
Tender document for supply of: HIGH VACUUM FAST COOLING ANNELING OVEN

R F Q Number: DATM900201

Tender Qty : 1 SET

Tender Due Date and Time : 28.08.2009 13.00 Hrs

Tender Opening Date and Time : 28.08.2009 13.30 Hrs

Place of opening of Tender : NEW ENGINEERING BUILDING - MM CONFERENCE HALL, II FLOOR

Scope: Supply, Installation and Commissioning of **High Vacuum Fast Cooling Annealing Oven.**

1. Two part Bid - Tender shall be submitted in two parts :

- a. Part I – Techno commercial bid without prices.
- b. Part II – Price bid

Tender (quotation) shall be submitted in a sealed envelope super scribed with **RFQ NUMBER** / and **DUE DATE** on it and the same must reach our office on or before the due date by **13:00 hrs**. Quotation can also be dropped in the tender box placed in the Reception area with caption “**SC & PV**”. Late quotations are liable to be rejected.

Tender shall be addressed to **AGM/SC & PV - MM**, Electronics Division, Bharat Heavy Electricals Ltd., Mysore road, Bangalore 560026.

2. Delivery Period: Within 4 months from date of Purchase Order.

3. Warrantee period : Equipment shall have a comprehensive warrantee of one year from date of Commissioning.

4. Terms and conditions:

1. All the Bidders shall Comply with **Prequalification Criteria** and **Technical Specification** mentioned in this specific tender. **(Technical Specification is provided under ANNEXURE-2)**
2. Bidders are required to comply with the **General Terms and Conditions** as per **ANNEXURE-1**.

Pre qualification criteria

1. The vendor shall be an Original Equipment Manufacturer (OEM)
 - a. Based in India
 - b. Foreign OEM with Authorized Indian dealer(s) / representative(s) for sales & service. The authorization letter for the dealer/ representative shall be provided.
 - c. Offer can be submitted by the OEM or their authorized dealers in India along with an authorization letter. However Purchase Order will be placed on the lowest technically acceptable bidder on the OEM only.
 - d. If the offer is from an authorized representative in India , the Indian representative cannot quote for the same equipment from 2 or more different OEM's
2. The offer shall be only for new equipment and not for any refurbished / used equipment.
3. All the parts used in the machine shall also be new and not used / refurbished ones. A declaration to the above effect to be furnished.
4. The vendor should have already supplied and installed at least one similar machine (with operating temperature of 600 degree centigrade or above and vacuum of better than 2×10^{-6} Torr) that is operating satisfactorily for the past one year in India. The details of the customers with contact details, machines installed, date of installations etc. to be provided.
5. The vendor shall be in a position to provide service and spares support for the installations in India.

6. The vendor or their authorized service representatives should have trained engineers in India for commissioning & service for the offered equipment.
7. The vendor shall be in a position to undertake AMC for the equipment with BHEL after the expiry of the warranty/ guarantee period either directly or through a service representative.
8. The vendor shall furnish a comprehensive warranty for at least 12 months from the date of commissioning or 18 months from the date of delivery, whichever is early.
9. The vendor shall guarantee the performance of the equipment for at least 12 months from the date of commissioning.

NOTE:

1. Pre qualification will be carried out based on the details furnished by the vendor / feedback from their customers / inspection of the company / product if required by BHEL and at its sole discretion.
2. The Pre qualification criteria are mandatory requirements and the technical bids will be evaluated only when the Pre Qualification criteria are met.

Details to be furnished along with the technical offer

1. Equipment parameters with brief explanation of features.
2. If more than one model is quoted, separate offer with complete technical details shall be submitted.
3. Additional Accessories, which will enhance the performance of the system, shall be quoted separately with price break up.
4. A clauses wise deviation, if any, has to be brought out clearly. If there are no deviations, the vendor has to positively certify compliance to the specifications in toto.
5. The complete technical information and catalogue shall be given.
6. Authorization letter from the OEM to be provided, if applicable.
7. Details of authorized service agents in India to be furnished
8. Reference list of customers to be furnished.

ANNEXURE -1

General Terms & Conditions for Supply of Imported & Indigenous Capital Items for SCPV-MM (Two part bid)

Bidders are required to read the general terms & conditions carefully and submit their quotation covering all the points. Any order resulting from this enquiry shall be governed by the general terms and conditions listed below.

I. Enquiry / Request For Quotation (RFQ):

- (a) Any Purchase Order resulting from this enquiry shall be governed by **these general terms and conditions listed below and special terms and conditions, if any, along with this enquiry** of Bharat Heavy Electricals Limited, Electronics Division, Bangalore-560026 (BHEL – EDN).
- (b) Any of the terms and conditions not acceptable to supplier, shall be explicitly mentioned in the quotation. Otherwise, it will be treated as that all terms and conditions of this enquiry are acceptable.
- (c) If counter terms and conditions are offered by supplier, BHEL EDN shall not be governed by such terms and conditions, unless it is agreed and incorporated in the Purchase Order of BHEL EDN.
- (d) Any deviation to the terms and conditions not mentioned in the quotation by supplier in response to this enquiry will not be considered, if put forth subsequently or after issue of order, unless clarification is sought for by BHEL EDN and agreed upon in the Purchase Order of BHEL EDN.
- (e) BHEL EDN reserves the right to adopt Reverse Auction at any point of time after technical evaluation, at its discretion. Bids with non acceptance of reverse auction will be liable for rejection. BHEL may also open the price bids at its discretion.
- (f) BHEL EDN shall be at liberty to cancel the tender at any time, before ordering, without assigning any reason.

1. Quotation : Quotation shall be submitted in two parts:

(a) Techno-commercial i.e., Un-priced Bid:

Techno-commercial bid shall be submitted with complete description of the equipment, specification compliances to the enquired specification and all the commercial terms & conditions indicated in the **QUOTATION FORMAT (ANNEXURE - A / ANNEXURE - B)**. Any other enclosure, which the supplier wishes to submit like product catalogue, technical literature etc., may also be submitted in a sealed envelope super scribed clearly as **“TECHNO-COMMERCIAL BID” with RFQ No. and DUE DATE**. Un-priced copy of price bid (without price) shall also be enclosed with the techno-commercial bid.

