operating Temperature:** 1600° C
5. **Uniformity of temperature:** $\pm 5^{\circ}$ C at peak
6. **Fuel:** Natural Gas (RLNG) on regular basis / High Speed Diesel
7. **Type of Burner:** Dual Fuel High velocity type with pilot burner
8. **Indicative Firing Cycle Time:**
 - a) Heating Time – 11 to 12 hrs
 - b) Soaking Time – 1.5 to 2.5 hrs
 - c) Cooling Time – 10 to 12 hrs
 - d) Total Cycle Time – 24 to 26 hrs
9. **Firing Atmosphere :** Neutral to Oxidising
10. **Controls :** Fully automatic temperature & pressure controls with auto ignition. Kiln operation by microprocessor based programmable controller. Dampers & valves to have servo controls. SCADA to be quoted as optional
11. **Setting Volume : Approx. 5 m³**

Please note that the maximum width of the car may be taken as 1300 mm to have the accessibility for manual placement of the product in the center of the kiln car. The suggested setting dimensions for each Kiln Car is 1025mm X 2475mm X 1000mm (Refer Annexure II), considering 2 cars inside the kiln.
12. **Loading & Unloading of car :** Manual with mechanised means like power winch.
13. **No. of Kiln Cars :** 2 sets of cars. (1 set inside the kiln for firing & other set waiting outside the kiln for loading / unloading of products on / from the kiln car). However, the number of cars required is to be decided by the supplier to achieve the desired setting volume as mentioned above.
14. **No of Transfer cars:** This will be required if envisaged by the supplier in their layout / design.

SPECIFICATION FOR HIGH TEMPERATURE KILN

15. Ambient Conditions : The kiln will be located at Jagdishpur, situated in Uttar Pradesh, India situated at 120 mt above MSL. The Ambient temperature conditions varies from 2 to 47 Deg. C with RH varying from 15 to 90 %.

DETAILED SPECIFICATIONS

1. TYPE OF KILN

The type of kiln shall be BELL TYPE, i.e., a refractory lined steel hood or bell which is raised and lowered over kiln car/s loaded with the products to be fired. The refractory lined steel hood or bell shall be mounted on suitable hydraulic cylinders operated with a suitable hydraulic power pack. The hood and car shall be so designed for automatic centering of the car/s in the hood, shall have a positive sand seal and the hood weight is supported only by the hydraulic cylinders and not on the kiln car.

The offer shall provide a detailed description, design features, schematic / dimensional drawings or diagrams and specifications of the hood and refractory lining.

The kiln offer shall include 2 sets of kiln cars, one set inside the kiln during firing and the other set outside for loading / unloading of products. The cars shall be fabricated with structural steel and have shafting supported on high temperature bearing supports with flanged wheels suitably designed to take care of the high operating temperatures. The car shall be offered with suitable refractory superstructure.

The loading and unloading of the products is done manually, hence the maximum width of the car at setting volume shall be limited to 1300 mm as given in the broad specification. The car structure shall have provision for pulling the car from & into the kiln using a power winch.

The offer shall provide detailed description of kiln car construction, schematic diagram and specification of the material of construction. The rails / tracks required for the car movement shall be indicated. BHEL will provide the rails and power winch.

2. COMBUSTION SYSTEM

The kiln shall be offered with a complete combustion system from gas train to burners including all necessary devices / equipment to achieve the given kiln operating parameters. The burner offered shall be high velocity type, dual fuel capable i.e., normally operating on R-LNG and on High Speed Diesel as optional fuel. The ignition of the burners shall be by pilot burners only with R-LNG incase of gas firing and LPG incase of HSD firing.

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The burners offered shall be of high efficiency type offering maximum calorie output per unit of fuel burner. Advanced features for maximizing the combustion efficiency shall be incorporated in the burner design / selection. The offer shall provide the designed fuel consumption in terms of SCM / Cycle for R-LNG and Lt. / Cycle for HSD. The combustion system shall be designed to attain the

temperature uniformity as given in broad specification, The offer shall furnish a detailed description of the design feature to attain the temperature uniformity. A detailed description on the combustion system design features and its operation should be given with the offer.