Confirmation to BHEL specifications shall be indicated by the vendor in the respective columns provided in the purchase specification wherever applicable. Deviations to the specification / item description, if any shall be brought out clearly indicating **“DEVIATION TO BHEL SPECIFICATION”** without fail as a part of technical offer.

Compliance to Pre-qualification criteria shall also be enclosed with the Techno-commercial bid.

Manufacturer's name, their trade mark and brand, part number, alternate material to the one asked in enquiry, if any, should be mentioned in quotation and illustrative leaflets giving technical particulars etc. are to be attached to facilitate consideration and technical evaluation of the quotation.

(b) Price Bid:

Price bid should contain basic unit prices, discount if any, applicable taxes & duties, packing & forwarding charges (if applicable), Freight & insurances (if applicable) FOB charge (if applicable) etc., in a sealed envelope super scribed clearly as **"PRICE BID" with RFQ No. and DUE DATE**. Installation, commissioning, start-up and training charges (if any) shall also be indicated in the price bid.

It is preferred to indicate the rates in both figures and words. In such case, if there is difference / discrepancy between the rates in figures and words, the **least of the two** rates will be considered.

(c) Bid Submission Both these sealed envelopes [(a) Techno-commercial i.e., un-priced Bid and (b) Price Bids] shall be kept in a **single sealed envelope** and super scribed clearly with **RFQ No. and DUE DATE**.

2. The above sealed envelope (Tender) shall reach our office on or before the due date by **13:00 hrs.** Quotations are to be dropped in the tender box marked **"SC &PV"** kept at BHEL-EDN's Reception area of our works. Quotations also can be dispatched by Couriers / Registered post / to the Purchase Executive.

BHEL EDN is not responsible for any delay in receipt of quotation sent by supplier through post.

Late Tenders i.e., Tenders received after due date will not be considered and stands **rejected**..

3. The rate quoted against each item shall be in units stated in the enquiry. Where quotation is in terms of unit other than that in enquiry, relationship between the two units must be furnished in the quotation.
4. As far as possible, the quotations shall be free from corrections / overwriting. Corrections / overwriting, if any should be signed by authorized person with the company seal. Any typographical errors, totaling mistakes, currency mistakes, multiplication mistakes, summary mistakes observed in your priced bids, BHEL may consider whichever is beneficial to BHEL for evaluation.
5. Quotations are to be duly signed. Unsigned bids / offers are liable for rejection.
6. Tenders will be opened at **13:30 hrs.**, All the tenderers or their authorized representatives (with authorization letter from their principals) may witness opening of techno-commercial bid on the due date.
7. After evaluation of techno-commercial bids, price bids of only those which are technically & commercially accepted, will be opened on a subsequent date, which will be intimated to the concerned in advance for witnessing of price bid opening. BHEL may go for reverse auction to arrive at L1 at any point of time.
8. The quantity in each item to be purchased may vary from quantity enquired according to the actual requirement at the time of placing the purchase order. Quantity discount, if any, should be mentioned in the quotation.
9. Withdrawal from the quotation after submission till order is placed will entail cancellation of the enquiry. Such supplier is liable for de-listing for future enquiries at the sole discretion of BHEL EDN.
10. Purchase Order will be placed on the lowest bidder (L1) only among the technically & commercially accepted quotations. Lowest quotation is determined on the basis of Total Cost to BHEL EDN including basic value, taxes and duties, freight, insurance, loading factors for deviations to terms and conditions
11. BIDDERS (for indigenous purchase) shall indicate clearly Excise duty, Education cess, Sales Tax/VAT, Octroi, Exit/Entry tax, Service Tax as applicable for the quoted items. In the absence of clarity of these, any claim at a later date will not be entertained. Any changes in Taxes and duties after award of the

contract will not be considered except such are those, which are imposed by Govt., notification within the contractual delivery. Seeking price amendments for change in Excise duty due to crossing of turnover limits will not be considered under any circumstances.

12. D & B Report by foreign Vendors:

- (a) In case of foreign vendors, the vendors should obtain a report from **Dun & Bradstreet** or equivalent and submit a copy of the report with their Duns number mentioned along with the technical offer.

13. Payment of Agency Commission to Indian Agent (for Foreign purchase):

In case OEM involves Indian agent for supply of the items / services, OEM / Indian agent shall furnish / confirm the following information along with the Techno Commercial bid:

- (a) Registration status of Indian Agent with DGS&D / BHEL / Any other Govt. Agency.
- (b) Commission / general retainer fee payable to Indian Agent and percentage.
- (c) Agency commission shall be received by Indian Agent through banking channels and disbursed in rupees only.
- (d) If the respective Indian Agents are not registered, are required to register their names with DGS&D / BHEL by providing the following information for registration :
 - (i) Name of the foreign firm / original equipment manufacturer represented by the Indian representative / Indian Agent.
 - (ii) Agency agreement.
 - (iii) PAN No, Name, Address of Bankers in India and Abroad.
 - (iv) Nature of services to be rendered by Indian Agent / Indian representative and percentage of commission payable to Indian Agent / Indian representative by Principal / original equipment manufacturer.
- (e) All particulars relating to Agency Commission will be reported to the enforcement Directorate of Income Tax Department.
- (f) Undertaking to be submitted by Indian Representative / Agent that the agency commission would be accepted in Indian Rupees only and through EFT remittance through banking channel for the services rendered towards the execution of the orders.

14. PURCHASE ORDER : Purchase order will be placed on the lowest bidder (L1) only among the technically & commercially accepted quotations. Lowest quotation (L1) is determined on the basis of the **total cost to BHEL**.

(a) FOR FOREIGN PURCHASE

Total cost to BHEL = Total basic value in foreign currency + FOB charges (if any) + Packing & Forwarding charges (if any) + Cost Insurance Freight (CIF) + Basic Custom Duty (BCD) + Counter Veiling Duty (CVD) + Educational Cess + Special Additional Duty (SAD) + Entry TAX + Service TAX (if applicable) + Loading factors for deviations to commercial terms & conditions.