The offer shall include all the fans or air delivery system required for fuel combustion viz., atomizing air, primary air and secondary air. BHEL prefers a centrifugal fan for atomizing air than compressed air. There shall be two numbers of fans for each type, one running and the other as standby, necessary ducting and damper arrangements shall be provided for operation of one fan at any given time. The fans and compressor required shall be quoted as an optional item. The offer shall include complete specification of fans, ducting & dampers and compressor (if HSD atomization is by compressed air). BHEL may exercise the option of sourcing fans / compressors indigenously as per the bidders specification.

The combustion system shall have a suitable oil pump for atomizing HSD when the kiln is to be run on HSD. BHEL will provide HSD supply at one point. The piping and size requirement shall be provided along with the details of the atomizing oil pump.

The combustion system shall have adequate safety features for over shooting temperature, over kiln pressure, ignition failure, low / high air pressures, purge time interlock, hood / bell position, etc. The kiln control system shall have safety alarm and indication system to alert the kiln operators for re-setting and re-starting the kiln. After the safety shut off the fuel supply to the burners shall be completely cut-off. It is to be re-set only by manual mode. Vendors shall suggest further improvement in any additional safety features and may incorporate the same in the bids. The offer shall provide complete description, schematic diagram, P & I diagram and specifications of combustion system and its components.

The offer shall also provide a separate detailed description on the safety features incorporated in the kiln.

3. DOWN DRAFT EXHAUST SYSTEM

The kiln offered shall be of down draft type. The flue taken from the opening in the center of the car/s shall be routed through a refractory lined flue path. A suitable exhaust fan shall be provided to maintain the desired draft throughout the firing cycle. The kiln pressure shall be maintained through a pressure monitoring system having pressure sensor / transmitter, suitable controls and programmer so as to maintain pre-defined kiln pressure throughout the cycle time. The kiln to have only servo controls for damper and valves operation through control system. A manual by-pass system shall be provided to operate the dampers & valves manually whenever required.

The offer shall provide the details of the underground flue path including refractory material specification. BHEL will provide the underground flue path as per bidders drawing.

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The offer shall include the fans required for exhaust system. There shall be two fans for the kiln one running and one standby with required ducting & dampers for isolation. Cooling system for exhaust fans if required shall also be indicated. The fans with cooling system if any required shall be quoted as an optional item. The offer shall include complete specification of the fan. BHEL may exercise the option of sourcing the fans indigenously as per the bidders specification.

The offer shall provide the technical details of the chimney required for the kiln viz., height, diameter, material of construction, ducting required etc., BHEL will provide the chimney as per requirement. The local pollution norms are to be incorporated in chimney design, which is provided in Annexure - III.

The offer shall provide complete specification of the exhaust system components viz., under ground refractory lined flue, exhaust fan, chimney & ducting.

4. RECUPERATOR SYSTEM

The kiln shall be equipped with a recuperator for pre-heating the combustion air using the heat in exhaust flue. The offer shall indicate the maximum temperature that can be achieved in the combustion air. The offer should include necessary controls incorporated for the protection of the recuperator. Offer shall include the detailed specifications, schematic diagram and controls for recuperator system.

5. HYDRAULIC SYSTEM

The kiln shall be offered with a suitable hydraulic system comprising of hydraulic cylinders, supporting structures, motor driven hydraulic power pack consisting of suitable pump, reservoir, filtration system, radiator type cooling system and control system. The hydraulic oil used shall be of flameproof type. The offer shall include complete description, schematic and specifications of the hydraulic system. The piping requirements of the hydraulic system with detailed specification shall be indicated, BHEL will undertake the piping including piping material. P & I diagram of hydraulic system should be provided along with the offer.

6. CONTROL & INSTRUMENTATION SYSTEM

The kiln shall be offered with a suitable control system for controlling the kiln temperature and pressure. The control system shall have a suitable programmable controller, which will guide the kiln as per the pre-defined firing cycle. The controller shall have provision to store minimum of 6 programme. The control system shall have suitable operator interface displaying the pre-defined program and the actual condition of the kiln at all times when the kiln is running. The display system shall be digital and user friendly.