Note: Exchange rate ruling on the date of Tender opening (Techno-commercial / un-priced Bid) will be considered for converting foreign currency to Indian currency. Exchange rates published in Economic Times (TT selling) will be considered.

(b) FOR INDIGENOUS PURCHASE

Total cost to BHEL = Total basic value + Packing & forwarding charges + Excise duty + Education cess + sales Tax/VAT + Octroi + Exit/Entry tax + Freight & Insurance + Service Tax (if applicable) + Loading factors for deviations to commercial terms & conditions.

15. FIRM PRICE: Rates quoted should be firm and no enhancement in the rates and changes in the techno-commercial terms will be allowed once the quotation is accepted and order is placed.

If Installation & Commissioning is in supplier's scope, then the price shall remain FIRM till commissioning & handing over of the complete system.

16. TERMS OF PAYMENT:

(a) FOR FOREIGN PURCHASE:

Payment will be made against “**SIGHT DRAFT**” on presentation of documents to our bankers. Payment through LC is also made subject to loading factors as per **Clause 28**.

The payment terms are as follows:

- (i) 90% against complete dispatch documents i.e. AWB / BOL, Invoice, Packing list, Warranty certificate, Certificate of country of origin etc., & balance 10 % on submission of Performance Bank Guarantee (PBG).
- (ii) If PBG could not be submitted, vendors can also accept for the final 10% payment, payable after the warranty period + 6 months of claim period against supplementary invoice. In such cases loading for PBG is not applicable.

(b) FOR INDIGENOUS PURCHASE:

- (i) 75% basic payment + 100% taxes & duties with 30 days credit after receipt and acceptance of equipment.
- (ii) 15% basic after successful installation & commissioning.
- (iii) Balance 10% basic against submission of PBG(valid for 12 months from commissioning date).
- (iv) Payment through bank will attract loading factors as per clause 28.
- (v) If PBG is not agreeable, vendors can also accept for the final 10% payment, payable after the warranty period + 6 months of claim period against supplementary invoice. In such cases loading for PBG is not applicable.

17. ADVANCE PAYMENT: Quotations with “Advance payment” or “Inland credit” is liable for rejection.

18. PENALTY: Failure to supply within the delivery time as per purchase order will make the supplier liable to an unconditional **penalty of 0.5 % (half percent) per week at the basic price of the goods for the undelivered quantity, subject to a maximum of 10%.**

If pre-shipment inspection is involved, date of issue of pre-shipment call by the vendor along with test certificates / test reports / certificate of conformance / calibration reports as proof of completion will be treated as date of dispatch for the purpose of penalty calculation.

In the absence of reports stated above, actual date of inspection will be considered as date of dispatch for penalty calculation.

Date of receipt / Date of dispatch / Date of LR / Date of Airway bill / Date of pre-shipment inspection call with relevant documents as stated above, whichever is earlier shall be considered as delivery date for the purpose of penalty calculation.

19. PBG: Performance Bank Guarantee (PBG) to be submitted on Rs.100/- non-judicial stamp paper as per the BHEL prescribed format given in **ANNEXURE - E** / **ANNEXURE - F** for 10% of the basic equipment value obtained from any BHEL member (consortium) banks indicated in **ANNEXURE-G**.

PBG shall be valid for 12 months from the date of commissioning or 18 months from the date of dispatch plus 6 months claim period. In case warranty period is more than 12 months from the date of commissioning, the PBG shall be for the entire warranty period plus 6 months claim period.

The Bank Guarantee shall be submitted directly to the concerned Purchase Executive by the issuing Bank with their forwarding letter.

- 20. WARRANTY:** Goods dispatched shall have warranty period of 18 months from the date of dispatch or 12 months from the date of commissioning whichever is earlier or as mentioned in the RFQ.

21. TERMS OF DELIVERY:

(a) FOR IMPORTED PURCHASE:

Price offered shall be for goods packed and delivered **F.O.B.** (named international Airport / sea port) including packing, forwarding, Handling, Ancillary charges like processing of Sight Draft, Letter of credit (L/C) if applicable, negotiation of bank documents, Export declaration, Certificate of origin etc.

Packing shall be Road / Rail / Air / Sea worthy, best suitable for transshipment and to take care of transit damages.

Vendors shall indicate the name of International Airport.

Note: Name of International Airport has to be selected from any one of the airports indicated in the table provided in **ANNEXURE – C**.

(b) FOR INDIGENOUS PURCHASE:

Equipment shall be delivered on door delivery basis (BHEL EDN, Bangalore) inclusive of packing & forwarding charges.

Packing shall be Road / Rail / Air worthy, best suitable for transshipment and to take care of transit damages.

It is preferred to dispatch the consignments through EDN/BHEL approved transporters indicated in **ANNEXURE - D** on Door Delivery basis.

Smaller consignments can be dispatched through Courier services / RPP with the prior approval of the purchasing Executive.

- 22. DELIVERY REQUIREMENT:** In the quotation, earliest firm delivery (number of days or weeks) by which material will be dispatched from the date of order must be indicated. Quotations with delivery term such as 'ex-stock', 'subject to prior sale', or 'delivery at the earliest' are liable for rejection.

- 23. VALIDITY:** Quotation should remain valid for a minimum period of **90 days** from the date of technical bid opening. Quotation with validity period less than 90 days is liable for rejection.

24. POST-ORDER REQUISITES:

- a)** Pre-shipment inspection at vendor's works, if required, will be carried out by BHEL. Required assistance will have to be provided by the vendor at the time of pre-shipment inspection.
- b)** Test certificates, Calibration certificates and warranty certificates as stipulated at the time of ordering shall be furnished.
- c)** Items shall be dispatched by Air/Road/Rail/Sea worthy packing. Any damage and later rejection, due to poor / improper packing shall be to supplier's account. For air consignments packed in wooden material **Fumigation Certificate** shall be compulsorily forwarded along with invoice, packing list, etc to the freight forwarder.
- d)** Any damage/rejection should be made good or replaced immediately without any extra cost to BHEL.

- e) Wherever commissioning is involved, it shall be carried out by the vendor's qualified engineers. Scope of work includes installation, commissioning and start-up trials till satisfactory performance level is reached as certified by BHEL.
- f) BHEL will not be responsible for any loss, damage or injuries to vendor's personnel sustained during installation / commissioning / start-up trials. Vendor shall ensure compliance with all statutory requisites as laid down by local bodies, state & Central Government.
25. Any dispute arising out of this, shall be referred to the sole arbitration of Head of Dept. Materials Management of group concerned, BHEL EDN or any other officer nominated by him and his award shall be final and binding on the parties. The venue of the arbitration in all cases shall be Bangalore.
26. Any legal suit in respect of this enquiry lies in the court of Jurisdiction of Bangalore (India) only.
27. Equipment shall comply with the standard requirements of ISO 14001 & OHSAS 18001.

28. LOADING FACTORS:

Loading factors as detailed below will be added to the quoted price (basic) to evaluate the lowest quote for non compliance of BHEL standard commercial terms.

A(i). For non compliance of standard Terms of payment (For Foreign Purchase Orders)

Sl. No.	BHEL standard term	If you quote	Loading factor in % for non-compliance
1	90% against "SIGHT DRAFT" + 10% against PBG	Payment through Letter of Credit (LC)	10 %

A(ii). For non compliance of standard Terms of payment (For Indigenous Purchase Orders)

Sl. No.	BHEL standard term	If you quote	Loading factor in % for non-compliance
1	75 % basic payment + 100% taxes & duties with 30 days credit + 15 % basic after successful installation and commissioning. Balance 10% basic against submission of PBG	Payment through bank	10 %
		Any other payment terms other than BHEL terms.	10%

B. For non compliance of Penalty clause:

Sl. No.	BHEL standard term	If you quote	Loading factor for non-compliance
1	Penalty of 0.5% per week subject to max. of 10% on the basic value of the items not supplied /delayed	Not agreed.	10 %
		5% max., agreed.	5%
		Other than the above.	10% - (minus) agreed max. %

C. For non compliance of Performance Bank Guarantee (PBG):

Sl. No.	BHEL standard term	If you quote	Loading factor for non-compliance
1	PBG for 10% of the basic material cost shall be furnished in the BHEL	Not agreed.	10 %

	prescribed format.	5% agreed.	5 %
		Other than the above.	10% - (minus) agreed max. %

D. For Non conformance to delivery requirement indicated in the RFQ:

Sl. No.	BHEL standard term	If you quote	Loading factor for non-compliance
1	Delivery requirement as indicated in the RFQ in number of weeks from the date of issue of PO	Not agreed for the stipulated delivery in the enquiry	1 % per week up to max. of 10%.

29 Installation & Commissioning : For installation and commissioning of equipments, personnel registered with ESI and PF authorities to be arranged by vendor.

30 Limitation of liability : Limitation of liability by the vendor is limited to the value of the order.

ANNEXURE - A**QUOTATION FORMAT****TECHNICAL BID (TO BE ENCLOSED WITH TECHNO-COMMERCIAL BID)****(for Foreign Purchase Orders)**

Sl. No.	Particulars	Bidder's confirmation
1	Price basis: Firm i.e., from the date of PO to completion of supply [Price Variation Clause (PVC) not acceptable]	Acceptable / Not acceptable
2	Terms of Payment: Against "SIGHT DRAFT" on presentation of documents to our bankers. (a) 90 % is payable on negotiation of complete set of original documents & balance 10% against submission of PBG (c) Deviation if any please specify Note: Refer clause 16	(a) Acceptable / Not acceptable
3	BHEL's penalty clause: (a) Delay in delivery as per PO delivery date will result in penalty of 0.5 % per week subject to maximum of 10% on the value of the items not supplier/delayed. (b) Deviation if any Please specify Note: Refer clause 18	(a) Acceptable / Not acceptable (b)
4	Performance Bank guarantee: PBG for 10% of the basic material cost shall be furnished in the BHEL prescribed format as detailed in clause 19.	Yes / No
5	Terms of delivery: (a) F.O.B international Airport/Seaport as Indicate name of International Airport/Seaport (b) Deviation if any Please specify Note : Ref clause 21	(a)Acceptable / Not acceptable (b)
6	Warranty: (a) 18 months from the date of dispatch or 12 months from the date of commissioning (b) Deviation if any Please specify Note: Refer clause 20.	(a)Acceptable / Not acceptable (b)
7	Delivery period: Indicate number of weeks from the date of issue of Purchase order	_____ Weeks
8	Validity: (a) Quotation should remain valid for a period of 90 days from the due date (b) Deviation if any Please specify	(a) Acceptable / Not acceptable (b)
9	Bank charges (If applicable): (a) Bank charges within India is to BHEL account and outside India is to Supplier's account (b) Deviation if any Please specify	(a) Acceptable / Not acceptable (b)

Signature of renderer / with seal

ANNEXURE – B**TECHNICAL BID (TO BE ENCLOSED WITH TECHNO-COMMERCIAL BID)****(For Indigenous Purchase Orders)**