The control system shall have suitable display system for displaying the ON/OFF condition of various system components. The control system shall have a suitable recording system for recording the actual process parameters for each of the firing cycle, provision for electronically storing and transferring the data to a personal computer shall be included. The control system shall also have display system for indicating of safety shut off and various fault conditions.

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BHEL would prefer 220V AC controls for different contactors and 12/24V DC controls for PLC etc. The control system offered shall include all the control components like sensors, transmitters, controllers, recorders and displays. The offer shall give detailed description of each of the components, make, model and specification.

The offer shall also include SCADA (Supervisory Control and Data Acquisition) as an optional item. The complete details of SCADA should be submitted along with the offer for basic kiln.

The offer shall also include the control panel and power supply panel that houses all the control system components and motor control components respectively. The offer shall also include cables as required from panels to individual kiln components. The cables running in the vicinity of the kiln shall be of flame proof variety. All the cables shall be neatly terminated using terminal boxes with suitable fireproof cable glands at terminal boxes and at control panel. The cables should be secured in cable trays / conduits. The control wiring should be properly ferruled and identifiable in the control circuit.

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SCOPE OF SUPPLY

THE SCOPE OF SUPPLY OF VENDOR IS AS FOLLOWS:

1. Top hat / Carbell kiln complete with steel structure hood and refractory lined. The kiln shall be completely piped, painted and wired.
2. Combustion system complete with dual fuel high velocity burners with pilot burners, quantity as per suppliers designs.
3. Two set of kiln cars with refractory upto base level
4. Transfer cars (if required based on the layout envisaged by the supplier)
5. Complete Hydraulic system
6. Fuel supply and regulation components as required both for R-LNG and HSD.
7. Control and instrumentation system along with control and power panels and cabling from panels to kiln and its components. SCADA (Optional)
8. Air compressor for instrumentation (if required)
9. Recuperator system including ducting from kiln to recuperator and recuperator to exhaust fan.
10. Complete detailed drawings of the kiln and all its components / accessories.
11. Detailed Foundation drawings.
12. Erection & Commissioning including construction supervision if any.
13. Essential spares for 2 years of operation. List, specification and quantity to be given in the offer.
14. Design documentation for all components in both soft & hard copy (3 sets)
15. Operation & Maintenance manual (3 sets soft and hard copies)
16. On-site training to BHEL personnel.

THE SCOPE OF SUPPLY OF BHEL IS AS FOLLOWS:

1. All civil works including foundation for placing the kiln and its components
2. Supply of piped R-LNG at one point – supply pressure is to be indicated by vendors in the offer. The specification of R-LNG is provided in Annexure - IV
3. Supply of piped HSD at one point - supply pressure is to be indicated by vendors in the offer.
4. Electric power supply at one point – mains incomer of the power panel (440 V, 3 Phase, 50 Hz, 4 wire)
5. Fans & blowers. Compressors (if option exercised)
6. Power winch for pulling the kiln car.
7. Rails / tracks for kiln car movement
8. Kiln furniture to be placed above kiln car base
9. Sand for sand seal (Specification to be provided by Vendor)
10. Chimney
11. Ducting from exhaust fan outlet to chimney and recuperator to exhaust fan inlet.
12. Piping for hydraulic system
13. Refractory lining for underground flue
14. Thermal insulation of ducting, recuperator etc.
15. Hydraulic oil, lubricants, grease etc., (Specification to be provided by vendors)
16. Licenses and permits for operating the kiln from regulatory authorities.
17. Site office with power supply and dedicated telephone connection for E & C personnel.
18. Electric power, water, air, fuel and any other utilities required for installation of the kiln and its components. (Suppliers to provide the specific requirements in the offer)
19. Material handling assistance during erection and commissioning.