Sl. No.	Particulars	Bidder's confirmation
1	Price basis: Firm i.e., from the date of PO to completion of supply [Price Variation Clause (PVC) not acceptable]	Acceptable / Not acceptable
2	Excise duty: If applicable indicate %.	Applicable / Not applicable ED: _____ %
3	Sale tax: If applicable indicate %	Applicable / Not applicable (a) VAT _____ % (b) CST _____ % against form C
4	Payment terms: (a) 100% payment with 30 days credit (b) 90 % basic payment + 100% taxes, duties & freight charges with 30 days credit & balance 10% against submission of PBG (where commissioning is NOT involved) (c) 75 % basic payment + 100% taxes, duties & freight charges with 30 days credit, 15% after satisfactory commissioning & balance 10% against submission of PBG (wherever commissioning & PBG is involved). (d) Deviation if any please specify Note: Refer clause 16	(a) Acceptable / Not acceptable (b) Acceptable / Not acceptable (c) Acceptable / Not acceptable (d)
5	BHEL's penalty clause: (a) Delay in delivery as per PO delivery date will result in penalty of 0.5 % per week subject to maximum of 10% on the value of the items not supplied/delayed. (b) Deviation if any Please specify Note: Refer clause 18	(a) Acceptable / Not acceptable (b)
6	Performance Bank guarantee (PBG): PBG for 10% of the basic material cost shall be furnished in the BHEL prescribed format.. Note: Refer clause 19	Yes / No
7	Terms of delivery: (a) Ex EDN / BHEL, Bangalore (Free delivery to EDN/BHEL Bangalore including packing & forwarding charges) (b) Deviation if any Please specify Note: Refer clause 21	(a) Acceptable / Not acceptable (b)
8	Warranty: (a) 18 months from the date of dispatch or 12 months from the date of commissioning (b) Deviation if any Please specify Note: Refer clause 20.	(a) Acceptable / Not acceptable (b)
9	Delivery period: Indicate number of weeks from the date of issue of Purchase order	_____ Weeks

10	Validity: (a) Quotation should remain valid for a period of 90 days from the due date (b) Deviation if any Please specify	(a) Acceptable / Not acceptable (b)
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Signature of renderer / with stamp

ANNEXURE - C**LIST OF INTERNATIONAL AIRPORTS**

Sl. No	Country	Air Ports
1	Austria	Vienna, Linz, Graz
2	Australia	Sydney, Melbourne, Perth
3	Belgium	Antwerp, Brussels
4	Canada	Toronto, Montreal
5	China	Shangai
6	Cyprus	Lamaca
7	Czech Republic	Prague (Via Frankfurt)
8	Denmark	Copenhagen
9	Egypt	Cairo
10	Finland	Helsinki
11	France	Paris (Rosy), Lyon
12	Germany	Darmstadt, Manihem, Nurnberg, Hamburg, Stuttgart, Munich, Koln, Dusseldorf & Hannover, Frankfurt, Berlin
13	Hongkong	Hongkong
14	Italy	Rome, Milan, Turin, Bologna, Florence
15	Ireland	Dublin
16	Isrel	Telaviv
17	Japan	Tokyo, Osaka
18	Malaysia	Kaulalampur, Penang
19	Neatherlands	Amsterdam, Rotterdam
20	Newzealand	Auckland
21	Norway	Oslo
22	Oman	Muscat
23	Philiphines	Manila
24	Romania	Bucharest
25	Russia	Moscow
26	Saudi Arabia	Riyad
27	Singapore	Singapore
28	Slovakia	Bartislowa
29	South Africa	Johannesburg, Durban
30	South korea	Kimpo
31	Spain	Barcelona
32	Sweden	Stockholm, Gothenburg, Milano
33	Switzerland	Basle, Zurich, Geneva
34	Taiwan	Taipei
35	U.A.E.	Dubai
36	U.K.	Landon (Heathrow), Newcastle, Oxford, Cheltham, Bristol, Wellingborough, Birmingham, East Midland, Manchester, Leeds, Glasgow.
37	U.S.A.	Newyork, Chicago, Sanfrancisco, Los Angeles, Atlanta
38	Ukraine	Kiev

ANNEXURE-D

EDN/BHEL APPROVED TRANSPORTERS FOR INLAND ROAD TRANSPORTATION

1. M/s Awagaman Road Carriers Ltd., Bangalore. (AWG)
2. M/s BLR India pvt., Ltd., Bangalore. (BLR)
3. M/s Delhi Assam Roadways corporation Ltd., Bangalore. (DRL)
4. M/s Indo Arya Central transport Ltd., Bangalore. (IACT)
5. M/s Prakash parcel Services, Bangalore. (PPS)
6. M/s Road Carrier of India, Bangalore. (RCI)
7. M/s Union Roadways Ltd., Bangalore. (URL)

PERFORMANCE BANK GUARANTEE
(FOR FOREIGN PURCHASE ORDERS)

BANK NAME AND ADDRESS

Bharat Heavy Electricals Limited (BHEL),
Electronics Division,
PB No. 2606,
Mysore Road,
BANGALORE- 560 026
INDIA

Dear Sir,

Ref: CONTRACT PERFORMANCE GUARANTEE.

WHEREAS you have entered into a contract reference No PO NO. _____ with M/s _____ having its registered office at _____ for the supply of _____ as detailed in your purchase order No. _____ which is hereinafter referred to as "the said contract" and WHEREAS M/s _____ has undertaken to produce a Bank Guarantee for 10% (Ten Percent) of _____ the contract price amounting to _____ (_____) to secure its obligations to Electronics Division, BHEL having its registered office at New Delhi for the performance of the contract including the warranty of the equipment supplied, We _____ Bank _____ hereby expressly, irrevocably and unreservedly undertake and guarantee as principal obligors on behalf of M/s _____ that in the event Bharat Heavy Electricals Ltd. (B.H.E.L.) declares to us in writing that M/s _____ has not fulfilled any obligation according to the contractual obligation of the said contract, to pay you on demand and without demur to Bharat Heavy Electricals Ltd., Electronics Division , Mysore Road, P.B.No. 2606, Bangalore-560 026, India an amount of _____ (in words _____) subject to as may be determined below:

- 1) Notwithstanding any right M/s. _____ may have directly against you or _____ any disputes raised by M/s _____, Your written demand shall be conclusive evidence to us that repayment is due under the terms of the said contract and shall be binding on us.
- 2) We shall not be discharged or released from this undertaking and Guarantee by any arrangements, variations made between you and M/s. _____ with or without our consent and Knowledge or by any alterations in the obligations of M/s. _____ by any forbearance whether as to payment, time, performance or otherwise.

- 3) This guarantee shall remain valid until the end of twenty-four weeks after the close of the warranty period or until the same is reported by BHEL to us whichever is earlier.
- 4) We agree and undertake not to revoke this guarantee during its validity unless discharged in writing by you subject to the provision of clause (7) below.
- 5) This guarantee shall be a continuing guarantee subject to the foregoing and shall not be discharged by any change in the constitution of the Bank or M/s.
_____.
- 6) This guarantee shall be governed by and constructed in accordance with the Laws of India.
- 7) At any time _____ Bank may render this guarantee null and void by paying to Bharat Heavy Electricals Ltd. the full amount being _____ (in words _____)

For and on behalf of Bank
by its Authorised Signatory

Note:

- (1) To be executed in INR 100 Non-Judicial stamp paper by any authorized Indian Bank.
- (2) To be submitted directly by banker to concerned executive in purchase dept., Please give BHEL address to banker.
- (3) Do not enclose with Bank document.

PERFORMANCE BANK GUARANTEE
(FOR INDEGENOUS PURCHASE ORDERS)

THIS DEED OF GUARANTEE made and executed on the _____ day of _____ (year), by the _____ (Bank), registered under the Companies Act 1956/Nationalised Bank constituted under the Banking Companies (acquisition and transfer of undertakings) Act constituted under the State Bank of India Act / Subsidiary Banks Act, having its registered / head office at _____ represented herein by its Branch Manager / authorised representative Sri. _____ & Sri. _____ (Hereinafter called 'guarantor' which term shall mean and include its successors and assigns)

IN FAVOUR OF BHARAT HEAVY ELECTRICALS LIMITED

_____ (Buyer's Name), a company registered under the companies Act, 1956 having its registered office at BHEL House at Siri Fort , New Delhi-100 049 and its Electronics Division at Mysore road, Bangalore-26 (hereinafter referred to as the 'Company' Which term shall include its successors and assigns):

Whereas the company has placed an order on _____ (State the name of the company / firm and its address) (hereinafter referred to as the 'Supplier' which term shall mean and include its liquidators, successors and assign) for the supply of system under order / Contract No _____ Dt _____.

AND WHEREAS the supplier has agreed to supply the materials and carryout the works as detailed and in accordance with the terms set out in the said order/contract.

AND WHEREAS the company is not required to pay to the supplier a sum of Rupees _____ being the 10% of the value of the goods supplied / Works performed / Services rendered under the said order / contract between the supplier and the company, till the company is satisfied with the mechanical Warranties and the performance standards stipulated in the said order / contract between the company and the supplier has been duly fulfilled, except against a Bank Guarantee for the said sum of Rs _____ in favour of the company by reputed Bank, in which case the company has agreed to make payment to the supplier of the said sum of Rupees _____ being (...%) of the value of the goods supplied / Works performed / Services rendered under the agreement between the supplier and the company and the Guarantor has at the request of the supplier, agreed to furnish this Guarantee subject to the terms and conditions stated below:

NOW THIS DEED WITNESSES THAT IN pursuance of the above said agreement, the guarantor hereby agrees and covenants With company is as follows :-

- 1) That during the period this contract of Guarantee remains effectual, the guarantor shall be liable in respect of the amount due and owing to the company in respect of the payments to the extent of Rs _____ (in words) _____ against any loss or

damage caused to or suffered by the company by reasons of any breach of the terms of the said order / contract / Agreement by the supplier.

- 2) The Guarantor hereby undertakes to pay the amounts due and payable under this guarantee without any demur, merely on demand from the company intimating that the amount claimed is due by way of loss or damage caused to or suffered or would be caused or suffered by the supplier of any terms contained in the said order / contract. Any such demand made on the guarantor shall be conclusive as regards the amount due and payable by the Guarantor irrespective of the fact whether the Contractor / supplier admits or denies.
- 3) The Guarantor further agrees that the agreement herein contained shall remain in force and effect till all the supplies to be made / Works to be performed / Services to be rendered under the said order / contract / agreement are completed to the entire satisfaction of the company or till company certifies that the terms and conditions of the said order / contract / agreement have been fully and properly carried out by the said supplier and accordingly discharges the Guarantee. Unless a demand or claim under this guarantee is made on the guarantor in writing on or before the expiry of claim period indicated in clause 6 below , the guarantor shall be discharged from all the liability under this guarantee thereafter.
- 4) The guarantor further agrees with the company that the company shall have the fullest liberty without the consent of the guarantor and without effecting in any manner the obligations of the guarantor hereunder to vary any of the terms of the said order / contract / agreement or extend the time of performance by the said supplier from time to time or refrain from exercising the power exercisable by the company against the said supplier or to forebear or omit to enforce any of the terms and conditions relating to the said order / contract / agreement, and the guarantor shall not be relieved of its liability in whole or in part , by reason of any act, commission or forbearance on the part of the company or by reason of any such variation, or extension being granted to the said supplier or by reason of any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so relieving the guarantor.
- 5) The guarantor undertakes not to revoke this guarantee during its currency except with the previous consent of the company in writing.
- 6) Notwithstanding anything herein above contained, the liability of the guarantor under these presents is restricted to Rs_____. The guarantee shall be in force till its expiry on _____ unless a demand is made on the guarantor within SIX months from the date of expiry, all the liability of the guarantor under this guarantee shall stand fully discharged. The decision of the claimant in regard to breach of contract is final and binding on the Bank.

IN WITNESS whereof, the guarantor, acting through its authorised representative has executed this deed of Guarantee on the day, month and year first above written.

(Seal of the Bank to be affixed)

WITNESS

1.

2.