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Specific Techno-Commercial Requirement

1. The offers shall be in two part system i.e.,
 - a. The bill of quantity of supply should be listed in both bids. However the prices will appear against the bill of quantity in the price bid only.
2. **QUALIFICATION CRITERIA:** Over and above meeting to the technical specification as detailed above, the past proven experience will be the qualifying criteria for accepting or rejecting the offer. The vendor shall have supplied similar kiln for a similar application, which has been in operation for a minimum of 5 years. The supplier should furnish the list of customers along with the year of supply, address and contact telephone numbers to whom the kiln has been supplied. Vendors are also requested to furnish performance certificate from their customers. These details shall be provided in the techno-commercial bid. Failure to provide this information, the offer is liable to be rejected.
3. Acceptance criterion shall be satisfactory performance of the kiln as per BHEL defined cycle for a minimum of 3 firing cycles with products loaded.
4. Inspection of the kiln and its accessories as per the supplier's scope of supply shall be carried out by BHEL. Supplier to submit necessary test reports for all components and calibration certificates as required.

SPECIFICATION FOR HIGH TEMPERATURE KILN

ANNEXURE - I **PRODUCT DESCRIPTION**

High Alumina (Alumina content minimum 85%, Maximum 99%) powder compacted ceramic products.

Size & Shape of the product:

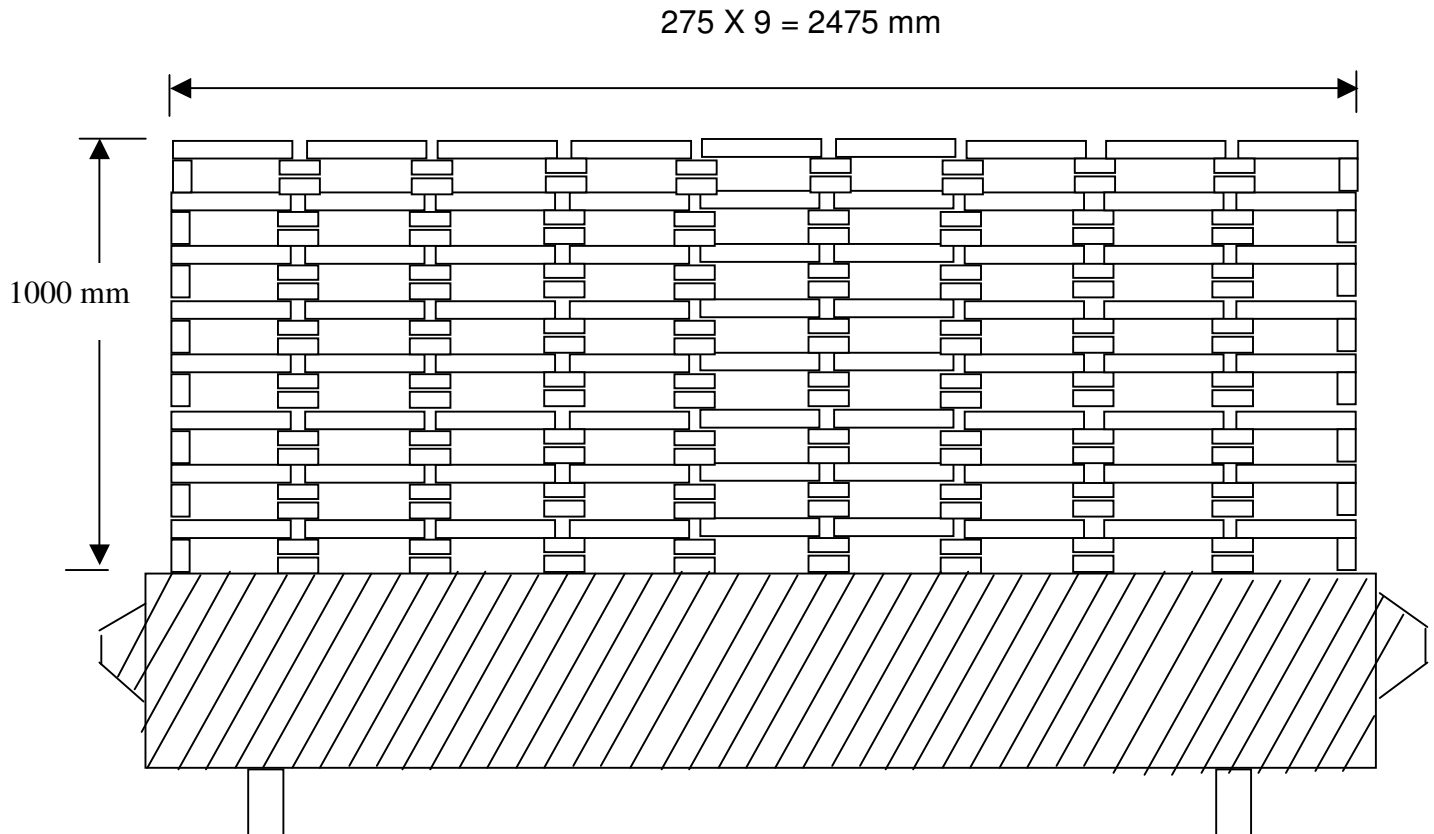
- Average weight of the green product to be fired is 500 gms
- Both curved and flat tiles of 250 mm X 100 mm X 35 mm (L X H X Th) are going to be fired in the proposed kiln.
- In the present loading pattern 7 such tiles are accommodated on a slab of 200 x 270 mm (L X W).
- In addition to this other ceramic products of various geometrical shapes like spheres, discs etc are also be fired in this kiln.
- Typical shape of product being fired are shown in the following photographs / sketch



SPECIFICATION FOR HIGH TEMPERATURE KILN

ANNEXURE – II (Page 1 of 2)

SUGGESTED CONFIGURATION AND SETTING DIMENSIONS OF KILN CAR

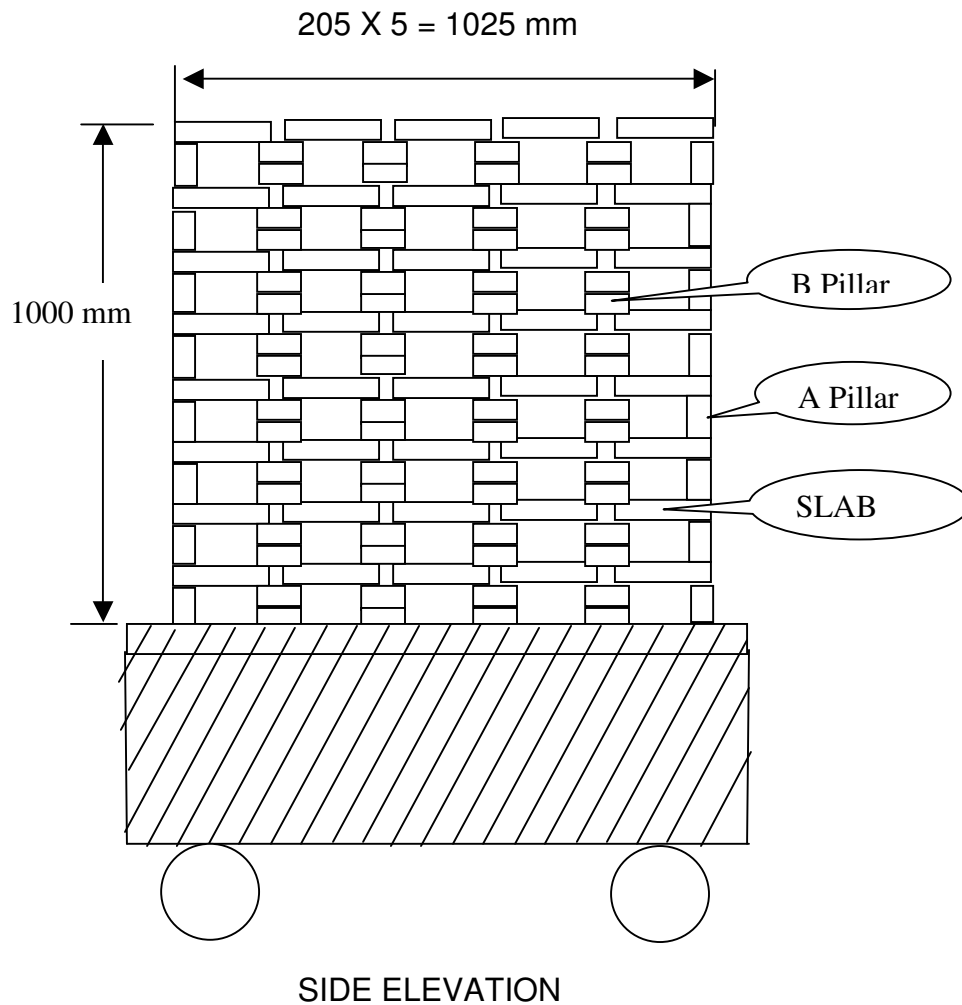


FRONT ELEVATION

SPECIFICATION FOR HIGH TEMPERATURE KILN

ANNEXURE – II (Page 2 of 2)

SUGGESTED CONFIGURATION AND SETTING DIMENSIONS OF KILN CAR



REMARKS :

1. Loading of product onto the kiln is manual.
2. Pillar size -
 - A - 50 X 50 X 100 mm
 - B - 50 X 100 X 100 mm
 - C - 100 X 100 X 100 mm (comes inside the car)
3. Slab size - 270 X 200 X 25 mm (Material Mullite Kiln Furniture)
4. No. of Kiln Cars : 2 (Two)

SPECIFICATION FOR HIGH TEMPERATURE KILN

ANNEXURE - III

LOCAL NORMS FOR EMISSION FROM KILNS
(As prescribed by Central Pollution Control Board)

CERAMIC INDUSTRY : EMISSION STANDARDS

Sections	Pollutants	Concentration in mg/Nm ³
A. Kilns		
Top Hat / Bell type	Particulate Matter	150
	Fluoride	10
	Chloride	100
	Sulphur dioxide	**

B. Stack Height:

Minimum Stack height of Kiln shall be 30 mts from ground level (including Kiln height). Hood should be provided.

C. ANNEXURE - IV

SPECIFICATION OF R-LNG SUPPLY UNDER BHEL SCOPE

Annexure :I- Specification of Gas

Sl. No.	Components		Range	Mole %
1.	Methane	C ₁	84.5	98.77
2.	Ethane	C ₂	9	0.69
3	Propane	C ₃	3	0.03
4.	Butane	C ₄	2	0
5.	Pentane	C ₅	0.25	0
6.	Hexane	C ₆		0
7.	Heptane	C ₇		0
8.	Nitrogen	N ₂	1.25	0.51
	TOTAL		100	10

Oxygen (O₂) - Not More than 0.5 mole %

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Total Non Hydrocarbon – Not more than 2.0 Mole %

Total sulphur including H₂S- Not more than 10PPM by weight expected H₂S content not more than 4PPM by volume--

Gas shall upon delivery meet the following conditions:

- i) Reasonably free from dust (max. size 5 micron but which could be 10 micron during commissioning period), gum, gum forming constituents and other deleterious solid and/ or liquid matter which will cause damage to or interfere with the operations of the Buyer's facilities;
- ii) Water content in the range of 112 to 144 kg/ million standard cubic meters
- iii) The gas will be preferably at ambient temperature (2 ° to 40 ° C).
- iv) Gross Calorific Value of not less than 8500 Kcal / SCM

Carbon Dioxide may vary between 0-5%

Tender Enquiry No: BHEL/IP/MM/CAP/OT-01/2007**GENERAL TERMS AND CONDITIONS**

1. Sealed Tenders are invited for the following work from experienced parties who meet the Qualification Criteria.

Material Description	Unit	Quantity	Tender submission Last Date & time	Tender opening date & time
High Temperature Kiln	No.	01	12-07-2007, 2.30 PM	12-07-2007 3.00 PM

2. Address for purchase, submission & opening of Tender

a) **Purchase and opening of tender:**

Office of the Dy. G.M. / (MM)
 Insulator Plant
 Bharat Heavy Electricals Limited
 Jagdishpur Industrial Area
 Jagdishpur
 Distt Sultanpur (UP) 227 817
 Tel : 05361 270140
 Fax : 05361 270110
 Email: babulal@bhelepd.com

Contact Person: Shri G. K. Babulal, Dy. Gen. Mgr/MM

b) **Submission of tenders:**

AA) By Post/ Courier at

BHEL IP, Jagdishpur Liaison office
 2/247A, Vikas khand, Gomti Nagar (near Mayo Hospital)
 Lucknow (U.P) – 226016
 Phone: 0522-2398130, 2398142

or

BB) By hand : In the tender box located at BHEL, Insulator Plant, Jagdishpur (U.P.)

3. BHEL takes no responsibility for any delay / loss of documents or correspondence sent by courier or post.
4. The offer is to be submitted in a sealed envelope properly marked .The tender shall be submitted in two parts. The first part shall consist of the techno-commercial offer without price schedule and marked on top of the envelope as “Part I -Techno-commercial Bid” along with tender enquiry no. and due date. The second part shall be the price schedule and marked on top of the envelope as “Part II - Price Bid” along with tender enquiry no and due date. Each part shall be in a separate sealed envelope. Both the parts shall then be put in a bigger sealed

envelope. The tender enquiry no. & due date of opening must be clearly mentioned on top of the envelope.

5. Part I of the bid will be opened first and scrutinized. Successful bidders in techno-commercial bid Part – I will only be considered for opening of Price Schedule i.e. Part – II. Date of opening of Price Bid will be intimated separately to the Tenderers who qualify in the Techno-Commercial bid.
6. Offers should be strictly in accordance with the tender specifications & other terms and conditions enclosed herewith.
7. Only Tenderers who have previous experience are expected to quote for this Item. Offer from Tenderer who does not have proven and established experience in the field is liable to be rejected.
8. Details of similar equipment of above specification supplied earlier to other parties & their performance to be provided along with the offer in the techno-commercial offer.
9. Guarantee and Test Certificates are required along with the supply
10. Erection & Commissioning shall be done by supplier.
11. In the price bid cost of main equipment, E & C charges, Taxes, P & F Excise duty etc are to be quoted separately
12. Equipment will be inspected before dispatch by BHEL
13. Please quote your rates for FOR BHEL, Jagdishpur for indigeneous supply. FOB/CIF offer for import items.
14. Our payment terms are: 80% against receipt of material at site, 10% after Erection & Commissioning and balance 10% against performance bank guarantee.
15. AS delivery is the essence of the contract, BHEL's standard LD clause is applicable.
16. Operational manual & necessary drawings shall be provided to BHEL at the time of supply.
17. Prices to be firm with validity with validity of 90 days from the date of opening.
18. Parties are requested to adhere to commercial terms of BHEL, otherwise the loading in the commercial comparative statement will be as per loading factor enclosed.
19. BHEL reserves the right to accept or reject any of the bid / all bids with or without deviation or cancel / withdraw the invitation for bid without assigning any reason whatsoever and in such case no bidder shall have any claim arising out of such action by BHEL.
20. Order shall be awarded to technically suitable L-1 bidder only
21. L-1 (lowest bidder) shall be worked out based upon the cost to BHEL.basis.

- 22. Price to be mentioned both in words and figures in price bid
- 23. Tax / Excise break ups to be given clearly
- 24. Guarantee /Performance Guarantee of equipment shall be given by supplier
- 25. Unloading of materials at BHEL shall be done under the supervision of supplier.
- 27 Right of Acceptance:- BHEL reserves the right to reject any or all tenders without assigning any reason there of.
- 28. Risk Factor- BHEL has the option to terminate the contract and to purchase the material at the risk & cost of the vendor if vendor fails to deliver the material within the stipulated time mentioned in the contract.
- 29. Party shall submit relevant documents for available VAT benefits as and when applicable.
- 30. Performance Bank Guarantee of 10% value of the contract value valid for 12 months from the date of commissioning shall be applicable or 18 months from the Date of Dispatch.
- 31. Consortium Bankers of BHEL are State Bank of India, ABN Amro Bank, Bank of Baroda, Canara Bank, HDFC Bank Ltd., Deutsche, AG, ICICI Bank Ltd., IDBI Ltd, Punjab National Bank, CITI Bank, NA, State Bank of Hyderabad, State Bank of Travancore, The Hongkong and Shanghai Banking Corporation Ltd

For & on behalf of BHEL

Dy. GM/ MM
BHEL, IP, Jagdishpur



INSULATOR PLANT, JAGDISHPUR

LOADING FACTORS SHEET

BHEL TE NO. BHEL/IP/MM/CAP/OT-1/2007

DEVIATIONS ARE LIMITED TO FOLLOWING ONLY, FURTHER DEVIATION ON ANY OF THE FOLLOWING MAY LEAD BHEL TO REJECT THE OFFER UNILATERALLY ON COMMERCIAL GROUNDS.

NOTE: THIS LOADING FACTOR INDICATED BELOW WILL BE ADDED ON QUOTED PRICE TO EVALUATE THE LOWEST QUOTE (in CASE OF DEVIATION TO BHEL'S TENDER SPECIFIED TERMS).

SL NO	COMMERCIAL TERMS	BHEL STANDARD TERM	IF YOU QUOTE	LOADING FACTOR FOR NON – COMPLIANCE OF BHEL STANDARD TERM
A.	FOR INDIGENOUS SCOPE OF SUPPLY			
1	TERMS OF PAYMENT (WHERE SCOPE INCLUDES E&C) :	80% against receipt of material 10% against Erection & Commissioning 10% against Performance Bank Guarantee Note: No advance will be paid.	80% THROUGH BANK	2% ON THE 80% OF THE BASIC MATERIAL VALUE
		- SAME AS ABOVE-	80% AGAINST EXCHANGE OF DISPATCH DOCUMENTS (I.E. PROFORMA INVOICE)	2.50% ON THE 80% OF THE BASIC MATERIAL VALUE.
B.	FOR IMPORTED SCOPE OF SUPPLY :			
1	TERMS OF PAYMENT (WHERE SCOPE INCLUDES E&C)	80% against receipt of material 10% against Erection & Commissioning 10% against Performance Bank Guarantee Note: No advance will be paid.	80% THROUGH LETTER OF CREDIT. ALL BANK CHARGES OUTSIDE INDIA INCLUDING CONFIRMATION CHARGES TO BENEFICIARY'S ACCOUNT.	2% ON THE 80% OF THE BASIC MATERIAL VALUE
		-SAME AS ABOVE-	100% THROUGH LETTER OF CREDIT AGAINST DELIVERY. ALL BANK CHARGES OUTSIDE INDIA INCLUDING CONFIRMATION CHARGES TO BENEFICIARY'S ACCOUNT Note: If E & C Involved by the vendor this payment is not acceptable	3.5% ON THE 100% OF THE BASIC MATERIAL VALUE.

SL NO	COMMERCIAL TERMS	BHEL STANDARD TERM	IF YOU QUOTE	LOADING FACTOR FOR NON – COMPLIANCE OF BHEL STANDARD TERM
		-SAME AS ABOVE-	100% WITHIN 45 DAYS OF SIGNING OF HIGH SEA SALES AGREEMENT.	3% ON THE 100% OF THE CIF VALUE.
C	PERFORMANCE BANK GUARANTEE (COMMON FOR INDIGENOUS/IMPORTED/ HSS)	PBG for 10% of the basic material cost shall be furnished in the BHEL prescribed format only,	IF NOT AGREED	10% OF THE BASIC MATERIAL VALUE.
		- SAME AS ABOVE -	IF 5% IS AGREED	5% OF THE BASIC MATERIAL VALUE.
		- SAME AS ABOVE -	OTHER THAN THE ABOVE.	(10% MINUS THE AGREED MAX. %) OF THE BASIC MATERIAL VALUE WILL BE LOADED.
D	PENALITY CLAUSE	½% Per week subject to a maximum 10% for delayed delivery	IF PENALITY CLAUSE IS NOT AGREED.	10% OF THE BASIC MATERIAL VALUE.
E	WARRANTY	24 months from the date of dispatch or 18 months from the date of commissioning whichever is earlier.	IF NOT AGREED FOR THE STIPULATED WARRANTY PERIOD IN THE ENQUIRY.	0.5% OF THE BASIC MATERIAL VALUE PER MONTH FOR THE DIFFERENCE in PERIOD.