ANNEXURE – G**BHEL MEMBER BANKS (CONSORTIUM BANKS)*****PBG SHALL BE ISSUED FROM THE FOLLOWING BANKS ONLY***

State Bank of India	The Hongkong and Shanghai Banking Corporation Ltd
ABN AMRO Bank N.V.	ICICI Bank Ltd
Bank of Baroda	IDBI Ltd.
Canara Bank	Punjab National Bank
CITI Bank N.A.	Standard Chartered Bank
Corporation bank	State Bank of Travancore
Deutsche Bank AG	State Bank of Hyderabad
HDFC Bank Ltd.	Syndicate Bank
Indian Bank	Oriental Bank of Commerce
Kotak Mahindra Bank Ltd	Central bank of India
UCO bank	The Federal bank Limited

ANNEXURE - 2

TECHNICAL SPECIFICATION

High vacuum fast cooling Heating Oven

Purpose:

The equipment is a high-temperature, high-vacuum oven used for annealing the Copper-base components (brazed with mild steel rings) that form part of encapsulated structure of power semiconductor diodes and thyristors. The annealing process involves heating up of these components to a specified temperature for a specified duration and cooling down thereafter at natural or controlled rate depending on the application and under high vacuum level that prevents formation of oxide layer on the components. The components are stress-relieved in the process and the value of hardness of copper reduces after the process.

TECHNICAL SPECIFICATION:

High-Vacuum fast cooling heating oven shall comply with the following Technical specification:

1.0 Chamber:

1.1 Shape : Cylindrical

1.2 Type : Horizontal

1.3 Size : Inner minimum dimensions 600 mm Diameter x 600 mm Depth

1.4 Chassis of chamber :

1.4.1 Chassis with single wall and welded with water cooling channels of rectangular cross section.

1.4.2 Thickness of wall = 6 mm minimum.

1.5 Door of chamber:

1.5.1 Circular door with single wall and welded with cooling channels of rectangular cross section.

1.5.2 Thickness of wall = 6 mm minimum

1.5.3 Door shall have a circular viewing port made of quartz / toughened glass

1.5.4 Door shall be provided with a suitable hinge and provision for locking.

1.6 Water cooling provisions for chassis and door of chamber:

1.6.1 Separate interconnected water-cooling layouts shall be provided as follows :

- a) One loop, laid out evenly, all over the horizontal cylindrical surface. This layout shall ensure adequate cooling of door gasket.
- b) One loop, laid out evenly, all over the vertical circular surface of chassis on the back side of chamber.
- c) One loop, laid out evenly, all over the vertical circular surface of front side Door of Chamber.
- d) All these loops shall be interconnected in series and shall have an inlet and an outlet provision.

1.6.2 Water loops for chamber cooling shall have rectangular cross-section for effective cooling. Width and area of cross section shall be so chosen as to minimize heat-loss and heating-up of the chassis / door during the process.

1.6.3 Separate water cooling loop shall be provided for diffusion pump cooling.

1.6.4. Separate inlet and outlet water distribution pipes shall be provided connected to the above water cooling loops using stainless steel tubes.

1.7 Feed-through provisions through chamber:

1.7.1 Following high-vacuum feed-through ports shall be provided through the top cylindrical surface of the chamber:-

- a) Ports for providing electrical connection to the heater elements (hot-zone) placed inside the chamber.
- b) Ports for thermocouples
- c) One port for Nitrogen gas (purging / process gas)
- d) One port for Argon gas for faster cooling purpose

2.0 Hot Working Chamber (for loading the job)

The hot-working chamber shall be placed inside at the center of the chamber comprising of following features:

- 2.1. Component loading free space of size 350 (Width) x 350 (Height) x 450 (Depth) mm minimum shall have four equal compartments for placing four loading trays (345 mm width x 440 mm depth) having strength to comfortably withstand 30 Kg per loading tray without any buckling or warp.
- 2.2 The loading trays shall be of removable type by sliding and shall be perforated. The loading tray shall have provision for lifting, pulling & pushing by hand.

3.0 Heating element

- 3.1 Kanthal element with suitable power wattage rating.
- 3.2 Radiation shields shall be provided around heating element and also inside the door.

4.0 Specification of heating and cooling

- 4.1 Maximum temperature achievable = 600 °C (under 2×10^{-6} torr vacuum)
- 4.2 Expected mass to be loaded is about 50 kg of Copper blocks (with brazed carbon steel ring) in the size of 60x60x15 mm.
- 4.3 Time to reach maximum achievable temperature of 600 °C at fully loaded condition shall be a maximum of 1.5 hour (under 2×10^{-6} torr vacuum).
- 4.5 Time to reach 400 °C at fully loaded condition shall be a maximum of 1.0 hour(under 2×10^{-6} torr vacuum).
- 4.6 Rate of heating-up and Rate of cooling-down shall be programmable & controllable using temperature controller.
- 4.7. To enable fast cooling of the job, without oxidation of the job (copper blocks with brazed carbon steel ring), a canned motor with fan and heat exchanger shall be provided.**

5.0 Power control elements:

- 5.1 Three-phase step-down transformer of suitable rating.
- 5.2 Thyristor power pack
- 5.3 Programmable PID controller (Eurotherm / Yokogawa / Fenuc make)

Programmer should have facility for start, ramp up, hold, ramp down and end. Each program shall have minimum 7 steps and shall store minimum 4 programs. The programmer shall have facilities for interlocking with vacuum controller.

5.4 K-type thermocouples for sensing the temperature closer to the load.

5.5 Over-temperature controller (Eurotherm / Yokogawa / Fenuc/ Fuji make) shall also be provided as a safety feature.

6.0 Vacuum pumping system:

A diffusion pumping system (6" or above) shall be provided with following features for evacuation of oven chamber to 2×10^{-6} Torr and better :

6.1 Rotary pump with pumping rate of 500 lpm typical, noise free type, suitable for above DP.

6.2 Diffusion pump with pumping rate of 1000 lps typical.

6.3 Chevron baffle (water cooled).

6.4 An electro-pneumatic right angle plate valve for high vacuum isolation (6" typical)

6.5 An electro-pneumatic valve for roughing and backing (1" typical)

6.6 Combined digital Pirani & Penning gauge with Auto vacuum controller.

6.7 Suitable support stand for diffusion pump & with provision for easier dismantling of DP heater.

6.8. All O-rings shall be made of Viton.

6.9. Door gasket shall be made of silicone rubber and mounted in dovetail groove of the hinged door.

7.0 Gas-flow lines and connections:

7.1 Individual gas-flow meters of 30 lpm capacity shall be provided and fitted for the two feed-through ports meant for gas-flows.

7.2 Both these gas-flow lines shall be provided with Electro-pneumatic solenoids and shall be program-controlled.

8.0 Mounting stand / frame / pedestal:

8.1 Powder-coated mounting-frames shall be provided and fitted with the chamber, control panel, vacuum-pumping system, distribution water pipes, compressed air lines and connections, gas lines and connections, etc.

8.2 SS top sheet shall be provided below the chamber to avoid rusting due to dripping of condensed/ leaky water.

8.3 The entire equipment shall be mounted on wheels so as to enable easy transportation / movement of the equipment.

8.4 The entire system shall have rodent-proof arrangement.

9.0 Control panel:

9.1 Control panel shall be provided with necessary switches, temperature and pressure displays, controllers and with all safety features and interlocks.

9.2. All indicators shall be of LED type.

9.3 Auto Vacuum Controller.

Auto vacuum controller should have additional outputs for control of heating program.

9.3.1 Switch on / off heater through contactor on reaching sufficient vacuum.

9.3.2 Switch on/off inlet gas control for cooling and pressure control.

10.0 Spares:

Following spares shall be supplied at the time of delivery of equipment to BHEL:

10.1 Two sets of O-ring gaskets

10.2 Two charges of Rotary and Diffusion pump oils

10.3 Programmable PID controller-1 no

10.4 1" Electro-pneumatic valve – 1 no.

10.5 Pirani gauge head – 2 nos

10.6 Penning gauge head – 1 no.

10.7 Any other spares including consumables that are required for 2 years of trouble-free operation.

11.0 Prior to delivery of equipment, supplier shall demonstrate operation and trial runs at their facility for functional compliance of equipment using load supplied by BHEL.

12.0 Scope of offer shall include transporting to the installation location, connecting the equipment to the existing service facilities at BHEL and installation and commissioning at BHEL.

13.0 Supplier / authorized representative shall necessarily visit BHEL and inspect the proposed location of the equipment prior to submission of bid / offer.

14.0 Optional item:

SCADA system for process monitoring shall be quoted separately as an optional item.

15.0 GENERAL CONDITIONS:

- a) Three sets of operation and maintenance manual in English shall be supplied along with the equipment. The manual shall include circuit diagram, component layout, PCB art work, trouble shooting chart indicating symptoms, checks and preventive maintenance schedule to be carried out, suggested remedy for all items including the bought out items. This shall also include all mechanical /pneumatic /hydraulic diagrams for the components /systems used in the equipment
- b) The equipment shall be designed taking into account all Safety and OHSAS requirements. Hazards connected with operation & maintenance of the equipment shall be brought out explicitly and instructions for minimising the hazards (environmental / safety) to be indicated.
- c) The overall dimension shall be as minimum as possible to occupy minimum floor space. The loading, unloading and operation of the equipment shall be ergonomically convenient to the operator.
- d) The supplier should get the conformation from BHEL in the design stage itself for all technical and aesthetic aspects before actual production.
- e) The equipment shall be aesthetically fabricated. All stainless surface shall be with smooth and glossy finish.
- f) Spares for trouble free operation of the equipment for a period of two years shall form part of the offer.
- g) List of spares, part numbers, and address of original suppliers of spares/subsystems shall be provided.
- h) Service facilities required, Environmental requirements and their tolerance limits may be furnished as per the '**Format for Service Facilities**' enclosed.

- i) The offer shall include adequate training on operation & maintenance of the equipment to BHEL personnel and Inspection of the Equipment at supplier's works. Offer shall also include satisfactory installation, commissioning and performance trials of the equipment at BHEL works by the supplier.
- j) RFI filter /surge suppresser shall be provided at mains (incoming) stage as well as at the input stage of critical electronic instruments / systems used in the equipment.
- k) Final clearance will be given after satisfactory trial runs at BHEL for a period of two weeks on two-shift basis for the rated output parameters.
- l) The supplier shall submit test and guarantee certificates. Calibration certificates for all the instruments / gauges / indicators shall be provided. Calibration procedures are also to be indicated in detail. The equipment shall be guaranteed for trouble-free operation and against manufacturing defects for a minimum period of one year from date of commissioning.
- m) Equipment shall be rated for 415 V / 3 phase / 50 Hz / 5 wire or 230 V / 1 phase / 50 Hz/ 3 wire system only.
- n) Supplier's Operators / Engineers deputed for installation of the equipment at BHEL works shall comply with safety regulations and precautions. They shall be trained adequately in environmental / health / safety hazards associated with the installation and operation of the equipment.

FORMAT FOR SERVICE FACILITIES

01 ELECTRICAL

THREE PHASE	:
KVA RATING	:
NO. OF SERVICE POINTS	:
SINGLE PHASE	:
KVA RATING	:
NO. OF SERVICE POINTS	:

02 CHILLED WATER

FLOW (LPM)	:
PRESSURE (PSI)	:
PORT SIZE(INCHES)	:
NO. OF SERVICE POINTS	:
TEMPERATURE (Deg C)	:

03 RAW WATER

FLOW (LPM)	:
PRESSURE (PSI)	:
PORT SIZE (INCHES)	:
NO. OF SERVICE POINTS	:

04 COMPRESSED AIR

FLOW (LPM)	:
PRESSURE (PSI)	:
PORT SIZE (INCHES)	:
NO. OF SERVICE POINTS	:

05 DRAIN

PORT SIZE (INCHES)	:
NO. OF SERVICE POINTS	:

06 DM WATER

FLOW (LPM)	:
PRESSURE (PSI)	:
PORT SIZE (INCHES)	:
NO. OF SERVICE POINTS	:
RESISTIVITY (M. Ohms)	:

07 EXHAUST

FLOW (CFM)	:
PORT SIZE (INCHES)	:
NO. OF SERVICE POINTS	:

08 CLASS OF CLEAN ROOM FOR PROCESS AREA :

09 OTHER SERVICES (Including Process Gases) :

10 ENVIRONMENT

TEMPERATURE (DEG C)	:
HUMIDITY (%)	: