

Payment Mechanism at BHEL, Ranipet

(Effective for all tenders issued by BHEL Ranipet from 01 July 2011 onwards unless otherwise notified of change/s in writing given by an authorized official of BHEL, Ranipet)

BHEL, Ranipet's payment mechanism will be as follows: (All Bidders are requested to read this carefully and take note of it before submitting their offer)

All bills of Suppliers processed for payment by BHEL, Ranipet shall pass through the following mile stones:

- (1) Receipt of materials at BHEL, Ranipet Stores (evidenced by the Day-Book Number and Date generated at BHEL Stores, Ranipet) or Receipt of materials at Project Site / Destination specified in the Purchase Order (as evidenced by the acknowledgement given by the Consignee).
- (2) Acceptance of the supplied materials at BHEL Stores, Ranipet. (Proof of evidence: Stores Receipt voucher - Short form "SRV", raised by BHEL Stores, Ranipet referenced by the SRV Number and Date)
- (3) Receipt and Registration of the Bills / Invoices of the Supplier at BHEL, Ranipet Accounts Department. (evidenced by the ABS Number and Date)
- (4) Receipt of clarifications, if any that may be required by BHEL, Ranipet Accounts or Purchase Department, from the Supplier. (As evidenced by the IOM Inward Date)
- (5) Bill processing and passing.
- (6) Payment release.

All these events are transparently available in the SCM web-site of BHEL, Ranipet, { <http://bapscm.bhelrpt.co.in/purc> } which can be viewed by all registered suppliers with a password.

Allowed Time frames:

- A] From DB to SRV: 10 Days
- B] From SRV to ABS: 15 Days
- C] From ABS to Bill Pass: 07 Days (if Stage 4 above is not applicable)

OR

From IOM to Bill Pass: 07 Days (if Stage 4 above is applicable)

- D] From Bill Pass to Payment Release: As per payment terms of the Purchase order.

All Suppliers payment/s would be released based on seniority of receipt of the processed bills at the payment section of BHEL, Ranipet Accounts Department.

The seniority would be based on the sequence of milestone events listed above.

In the sequence of the bill processing the preceding mile-stone seniority will be void, if the subsequent event occurs beyond the permitted time frame between two successive events.

Thus for example:

Start seniority would be with the DB date.

If the SRV date is greater than 10 days of the DB date, then the seniority of the DB date would be replaced by the SRV date.

If the ABS date is greater than 15 days of the SRV date, then the seniority would be reckoned by the ABS date.

If the Bill pass date is greater than 07 days of the ABS date then the seniority would be the date of inward receipt of the IOM.

The logics of these sequence is that SRV, ABS, IOM inward entry are dependent entirely on submission of correct documentation by Suppliers, as called for in the Purchase Order. If the documents are correctly submitted each of the milestone listed above will occur within BHEL, Ranipet within the timelines specified above.

Hence, in their own interest all Suppliers are requested to take note of this process and comply with the same.

Caution: Suppliers' payments would get delayed / affected if they fail to adhere to the submission of the documents specified in the Purchase Order / Contract, since the listed milestone events occurrence are contingent upon the availability of the requisite documents.

Enq sno	Material code	Item Description	Lot no	Qty	Unit	Dely dt	Destination (Delivery Place)	Supplier response	Remarks
1	RWT706180001	DMF AIR BLOWERS WITH MOTORS ACCESSORIES FOR A FLOW CAPACITY OF 1100NCUBIC METRE/ HR (V BELT&PULLEYS,BELT GUARD,ANTIFRIC TION MOUNTINGS, INLET FILTER & SILENCER, PRV,NRV ETC.) AS PER TECH.SPEC. ROS. 6205, REV.00 & TECH. SPEC. ROS:4162, REV .01	1	2	ST	31-Aug-18	STORES / ENNORE SEZ / CHENNAI		
2	RWT706180002	COMMISSIOING SPARES AS PER CLAUSE 4.1 OF TECHNICAL SPECIFICATION ROS:6205, REV.00 & ROS:4162, REV.01	1	1	ST	31-Aug-18	STORES / ENNORE SEZ / CHENNAI		
3	RWT706180003	MANDATORY SPARES AS PER TECHNICAL SPECI FICATION ROS:6205, REV.00 & ROS:4162, REV:01	1	1	ST	31-Aug-18	STORES / ENNORE SEZ / CHENNAI		

Enq sno	Material code	Item Description	Qty	Unit	Quoted_Currency	Exchange Rate	Unit rate in Quoted Currency	Unit rate in INR	Total rate in INR
1	RWT706180001	DMF AIR BLOWERS WITH MOTORS ACCESSORIES FOR A FLOW CAPACITY OF 1100NCUBIC METRE/ HR (V BELT&PULLEYS,BELT GUARD,ANTIFRIC TION MOUNTNGS, INLET FILTER & SILENCER , PRV, NRV ETC.) AS PER TECH.SPEC. ROS: 6205, REV.00 & TECH. SPEC. ROS:4162, REV.01	2	ST					
2	RWT706180002	COMMISSIONING SPARES AS PER CLAUSE 4.1 OF TECHNICAL SPECIFICATION ROS:6205, REV.00 & ROS:4162, REV.01	1	ST					
3	RWT706180003	MANDATORY SPARES AS PER TECHNICAL SPECI FICATION ROS:6205, REV.00 & ROS:4162, REV.01	1	ST					

Sl.No	Terms	SUPPLIER COMMENTS	REMARKS ON DEVIATION TAKEN
1	Terms of Delivery- Indigenous Suppliers : FOR Destination: Destination-STORES/ENNORE SEZ/CHENNAI as indicated in the enquiry header (Cost, Packing, Forwarding ,Freight & Insurance etc., are in Supplier's scope i.e. included in the quoted prices. For details of destination pl ref ENNORE SEZ DESP INSTRUCTION).		
2	Terms of Delivery -Foreign Supplies : CFR Destination. Destination STORES/ENNORE SEZ/CHENNAI as indicated in the enquiry header (Cost, Packing, Forwarding & Freight etc., are in Supplier's scope i.e. included in the quoted prices. For details of destination pl ref ENNORE SEZ DESP INSTRUCTION). Insurance in BHEL Scope.		
3	Delivery Period: To mention clearly the exact delivery period as it attracts contractual penalty on delays.To be indicated in days from date of receipt of Purchase Order (P.O)		
4	Terms of payment for Indigenous Suppliers: 100% payment will be made directly thru' EFT within 45 day for MSE Vendors and 90 days for Non-MSE Vendors from the date of receipt and acceptance of materials at Stroes /BIFPCL,Bangladesh site . If any supplier is asking for payment terms other than the above specified, then suitable loading on cost will be considered. Loading of any deviation in the payment terms w.r.t tender terms will be "Base rate of State Bank of India (SBI) (as applicable on the date of bid opening: Techno-commercial bid opening in case of two part bids) + 6%, will be considered for loading for the periods of relaxation sought by bidders. (For details Pl ref point No k.1 & k.2 of k under D of Annexure-B-General Terms and conditions.)		
5	Terms of Payment for Foreign Suppliers: "100% thru' irrevocable & unconfirmed LC at sight within 3 weeks and LC will be established 3 months prior to PO delivery date through any one of our Bankers listed elsewhere in the tender conditions for 100% value (less Agency Commission, if any) valid upto the PO delivery period and 15 days thereafter for negotiation. All bank charges in India to BHEL's account and all other charges outside India to Supplier's account. BHEL reserves the right to load the price of foreign suppliers in order to bring them on common platform as per Indigenous Suppliers on the account of differential payment terms to Indigenous Suppliers. Loading of payment terms will be "Base rate of State Bank of India (SBI) (as applicable on the date of bid opening: Techno-commercial bid opening in case of two part bids) + 6%, will be considered for loading for the periods of relaxation compared to indigenous suppliers i.e. 90 days.		
6	Whenever there is an Indian Agent to represent a Supplier, it is mandatory to give the details of services to be rendered by Indian Agent and / or the details of agreement between Supplier and Agent. Supplier to indicate the Agency Commission payable. Indian Agency Commission will be paid only in Indian Rupees, calculated at the rate of exchange prevailing on the date of price bid opening. This is payable on satisfactory completion of the contract. Agency agreement copy shall be submitted along with Annexure-C without fail. Note: In order to maintain sanctity of the tender system, it is mandatory that one Agent cannot represent two Suppliers or quote on their behalf in a particular tender enquiry. If any Agent represents more than one Suppliers all such offers will be rejected.		
7	Contract Execution Bank Guarantee (CEBG): The Supplier shall submit a BG for 2% of the contract value valid for the agreed delivery period + 3 Months. Attached CEBG Format is to be signed and submitted along with Annexure-C as a token of acceptance. Please note no deviation is allowed.		
8	OFFER Validity: Supplier to mention clearly the validity date of the offer. Minimum 90 days from the date of Technical Bid opening and 30 days from the date of the Reverse Auction/Price bid opening date;		
9	Cientele List: Supplier to submit detailed clientele list with their full address including detail of contact person with phone no., fax no. & e-mail ID as per clause A(i) of Annexure - B (STANDARD TERMS & CONDITIONS).		
10	Reverse Auction (RA) / Sealed bid : Supplier confirmation required.		
11	Test Certificate: To be submitted. With Chemical and Mechanical properties and dimensions as per Standards and our Technical Delivery Conditions		
12	QP: Specific conformation to Submission of manufacturer/vendor quality plan for opur review and approval		
13	Guarantee Certificate: Guarantee regarding manufacturing defect should be for a period of 12 months from date of acceptance of the materials at BHEL Stores, or 18 months from the date of shipment whichever event occurs earlier. Guarantee certificate to be submitted along with invoices.		
14	Inspection before despatch: Inspection before despatch at supplier's works by BHEL/TPI agency		
15	Liquidated Damages (LD) : The applicable LD shall be at the rate of 0.5% per week to maximum of 10% for the undelivered portion and for the deliveries made beyond the agreed Delivery Period. Delivery being the essence of BHEL's contract requirements, in the event that a Supplier does not accept the above LD condition, the offer would be loaded to the extent of the shortfall with respect to upper limit specified above. Date of material receipt at our stores (Day Book date) will be considered as the 'Delivery date as mentioned in purchase order.		
16	PERFORMANCE BANK GUARANTEE (10% OF ORDER VALUE): REQUIRED for a period of 21 months from the date of SRV (including 3 months retention period). If any supplier is asking for any deviation or non-acceptance, then suitable loading on cost will be considered (on 10% value for 21 months). Loading of any deviation w.r.t tender terms will be "Base rate of State Bank of India (SBI) (as applicable on the date of bid opening: Techno-commercial bid opening in case of two part bids) + 6%, will be considered for loading for the relaxation sought by bidders.		
17	Risk Purchase Clause (as per clause-I of Annexure-B) (Supplier Confirmation Required)		
18	Firm Price: Prices shall be kept firm till completion of supplies.		
19	Supplier Registration Form- Online submission is to to be done and soft copy of the same to be uploaded along with Technical Bid by new vendors.		
20	MSE / Non MSE Status with proof for indigenous suppliers.		
21	For Foreign Offers -Manufacturers' Name and address:		
22	For Foreign Offers Country of Origin:		
23	For Foreign Offers - Mills Letter of Authority		
24	For Foreign Offers- Agency Agreement		
25	For Foreign Offers-Approximate weight and cubage of the consignment.		
26	It is mandatory to incorporate the following details in the Bill of Lading for Foreign Suppliers Import & export Code (IEC) of importer : BHEL, Ranipet IEC No: 0588138690/38		
27	It is mandatory to incorporate the following details in the Bill of Lading for Foreign Suppliers GST Identification No (GSTIN) of importer;		
28	It is mandatory to incorporate the following details in the Bill of Lading for Foreign Suppliers Official email id of importer (to be used for correspondence by shipping lines and Customs).		

ANNEXURE –B
GENERAL TERMS & CONDITIONS
(FOR GUIDANCE TO THE SUPPLIERS)

A] Submission of Offer

a) Invitation for bid

Tenders are invited through electronic mode from eligible suppliers in case of open tenders and from suppliers to whom the enquiry is addressed in case of Limited / Single Tender.

The offers shall be posted into the system before the date and time specified in the tender.

The offer shall be sent on single part / two part / three part basis as specified in the main tender document.

Bids shall be submitted through e-Procurement portal, <https://bhel.abcprocure.com> of M/s e-Procurement Technologies, Ahmedabad who is our solution provider.

b) Hardware and Software requirements for participating in e-tender

Requirement for participating in e-Procurement is as under:

- i) A Computer with internet connectivity (Internet Explorer 9.0 (32-bit Browser only) & above)
- ii) Digital Signature Certificate (Class 3- SHA2-2048 BIT- with both Signing and Encryption component separately).
- iii) JAVA (Version 1.8 Update 45).
- iv) Steps for Hardware and software configuration is detailed at <https://bhel.abcprocure.com/EPROC/> under title “Minimum system requirements and Settings Document for BHEL User and Bidders”.

c) Instructions for Registered Suppliers

For all types of tenders (Single / Limited / Open) an automated email alert regarding issue of the Tender will be sent by the e-procurement portal to all Suppliers registered with BHEL, Ranipet for the item/s for which the tender is issued.

In case of open tenders, Registered suppliers with registered DSC will have to login with their user id/password & DSC and search for the Open Tender. To participate in event and to submit bid, a bidder needs to agree the terms and conditions.

Registered suppliers without DSC will have get their profiles approved by mapping DSC after login.

To know the procedure for obtaining Digital Signature Certificate (DSC), suppliers who are not having the DSC are advised to visit our website www.bhel.com → Tender Notifications → Sample Checklist.

d) Instructions for new suppliers wishing to bid against open tenders

New, unregistered suppliers wanting to bid against open tender/s will have to first register themselves in <https://bhel.abcprocure.com> as new supplier by clicking the “Register” button.

After entering the Income Tax Permanent Account Number (PAN) details and pressing “Enter”, they have to select the respective BHEL Unit for which they want to participate in the Open Tender and also fill up other relevant Company information as a one-time activity. On successful registration, your profile will be approved by the authorized officer and you can login to portal and can participate in the procurement event.

To participate in a tender, you need to login to the portal. You must be an approved registered user. If you are not a registered user, you can register yourself by clicking upon the “Register” link. You need to have a valid vendor code and password to login to the portal. Enter your Vendor code, password and click on Login button after Login, you need to select your digital signing and encryption certificates certificate. The DSC will be approved by M/s e-Procurement Technologies/ Authorised officer of BHEL.

As required by the tender, the necessary documents have to be filled-in online, in the provided template. Additional documents required are to be scanned and uploaded as .pdf file. Suppliers are advised to take note that the maximum space that is provided for uploading the documents that are to be attached is 300 MB. However the size of an individual document cannot exceed 10 MB. For any clarification on submission of offer on line, attention of the Supplier/s is invited to our document “Bidder Manual for BHEL Bidders” hosted in the home-page of the e-procurement portal. During normal business hours, helpline maintained by the service provider M/s e-Procurement Technologies is available for clarifying any doubts of supplier/s. The helpline numbers are +91-79-40270599/508/560/590/513 and email id is: Bhel.Support@abcProcure.com . Bidder can also refer to “Bidder Manual for BHEL Bidders” hosted in the home-page of the e-procurement portal <https://bhel.abcprocure.com>.

Typical documents that would be required as part of tender submission would be

- a) **Complete technical Offer** with details, catalogues, as applicable.
- b) **Un-priced bid** (i.e. Bid without the Price) as per given format, if any.
- c) **Filled-in BHEL’s Standard Terms & Conditions** as per Annexure enclosed with the Tender Document,
- d) **Deviation summary** submitted in two parts – giving the summary of technical deviations separately and the commercial deviations separately, if any and
- e) **Supporting documents** to substantiate equivalent material specifications / sections, where quoted for.
- f) Where asked for, **Client list** with their full address including detail of contact person with phone no., fax no. & e-mail ID (if any) to whom the same / similar items are supplied in the past two years. The date of supply may also be indicated, against each client.
- g) Suppliers can also upload their credentials by way of submission of Performance certificate/s issued by their customer/s detailing the quantity supplied and specification along with the un-priced PO copies and proof of supply along with the offer.

Technical acceptance of offer by BHEL shall be based on the evaluation of offer and the submitted documents.

- h) **Bidders who are not already registered with BHEL Ranipet** are requested to submit the Supplier Registration Form (SRF) online (<http://supplier.bhel.in/>) for evaluating and registering as an approved vendor. The Supplier Development Cell (SDC) of BHEL, Ranipet would process the SRF for evaluation / registering the Supplier. Don’t send hardcopies of SRF to BHEL-Ranipet, **only** online submission is accepted. This registration process is a separate / parallel activity and do not mix-up with submission offers.

Note

- (i) The materials offered, shall conform to the specification and scope attached in the tender.
- (ii) In case the offered materials are not conforming to the Enquiry material Specification, such offers would not be considered for evaluation and would be rejected.

Where equivalent specifications are offered, considering such offers will be at the sole discretion of BHEL. Wherever alternative standards / specifications are offered by Bidder, the Bidder shall provide sufficient documentary evidence to ensure equivalence to the designated standards / specifications, failing which the offer would be considered as not technically acceptable and hence shall stand rejected.

(iii) All taxes and duties payable as extra to the quoted price should be specifically stated in offers (as appearing in the online template).

Offer/s from within India shall be submitted along with the applicable HS Number and the applicable Goods & services Tax (GST) for each quoted item, failing which the purchaser will not be liable for payment of such taxes and duties. Our GST No: **33AAACB4146P2ZL**.

(iv) The un-priced bid shall be used to indicate relevant commercial terms such as scope of freight and insurance, applicability of duties and taxes etc. All Commercial terms are to be indicated clearly in the offer.

(vi) No changes shall be entertained once the bid is opened unless otherwise specifically agreed to in writing by BHEL.

(vii) Money values other than for those items appearing in the un-priced bid template shall not be indicated anywhere in the un-priced bid.

(viii) Time required for inspection (at Supplier's works), should be clearly given in terms of numbers of working days.

(x) **Offers sent by FAX / E-mail:** would not be entertained.

(xi) Bid should be free from correction, overwriting, using corrective fluid, etc. Any interlineation, cutting, erasure or overwriting shall be valid only if they are attested under full signature(s) of person(s) signing the bid else bid shall be liable for rejection.

Price Bid in conformance with the specification and terms as given in the Un-Priced bid document.

Caution on submission of pricebids thru EPS:

The suppliers are severely cautioned to note that the price bid document accepts the price in figures only. It does not allow the supplier to write the value by words. Therefore all care shall be exercised by the supplier while filling in the figures. Once the price bid is opened no option is available for the supplier to retract the offer under any grounds. If a supplier, for any reason whatsoever approaches BHEL with a request for change in the price, it would be treated as going back on the offer submitted. In such cases, action would be initiated by BHEL for suspending further business dealings with such suppliers as per policy of BHEL which prevails at that point of time.

Foreign / Overseas suppliers are hereby informed that offers with differential currencies are not permitted for a given tender document.

Note

(i) The price break-up should be in line with technical specification / scope of the tender. (Cost of material, packing charges, forwarding charges, freight and insurance charges shall be shown appropriately, as applicable).

(ii) Unless otherwise specified as a part of the tender condition, No Price Variation Clause will be entertained and No advance payment will be made by BHEL.

- (iii) In case, there is a discrepancy in the term quoted in techno-commercial bid and price bid, the term as per the techno-commercial bid (Part I) shall hold good and the commercial term quoted in the Price Bid (Part II) shall not be considered.
- (iv) In their own interest, all Tenderers are advised to double check their prices, applicable duties and taxes.
- (v) The quotation should be valid at least for a period of 90 days from the tender opening date.
- (vi) Indian bidders should submit the prices in Indian Rupees only.
- (vii) Foreign bidders may submit their bid in foreign currency. The currency for quoting shall be selected from the drop-down menu provided.
- (x) Indian Suppliers shall quote on FOR Destination basis only. Destination is BHEL, Ranipet Stores or BHEL Project Site as specified in the tender requirement. Foreign Suppliers shall quote on CFR Chennai Seaport Delivery and Insurance will be in BHEL's scope. No other delivery terms shall be acceptable. Shipment shall be arranged by the Seller on *Liner in / Liner out basis*. As per Government of India guidelines, BHEL Ranipet being a Government of India Undertaking the Bill of Lading shall be made with the Shipper as "Government of India". This shall be specifically confirmed by the Bidder.
- (xi) Where the cargo is containerized, Container washing charges, stuffing charges and / or any other such charges would be to the account of the supplier, where the containers are to be stuffed at the works of the supplier.

B] Opening of Offers

a) Tenders can be submitted up to 1400 Hours on tender opening due date. Part I will be opened on the same day at 1430 Hours. Results of the tender opening will be available for viewing for upto 7 days from the date of opening.

b) Requests by Bidders for extension of due date will not be entertained by BHEL.

c) Price Bid opening will be done through e-mode / Reverse Auction method (English method) which will be decided after techno-commercial bid evaluation is completed. All tenderers would have to specifically give their acceptance for this in their bid/s.

Note

- (i) Bids including all enclosures and supporting documents like catalogues, pamphlets, etc., shall be provided in ENGLISH language only.
- (ii) In exceptional circumstances, at its option, BHEL may consider extending the due date/s for the tender openings for reasons such as (but not limited to) paucity of offers etc. However, sufficient notice would be given by BHEL for such extension.
- (iii) Deviations shall be summarized and provided in a "Deviation Statement", listing the points and the deviation against each point.
- (iv) BHEL reserves the right to increase or decrease the tendered quantity and to order on more than one vendor at the lowest acceptable price to BHEL. In ordering on more than one source, the ratio of quantity split will be as specified in the tender terms.

If not explicitly specified, BHEL reserves the right to split the quantity of the enquiry as follows: 70% quantity being ordered on the original lowest bidder (L1) and balance 30% on the next higher bidder/s excluding H1, who accepts the L1 price. However, the final decision to split the order rests with BHEL only.

In the event that the other than L1 suppliers do not accept the L1 price, then the balance will be reverted to the original L1 and the original L1 shall be bound to accept the balance of the enquiry quantity kept reserved for order splitting. This decision would be given by BHEL within 60 days of the price bid opening.

Notwithstanding the quantum of split that may be indicated in the main body of the enquiry, bidders are advised to note that the splitting of the orders will be decided by BHEL after the evaluation of the techno-commercial and price bids.

(v) Offers for part quantities on item level basis are not acceptable to BHEL. While tenderers can quote for some or all the tendered items, no supplier shall quote for partial quantity of any given enquiry item. Such partial offer would not be considered in the enquiry for that item. Suppliers are to note that the evaluation unless otherwise specified will be on item level and not for the tendered items as a whole.

C] Evaluation of Offers

a) The price bids including the impact price (if any) of the technically acceptable offers alone shall be opened.

b) Offers with pre-conditions (like conditional discounts) for price are liable to be not considered / rejected. For evaluation such conditions would be removed and only the base offer would be considered for evaluation and comparison.

d) In the event of any change in scope / quantity arising out of the discussions, offerers would be given a chance to submit their revised offer / Impact bids. The option for the revised offer / impact offer will be triggered by BHEL. The Supplier then will have the facility to feed-in the revised price / impact price as per the provision given by BHEL. The impact price can be positive or negative (or nil). The impact price option shall contain only the price addition / deletion for such change in the scope / quantities, over and above the original scope and price quoted. The original price quoted would remain unchanged. The total price would then be computed by the arithmetic addition of the original price and the impact price. Where BHEL gives the option of submitting the revised offer, the impact would be computed as the arithmetic difference of the revised price and the original price.

e) For evaluating the overseas offers, CFR Chennai Sea Port price quoted will be taken into account. The cost to BHEL will be arrived at by loading the applicable customs duty project wise, insurance charges, inland transportation charges to BHEL stores and LC charges etc.,

f) Deleted.

g) BHEL reserves the right to reject without assigning any reasons / load any offer with factors other than already specified for such offers having deviations to BHEL Specifications, Standard Terms & Conditions at its discretion. The decision of BHEL in this regard shall be final.

h) BHEL reserves the right to reject an offer due to unsatisfactory performance during tender finalisation / execution of a contract at any of BHEL projects / units in the past or if unsatisfactory performance report is received from the party/s referenced by the supplier at any time during tender finalisation.

i) BHEL reserves the right to operate Purchase / Price preference to Government of India Undertakings, which shall be given as per the guidelines of Government of India given from time to time and / or relax the Terms and Conditions of the tender.

j) For the purpose of comparing prices, tender prices shall be converted to Indian rupees and the conversion shall be made by using the TT Selling rate of State Bank of India (SBI) prevailing on the date of opening of

Techno-Commercial / Unpriced bids. If the relevant day happens to be a bank holiday, then the forex rate as on the previous bank (SBI) working day shall be taken. This exchange rate will be followed till placement of order. Tenderers may please note that even if an impact price is taken as in (d) for purpose of price evaluation and arriving at the rank; the exchange rate will be taken as explained above.

k) Unless otherwise specified, evaluation will be on individual line item basis only and ordering will be on respective L1 vendors.

l) BHEL reserves the right to conduct negotiations on the “Price” and “Other Commercial Terms and Conditions” with the lowest ranked offerer at any time after the bid opening but before the release of the Purchase Order and If so required by BHEL, Supplier may have to share their costing sheet with BHEL.

m) Bidders are required to confirm in writing in their techno-commercial document that other than themselves (the bidder) none of its group companies, concerns or affiliates etc., are participating in the tender either directly or indirectly or through any other agency under the same proprietor / common partner(s)/ common Directors. If during the evaluation of the bids it is found that the bidder has submitted the offer in violation of this condition then all the offers received from the group companies would stand rejected. If such relationship is found at a later date where the Purchase Order has been issued, then BHEL would cancel the Purchase Order and initiate suitable action/s under the contract/s including but not limited to invoking the Risk Purchase clause of the order and other applicable legal provisions / guidelines of BHEL including guidelines on suspension of business dealings. (Please see clause L sub-clause c).

D] Execution of the Order

a) BHEL will have the option to pre-inspect the materials at Supplier's works by BHEL's own inspector or by third party agency appointed by BHEL or BHEL's end customer/s. The mere act of the pre-dispatch inspection (PDI) does not absolve the Supplier from giving the specifications as agreed upon in the Purchase Order. In the case of inspection being carried out by a third party inspector (TPI) as per the extant practice, the TPI would forward the Inspection Report (IR) along with Test Certificates and other related documents to the Quality Assurance (QA) Department of BHEL. The QA department after scrutinising the report/s submitted by the TPI would issue the Material Dispatch Clearance Certificate (MDCC). Suppliers are hereby informed that materials should be dispatched only after getting the MDCC, failing which the materials may be rejected on receipt at BHEL Stores.

b) In the case of overseas suppliers Inspection call for carrying out the inspection shall be given 30 days before the scheduled contract delivery date. The Inspection date/s given by the Supplier shall be on firm basis. For local Suppliers the Notice period of Inspection shall be 10 working days.

c) Deviations, if any pointed out by the visiting Inspection team of BHEL shall be corrected and the items as per specification shall be dispatched on or before the contract delivery date after getting the MDCC.

d) The final inspection for acceptance will, however be carried out at BHEL's works at Ranipet.

e) The contract delivery date is the date of receipt at BHEL Stores for suppliers in India, applicable in the case of FOR Destination Contracts.

For ex-works contracts or FOR dispatching station indigenous contracts, the date of the Lorry way bill issued by the authorised transport carriers of BHEL / Railway Receipt / Courier Way bill / Airway bill or any such dispatch documents of carriage approved by BHEL would be considered as the Contract Delivery Date. In the case of CFR contracts with overseas suppliers, the B/L date shall be taken as the Contract Delivery Date

f) Travel & other local stay cost for the Inspectors sent by BHEL will be to BHEL account, but other Inspection Charges, if any shall be to the account of the Seller only.

g) The supplier shall arrange for packing suitably in all respects for normal transport by sea / rail / road and Materials shall be suitably protected against effect of tropical salt laden atmosphere in the event of shipment being delayed at ports / store yards and as per BHEL TDC.

h) Foreign suppliers shall dispatch on CFR agreed Sea-Port basis, according to the contract conditions. Indian suppliers shall dispatch on free delivery (door-delivery) at BHEL stores basis only. Unloading the materials at BHEL Stores would be to the account of BHEL only.

i) In the event of any short supply, it shall be the responsibility of the supplier to deliver such short supplied/missing items on Free-of-Cost basis at BHEL stores, including customs clearances at Indian Ports in the case of foreign suppliers.

k) Terms of payment:

k.1) For Indigenous Suppliers: Unless otherwise agreed to by BHEL, the standard payment terms of BHEL shall be: For non-MSE suppliers 100% payment made directly through EFT within 90 days from the date of receipt and acceptance of materials at BHEL Stores, Ranipet or 90 days from the date of acknowledgement of receipt of materials at destination specified. If any supplier asks for payment terms other than the above specified, then suitable loading on cost will be considered. **Loading of any deviation in the payment terms w.r.t tender terms will be “Base rate of State Bank of India (SBI) (as applicable on the date of bid opening: Techno-commercial bid opening in case of two part bids) + 6%, will be considered for loading for the periods of relaxation sought by bidders.**

k.2) For MSE vendors (under Micro & Small category alone) 100% payment will be made within 45 days from the date of receipt and acceptance of materials at BHEL Stores, Ranipet or 45 days from the date of acknowledgement of receipt of materials at destination specified.

l) NOTE:

Where the destination specified is other than BHEL Stores Ranipet, for claiming payment, Supplier has to submit proof of receipt of the materials at the destination by furnishing a copy of the acknowledged despatch document (LR/RR/Courier receipt etc.) .

If the Bidder is bidding for the first time and wants to be considered as an MSE then, the Bidder shall submit document evidencing that they are an MSE along with a certificate from a Chartered Accountant certifying the status of their Unit / Works clearly specifying the address of the works which is to be considered as MSE and send the same to BHEL, Ranipet either before the tender opening date or upload it as a part of the tender document in the e-procurement portal. Where the document is submitted electronically a hard copy shall invariably be sent within a reasonable period (not exceeding 30 days) from the bid opening date for the purpose of BHEL's records. If the hard copy is not received within this specified time, then the supplier would be treated as a non-MSE. BHEL will not be responsible for any postal / courier / delivery delays.

For approved vendors the status as on the date of the bid opening as available with BHEL Ranipet's records shall be used for reckoning the status of the Bidder as an MSE or otherwise.

Offer/s received without these documents will be treated as non-MSE and order finalization will be done based on this premise. Documents submitted after Bid-opening will not be considered in this tender. This provision for MSE will apply subject to the condition that the participating MSE meets the tender requirements.

For approved suppliers, in case of any change in the MSE status, it shall be the responsibility of the Bidder to notify the change as a part of the Bid document. If at a later date it comes to the knowledge of BHEL, Ranipet that the change in the status has not been intimated by the Bidder and the order is obtained under the premise of an MSE then BHEL would cancel the pending order against this tender and take necessary steps for suspension of the business dealing with the Bidder as per the procurement policy of BHEL. Similarly if a supplier claims MSE status after the Part I bid opening, then the same would not be considered in the tender.

In case after the bid opening it is seen that no MSE has become L1, then depending on the nature of the item, if it is not possible to split the tendered items / quantities on account of reasons like customer contract requirements of supplying one make for a given project or technical reasons like the tendered item being a system etc. then BHEL would not counter offer the L1 prices even though there may be MSE bidders within the +15% band of L1.

Other concessions for MSEs / Reserved sectors

In addition to the concessions specified above, MSE suppliers will be eligible for such other concessions as per the MSME Act 2006 and any other benefits / concessions that may be announced by the Government of India from time to time.. However, such concessions as applicable at the time of tender opening alone will be applicable. Any concessions advised after tender opening will not be considered for the current tender.

Items that are reserved for MSE and for any other items for which reservations for Indian manufacturers are notified by the Govt. Of India, such concessions as prevailing on the date of tender opening shall apply as a part of this tender conditions.

ii) Foreign Suppliers “100% thru’ irrevocable & unconfirmed LC at sight within 3 weeks from the PO date through any one of our Bankers listed elsewhere in the tender conditions for 100% value (less Agency Commission, if any) valid up to the PO delivery period and 15 days thereafter for negotiation. All bank charges in India to BHEL's account and all other charges outside India to Supplier's account. **BHEL would load the price of foreign suppliers in order to bring them on common platform as per Indigenous Suppliers on the account of differential payment terms to Indigenous Suppliers. Loading of payment terms will be “Base rate of State Bank of India (SBI) (as applicable on the date of bid opening: Techno-commercial bid opening in case of two part bids) + 6%, will be considered for loading for the periods of relaxation compared to indigenous suppliers i.e. 90 days.**

m) Any incidence of tax like Income tax, Goods & Services Tax (GST) and Withholding any other similar tax / duties /levies imposed by the Government of India, or the State Government, where the BHEL Unit is located, deductible at Source, during the tenure of the Order shall be deducted by BHEL and necessary certification of the deduction (Tax deduction at Source) would be given. This is subject to the supplier fulfilling the necessary documentation as specified by the Government of India. (e.g. Tax Residency Certificate, PAN Number etc.)

n) The Guarantee period shall start from the “Date of receipt and acceptance of the materials at BHEL Stores.”

o) Where any bidder gives extended credit period over and above that offered by BHEL, then all other Non-MSE bidders and foreign bidders would have to match the extended period of payment terms. This information would be given to such bidders after opening of the techno-commercial bids; but before opening the price bids. However bidders would not be allowed to change their price bid for purpose of confirming the extended credit period. In the event such bidder/s do not accept the extended credit period

for payment, then their offer would be loaded to the extent of the differential between their offered payment terms and the revised payment terms offered by BHEL as explained above.

E] Liquidated Damages Clause:

BHEL will levy penalty as Liquidated Damages (LD), for delay in delivery. The damages shall be at the rate of ½% per week or part thereof subject to a maximum of 10% PLUS applicable Goods & Services Tax (GST). The contract delivery date for purpose of L.D is the date of receipt at BHEL Stores for suppliers in India for F.O.R. Destination Contract and the date of dispatch clearance given by BHEL for overseas suppliers. For ex-works or F.O.R dispatching station contracts, the date of the dispatch document will be reckoned as the date of delivery for computing the LD. Supplier shall deduct the applicable LD from the first payment when raising the claim for the same. The applicable LD if any would be communicated by BHEL along with the dispatch clearance. It is taken by BHEL that Foreign Suppliers have confirmed their acceptance to BHEL for opening the LC for value which is the value of the order reduced by the applicable LD. The LD would apply on the undelivered portion only. In case of reasons attributable to BHEL for the delay in delivery (for e.g. delay in arranging the pre-inspection) then the delivery time would be reset to the extent of the time delay attributable to BHEL, with waiver of the LD. Delivery being the essence of BHEL's contract requirements, Unless otherwise specified the LD would apply on the undelivered portion of the contracted items. **In the event that a Supplier does not accept the LD condition above, the offer would be loaded to the extent of the shortfall with respect to upper limit specified above.**

F) Miscellaneous

i) Role of Principals and Agents:

BHEL will deal directly with indigenous manufacturers only.

BHEL strongly discourages the engagement of Agents in India by foreign principals, to deal with BHEL, in BHEL's tenders.

BHEL will not enter into any correspondence with an Indian Agent.

The Indian Agent will not be extended the privilege given to the principals, such as that of attending the tender openings, attending technical discussions, commercial discussions or price negotiations and such like.

In case, in spite of the above, a foreign principal insists on engaging an Indian Agent, It is made clear by BHEL that:

It is the sole responsibility of the foreign principal to ensure the Agent does not represent any other foreign principal in a given tender.

An undertaking to this effect shall be given by the foreign principal that his / her Agent does not represent any other foreign principal in the tender. This document shall form a part of the techno-commercial offer.

A Principal shall authorise only one Agent to quote against each BHEL's tender. In the event a Principal authorises more than one agent to quote against a BHEL's tender, then all such offers will be rejected by BHEL in that tender. Principals are also advised to include BHEL's tender Number / Reference in their authorisation issued to the Agent.

If at any stage of the tender, BHEL finds that an Indian Agent has represented more than one foreign principal, all such offers of and all the foreign principals would be disqualified summarily in the tender inquiry.



BHEL will only give an intimation of notice of the disqualification. No correspondence would be entertained by BHEL, on their decision. Such decision of BHEL shall be irrevocable, firm and final and shall be binding on the tenderer.

BHEL, due to business reasons would ban, would have banned Indian agents from dealing with BHEL.

Any foreign principal who engages such a banned agent, or an employee of the banned agency, or any other person connected with the banned agency, at any time during the tender proceedings, would be disqualified from the tender proceedings. The decision of BHEL in this regard shall be final and be binding on the OEM.

Hence in their own interests, prospective tenderers may check with BHEL, the status of their proposed agent vis-à-vis BHEL.

In view of the requirement of BHEL, it is strongly suggested that in their own interest, foreign principals may desist from engaging any Indian agent and deal with BHEL directly and it is stressed that any Main producer proposing to deal with BHEL by engaging and through an Indian Agent does so at their own risk.

BHEL shall in no way be responsible for any consequences that may arise to the foreign principal on account of the antecedents / actions of their Indian Agent.

In the event of the foreign principal engaging an Indian Agent:

a) The Supplier shall furnish an authenticated copy of the Agency Agreement with his agent detailing the precise relationship between them and their mutual interest in the business along with techno-commercial bid.

b) The Supplier shall furnish original authorization letter for the Indian Agent. The letter shall contain name, contact person, complete postal address including phone, fax and e-mail ID. It shall also spell out the type of services to be rendered by Indian Agent.

c) Indian Agent & Agency commission: An Indian Agent can represent only one Foreign Manufacturer against a particular Tender. The CFR price quoted by the foreign bidder shall include the agency commission. However, the agency commission component payable to their Indian Agents shall be shown separately in the Offer, either as a lump-sum or as a percentage of the quoted price. This will be paid by BHEL in Indian Rupees, on satisfactory receipt & acceptance of the materials. For calculation of Rupee equivalent of Agency Commission, exchange rate as prevailing on the date of Purchase Order will be taken and

d) For all discussions, technical clarification and negotiations etc. only the principal would be authorized for interaction with BHEL. The Agent shall not be a party to the discussions / negotiations and would not be normally allowed to participate.

ii) Terms & Conditions of Letter of Credit (L/C) for overseas suppliers (indicated for acceptance).

a) Unconfirmed irrevocable Letter of Credit at Sight only will be opened by BHEL. Confirmation of L/C is not preferred by BHEL. Also L.C will be opened in Lots in line with the staggered delivery.

b) All Bank charges out side India are to the Supplier's account and within India to BHEL's account.

c) In case of L/C extension caused by delays attributable to the Supplier, the L/C extension / commitment charges are to be borne by the Supplier.

iii) Other terms & conditions for letter of credit: - Documents for negotiation

- a) Signed Commercial invoice in quadruplicate, for a value not exceeding the draft amount, quoting the import Licence No and certifying goods evidencing shipment of the merchandise are as per Applicant's Purchase Order. The amount of invoice after deducting Indian Agent's commission, if any, should not exceed the Credit amount. (The Indian agent's commission, if any, is payable in India in Indian rupees only.)
- b) Certificate of Country of Origin, from the country of manufacture, issued by the Chamber of Commerce.
- c) One set of Original and two sets of Non-negotiable copies of 'signed', 'unmarked', 'clean on board' Ocean Bill of Lading, showing Shipper as "Government of India" Account M/s. Bharat Heavy Electrical Ltd, Unit: BHEL, Ranipet as consignee (The opening bank should not be notified as consignee), marked freight payable / prepaid at destination.
- d) Packing list in 4 copies in English, indicating Size wise Number of bundles / pieces shipped and weight.
- e) Certified copy of the fax / e-mail sent by the beneficiary to the applicant giving the following particulars of shipment, as the insurance is to be arranged by the Applicant in India: (a) Purchase Order Number & date; (b) Bill of Lading Number & date (c) Name of vessel; (d) Port of Loading; (e) Number of bundles / pieces and weight; (f) Invoice Number, date and value (g) Purchase Order item number's despatched. The cable / fax is to be sent within 2 working days of shipment.
- f) Beneficiary's certificate showing the relevant airmail / courier reference no. and date that the following clauses have been complied with:
- 1] Beneficiary to forward by Registered Airmail / Courier one complete set of original documents and one set of non-negotiable documents within 3 working days of obtaining shipping documents to Regional Manager (ROD), Bharat Heavy Electricals Ltd, 6th Floor, EVR Periyar Bldg. No 690 (Old 474), Anna Salai, Nandanam, Chennai-600035. India. (Phone: +91-24330931, 24330253; e-mail: pbpwar@bhel.in)
 - 2] Beneficiary to courier at his cost 3 copies of complete set of non-negotiable documents to the Officer who released the Purchase Order.
 - 3] Declaration by the Supplier certifying that the contents in each case are not less than those entered in the invoices / packing list and that the invoicing for the supplies effected is strictly in accordance with agreed rates as stipulated in the Purchase Order.
 - 4] Declaration to the effect that all other documents as per purchase order has been couriered to the Purchase order releasing authority
 - 5] The carrying steamer should be seaworthy, less than 25 years of age and approved by Lloyds / Classification Societies / General Insurance Corporation of India from time to time and
 - 6] Copy of Dispatch Clearance / Instruction issued by BHEL.

iv) Documents to be sent directly to the Purchaser prior to shipment

- a) Manufacturer's Original Internal Inspection / Test certificate in triplicate.
- b) Manufacturer's Original Guarantee certificate as per Purchase Order. The material shall be guaranteed for a period of 12 months from the date of acceptance of the materials at BHEL stores or 18 months from the date of dispatch whichever is earlier. The acceptance would be evidenced by the Stores Receipt Voucher (SRV) which will be raised by BHEL.
- c) Inspection / Test Certificate issued by BHEL / Inspection agency specified in the Purchase Order. In the event that Inspection prior to dispatch is not carried out by the Engineers of BHEL, the Inspection certificate of the third party so authorized by BHEL and

d) Any other documentation as specified in the Purchase Order.

v) Conditions for transportation:

a) All shipping documents shall show the Purchase Order Number & Date, Import Licence Number & Date, and Letter of Credit Number & Date.

b) Transshipment is to be avoided.

c) Loading on deck is not permitted. The transport document must not contain a provision that goods may be carried on deck.

d) A transport document which is produced or appearing to have been produced by reprographic, automated or computerized systems or as carbon copy will be accepted as an original document provided that it is marked as original and is ink-signed.

e) The transport document must contain all the conditions of carriage on the original document.

f) The transport document must not indicate the place of destination as being different from the port of discharge.

g) The transport document must not contain the indication 'intended' or similar qualification in relation to the vessel or other means of transport or port of loading or port of discharge.

h) The transport document must be issued by the carrier or his agent and not by any freight forwarder.

i) Transport documents bearing reference by stamp or otherwise, to costs additional to the freight charges are not acceptable.

j) The Bills of Exchange must be dated and presentation of documents for negotiation must not be later than 15 days after the date of shipment and in any case not later than the expiry date of the Credit.

l) Indian suppliers shall dispatch the materials on freight prepaid and on door-delivery basis (FOR Destination – Destination: BHEL Stores) and

m) In the event there is a delay by the Supplier in negotiating / submitting the document, any demurrage / wharfage arising out of the same shall be to the account of the Supplier and shall be deducted from the final payment. Also, in such cases, the Supplier shall authorize the Steamer / Shipping agent / transporter to freely release the consignment to BHEL by providing a “Surrender Bill of Lading”. Over-seas Suppliers have to give a No-Objection Certificate to BHEL, authorizing BHEL to get the Delivery Order from the Steamer Agent without producing the Original Bill of Lading. This is required to ensure avoidance of incidence of demurrage at Chennai Sea-port that may arise in case of delayed presentation of documents by the Seller.

G) Reverse auction (RA) / on-line bidding on internet:

1. “BHEL reserves the right to go for Reverse Auction (RA) (Guidelines as available on www.bhel.com) instead of opening the sealed envelope price bid, submitted by the bidder. This will be decided after techno-commercial evaluation. Bidders shall give their acceptance with their offer for participation in RA. Non-acceptance to participate in RA may result in non-consideration of the bids, in case BHEL decides to go for RA.”

2. Those bidders who have given their acceptance to participate in Reverse Auction will have to necessarily submit ‘Process compliance form’ (to the designated service provider) as well as ‘Online sealed bid’ in the Reverse Auction. Non-submission of ‘Process compliance form’ or ‘Online sealed bid’ by the agreed bidder(s) will be considered as tampering of the tender process and will invite action by BHEL as per extant

guidelines for “Suspension of Business Dealings with Suppliers/ Contractors (as available on www.bhel.com).”

3. The philosophy followed for reverse auction shall be English Reverse (No ties).
4. For the proposed reverse auction, technically and commercially acceptable bidders only shall be eligible to participate.
5. BHEL will engage the services of a service provider who will provide all necessary training and assistance before commencement of on line bidding on internet.
6. In case of reverse auction, BHEL will inform the bidders the details of Service Provider to enable them to contact & get trained.
7. Business rules like event date, time, bid decrement, extension etc. also will be communicated through service provider for compliance.
8. Bidders have to fax the Compliance form (annexure IV) before start of Reverse auction. Without this, the bidder will not be eligible to participate in the event.
9. Reverse auction will be conducted on scheduled date & time.

Note: Decision to go for RA or not will be on case to case basis.

10. At the end of Reverse Auction event, the lowest bidder value will be known on auction portal.
11. The lowest bidder has to fax/e-mail the duly signed and filled-in prescribed format for price breakup including that of line items, to the Service provider within two working days of Auction without fail.
12. Bidders are required to read the “Terms and Conditions” section of the auctions site of Service provider, using the Login IDs and passwords given to them by the service provider before reverse auction event. Bidders should acquaint themselves of the „Business Rules of Reverse Auction“, which will be communicated before the Reverse Auction.
13. If the Bidder or any of his representatives are found to be involved in Price manipulation/ cartel formation of any kind, directly or indirectly by communicating with other bidders, action as per extant BHEL guidelines, shall be initiated by BHEL and the results of the RA scrapped/ aborted.
14. The Bidder shall not divulge either his Bids or any other exclusive details of BHEL to any other party.
15. The bidders have to necessarily submit online sealed bid less than or equal to their envelope sealed price bid already submitted to BHEL along with their offer. The envelope sealed price bid of successful L1 bidder in RA, if conducted, would also be opened after the RA and the order will be placed on lower of the two bids (RA closing price & envelope sealed price) thus obtained. It is considered that the bidder having submitted their offer specifically agrees to this condition and undertakes to execute the contract on thus awarded rate/s.
16. If it is found that L1 bidder has quoted higher in the online sealed bid in comparison to the envelope sealed bid for any item(s), the bidder will be issued a warning letter to this effect. However, if the same bidder again defaults on this count in any subsequent tender, it will be considered as fraud and will invite action by BHEL as per extant guidelines for suspension of business dealings with suppliers/ contractors (as available on www.bhel.com).”

17. The calculation sheet e.g. excel sheet (which will help to arrive at 'Total Cost to BHEL') will be communicated to respective bidders of RA by BHEL. In line with the NIT terms, BHEL will provide the calculation sheet (e.g., EXCEL sheet) which will help to arrive at "Total Cost to BHEL" like Packing & forwarding charges, Taxes and Duties, Freight charges, Insurance, Goods & Services Tax (GST) and loading factors (for non-compliance to BHEL standard Commercial terms & conditions) for each of the bidder to enable them to fill-in the price and keep it ready for keying in during the Auction.]

18. This calculation sheet will be finalized based on the evaluation criteria specified in the NIT.

19. Suppliers are required to submit their best price bid in a separate sealed cover along with techno-commercial bid. After evaluation of Techno-Commercial Bids:

a) In case BHEL decides not to conduct RA, the envelope sealed price bids of all techno-commercially qualified bidders, along with price impact, if any, would be opened and processed as per extant the internal Purchase/ Works Policy as applicable to BHEL.

b) In case BHEL decides to conduct RA, business rules of RA will be sent to service provider.(See Annexure for Model General Business Rules of RA.)

20. Generally the start price for the RA would be the lowest of

a) Lowest online sealed bid and

b) Internal Estimate of BHEL

Note: Wherever more than one lowest online sealed bids are identical and lower than the estimate, the start price, would be that price arrived by reducing the lowest online sealed bid by maximum of one decrement.

21. Reverse auction process would deemed to have started upon receipt of 'Online Sealed Bids' from the bidders within the prescribed time frame as per Business Rules.

22. After receipt of 'online sealed bids', the start price & bid decrement will be decided by BHEL and the same would be communicated to the service provider, to start the bidding process.

23. Only those bidders who have submitted the 'online sealed bid' within the scheduled time would be eligible to participate further in RA process. However, the H1 bidder (whose quote is highest in online sealed bid) will not be allowed to participate in further RA process provided minimum three bidders are left after removal of H1 bidder. In case of tie for H1 bid (identical online sealed bids), 15 minutes additional time would be provided and all the participating bidders would be informed by mail/ message on bidding screen to enable bidders submit revised online sealed bids so as to break the tie.

24. If the lowest online sealed bid is the starting price, then the lowest bidder in online sealed bid shall be shown as current L1 automatically by the system. System would have the provision to indicate this bid as current L1 for further bidding.

25. If the start price is lower than the lowest online sealed bid, on acceptance of such start price by any bidder, this bid would be indicated as current L1 for further bidding.

26. In case of no further bidding, RA will be deemed to have been successful with current L1 bidder.

27. All bidders who had given online sealed bid would be able to see their rank and L1 price and their ranking L1, L2 etc. would be based on their last quoted price irrespective of quote received in RA or online sealed bid.

28. RA shall be treated as failed in the following scenarios:

- a) In cases where the start price is (a) estimate or (b) one decrement (maximum) lower than the lowest of the online sealed bids and no bidder accepts the start price.
- b) In cases where the number of online sealed bids are less than four before removal of highest bidder.
- c) In cases of tie among H1 bidders, even after extension of submission of online sealed bids once by 15 minutes.
- d) Wherever, the evaluation is done for individual line items, RA shall be treated as failed only for those line item(s) for which any of the above a), b) or c) satisfies.

29. In cases of failure of RA, sealed envelope price bids (of item(s) for which RA has failed) of all the techno-commercially qualified bidders would be opened and the tender would be processed accordingly. However, the envelope sealed bid(s) of techno-commercially acceptable bidder(s) who had agreed to participate in the RA and had failed to submit the online sealed bid would not be opened.

30. After declaring L1 upon completion of RA, the envelope sealed price bid of L1 bidder would also be opened for placement of order on lower of the two bids (RA closing price & envelope sealed price) and the offers would be processed as per extant their internal Purchase/ Works policy provisions of BHEL. Action as per NIT terms would be taken if online sealed bid is higher than the envelope sealed bid.

31. Relative position of bidders (for usage in cases of predefined splitting the quantities) would also include bidders who have given 'online sealed bids' but have not given further bids in auction. In case of splitting requirement, H1 bidder may be considered for counter offer if the pre-stated (NIT) numbers of suppliers do not accept the counter offer. However, principle of splitting to N-1 bidder would be maintained.

32. In case H1 bidder happen to be MSE and was removed from further bidding but is within L1 + 15% band, then this bid would be considered and to be processed in line with 'Public Procurement Policy for Micro & Small Enterprises (MSEs) order, 2012'.

33. For providing preference to domestically manufactured Electronic Products, in accordance with Department of Electronics and Information Technology (DeitY) Gazette Notification No. 33(3)/2013-IPHW dated 23.12.2013 and its related notifications issued from time to time, H1 bidder removed from further bidding would be considered for counter-offer to meet domestic bidder requirement for the item(s) under procurement.

34. In case BHEL decides not to go for Reverse Auction for the tender enquiry, the Price bids and price impacts, if any, already submitted and available with BHEL would be opened as per BHEL's standard practice.

35. In case of enquiry through e-Procurement, the sealed electronic price bid (e-bid) would be treated as sealed envelope price bid.

Note: In order to bring more transparency and to address any queries of Bidders on Reverse Auction, an abridged version of BHEL's "Common Guidelines for conducting Reverse Auction (RA)" has been hosted in BHEL's web site www.bhel.com under the links "Supplier Registration Page" and "Tender Notification". All Bidders are requested to visit the link and familiarize themselves with BHEL's RA procedures and guidelines before submission of their bid/s. Submission of Bid shall mean that the Bidder has read and understood BHEL's RA procedures and the bid is in agreement with the same.

H] Force Majeure

If at any time during the currency of this contract, the performance in whole or in part, by either party of any obligations under this contract shall be prevented or delayed by reason, of any war, hostilities, acts of the public enemy, civil commotion, sabotage, fires, explosions, epidemics, quarantine, restrictions or acts of GOD (hereinafter referred to as events), then provided notice of happening of any such events is given by either party to other within ten days from the date of occurrence thereof, neither party shall reason of such events be entitled to terminate this contract nor shall either party have any such non performance and delay is resumed as soon as practicable after such events has come to an end or ceased to exist. If the performance in whole or part of any obligation under this contract is prevented or delayed by reason or any such event claims for extension of time shall be granted for period considered reasonable by the purchaser subject to prompt notification by the seller to the purchaser of the particulars of the events and supply to the purchaser if required of any supporting evidence. Any waiver of time in respect of partial installment shall not be deemed to be a waiver of time in respect of remaining deliveries.

I] Cancellation of Order:

In the event of non-performance of the contract by the Supplier, BHEL reserves the right to cancel the order with issue of a written notice. BHEL would provide a curing period of 30 days, for the Supplier to rectify the situation. If the Supplier fails to rectify the reason/s that led to the issue of cancellation notice by BHEL, then the cancellation order would be issued automatically by BHEL, without further recourse to the Seller. BHEL will not pay any cancellation charges or any other charges / damages to the Supplier, arising out such cancellation. In the event of the non-performance of the supply contract, by the Supplier, the rights of BHEL include, in addition to cancelling the order, to take alternate purchase action at the cost and risk of the supplier. The additional expenditure to be incurred by BHEL in such alternate purchase would be to the account of the supplier. (Risk Purchase). This remedy would be in addition to the invoking of the CEBG on grounds of failure of the Supplier in executing the Contract and any other legal remedies." BHEL reserves the right to initiate the alternate purchase action at the cost and risk of the erring supplier by issue of a simple notice of intention for the alternate purchase action duly sent by any electronic means and / or by a letter. The cancellation of the order would not be a pre-condition for initiation of the alternate purchase action.

J] Contract Execution Bank Guarantee:

To demonstrate the fidelity of the successful bidder, in executing the Contract, on receipt of the Letter of Intent / Purchase Order, the Supplier shall arrange to provide a contract execution bank guarantee (CEBG). The format of the CEBG is a part of this enquiry. The format may be downloaded and necessary stamping may be obtained from the Banker towards submission of the CEBG. The indigenous suppliers have to provide the CEBG from any one of the Nationalized Banks, listed in the annexure to these terms. Overseas suppliers can submit the CEBG from any of the reputed International / National Bankers. However the CEBG is to be confirmed by any of the Bankers listed by us. In the event of failure by the Supplier to execute the contract either fully or partially, BHEL would encash the entire CEBG. The CEBG shall be valid for the period covering the agreed delivery date of the order with a further claim period of 3 months on the last specified delivery date. In the event of the failure of delivery BHEL would proceed with encashing the CEBG without reference to the Supplier. In the event of BHEL granting extension of the delivery dates, then the CEBG validity shall also be got extended by the Supplier to the extent of the extended delivery times together with the claim period as specified elsewhere. **The CEBG shall be for a value of 2% of the Purchase order.**

Suppliers who are all already registered with BHEL and having a vendor performance rating of A or A+ grade would be exempted from submission of CEBG.

Performance Bank Guarantee

Where ever so required, the Supplier shall arrange to provide a Performance bank guarantee (PBG). The indigenous suppliers have to provide the PBG from any one of the Nationalized Banks, listed in the tender terms. Overseas suppliers can submit the PBG from any of the reputed International / National Bankers. However the PBG shall be confirmed by any of the Bankers listed by us. The PBG shall guarantee the performance of the equipment / materials / items supplied and shall cover the guarantee period. The PBG shall have a claim period of 3 months in addition to the guarantee period. In the event of failure of the supplies made within the guarantee period, BHEL would encash the entire PBG. **The PBG shall be for a value of 10% of the Purchase order.**

The supplier/s have to get the PBG format (pre-printed) from BHEL and get the same stamped by the Banker. Change of PBG terms either by the supplier's Banker or by the supplier, after servicing of the order is not acceptable. Similarly PBG prepared by the supplier (typed by them) will also not be acceptable to BHEL. The pre-printed form issued by BHEL shall be used for making the PBG.

K] Post-order submission of documents for approval

In the event of the release of Letter of Intent (LoI) / Purchase order/s (PO) against this tender, Bidders have to submit the applicable documents as called for in the tender / LoI / PO/s, such as drawings, data sheets, design calculations etc. These documents for approval have to be submitted within the agreed timelines between BHEL and Bidder. Normally the time period for submission for approval is 15 days from the date of receipt of the LoI / PO by the supplier. The actual time period within which the documents have to be submitted for approval would be specified in the LoI / PO.

Such documents would be subjected to evaluation and approval by BHEL and / or by BHEL's customer / Consultant / Customer's Consultant. Bidders have to give their specific acceptance for this.

After approval of such documents and after getting clearance from BHEL, only the items ordered can be taken up for manufacture.

Any changes required by BHEL / Customer etc. in the documents submitted for approval shall be incorporated by the Bidder and no extra cost would be payable by BHEL for such changes.

In the event that the Bidder does not carry out the required corrections, then the LoI / PO would be liable for cancellation by BHEL and BHEL would resort to alternate purchase action at the risk and cost of the Bidder under the Risk Purchase Condition of the Purchase Order.

Note: After receiving the LoI / PO, supplier shall also forward the acknowledgement / acceptance of the LoI / PO by signing and returning the second copy of the LoI / PO as the token of acceptance.

L] Others

a) In case of any contradiction in the terms and conditions given here and elsewhere in the other documents of the tender, it shall be the responsibility of the tenderer to get it clarified from BHEL. The officer authorized to provide such clarifications is the tender issuing officer.

b) Alterations to the conditions of the Tender can be done only by the authorized officer, at any time before the date and time of tender opening and would be duly communicated through a corrigendum.

c) **Suspension of Business dealings with Suppliers:**



(i) Before submitting offer, prospective bidders are advised to visit our web-site www.bhel.com / supplier registration to familiarize themselves with BHEL's policy and procedures of Suspension of Business Dealings with Suppliers.

Submission of offer shall be deemed to be evidence of the Bidder to have read and understood the above said policy.

ii) Treatment of Banned / Under-performing Vendors:

Any supplier who has been put on "Hold" or "Banned" from having business dealings with BHEL, Ranipet or any other unit of BHEL shall not submit their offer against this tender. If any such offers are received they would be summarily rejected and sent back. During the processing of tender, if any unit of BHEL puts a supplier on "Ban" then further processing of the offer will not be taken up and in case an order is placed, BHEL, Ranipet may resort at their discretion to cancel the PO either fully or partially.

If any of the supplier who is supplying similar material to BHEL, Ranipet has a Vendor Performance Rating (VPR) score of 'C' or below, then offer given by such parties will not be considered for ordering in this tender.

If any of the Bidders have unexecuted order/s with BHEL and if in such orders, the deliveries have been delayed beyond a reasonable period (say 30 days of agreed delivery period), the offer of such Bidders will also be liable for rejection.

Offers of such of those bidders against whom action for suspension of business dealings has been initiated by BHEL, Ranipet or any other Units/Division of BHEL will also not be considered in this tender.

d) Fraud Prevention Policy:

The Bidder along with its associate/ collaborators/ sub-contractors/ sub-vendors/ consultants/ service providers shall strictly adhere to BHEL Fraud Prevention Policy displayed on BHEL website <http://www.bhel.com> and shall immediately bring to the notice of BHEL Management about any fraud or suspected fraud as soon as it comes to their notice.

e) Applicability of Integrity Pact:-

IP is a tool to ensure that activities and transactions between the Company and its Bidders/ Contractors are handled in a fair, transparent and corruption free manner. A panel of Independent External Monitors (IEMs) have been appointed to oversee implementation of IP in BHEL.

The IP as enclosed with the tender is to be submitted (duly signed by authorized signatory who signs in the offer) along with techno-commercial bid. Only those bidders who have entered into such an IP with BHEL would be competent to participate in the bidding. In other words, entering into this Pact would be a preliminary qualification.

Details of IEM for this tender is furnished below:

Name _____
Address _____
Email _____

Please refer Section-8 of IP for Role and Responsibilities of IEMs. In case of any complaint arising out of the tendering process, the matter may be referred to the IEM mentioned in the tender.

Note:

No routine correspondence shall be addressed to the IEM (phone/ post/ email) regarding the clarifications, time extensions or any other administrative queries, etc on the tender issued. All such clarification/ issues shall be addressed directly to the tender issuing (procurement) department

For all clarifications/ issues related to the tender, please contact:

Name: (1) (2)
Dep't:
Address:
.....
Phone:(Landline/Mobile) (1) (2)
Email:
Fax:

Integrity Pact are applicable for all the BHEL enquiries whose estimated value is equal to or more than Rupees 05 Crores.

Copy of Integrity Pact with applicable nominated IEM is attached along with the tender documents for ready reference of Suppliers.

f) If any Supplier attempts to bribe, or pay commission, gift or any advantage or bring in undue influence either by himself or on his behalf any one including a stranger to the tender, in addition to instituting legal proceedings as per the extant laws prevailing, will disqualify the supplier from this tender and all future tenders of BHEL. Decision of the Purchaser would be final in this matter.

g) The laws governing this transaction shall be the laws in India.

h) Wherever not specified, Inco terms 2010 shall be used to interpret the Commercial terms and conditions and

i) In the event of an order, Supplier shall agree to settlement of disputes or differences, if any, by way of arbitration, in accordance with the “Rule of Arbitration” of the Indian Council of Arbitration.

The language in the tender documents downloaded by the Bidders shall at no point of time be changed, altered or modified in any manner by the Tenderer. If such changes are made by any tenderer, it shall be considered as tampering with BHEL's terms and the offer shall be summarily rejected, whenever it is noticed by BHEL. Such Bidders would be disqualified from the Bidding Process and their offers would be forfeited / Bank Guarantees invoked. They would also not be allowed to participate in future tenders of BHEL.

M. Conditions for rejection of offers:

Following is the list of situations which would lead to rejection of offer/s.

This list is not exhaustive but only indicative.

BHEL reserve the right to reject one or all offers without assigning any reason. The decision of BHEL will be final in this regard.

- 1. If the offer fails to meet the technical requirements/specifications of the tendered item/s.*
- 2. If the offer does not meet the commercial terms & conditions, such as but not limited to delivery period specified in the tender, Delivery terms, payment terms, Liquidated damages, Risk Purchase, cancellation clause etc., including the load factors specified in the tender.*
- 3. If the bidder fails to respond to clarification sought, within a reasonable period. In case of doubts / lack of clarity on the technical and commercial offer of the bidder, BHEL will seek clarifications. Bidders are required to respond completely to such BHEL's queries within 3 working days unless otherwise agreed to in writing by BHEL for period beyond 3 days. If supplier fails to respond within*

3 working days or maximum 2 working days on a reminder thereon, the offer of such bidders will be automatically dis-qualified in the tender without further recourse to informing the bidder.

4. If any of the conditions listed below are applicable to the bidder, the offer is liable to be rejected:

If any

- Debt recovery / Winding up Proceedings are initiated against the Company in Courts / Debt Recovery Tribunals (DRTs),
- Proceedings are there against the Company in National Company Law Tribunal (NCLT) with respect to Insolvency and Bankruptcy Code (IBC) or otherwise,
- Any proceedings are there against the Company under the “Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest (SARFAESI) Act,
- Any restructuring proceedings are underway for the Company under Corporate Debt Restructuring (CDR), Strategic Debt Restructuring (SDR) or otherwise,
- Divestment / demerger proceedings are underway for the Company under the Companies Act.
- If action under guidelines of suspension of business dealings (Ref AA/MM/SB/01 Rev 02 dt 22.07.2016) and its latest revisions has been initiated against the company/bidder.

5. Failure to sign & accept the Integrity Pact (where applicable). Bidders are hereby informed that the contents of the Integrity Pact are firm and fixed and cannot be changed.

The above list is not exhaustive but is indicative only.

N. Special Note:

BHEL is a Government of India Undertaking. Its procurement practices are governed by the (Internal) Purchase Policy issued by the management of the company and as per Annexure B applicable at the time of finalising the order against this tender.

-O-

Record of Revisions:

Revision No.	Revision Date	Modification
01	17.08.2016	Payment terms for Foreign suppliers modified wrt loading- Clause k.ii
02	29.08.2016	Treatment of banned vendors – Para 3 added - Clause L.ii
03	14.09.2016	Opening of offers – clause B – sub clause ‘b’ included and existing clause ‘b’ renamed as ‘c’.
04	14.09.2016	Opening of offers – Note – sub clause (ii) modified
05	12.10.2016	Clause N. Special Note added
06	22.10.2016	Clause G Reverse Auction modified. Annexure on General Business Rules for Reverse Auction appended Role of Principals added under ‘Miscellaneous’
07	20.01.2017	Clause L (e) is modified. Clause L (f ,g ,h) renumbered.
08	24.02.2017	Clause F(c) modified.
09	08.07.2017	Clause M, Point 4 is added – regarding the financial health of the Bidder - as a criterion for disqualification.
10	20.07.2017	Duties and Taxes replaced with GST; Applicability of GST for LD inserted in Clause E; Treatment of poor performing current vendors inserted in clause L.c.(ii)
11	25.07.2017	Clause A.Note (iii) CST etc., replaced with GST; Clause C.f Deleted;
12	15.09.2017	Clause M, Point 5 inserted regarding Integrity Pact
13	21.03.2018	Clause A, Point xi inserted regarding Overwriting in Price Bids
14	28.05.2018	Clause A, a),b),c),d) amended for M/s E-Procurement technologies, https://bhel.abcprocure.com . Clause A, (f, g, h) – modified. Clause M, Point 4, - regarding suspension of business dealings inserted.

ANNEXURE

Model General Business Rules for Reverse Auction

This has reference to tender no {tender number....date...}. BHEL shall finalise the Rates for the supply of {item name} through Reverse Auction mode. BHEL has made arrangement with M/s. {Service provider}, who shall be BHEL's authorized service provider for the same. Bidders should go through the instructions given below and submit acceptance of the same. The technical & commercial terms are as per (a) BHEL Tender Enq. No. {...} dated {...}, (b) Bidders' technical & commercial bid (in case of two part bid) and (c) subsequent correspondences between BHEL and the bidders, if any.

1. Procedure of Reverse Auctioning

- i. Online Sealed Bid: This duration of online sealed bid will be {...} minutes. All bidders to submit their online sealed bids during this period.
- ii. Online Reverse Auction: The 'opening price' i.e. start price for RA and 'bid decrement' will be decided by BHEL.
- iii. If BHEL decides the lowest online sealed bid as the starting price, then the lowest bidder in online sealed bid shall be shown as current L1 automatically by the system and no acceptance of that price is required. System shall have the provision to indicate this bid as current L1.
- iv. Bidders by offering a minimum bid decrement or the multiples thereof can displace a standing lowest bid and become "L1" and this continues as an iterative process.
- v. After the completion of the online reverse auction, the Closing Price (CP) shall be available for further processing.

2. Schedule for Reverse Auction: The Reverse Auction is tentatively scheduled on {date}:

and the duration of online sealed bid will be {...} minutes. All bidders to submit their online sealed bids during this period.

- Online Sealed Bid:-

- {Start Time:
- Close Time: }

- Online Reverse Auction:-

- {Start Time:
- Close Time: }

3. Auction extension time:

If a bidder places a bid in the last {...} minutes of closing of the Reverse Auction and if that bid gets accepted, then the auction's duration shall get extended automatically for another {...} minutes, for the entire auction (i.e. for all the items in the auction), from the time that bid comes in. Please note that the auto-extension will take place only if a bid comes in those last {...} minutes and if that bid gets accepted as the lowest bid. If the bid does not get accepted as the lowest bid, the auto-extension will not take place even if that bid might have come in the last {...} minutes. In case, there is no bid in the last {...} minutes of closing of Reverse Auction, the auction shall get closed automatically without any extension. However, bidders are advised not to wait till the last

minute or last few seconds to enter their bid during the auto-extension period to avoid complications related with internet connectivity, network problems, system crash down, power failure, etc.

The above process will continue till completion of Reverse Auction.

Complaints/ Grievances, if any, regarding denial of service or any related issue should be given in writing thru e-mail/ fax to M/s. {Service provider} with a copy to BHEL within 15 minutes prior to initial closing time of Online Reverse Auction.

4. Bid price: The Bidder has to quote the {...} Price inclusive of Packing & Forwarding charges, all the routine & type tests as per tender scope, GST, Freight (bidder to provide original Freight paid

receipt), insurance charges, etc. including loading (if indicated by BHEL due to deviations in technical/commercial terms) for the Items specified. Details are as shown in Excel Sheet for calculation of total cost to BHEL (To be specified by Unit as per NIT conditions).

5. Bidding currency and unit of measurement:

Bidding will be conducted in *Indian Rupees per Unit* of the material as per the specifications {...}

In case of foreign currency bids, exchange rate (TT selling rate of State Bank of India) as on scheduled date of tender opening (Part-I bid) shall be considered for conversion in Indian Rupees. If the relevant day happens to be a Bank holiday, then the forex rate as on the previous bank (SBI) working day shall be taken.

6. Validity of bids: Price shall be valid for {... days} from the date of reverse auction. These shall not be subjected to any change whatsoever.

7. Lowest bid of a bidder: In case the bidder submits more than one bid, the lowest bid at the end of Online Reverse Auction will be considered as the bidder's final offer to execute the work.

8. Bidders shall be assigned a **Unique User Name & Password** by M/s. {Service provider}. Bidders are advised to change the Password and edit the information in the Registration Page after the receipt of initial Password from M/s. {Service provider} to ensure confidentiality. All bids made from the Login ID given to the bidders will be deemed to have been made by the bidders/ bidders' company.

9. Post auction procedure: BHEL will proceed with the Lowest Bid in the Reverse Auction for further processing.

10. Any commercial/ technical loading shall be intimated to bidders prior to RA. The excel sheet provided in this regard shall cover all these aspects. Commercial/ technical loading if any, shall be added by the respective bidder in its price during online sealed bid & Online Reverse Auction. Modalities of loading & de-loading shall be separately intimated to the bidders. The responsibility for correctness of total cost to BHEL shall lie with the bidders.

11. Computerized reverse auction shall be conducted by BHEL (through M/s. {Service Provider}), on pre-specified date, while the bidders shall be quoting from their own offices/ place of their choice. Internet connectivity shall have to be ensured by bidders themselves.

During the RA process if a bidder is not able to bid and requests for extension of time by FAX/ email/ phone then time extension of additional 15 minutes will be given by the service provider provided such requests come before 5 minutes of auction closing time. However, only one such request per bidder can be entertained. Despite this extension if bidder fails to upload his prices due to extreme case of failure of Internet connectivity, (due to any reason whatsoever may be) it is the bidders'

responsibility/ decision to send fax communication immediately to M/s. {Service provider}, furnishing the price the bidder wants to bid online with a request to the service provider to upload the faxed price online so that the service provider will upload that price online on behalf of the Bidder. It shall be noted clearly that the concerned bidder communicating this price to service provider has to solely ensure that the fax message is received by the service provider in a readable/ legible form and also the Bidder should simultaneously check up with service provider about the clear receipt of the price faxed. It shall also be clearly understood that the bidder shall be at liberty to send such fax communications of prices to be uploaded by the service provider only within the closure of Bid time and under no circumstance it shall be allowed beyond the closure of Bid time /reverse auction. It shall also be noted that the service provider should be given a reasonable required time by the bidders, to upload such prices online and if such required time is not available at the disposal of the Service provider at the time of receipt of the fax message from the bidders, the service provider will not be uploading the prices and either BHEL or the service provider are not responsible for this unforeseen circumstances. In order to ward-off such contingent situation bidders are requested to make all the necessary arrangements/ alternatives whatever required so that they are able to circumvent such situation and still be able to participate in the reverse auction successfully. Failure of power or loss of connectivity at the premises of bidders during the Reverse auction cannot be the cause for not participating in the reverse auction. On account of this, the time for the auction cannot be extended and neither BHEL nor M/s. {Service provider} is responsible for such eventualities.

12. Proxy bids: Proxy bidding feature is a pro-bidder feature to safeguard the bidder's interest of any internet failure or to avoid last minute rush. The proxy feature allows bidders to place an automated bid in the system directly in an auction and bid without having to enter a new amount each time a competing bidder submits a new offer. The bid amount that a bidder enters is the minimum that the bidder is willing to offer. Here the software bids on behalf of the bidder. This obviates the need for the bidder participating in the bidding process until the proxy bid amount is decrementally reached by other bidders. When proxy bid amount is reached, the bidder (who has submitted the proxy bid) has an option to start participating in the bidding process.

The proxy amount is the minimum amount that the bidder is willing to offer. During the course of bidding, the bidder cannot delete or change the amount of a proxy bid. Bids are submitted in decrements (decreasing bid amounts). The application automates proxy bidding by processing proxy bids automatically, according to the decrement that the auction originator originally established when creating the auction, submitting offers to the next bid decrement each time a competing bidder bids, regardless of the fact whether the competing bids are submitted as proxy or standard bids. However, it may please be noted that if a manual bid and proxy bid are submitted at the same instant manual bid will be recognized as the L1 at that instant. In case of more than one proxy bid, the system shall bid till it crosses the threshold value of 'each lowest proxy bid' and thereafter allow the competition to decide the final L1 price. Proxy bids are fed into the system directly by the respective bidders. As such this information is privy only to the respective bidder(s).

13. Bidders are advised to get fully trained and clear all their doubts such as refreshing of screen, quantity being auctioned, tender value being auctioned etc. from M/s. {Service provider}.

14. M/s. {Service provider}, shall arrange to demonstrate/ train the bidder or bidder's nominated person(s), without any cost to bidders. M/s. {Service provider}, shall also explain the bidders, all the business rules related to the Reverse Auction. Bidders are required to submit their acceptance to the terms/ conditions/modalities before participating in the Reverse Auction in the process compliance form as enclosed. Without this, the bidder will not be eligible to participate in the event.

15. Successful bidder shall be required to submit the final prices (L1) in prescribed format (Annexure-VI) for price breakup including that of line items, if required, quoted during the Online Reverse Auction, duly signed and stamped as token of acceptance without any new condition (other than those already agreed to before start of auction), after the completion of auction to M/s. {Service provider} besides BHEL within two working days of Auction without fail.

16. Any variation between the final bid value and that in the confirmatory signed price breakup Document will be considered as tampering the tender process and will invite action by BHEL as per extant guidelines for suspension of business dealings (as available on www.bhel.com).

17. Bidders' bid will be taken as an offer to execute the work/ supplies of the item as per enquiry No. {...} dt. {...}. Bids once made by the bidder, cannot be cancelled/ withdrawn and bidder shall be bound to execute the work as mentioned above at bidder's final bid price. Should bidder back out and not execute the contract as per the rates quoted, BHEL shall take action as per extant guidelines for suspension of business dealings (as available on www.bhel.com).

18. Bidders shall be able to view the following on their screen along with the necessary fields during Online Reverse Auction:

- a. Leading (Running Lowest) Bid in the Auction (only total price of package).
- b. Bid Placed by the bidder.
- c. Start Price.
- d. Decrement value.
- e. Rank of their own bid during bidding as well as at the close of auction

19. BHEL's decision on award of contract shall be final and binding on all the Bidders.

20. BHEL reserves the right to extend, reschedule or cancel the Reverse Auction process at any time, before ordering, without assigning any reason, with intimation to bidders.

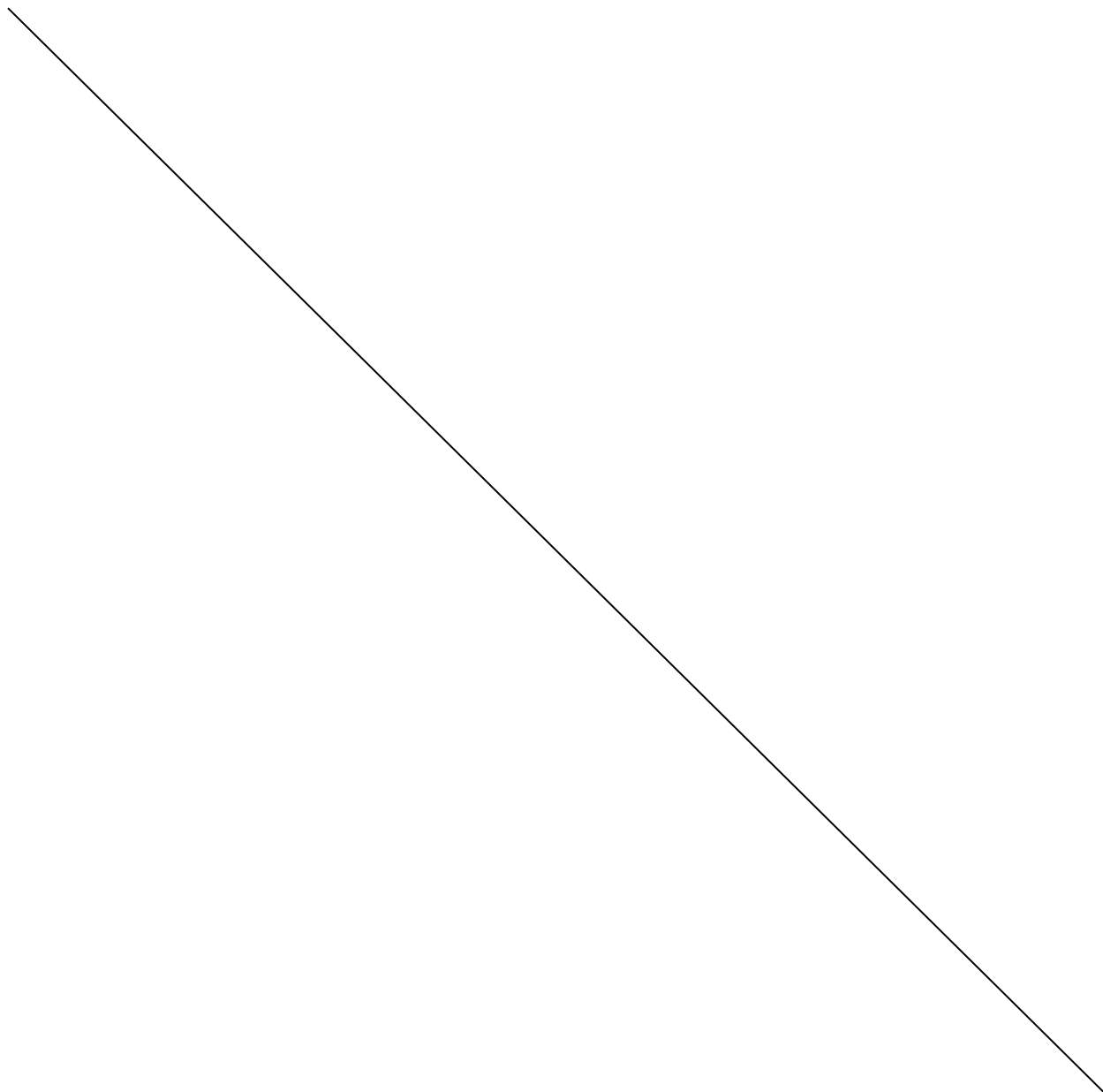


21. BHEL shall not have any liability to bidders for any interruption or delay in access to the site irrespective of the cause. In such cases, the decision of BHEL shall be binding on the bidders.

22. Other terms and conditions shall be as per bidder's techno-commercial offers and other correspondences, if any, till date.

23. If there is any clash between this business document and the FAQ available, if any, in the website of M/s. {Service provider}, the terms & conditions given in this business document will supersede the information contained in the FAQs. Any changes made by BHEL/ service provider (due to unforeseen contingencies) after the first posting shall be deemed to have been accepted if the bidder continues to access the portal after that time..

24. Bidder shall not divulge either his Bids or any other exclusive details of BHEL to any other party. If the Bidder or any of his representatives are found to be involved in Price manipulation/ cartel formation of any kind, directly or indirectly by communicating with other bidders, action as per extant BHEL guidelines for suspension of business dealings (as available on www.bhel.com), shall be initiated by BHEL.





RA price confirmation and breakup
(To be submitted by L1 bidder after completion of RA)

To
- M/s. Service provider
- Postal address

CC: M/s BHEL

BOILER AUXILIARIES PLANT
INDIRA GANDHI INDUSTRIAL COMPLEX
RANIPET – 632406
TAMILNADU
INDIA.

Sub: Final price quoted during Reverse Auction and price breakup

Dear Sir,

We confirm that we have quoted.

Rs.{ _____ in value & in words _____ } for item(s) covered under tender enquiry
No. {...} dt.{...}

Total price of the items covered under above cited enquiries is inclusive of {Packing & forwarding, GST, freight and insurance charges up to {.....}
District, {.....} State and Type Test Charges etc., [exclusive of Goods & Services tax (GST)],
other as
per NIT}

as our final landed prices as quoted during the Reverse Auction conducted today {date} which will
be valid for a period of { ____ in nos. & in words ____ } days.

The price break-up including that of line items is as given below.

Total	=====
	- Rs.in value & in words
	=====

Thanking you and looking forward to the valuable order from BHEL.

Yours sincerely,
For _____
Name:
Company:
Date:
Seal:

Date : 08-MAR-18

'R4K4'

PAGE 1 of 1

PO Ref	CE/P/SE/M/PEE-10/E/P/F.2X660MW ENNORESEZSTPP/D.60			PO Date	27-SEP-14
Cont #	R667	Project Name	ENNORE SEZ STPP 2X660MW		
Proj abrvn	ENN01	Exp code	Indigenous	Advance Ind	Not applicable
Order Type	DIRECT ORDER			Finance remarks	
Freight code	PAID(REIMB)				
Mode of desp	ROAD				
INSU code	BHEL(OTHERS)				
Export Box code					
Cust numbers	R667,R668,R4K3,R4K4			DI Status	Vet by finance
Carrier	BHEL APPROVED CARRIER			Inv Address	State Code : 33
				SE/CIVIL	
Consignee Address	State Code : 33			ENNORE SEZ SUPERCRITICAL TPP	
SE/CIVIL				TAMILNADU GENERATION AND DISTRIBUTION	
ENNORE SEZ SUPERCRITICAL TPP				CORPORATION	
TAMILNADU GENERATION AND DISTRIBUTION				CHENNAI	
CORPORATION				Pin -600120	GSTIN 33AADCT4784E1ZC
CHENNAI					
Pin - 600120	GSTIN	33AADCT4784E1ZC		Supply Address	State Code : 33
				SE/CIVIL	
Units	R667	ENNORE SEZ 1 660		ENNORE SEZ SUPERCRITICAL TPP	
Units	R4K4	ENNORE SEZ 1RODM		TAMILNADU GENERATION AND DISTRIBUTION	
Units	R4K3	ENNORE SEZ 1 AUX		CORPORATION	
Units	R668	ENNORE SEZ 2 660		CHENNAI	
				Pin -600120	GSTIN 33AADCT4784E1ZC
Special Instructions (if any)					
As ICB Non - Mega Project					
Insurance Ploicy:- Insurance Co : M/s. United India Insurance Company ,New Delhi SCE : 500300/44/15/04/40000004 MARINE : 500300/21/15/02/00000005 Policy period : 15.04.2015 to 14.04.2018					

	BHEL : BAP : RANIPET Water Business Pre-Qualification requirement for DMF Air Blowers	Ref:	RWT70618-AB-001
		Dt:	07.03.18
		Rev :	00

The Qualification requirements for DMF Air Blower and accessories are listed below and Bidders should meet the same:

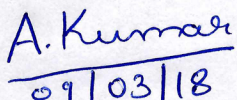
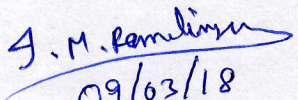
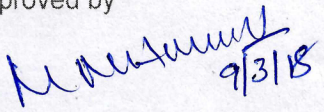
1. Bidder should have manufactured & supplied at least one number of Air Blower to any of the water treatment plant as per the details given below:

Sl. No.	Description	Value
a	Blower Type	Rotary Twin Lobe
b	Flow Capacity	550 N m3/hr (minimum)
C	Total Discharge Head	5 psig (minimum)

2. Air Blower (referred by the bidder under Sl. No. 1) should have been in successful operation for a period of minimum one year as on techno-commercial bid opening date.
3. Bidder shall furnish necessary documentary evidence copy obtained from the customer (or) enduser as a proof of meeting the qualifying criteria for review by BHEL. The certificate shall contain all required information for the satisfactory performance, such as Air Blower capacity, location of the plant to which air blower is supplied with postal address, date of supply & commissioning, design and actual performance parameters, etc.,

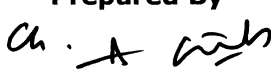
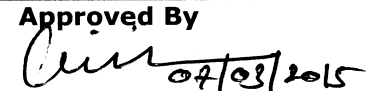
General requirements:

1. Bidders who defaulted, in any of the previous tenders floated by BHEL are not permitted to respond. Such offers, if found later, will not be considered for evaluation.
2. After receipt of offers, during scrutiny, if any vendor found to have been banned by BHEL, then their offer will be summarily rejected at any stage.

Prepared by  09/03/18	Checked by  09/03/18	Approved by  9/3/18
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PRODUCT: QA-ELECTRICS

 R 49 -079	Quality Department Contract Quality Requirement (CQR)
** Ref .No: CQR:R667,R668,R4K3&R4K4 ELET	Rev: 00 DT: 07/03/2015

1.	Work Order No.:	R667- XXX -1 - XX- XXX (Main Unit-1) R668- XXX -1 - XX- XXX (Main Unit-2) R4K3- XXX -1 - XX- XXX (Aux.Boiler) R4K4- XXX -1 -XX -XXX (RODM)
2.	Customer Name & Project:	M/S TAMIL NADU GENERATION AND DISTRIBUTION CORP. LTD , ENNORE SEZ STTP (2X660 MW), CHENNAI, TAMIL NADU.
3.	Consultant	---
4.	Contract/Commercial Ref. Details:	BAP: COMML: R667 dt 17/10/2014
5.	Customer / Consultant Inspection Requirement	Applicable Limited to QP: E: ENNO:800 REV 00 07 03 2015 for ACP/LTMSB. (Approval by Customer is awaited Customer approved QAPs will be sent to all concerned on receipt from customer through comml) For other items inspection shall be as per BHEL standard QP/Check List/PQRA (Annexure-I).
	Inspection Agency	Customer /customer authorized inspection agency.
	Contact details	Call letter can be given to Mr.K.Elangoven, MGR/ CommI
6.	QP / Check List Requirement (Annexure -I)	Annexure-I
7.	Items for which vendor QP is required	Nil
8.	For NTPC projects only (Refer Note 4)	NA
	Approved List of Vendors (ANNEXURE-II)	
9.	Items under Cat I/II (Where QP approval and vendor approval required by NTPC)- (ANEXURE -II)	NA
10.	Items under Cat III (Where no QP approval nor vendor approval is required by NTPC) - (ANNEXURE -II)	NA
11.	Special Painting Requirements &(Ref note 6)	Please contact EDC-E , C & I
12.	Remarks:	--
Prepared By  (CH.ANILSINGH) Asst.Engineer/QA		Approved By  (C.SRINIVASAN) DGM/QA

RECORD OF REVISION

Rev. No	Date	Changes Made
00	0703 2015	Original Issue.

NOTES:

1. Attach additional annexure with page control wherever required.
2. **XXX = FAN/APH/ESP/GAD & YYYY = Customer No. (First customer number incase of multiple projects)
3. Wherever QP/Check list requirement are mentioned as BHEL standard, SQP/ Engineering specification/drawing (as applicable) shall be followed.
4. For Non-NTPC Projects, please Contact Commercial for approved Vendor list.
5. Additional requirements, if any, received at a later date will be informed as soon as the receipt of same.

ANNEXTURE-I

Standard Quality Plans

SL NO	SQP:REF	REV NO.	DATE	Description	REMARKS
1.	QP:E:800	03	27 07 2011	BAPCON PLUS,BAPCON PLUS PLUS.,RAPCON, RAPCON-24 and STATCON-E	New Addition
2.	QP:E:806	03	13 08 2014	Ash Level Indicator	New Addition
3.	QP:E:809	06	22 04 2014	Geared Motor	New Addition
4.	QP:E:810	06	16 08 2014	Electrically Operated Hoist (EOH)	-do-
5.	QP:E:813	02	27 09 2014	LT MOTORS (From 30KW to 200KW)	"New Addition" PRQA:501 rev 04 Withdrawn and same is replaced with SQP
6.	QP:E:815	00	22 03 2003	Opacity Monitor Control Cubicles	Reaffirmed in 51 th PCM RND dt 29 01 08
7.	QP:E:816	00	28 02 2004	Service Transformer for ESP Application	-do-
8.	QP:E:825	00	15 04 2007	Bushing Insulators, Shaft Insulators & Support Insulators (Both Cylindrical and Conical Insulators)	New Addition
9.	QP:E:828	00	11 10 2010	Quality Plan for Galvanized Flexible cable tray support system	"New QWI"
10	QP:E:829	03	06 08 2014	Quality Plan for areca and Intellirap meant for ESP application	"New QWI"
11	QP:E:832	02	29 09 2014	SQP for Power and Control and Screened Cables (FRLS/NON FRLS) – Insulation of PVC/XLPE and Inner & Outer with PVC/HRPVC for ESP Application	"New QWI"
12	QP:E:833	01	27 09 2014	SQP FOR ACTUATOR	New Addition
13	QP:E:834	01	26 08 2014	INTERLOCKS FOR ESP	New Addition
14	QP:E:835	00	26 09 2014	SQP FOR HVR-EC	New Addition
15	QP:E:836	00	27 09 2014	SQP For IOS, RAPCON/INTELLIRAP&STATCON/ INTELLISTAT CONTROL PANEL	New Addition
16	QP:E:837	00	15 11 2014	SQP For Heating Element	New Addition

ANNEXTURE-I**II. CHECK LISTS**

SL NO	CKL:REF	REV NO.	DATE	DESCRIPTION	REMARKS
1.	CKL:E:803	05	15 04 2007	DISCONNECTING SWITCH	"New Addition"
2.	CKL:E:806	04	01 08 2009	CABLE TRAYS AND ACCESSORIES	"New Addition"
3.	CKL:E:807	01	21.07.2001	SYNCHRONOUS PROGRAMMER	Reaffirmed in 51 th PCM RND dt 29 01 2008
4.	CKL:E:808	00	30 10 2002	THERMOSTAT	-do-
5.	CKL:E:809	00	08 03 2003	LOCAL LOCKABLE PUSH BUTTONS FOR FABRIC FILTER	-do-
6.	CKL:E:816	00	11 08 2012	STANDARD CHECK LIST FOR JUNCTION BOXES (Galvanized/Painted/FRP) MEANT FOR ESP APPLICATION	"New QWI"
7.	CKL:E:817	00	15 04 2014	STANDARD CHECK LIST FOR PLATINUM RTD FOR TEMPERATURE MEASURING	**" New Addition"

III. PRQA

SL NO	PRQA REF	REV NO.	DATE	DESCRIPTION	REMARKS
01	<u>PRQA: 119</u>	00	02 07 90	DETERMINATION OF THE VALIDITY OF TYPE TEST CERTIFICATES.	Reaffirmed in 51 th PCM RND dt 29 01 2008
02	<u>PRQA:550</u>	02	01 08 2009	FINAL INSPECTION AND TESTING OF LT MOTORS OF CAPACITY LESS THAN 30 KW.	"New Addition"
03	<u>PRQA:555</u>	00 With AmendA01 and Amend A02	16 02 95	WORKMANSHIP STANDARD FOR ELECTRONIC ASSEMBLIES.	ISSUE 01 Reaffirmed in 51 th PCM RND dt 29 01 2008
04	<u>PRQA:560</u>	00	25 01 2002	INSPECTION AND TEST PROCEDURE FOR GEARED MOTOR FOR THE APPLICATION OF ROTARY AIR LOCK VALVE/SCREW/SCRAPPER/CHAIN CONVEYOR ETC ,ie OTHER THAN ESP GEARED MOTORS FOR RAPPING MECHANISM.	

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TECHNICAL SPECIFICATION FOR

LT MOTOR

					
01	05.02.18	AJV	ST	VNS	
00	26.05.17	AJV	ST	VNS	
Rev.No	Date	Prepared	Checked	Approved	Remarks

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1. CODES AND STANDARDS

All equipments, system and service covered under this specification shall comply with the requirements of the latest statutes regulations and safety codes as applicable in the locality where the equipments/systems will be installed. The Bidder shall fully acquaint himself with these requirements and shall ensure compliance with them. The equipments, systems and services furnished as per this specification shall conform to the codes and standards elsewhere in the specification. However in the event of any conflict between the requirements of two standards or between the requirements of any standard and this specification, the more stringent requirements shall apply unless confirmed otherwise by the Owner in writing. The decision of the Owner shall be final and binding in all such cases.

1.1. Reference Codes and Standards

The design, manufacture, inspection, testing, site calibration and installation of all equipment and systems covered under this specification shall conform to the latest editions of codes and standards mentioned below and all other applicable ANSI, ASME, IEEE, NEC, NEMA, ISA, DIN, VDE, NFPA, IEC, EIA, TIA and Indian Standards and their equivalents. Bidder to note that in no case, OEM/manufacturers own standards shall be accepted.

2. SUPPLY OF LT MOTORS

2.1. INTENT OF SPECIFICATION

The specification covers the design, materials, constructional features, manufacture, inspection and testing at manufacturer's work, and packing of Low voltage (LV) squirrel cage induction motors along with all accessories for driving auxiliaries in thermal power station.

Motors having a voltage rating of below 1000V are referred to as low voltage (LV) motors. Maximum rating of the LV motor shall be 160 KW. Motors rated 0.20 KW and below shall be 240v, 1Ph, 50Hz motors and all other motors will be 415V, 3 Ph, 50 Hz motors unless otherwise specified.

2.2. CODES AND STANDARDS

All motors shall confirm to the latest editions including all applicable amendment of relevant IS, IEC and CBIP standards/Publications. In case any other standard is followed that ensures equal or better quality, may be accepted. However the English version of the Standard adopted shall be submitted.

Motors shall fully comply with latest edition, including all amendments and revision, of following codes and standards:. Any other applicable Indian standards for any component part even if not covered in the list shall also be followed

IS:325 Three phase Induction motors

IS : 900 Code of practice for installation and maintenance of induction motors

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IS: 996 Single phase small AC and universal motors
 IS: 4722 Rotating Electrical machines
 IS: 4691 Degree of Protection provided by enclosures for rotating electrical machines
 IS: 4728 Terminal marking and direction of rotation rotating electrical machines
 IS: 1231 Dimensions of three phase foot mounted induction motors
 IS: 8789 Values of performance characteristics for three phase induction motors
 IS: 13555 Guide for selection and application of 3-phase A.C. induction motors for different types of driven equipment
 IS: 2148 Flame proof enclosures for electrical appliance
 IS: 5571 Guide for selection of electrical equipment for hazardous areas
 IS: 12824 Type of duty and classes of rating assigned
 IS: 12802 Temperature rise measurement of rotating electrical machines
 IS: 12065 Permissible limits of noise level for rotating electrical machines
 IS: 12075 Mechanical vibration of rotation of electrical machines
 IEC:60034: Rotating electrical machines
 IS: 6362: Designation of methods of cooling of rotating electrical machines
 IS: 2253: Designation for type of construction and mounting arrangement of rotating electrical machines
 IS: 12615 Energy Efficient Squirrel Cage Induction Motors

2.3. DESIGN REQUIREMENTS

2.3.1. All LV motors will be suitable for 415V, 3 Phase, 50 Hz power supply except motors rated with 0.2 KW & below. System fault level shall be 50kA for 1 Sec. For the purpose of design of equipments /systems, an ambient temperature of 50 °C and relative humidity of 85% shall be considered. The equipment shall operate in a highly polluted environment.

2.3.2. All LV motors above 10 kW with S1 duty shall be compulsorily of Energy efficient level IE 2 as per IS 12615: 2011.

2.3.3. The motor rating shall be arrived at considering 15% margin over the duty point input or 10% over the maximum demand of the driven equipment, whichever is higher, considering highest system frequency. All motors shall be continuously rated (S1 duty). However, crane motors shall be rated for S4 duty, 40% cyclic duration factor. Whenever the basis for motor ratings are not specified in the corresponding mechanical specification sub-sections, maximum continuous motor ratings shall be at least 10% above the maximum load demand of the driven equipment under entire operating range including voltage and frequency variations.

2.3.4. All motors shall be suitable for direct on line starting through any type of breaker

2.4. STARTING REQUIREMENTS

2.4.1. Motor characteristics such as speed, starting torque, break away torque and starting time shall be properly co-ordinated with the requirements of driven equipment. The accelerating torque at any speed with the minimum starting voltage shall be at least 10% higher than that of the driven equipment.

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2.4.2. Starting Voltage requirement motors :85 % of rated voltage for all motors. Motors shall be capable of starting and accelerating the load with direct on line starting without exceeding acceptable winding temperature.

2.4.3. For motors with starting time up to 20 secs at minimum permissible voltage during starting, the locked rotor withstand time under hot condition at highest voltage limit shall be at least 2.5 secs more than starting time .

2.4.4. For motors with starting time more than 20 secs and up to 45 secs at minimum permissible voltage during starting, the locked rotor withstand time under hot condition at highest voltage limit shall be at least 5 secs more than starting time.

2.4.5. For motors with starting time more than 45 secs at minimum permissible voltage during starting, the locked rotor withstand time under hot condition at highest voltage limit shall be more than starting time by at least 10% of the starting time.

2.4.6. Speed switches mounted on the motor shaft shall be provided in cases where above requirements are not met.

2.4.7. Motors shall be capable of restarting under full load after a momentary loss of voltage with the possibility of 150 % nominal voltage during fast bus transfer.

2.4.8. The motor shall be designed for direct on line starting at full voltage. Starting current shall not exceed 6 times full load current for all auxiliaries, subject to IS tolerance.

2.5. The motor shall be capable of withstanding the stresses imposed if started at 110% rated voltage.

2.6. Transient voltage dip on starting of the largest motor with DOL shall be limited to 20% of the nominal system voltage at the voltage terminals.

2.7. TORQUE REQUIREMENTS

2.7.1. Accelerating torque at any speed with the lowest permissible starting voltage shall be at least 10% motor full load torque.

2.7.2. Pull out torque at rated voltage shall not be less than 205% of full load torque. It shall be 275% for crane duty motors.

2.8. The following frequency of starts shall apply

2.8.1. Two starts in succession with the motor being initially at a temperature not exceeding the rated load temperature.

2.8.2. Three equally spread starts in an hour with the motor being initially at a temperature not exceeding the rated load operating temperature. (not to be repeated in the second successive hour)

2.9. RUNNING REQUIREMENTS

2.9.1. Minimum voltage required for starting the motors shall be 85% of rated voltage

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2.9.2. Motors shall run satisfactorily at a supply voltage of 75% of rated voltage for 5 minutes with full load without injurious heating to the motor.

2.9.3. Motor shall not stall due to voltage dip in the system causing momentary drop in voltage up to 70% of the rated voltage for duration of 2 secs.

2.10. STRESS DURING BUS TRANSFER

2.10.1. All motors shall be so designed that maximum inrush currents and locked rotor and pullout torque developed by them at extreme voltage and frequency variations do not endanger the motor and driven equipment.

2.10.2. The motors shall be suitable for bus transfer schemes provided on the 11 kV, 3.3 kV/415V systems without any injurious effect on its life.

2.10.3. Motors shall withstand the voltage, heavy inrush transient current, mechanical and torque stress developed due to the application of 150% of the rated voltage for at least 1 sec. caused due to vector difference between the motor residual voltage and the incoming supply voltage during occasional auto bus transfer.

2.10.4. Motor and driven equipment shafts shall be adequately sized to satisfactorily withstand transient torque under above condition.

2.10.5. The max. vibration velocity or double amplitude of motors vibration as measured at motor bearings shall be within the limits specified in IS: 12075.

2.11. LOCKED ROTOR WITHSTAND TIME

2.11.1. Locked rotor current of the LV motor shall not exceed 600% of full load current inclusive of IS tolerance.

2.11.2. The locked rotor withstand time under hot condition at 110% rated voltage shall be more than motor starting time at minimum permissible voltage of 80% rated voltage by at least 3 seconds or 15% of the accelerating time whichever is greater. Provision of speed switch shall be avoided to the extent possible.

2.11.3. Hot thermal withstand curve shall have a margin of at least 10% over the full load current of the motor to permit relay setting utilising motor rated capacity.

2.12. CONSTRUCTIONAL FEATURES

2.12.1. Canopy shall be provided for outdoor motors.

2.12.2. Bidder shall provide fully compatible electrical system, equipments, accessories and services.

2.12.3. All the equipment, material and systems shall, in general, conform to the latest edition of relevant National and international Codes & Standards, especially the Indian Statutory Regulations.

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2.12.4. All motors below 15 kW shall be provided with sealed ZZ bearings.

2.12.5. Motors shall be designed to easy access for drilling holes through motor feed of mounting flange for installation of dowel pins after assembly of the motor and driven equipment.

2.12.6. For bearing temperature measurement, duplex RTDs shall be provided for each bearing and shall be wired up to the terminal box.

2.12.7. Degree of Protection

Indoor Motors: IP 54

Outdoor Motors: IP 55

Cable Box-Indoor area: IP 54

Cable Box-Outdoor area: IP 55

2.12.8. Non-hygroscopic, oil resistant, flame resistant

2.12.9. Suitable single phase space heaters shall be provided on motors rated 30 kW and above to maintain windings in dry condition when motor is standstill. Separate terminal box for space heaters & RTDs shall be provided.

2.12.10. Motors upto 160KW shall have Totally Enclosed Fan Cooled (TEFC) enclosures, the method of cooling conforming to IC-0141 or IC-0151 of IS: 6362. Motors rated above 160 KW shall be Closed Air Circuit Air (CACA) cooled

2.12.11. Motors shall be designed with cooling fans suitable for both directions of rotation.

2.12.12. Motors shall not be provided with any electric or pneumatic operated external fan for cooling the motors.

2.12.13. Frames shall be designed to avoid collection of moisture and all enclosures shall be provided with facility for drainage at the lowest point.

2.12.14. In case Class 'F' insulation is provided for LV motors, temperature rise shall be limited to the limits applicable to Class 'B' insulation. In case of continuous operation at extreme voltage limits the temperature limits specified in table-1 of IS:325 shall not exceed by more than 10 deg C.

2.12.15. Winding and insulation

All insulated winding shall be of copper.

Windings shall be impregnated to make them non hygroscopic and oil resistant.

Two hot starts in succession, with motor initially at normal running temperature

Class 'F' with temperature rise limited to class 'B'

2.12.16. Noise and vibration

The peak amplitude of the vibration shall be within IS specified limits.

Noise level and vibration shall be limited within the limits prescribed in IS: 12065 & IS: 12075 respectively. Motors shall withstand vibrations produced by driven equipment.

2.12.17. Grounding

Motor body shall be grounded at two earthing points on opposite sides with two separate and distinct grounding pads complete with tapped holes, GI bolts and washers.

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The grounding connection shall be suitable for accommodation of ground conductors as follows:

LT Motors	
a. Fractional HP	8 SWG GI wire
b. Up to 25 KW	25 x 3 mm flat
c. 25 to 125 KW	25 x 6 mm flat
d. above 125 KW	50 x 6 mm flat
Control Desks, Control/relay panels, LDBs, PDBs, Lighting Panels, Power receptacles, Lighting Masts, Lighting Poles	25 x 3 mm flat
LPB stations, Limit/Pressure switches, Starters, CT/PT terminal Boxes	8 SWG GI wires
Columns, Fence, Gates, Cable trays etc	50 x 6mm flat

2.12.18. The cable terminal box shall have a separate grounding pad, Terminals and Terminal Boxes.

2.12.18.1. The motor terminal box shall be suitable for withstanding the maximum system fault current for a duration of at least 0.25 seconds.

2.12.18.2. Terminals, terminal leads, terminal boxes, windings tails and associated equipment shall be suitable for connection to a supply system having a short circuit level, specified below.

2.12.18.3. Unless otherwise stated, motors of rating 110 kW and above will be controlled by circuit breaker and below 110 kW by switch fuse-contactor. The terminal box of motors shall be designed for the fault current Short time rating for terminal boxes below 110 kW (Contactor controlled) shall be 50 KA protected by fuse for 0.25 sec

2.12.18.4. Unless otherwise specified or approved, phase terminal boxes of horizontal motors shall be positioned on top or left hand side of the motor when viewed from the non-driving end.

2.12.18.5. Connections shall be such that when the supply leads R, Y & B are connected to motor terminals A B & C or U, V & W respectively, motor shall rotate in an anticlockwise direction when viewed from the non-driving end. Where such motors require clockwise rotation, the supply leads R, Y, B will be connected to motor terminals A, C, B or V W & V respectively.

2.12.18.6. Permanently attached diagram and instruction plate made preferably of stainless steel shall be mounted inside terminal box cover giving the connection diagram for the desired direction of rotation and reverse rotation.

2.12.18.7. Motor terminals and terminal leads shall be fully insulated with no bar live parts. Adequate space shall be available inside the terminal box so that no difficulty is encountered for terminating the cable.

2.12.18.8. Degree of protection for terminal boxes shall be IP 55 as per IS 4691.

2.12.18.9. Separate terminal boxes shall be provided for space heaters.. If this is not possible in case of LV motors, the space heater terminals shall be adequately segregated from the main terminals in the main terminal box. Detachable gland plates with double compression brass glands shall be provided in terminal boxes.

2.12.18.10. Phase terminal boxes shall be suitable for 360 degree of rotation in steps of 90 degree for LV motors.

2.12.18.11. Suitable Double Compression type Cable glands and cable lugs shall be provided. Cable lugs and lugs shall be as specified elsewhere in the specification. The cable sizes will be informed during detail engineering.

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2.12.18.12. Two separate earthing terminals suitable for connecting G.I. or MS strip grounding conductor of size suitable for solidly grounded system shall be provided on opposite sides of motor frame. Each terminal box shall have a grounding terminal.

2.12.19. Painting -Motor including fan shall be painted with corrosion proof paints of colour shade Siemens grey (RAL 7032).

2.12.20. Lifting Provisions

Motor weighing 25 kg or more shall be provided with eye bolt or other adequate provision for shifting.

2.13. GENERAL

2.13.1. Motors provided for similar drives shall be interchangeable.

2.13.2. Suitable foundation bolts are to be supplied along with the motors.

2.13.3. Necessary fitments and accessories shall be provided on motors in accordance with the latest Indian Electricity rules 1956

2.13.4. All motors rated above 30 kW shall be provided with space heaters to maintain the motor internal air temperature above the dew point. Unless otherwise specified, space heaters shall be suitable for a supply of 240V AC, single phase, 50 Hz.

2.13.5. Name plate with all particulars as per IS: 325 shall be provided

2.13.6. Necessary cable glands & cable lugs for the motors shall be supplied by the bidder

2.13.7. Motors with heat exchangers shall have dial type thermometer with adjustable alarm contacts to indicate inlet and outlet primary air temperature.

2.14. INSPECTION AND TESTING

2.14.1. All materials, components and equipment covered under this specification shall be procured, manufactured, as per the Approved quality plan

2.14.2. LV motors of type-tested design shall be provided. Valid type test reports not more than 5 year shall be furnished. In the absence of these, type tests shall have to be conducted by manufacturer without any commercial implication to purchaser.

2.14.3. All motors shall be subjected to routine tests as per IS: 325

Noise level measurement and vibration test as per standards shall be conducted on all motors.

2.14.4. LIST OF TESTS TO BE CONDUCTED FOR HV, MV and LV MOTORS

2.14.4.1. TYPE TESTS

(a) No load saturation and loss curves up to approximately 115% of rated voltage

(b) Momentary overload test

(c) Temperature rise test at rated conditions. During heat run test, bearing temp., winding temp., core temp., coolant flow and its temperature shall also be measured. In case the temperature rise test is carried at load other than rated load, specific approval for the test method and procedure is

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required to be obtained. Wherever ETD's are provided, the temperature shall be measured by ETD's also for the record purpose.

(d) Surge withstand test on the sample coil after placing it in stator core at (4U + 5 KV) and with at least five impulse of 1.2/50 micro sec. wave, for HV motors only, where U is the line to line voltage in kV.

(e) Surge-withstand test with 0.3/3 micro sec. wave on each type of 3.3/11 kV motor coils with at least five such impulses, followed by one minute power frequency high voltage test on turn to turn insulation, after cutting the coil and bringing out the turns suitably. The power frequency test voltage shall be decided during detailed engineering.

f) Dimensions (for motors covered by IS 1231:1974 and IS 2223:1983 only)

g) Measurement of resistance of windings of stator and wound rotor.

h) Reduced voltage running up test at no load (for squirrel cage motors up to 37kw only)

i) Full load test to determine efficiency, power factor and slip.

j) Insulation resistance test

k) Test for vibration severity of motor

l) Test for noise levels of motor

m) Test for degree of protection by enclosure

n) Temperature rise test at limiting values of voltage and frequency variations

o) Over speed test

2.14.4.2. ROUTINE TESTS

The following shall constitute the routine tests.

a) Insulation resistance test

b) Measurement of resistance of windings of stator and wound rotor.

c) No load test

d) Locked rotor readings of voltage, current and power input at a suitable reduced voltage

e) Reduced voltage running up test (for squirrel cage motor)

f) Open circuit voltage ratio of stator and rotor windings (for slip ring motors); rotor;

g) High voltage test

2.14.5. INSPECTION AND TESTING AT SITE

2.14.5.1. Insulation resistance of 415V motors shall be measured between the winding of the machine and its frame by means of a 500/1000V megger. A minimum value of 1 mega ohm for 415V motors shall be considered a safe value. In case of lower I.R. Value, the insulation value shall be brought up by any of the following methods as desired by the Site Engineer:

(a.) Blowing hot air in case of big motors.

(b.) Putting the motor in electric oven in case of smaller motors.

(c.) Placing heaters or lamps around and inside in case of small motors after making suitable guarding and covering arrangements so as to conserve the heat.

2.14.5.2. Site Test

(a.) Measurement of vibration.

(b.) Measurement of insulation resistance and polarization index.

(c.) Measurement of full load current.

(d.) Test running of the motors, checking the temperature rise and identifying the hot spot etc.

2.15. DRAWINGS TO BE SUBMITTED AFTER AWARD OF CONTRACT

a) OGA drawing showing the position of terminal boxes, earthing connections etc.

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- b) Arrangement drawing of terminal boxes.
- c) Characteristic curves:
 - i) Current vs. time at rated voltage.
 - ii) Speed vs. time at rated voltage.
 - iii) Torque vs. speed at rated voltage and minimum voltage.

For the motors with solid coupling the above curves i), ii), iii) to be furnished for the motors coupled with driven equipment. In case motor is coupled with mechanical equipment by fluid coupling, the above curves shall be furnished with and without coupling.

iv) Thermal withstand curve under hot and cold conditions at rated voltage and max. permissible voltage.

V) Load performance curves.

2.16. DATA SHEET

LT MOTORS (A.C.)

- 01. Application :
- 02. Type : Energy Efficient (IE2)
- 03. Frame size :
- 04. Manufacturer :
- 05. Rated output in KW :
- 06. Duty cycle : Continuous, S1
- 07. Rated voltage, no. of phases and frequency : 415 V, 3 Ph, 50 Hz
- 08. Allowed voltage variation : $\pm 10\%$.
- 09. Allowed frequency variation : (+) 3% and (-) 5%
- 10. Combined voltage and Frequency variation : 10 % (Absolute sum)
- 11. At rated Voltage and frequency
 - a) Full load current (Amps) :
 - b) Rated speed :
 - c) Full load efficiency :
 - d) Full load power factor :

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- e) Starting torque in % of FLT :
12. Method of starting :
13. Degree of protection :
14. Method of ventilation :
15. Class of insulation : "F" (temp.rise limited to class.B)
16. Stator winding connection :
(For continuous run) (Delta / Star)
17. Full load torque :
18. Breakdown torque in % of FLT :
19. Pull up torque in % of FLT :
20. Locked rotor current in Amps :
(600% with tolerance of 20%)
21. Motor efficiency and P.F.AT :
a) 100 % load
b) 75% load
c) 50% load
d) 25% load
22. Locked rotor withstand time
under hot/cold condition
at 110 % Voltage :
23. Maximum permissible starting
time :
24. No load current in Amps. :
25. Starting time in seconds with
driven equipment coupled at
a) rated voltage :
b) Min. Voltage :
c) Max. Voltage :
26. Actual temperature rise over
an ambient of 50°C when motor
is delivering rated output
a) By thermometer method :
b) By resistance method : (70°C for air cooled motors)

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27. Number of successive starts with driven equipment coupled and motor initially at rated load temperature :
28. Minimum voltage required by the motor to bring the driven equipment to rated speed : To be 80% of RV.
29. Resistance per phase in ohms at 20 degree :
30. Direction of rotation viewed from driving end :
31. Make, type and size of bearing
a) At drive end :
b) At Non drive end :
32. Type of mounting and shaft Orientation :
33. Location of terminal box viewed from driving end :
34. Type and number of terminals brought out :
35. Type and size of cable gland & lugs for power cables & (if applicable) space heater cable: (size will be given during Detail engg)
36. Cable gland entry side :
37. Tropical & fungicidal treatment :
38. GD² of the motor :
39. Weight of the motor :
40. Space heater Rating & other details (for 30KW and above motors) :

3. SPECIFICATION FOR CABLE GLANDS & LUGS

3.1. Specification for Cable Glands

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a) Bidder shall provide all cable glands required for glanding the above mentioned cables both at field instrument and local control panel side, junction boxes side and at control room side.

b) Cable glands

Cable glands shall conform to BS: 6121 and be of robust construction capable of clamping cable and cable armour (for armoured cables) firmly without injury to insulation. Cable glands shall be made of heavy duty brass machine finished and nickel chrome plated. Thickness of plating shall not be less than 10 micron. All washers and hardware shall also be made of brass with nickel chrome plating. Rubber components shall be of neoprene and of tested quality. Necessary cable dimensions shall be furnished to the successful contractor.

Cable glands shall be single compression for indoor use, double compression type for outdoor use. Glands for classified hazardous areas shall be double compression type flameproof and weather proof duly certified by CMRS and approved by CCE.

3.2. Cable lugs/ferrules

The cables lugs shall be conforming to IS: 8309.

Machine ferruling shall be adopted.

Cable lugs for power cables shall be Aluminium solder less crimping type suitable for aluminium compacted conductor cables.

The cable lugs for control/instrumentation/ telephone cables shall be provided with insulating sleeve and shall suit the type of terminals provided on the equipments. Cable lugs shall be suitable for termination of different cross-sections of control/ instrumentation /telephone cables and shall be of following types.

- i) Copper tubular terminal end for solder less crimping to copper conductors.
- ii) Cable lugs for control cable termination shall be insulated type. These lugs shall be flat type/ring type/U type to suit the terminals provided in the pan
- iii) Pin type lugs shall not used.
- iv) Aluminium tubular terminal ends for solder less crimping of to Aluminium conductor.

Solder less crimping of terminals shall be done by using corrosion inhibiting compound. The cable lugs shall suit the type of terminals provided on the equipment. Lugs for control/instrumentation cables shall be PVC insulated/sleeved type.

4. LIST OF MANDATORY SPARES

a	Motors – Bearings	One (1) Set each for drive end and Non drive end for each type and rating.
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NOTES:

1. The word 'TYPE' means the Make, Model no., Type, Range, Size/ Length, Rating, Material, accessories as applicable.
2. Wherever % age is identified, Bidder shall supply next higher rounded figure.
3. The terminology used under 'Part Description' is the commonly used name of the part and may vary from manufacturer to manufacturer.
4. Commissioning spares are part of Bidder scope of supply. Mandatory spares as indicated above do not cover commissioning spares.

5. PACKING AND DISPATCH

Equipment shall be packed with suitable desiccants sealed in water-proof, vapour-proof wrapping, and packed in lumber or plywood enclosures, suitably braced tied and skidded. Lumber enclosures shall be solid, not slatted.

Electrical equipment controls and instrumentation shall be protected against moisture and water damage. All external gasket surfaces and flange faces, couplings, motor pump shafts, bearings and like items shall be thoroughly cleaned and coated with rust preventive compound as specified above and protected with suitable wood, metal or other substantial type covering to ensure their full protection.

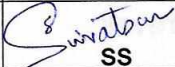
6. APPROVED MAKE

1	KIRLOSKAR ELECTRIC CO LTD	BENGALURU/CHENNAI
2	NGEF (HUBLI) LTD	BENGALURU
3	SIEMENS INDIA LTD	JOKA
4	BHARAT BIJILEE LTD	MUMBAI
5	CROMPTON GREAVES LIMITED	CHENNAI
6	LAXMI HYDRAULICS PVT LTD	SOLAPUR
7	JYOTI LIMITED	VADODARA
8	BHEL ELECTRICAL MACHINES LTD	KASARAGOD
9	BHARAT BIJLEE LIMITED	CHENNAI
10	ABB LIMITED	CHENNAI

	TECHNICAL SPECIFICATION FOR AIR BLOWERS	ROS: 6205; Rev:00 Dt. 05.02.18
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**BHARAT HEAVY ELECTRICALS LIMITED,
RANIPET- 632 406.**

**TECHNICAL SPECIFICATION
FOR
AIR BLOWERS FOR
DUAL MEDIA FILTER & ACC.**

00	05.02.18	 ABH	 SS	 IMRL	Fresh issue
Rev.No	Date	Prepared	Checked	Approved	Remarks

	TECHNICAL SPECIFICATION FOR AIR BLOWERS	ROS: 6205; Rev:00 Dt. 05.02.18
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1.0 SCOPE

The intent of this specification is to cover Design, Engineering, Manufacturing, shop testing, supply and ensuring performance guarantee at site of Air Scour Blowers for Dual Media Filter System as per this specification.

The scope of supply & services shall include but not limited to the following.

- a. Air scour blower with accessories – 2 sets
- b. Technical Specification for LT Motors as per Spec. ROS: 4162/Rev.01
- c. Commissioning spares as per specification – 1 set
- d. Mandatory spares as per specification – 1 set

Items though not mentioned but needed to make the system complete as stipulated under these specifications are also to be supplied unless otherwise specifically excluded.

- 1.1 It is not the intent to specify all the details of the design & manufacture. However, the equipment shall conform in all respects to high standard of design, engineering and workmanship and shall be capable of performing the required duties in a manner acceptable to Engineer / Customer, who will interpret the meaning of drawing & the specification and shall be entitled to reject any work or material, which is not in full accordance herewith.
- 1.2 In case of any deviation, the Bidder shall indicate the same, clause by clause in the deviation schedule. In the absence of the same it will be construed that the bid confirms strictly to the specification.
- 1.3 General terms & conditions, instructions to the bidder & other attachments referred to elsewhere are part of this specification.
- 1.4 The order of priority of this specification is as follows:
 - a. Technical requirement/Equipment Specification

Any contradiction either between various parts or contents of the specification shall be a matter for clarification to be obtained by the bidder. The Customer's decision shall be final. However, as a general guideline the details furnished in the Equipment specification shall prevail.

	TECHNICAL SPECIFICATION FOR AIR BLOWERS	ROS: 6205; Rev:00 Dt. 05.02.18
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2.0 PROJECT INFORMATION

- a. Owner : Tamil Nadu Generation and Distribution Corporation Limited.
- b. Project Title : Ennore, SEZ- 2 x 660 MW
- c. Location : Vayalur Village, Chennai – 120
- d. Nearest Railway
- e. Station / Access Road : Athipattu Pudunagar (approx. 5 kms)
- f. Site address : Site In charge / PSSR,
Bharat Heavy Electricals Ltd
C/o TANGEDCO, Ennore SEZ- 2x660 MW,
Vayalur Village, Chennai -120,
Tamil Nadu, India

3.0 EQUIPMENT SPECIFICATIONS

AIRSCOUR BLOWER WITH ACOUSTIC HOOD

3.1 EQUIPMENT SPECIFICATIONS

- a. Blower Type : Rotary twin lobe, oil free
- b. Ambient Temperature : 45 Deg.C Maximum & 15 Deg.C Minimum
- c. Operation : Intermittent
- d. Scope per set of Blower
 - Air Blower : 1 No.
 - Electric Motor : 1 No.
 - 'V' Belt & pulleys : 1 Set
 - Belt Guard : 1 No.
 - Base plate & discharge silencer : 1 No.
 - Antivibration mountings : 1 Set
 - Inlet filter & Silencer : 1 No.
 - Pressure Relief Valve : 1 No.
 - Pressure Gauge : 1 No.
 - Filter restrictor Indicator : 1 No.
 - Non-Return Valve : 1 No.
 - Flexible discharge connection : 1 No.
 - Acoustic hood : 1 set

	TECHNICAL SPECIFICATION FOR AIR BLOWERS	ROS: 6205; Rev:00 Dt. 05.02.18
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- Other Accessories : 1 Set

3.2 DESIGN PARAMETERS FOR BLOWER

a. Fluid details

- Medium handled : Atmospheric Air
- Temperature Max Deg.C : 50

b. Material of construction

- Casing : CI – IS 210 Gr. FG260
- Impeller (Lobe) : Cast Iron
- Shaft : Carbon Steel
- Fasteners : SS316

c. Design Details

- Flow capacity N m³/hr : ~ 1100
- Total Discharge Head psig : 5 to 9
- Speed rpm : Vendor to Specify
- Desired Noise level dBA : 85 (at 1 m Distance)
(without enclosure)
- Drive : Belt driven by Electric Motor.

d. Construction details

- Blower type : Positive displacement –Twin lobe
- Driver type : 'V' pulley & belt drive
- Bearing : SKF/FAG.

e. Painting

Surface Preparation

Blasting according to SIS 055900 grade Sa 2½. Depending on production flow, a weldable, inorganic ethyl zinc silicate shop primer of minimum dry film thickness 15-25 µm may be used.

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Prime Coat

Two (2) layers of Zinc phosphate epoxy, total dry film thickness 75µm.

Intermediate Coat

One (1) layer 2 pack high build epoxy polyamide MIO, DFT 100µm.

Finish Coat

Application of two (2) finishing coats of chlorinated rubber paint in approved shades at 50 microns DFT each coat in approved shades.

Colour shade
Light grey-631 as per IS-5

f. Performance

Tested In Accordance to Standard Test Procedure (STP01) Based on BS1571 || 1975 & ISO 1217 (1996)

g. Dynamic Balancing

All Rotor Shafts Assemblies Dynamically Balanced To Gr 6.3 ISO 1940/1(1986)

3.3 ELECTRIC MOTOR:

As per enclosed motor Spec. No. **ROS: 4162 Rev.01. dt.05.02.18**

3.4 POWER TRANSMISSION:

- a. Type : 'V' Pulleys & Belts suitable for blower & Motor speed.
- b. Application : To drive above blower by electric motor.
- c. Accessories : Belt guard, fasteners etc.,

3.5 BASE FRAME:

Epoxy coated steel base frame to mount the above blower, motor, belt guard and accessories. Necessary anti-vibration mountings, foundation bolts, adjusting screws, special tools etc., shall be supplied along with the blower.

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3.6 OTHER ACCESSORIES:

Necessary inlet filter & silencer, discharge filter & silencer, Pressure gauge, filter Restrictor indicator, pressure relief valve, non-return valve and flexible connection shall Be supplied.

4.0 SPARES:

4.1 COMMISSIONING SPARES

The bidder shall provide commissioning spares and the commissioning spares shall be delivered along with main supply. The commissioning spares list is indicated in this section. Over and above any additional requirements for trouble free commissioning of the equipment / system shall be included in the list. The price for the commissioning spares shall be included in the main supply and the list shall be provided along with the bid, this price will be included for bid evaluation.

Sl. No	Spares Description	Unit	Quantity/set	Price
AIR SCOUR BLOWER				
1	Seal, Gaskets & 'O' rings	Set	1	
2	Filter element (suc. & disch.)	Set	1	
3	'V' Belts	Set	1	

4.2 MANDATORY SPARES:

The price for the mandatory spares shall be given separately and shall not be included in the main supply. The list of the mandatory spares is as given below. Mandatory spares shall be packed separately with detailed packing list (items should not be packed along with main supply items)

All spares supplied under this Contract shall be strictly interchangeable with the parts for which they are intended for replacements. The spares shall be treated and packed for long storage under the climatic conditions prevailing at site e.g. small item shall be packed in sealed transparent plastic bags with desiccator packs as necessary.

Each spare shall be clearly marked or labelled on the outside of the packing with its description. When more than one spare part is packaged in a single case, a general description of the contents shall be shown on the outside of such case and a detailed list should be enclosed. All cases, containers and other packages must be suitably marked and numbered for the purpose of identification.

Bidder to quote for the following mandatory spares.

	TECHNICAL SPECIFICATION FOR AIR BLOWERS	ROS: 6205; Rev:00 Dt. 05.02.18
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(A) ELECTRICAL SPARES

As per enclosed motor Spec. No. **ROS: 4162 Rev.01. dt.05.02.18**

4.3 RECOMMENDED SPARES:

Bidder also provides the list of recommended spares for two years of normal operation of the plant over & above the mandatory spares.

BHEL reserves the right to finalise the exact quantity of recommended spares parts and effect price adjustment on basis of unit rates quoted by the bidders.

The price of recommended spares **will not be considered for bid evaluation.**

The prices of recommended spares shall be consistent with those of the mandatory spares. The validity of prices for these spares shall be up to 2 years.

5.0 INSPECTION

Inspection by BHEL or BHEL's authorized agency at vendor's works.. Vendor shall submit the QAP for the customer approval before start-up of the manufacturing.

6.0 GENERAL REQUIREMENTS

- a. Only latest revision of standards shall be used.

6.1 Documents along with the bid

The following information / documents shall be submitted along with the technical offer:

- a. Enclosed datasheet duly filled as per **Annexure-1**
- b. Typical quality plan.
- c. Typical cross section drawings showing internal arrangements with MOC.
- d. Typical test report of the Blower.
- e. Unpriced Commercial offer for the scope of supply.
- f. Unpriced Recommended spares list for 3 years Operation & Maintenance.
- g. Reference list of installations where blowers with similar duty conditions are in

	TECHNICAL SPECIFICATION FOR AIR BLOWERS	ROS: 6205; Rev:00 Dt. 05.02.18
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operation.

- h. Any deviation shall be specifically mentioned in the enclosed deviation format **Annexure 2**.

In case of any deviation, the Bidder shall indicate the deviation, clause by clause in the deviation format attached in **Annexure-2**. If there is no deviation “NIL” statement shall be furnished. In the absence of non-attachment of this **Annexure-2** it will be construed that the bid confirms strictly to the specification. Acceptance or rejection of the offer with or without deviations (either fully or partially) is sole discretion of the purchaser without seeking further clarification from the bidder.

NOTE:

Bidders to note that failing to submit the above documents, the bid shall be considered as incomplete and liable for rejection.

6.2 Documents after order for BHEL's review / approval.

The following information / documents shall be submitted in the event of order for BHEL's review and approval before manufacturing.

- a. Enclosed data sheet duly filled as per **Annexure-1**.
- b. Quality plan in BHEL format.
- c. Design calculations for blowers as per design code.
- d. Detailed assembly & cross sectional drawings with bill of material for blower, motor, V-belt, pulley, base frame, valves, silencers etc., with lifting arrangement and location for blower & motor.
- e. Performance curve for the blower.
 - Capacity Vs Head
 - Capacity Vs Efficiency
 - Capacity Vs Power
 - Speed Vs Torque

6.3 The following information / documents shall be submitted in the event of order for information.

- a. Necessary material test certificates.
- b. Necessary hydraulic test certificate.
- c. Erection manual.
- d. Operation & Maintenance manuals.
- f. Necessary performance and guarantee certificate.

NOTE: Bidder to confirm in their offer that the documents in above Cl.6.2 & 6.3 will be provided.

	TECHNICAL SPECIFICATION FOR AIR BLOWERS	ROS: 6205; Rev:00 Dt. 05.02.18
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ANNEXURE-1

BHEL ENQUIRY / P.O. Reference No. & Date :

Indent No. / Material Code No. :

DATA SHEET

B. AIR SCOUR BLOWER

1. TECHNICAL PARAMETERS

- a. Material Code :
- b. Make :
- c. Model :
- d. Fluid details :
- e. Medium handled :
- f. Temperature range Deg. C :
- g. Rated flow Cu.m/Hr :
- h. Total Head – Discharge PSIG :
- i. Shut off Pressure bar(g) :
- j. Design Pressure bar(g) :
- k. Blower efficiency at duty point % :
- l. BHP reqd. For Blower at duty point KW:
- m. Maximum BHP required KW :
- n. Operating range from duty point % :
- o. Rated speed rpm :
- p. Noise level at duty point with silencer : dBA at 1m distance
- q. Vibration level – Displacement microns :
– Velocity (Peak) mm/sec :
- r. Rotation of shaft viewing from drive end :

2. CONSTRUCTION DETAILS

- a. Suction filter silencer specification :
- b. Discharge silencer specification :

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- c. Material of construction
 - Blower casing :
 - Impeller :
 - Shaft :
 - Others if any :
- d. Type of bearings & Make :
- e. Bearing lubrication :
- f. Type of seal & Make :
- g. Blower weight kg :
- h. Moment of Inertia at Blower rotor kgm^2 :
- i. Performance curve reference No. :
- j. Foundation Drawing No. :
- k. Blower dimension L x W x H mm :

B. POWER TRANSMISSION

- a. Pulley PCD Motor / Blower mm :
- b. Type of mounting Motor / Blower :
- c. No. of Belts :
- d. Belt section & PCD :
- e. Belt guard : Yes / No.

C. BASE FRAME

- a. Material :
- b. Dimension detail L x W X H mm :

D. ACCESSORIES

- a. List of special tools :
- b. Flexible connector Size, Rating :
- c. Filter restrictor Indicator specification :
- d. Pressure Relief Valve size, rating :
- e. Non-return valve size, rating :
- f. Pressure gauge size, rating :
- g. Other accessories if any :

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E. GENERAL

- a. Overall assy. Dimensions L x W x H mm :
- b. Shipping package dimensions mm :
- c. Total assembly weight kg :
- d. Dimensional drawing No. :
- e. Total shipment weight kg :



**TECHNICAL SPECIFICATION
FOR
AIR BLOWERS**

ROS: 6205; Rev:00
Dt. 05.02.18

FORM FOR TECHNICAL DEVIATIONS (If any)

Annexure-2

<i>Sl. No</i>	<i>SEC / CLAUSE NO.</i>	<i>Specification</i>	<i>Statement of Deviations/variatioins</i>	<i>Reason for deviation</i>	<i>Cost of withdrawal</i>

Date:

Signature & seal of the Bidder



STANDARD QUALITY PLAN FOR LT MOTOR (from 30KW to 200KW)
Of ESP & FAN Application

REF. NO.	REVISION NO.	EFFECTIVE DATE
QP:E:LTM:813	02	27 09 2014

TITLE : Standard Quality Plan for LT Motor (From 30KW To 200KW)

SIGNATURE

PREPARED BY : CH.ANILSINGH /AEI/QA

Ch. A. Singh

REVIEWED : P.YASODA KRISHNA/ENGG/QA

P. Krishna

APPROVED BY : C. SRINIVASAN/DGM/QA

C. Srinivasan
29/09/2014

ISSUED & CONTROLLED BY : QUALITY ASSURANCE
BHEL, RANIPET - 632 406.

DOCUMENT STATUS

☐

INFORMATION COPY

☐

CONTROL COPY

✓ It is a control copy only if the mark against the control copy is in other than black colour. Otherwise it will be an uncontrolled copy. Check for current revision.

ISSUED TO:

CONTROL COPY NO :

	STANDARD QUALITY PLAN FOR LT MOTOR (from 30KW to 200KW) Of ESP & FAN Application	
REF. NO.	REVISION NO.	EFFECTIVE DATE
QP:E:LTM:813	02	27 09 2014

<u>RECORD OF REVISION</u>		
REV. NO	EFFECTIVE DATE	REMARKS
00	05 02 2003	Original issue-Converted from PRQA to SQP after the review in 30 th PCM on QA-Electrics
01	01 08 2009	Revised based on customer change in requirements like in NTPC vindhyachal and Rihand
02	27 09 2014	Revisit of RQP, MQP and SQP with respect to identical type test requirement



Ranipet

**BHARAT HEAVY ELECTRICALS LTD
BOILER AUXILIARIES PLANT,
RANIPET - 632 406.**

STANDARD QUALITY PLAN FOR LT MOTOR (FROM 30KW TO 200KW) Of ESP & FAN Application

SQP:QP:E:LTM:813

REV. NO: 02

DATE: 27 09 2014

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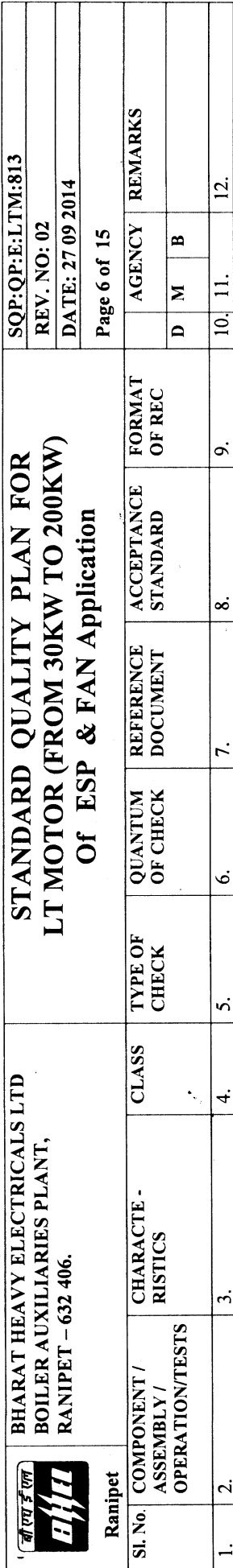
Ranipet		Sl. No.	COMPONENT / ASSEMBLY / OPERATION/TESTS	CHARACTE - RISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE STANDARD	FORMAT OF REC	AGENCY			REMARKS
											D	M	B	
1.	2.			3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	

1.1	Enamelled round copper conductor (Dual coated)M M	1. Overall diameter	Major	Mechanical	1 sample/lot	IS 13730 1993 Part 13 BHEL Spec & Apprd Datasheet --do--	IEC 60317-0-1 2008 BHEL Spec & Apprd Datasheet --do--	Plant format	P	V
		2. Bare conductor diameter	Major	Mechanical	1 sample/lot			Plant format	P	V
		3. Increase in diameter	Major	Mechanical	1 sample/lot			Plant format	P	V
		4. Peel test (above 1mm dia.)	Major	Mechanical	1 sample/lot	--do--		Plant format	P	V
		5. Mandrel winding test	Major	Mechanical	1 sample/lot	--do--	--do--	Plant format	P	V
		6. Jerk test (upto 1mm dia.)	Major	Mechanical	1 sample/lot	--do--	--do--	Plant format	P	V
		7. Resistance to abrasion	Major	Mechanical	1 sample/lot	--do--	--do--	Plant format	P	V
		8. BDV Test	Major	Electrical	1 sample/lot	--do--	--do--	Plant format	P	V
		9. Electrical resistance	Major	Electrical	1 sample/lot	--do--	--do--	Plant format	P	V
		10. heat shock	Major	Electrical	1 sample/lot	--do--	--do--	Plant format	P	V
		11. Elongation	Major	Mechanical	1 sample/lot	--do--	--do--	Plant format	P	V
		12. Cut through test	Major	Thermal	1 sample/lot	--do--	--do-	Plant format	P	V
		13. Temp index test	Major	Electrical	1 sample/lot	IEC 60172	IEC 60172	Insp report/ Supplier Tc	P	V
		14. Continuity (insulation)	Major	Electrical	1 sample/lot	--do--	--do--	Insp report/ Supplier Tc	P	V
		15. <i>Tandelta</i>	Major	Electrical	1 sample/lot	--do--	--do--	Insp report/ Supplier Tc	P	V

भारत भारती BHEL Ranipet		BHARAT HEAVY ELECTRICALS LTD BOILER AUXILIARIES PLANT, RANIPET – 632 406.			STANDARD QUALITY PLAN FOR LT MOTOR (FROM 30KW TO 200KW) Of ESP & FAN Application							SQP:QP:E:LTM:813 REV. NO: 02 DATE: 27 09 2014 Page 4 of 15			
Sl. No.	COMPONENT / ASSEMBLY / OPERATION/TESTS	CHARACTE - RISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE STANDARD	FORMAT OF REC	AGENCY			REMARKS			
									D	M	B				
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.		12.			

1.2	INSULATION MATERIAL:	1.Thickness & width	Major	Mechanical	1 sample/lot	BHEL Spec & Apprd Datasheet	BHEL Spec & Apprd Datasheet	Plant format	P	V	
		2.Tensile strength	Major	Mechanical	1 sample/lot	--do--	--do--	Plant format	P	V	
		3. BDV at elevated temp.in air.	Major	Electrical	1 sample/lot	--do--	--do--	Plant format	P	V	
		4.Tear resistance	Major	Mechanical	1 sample/lot	--do--	--do--	Plant format	P	V	
		5.conformation of glass fabric	Major	Physical	1 sample/lot	--do--	--do--	Plant format	P	V	
		6.Compatibility with impregnation varnish	Major	Chemical	1 sample/lot	--do--	--do--	Plant format	P	V	
		7.Thermal ageing	Major	Thermal	1 sample/lot	--do--	--do--	Plant format	P	V	
		8.IR	Major	Electrical	1 sample/lot	--do--	--do--	Insp.report / Supplier Tc	P	V	
		9.Elongation	Major	Mechanical	1 sample/lot	--do--	--do--	Insp.report / Supplier Tc	P	V	
1.3	VARNISHED FIBER GLASS FIBER SHEET:	1.Bore diameter	Major	Mechanical	1 sample/lot	--do--	--do--	Plant format	P	V	
		2.Wall thickness	Major	Mechanical	1 sample/lot	--do--	--do--	Plant format	P	V	
		3.Bending before/after ageing	Major	Mechanical	1 sample/lot	--do--	--do--	Plant format	P	V	
		4. BDV at room temp. & elevated temp.	Major	Electrical	1 sample/lot	--do--	--do--	Plant format	P	V	
		5. Insulation Resistance	Major	Electrical	1 sample/lot	--do--	--do--	Plant format	P	V	
		6.Stability of coating	Major	Mechanical	1 sample/lot	BHEL Spec & Apprd Datasheet	BHEL Spec & Apprd Datasheet	Plant format	P	V	

Bharat Heavy Electricals Ltd Boiler Auxiliaries Plant, Ranipet - 632 406.		STANDARD QUALITY PLAN FOR LT MOTOR (FROM 30KW TO 200KW) Of ESP & FAN Application							SQP:QP:E.LTM:813 REV. NO: 02 DATE: 27 09 2014 Page 5 of 15			
Bharat Heavy Electricals Ltd Boiler Auxiliaries Plant, Ranipet - 632 406.		STANDARD QUALITY PLAN FOR LT MOTOR (FROM 30KW TO 200KW) Of ESP & FAN Application							SQP:QP:E.LTM:813 REV. NO: 02 DATE: 27 09 2014 Page 5 of 15			
Sl. No.	Component / Assembly / Operation/Tests	CHARACTE - RISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE STANDARD	FORMAT OF REC	AGENCY			REMARKS
									D	M	B	
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	
1.4	SYNTHETIC RESIN BONDED GLASS FIBER SHEET	7.Burning test 8.Glass content 9.Voltage proof test at room temp.&at 155C 1.Thickness & width 2.Specific gravity 3.Water absorption 4.BDV Test 5.Insn.Resistance 6.Comparative tracking index 7.Thermal stability 8.Tensile strength 9.Compression strength	Major Major Major Major Major Major Major Major Major Major Major Major Major Major	Chemical Chemical Electrical Mechanical Mechanical Chemical Electrical Electrical Thermal Thermal Mechanical Mechanical	1 sample/lot 1/type 1/type 1 sample/lot 1 sample/lot 1 sample/lot 1 sample/lot 1 sample/lot 1 sample/lot 1 sample/lot 1 sample/lot 1 sample/lot 1 sample/lot 1 sample/lot	--do-- --do-- --do-- --do-- --do-- --do-- --do-- --do-- --do-- --do-- --do-- --do-- --do--	Apprd Datasheet --do-- --do-- --do-- --do-- --do-- --do-- --do-- --do-- --do-- --do-- --do-- --do-- --do--	plant format Insp. Report/ Supplier Tc Insp. Report / Supplier Tc Supplier TC Supplier TC Supplier TC Supplier TC Supplier TC Supplier TC Supplier TC Supplier TC Supplier TC Supplier TC Plant format Plant format	P P P P P P P P P P P P P P	V V V V V V V V V V V V V V		
1.5	Composite of polyamide paper and polyester	1.Thickness 2 Tensile strength 3 Elongation	Major Major Major	Mechanical Mechanical Mechanical	1 sample/lot 1 sample/lot 1 sample/lot	--do-- --do-- --do--	BHEL Spec & BHEL Spec &	Plant format Plant format Plant format	P P P			V V V

[illegible]

BHARAT HEAVY ELECTRICALS LTD BOILER AUXILIARIES PLANT, RANIPET – 632 406.			STANDARD QUALITY PLAN FOR LT MOTOR (FROM 30KW TO 200KW) Of ESP & FAN Application					SQP:QP:E:LT:M:813 REV. NO: 02 DATE: 27 09 2014 Page 7 of 15					
Ranipet		Sl.No.	COMPONENT / ASSEMBLY / OPERATION/TESTS	CHARACTE - RISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE STANDARD	FORMAT OF REC	AGENCY		REMARKS
		1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1.8	Stamping Steel	3.Tensile strength 4.Elongation	Major Major	Mechanical Mechanical	1 sample/lot 1 sample/lot	--do-- --do--	Apprd Datasheet	Supplier TC Supplier TC	P P	V V	EC gr purity: -99.6%		
		5.Hardness	Major	Mechanical	1 sample/lot	--do--	Supplier TC	P	V				
		6.Dimensions	Major	Mechanical	1 sample/lot	--do--	Supplier TC	P	V				
		7.Grain size inclusion rating	Major	Mechanical	1 Sample/lot	--do--	Supplier TC	P	V				
		8.Heat treatment cycle	Major	Thermal	100%	--do--	Supplier TC	P	V				
		9.Ultrasonic test	Major	NDT	100%	--do--	Supplier TC	P	V				
		10.Heat treatment cycle	Major	Thermal	100%	--do--	Supplier TC	P	V				
		1.Specific core loss	Major	Electrical	1 sample/lot	--do--	Supplier TC	P	V				
		2.Magnetisation	Major	Electrical	1 sample/lot	--do--	Supplier TC	P	V				
		3.Insulation resistance	Major	Electrical	1 sample/lot	--do--	Supplier TC	P	V				
		4.Stacking factor	Major	Mechanical	1 sample/lot	--do--	Supplier TC	P	V				
		5.Ductility	Major	Mechanical	1 sample/lot	--do--	Supplier TC	P	V				
		6.Thickness of coating	Major	Mechanical	1 sample/lot	--do--	Supplier TC	P	V				
		7.Visual check(Waviness)	Major	Visual	1 sample/lot	--do--	Supplier TC	P	V				
		8.Temperature Withstand capacity	Major	Measure	1 sample/lot	--do--	Supplier TC	P	V				

Bharat Heavy Electricals Ltd Boiler Auxiliaries Plant, Ranipet - 632 406.			STANDARD QUALITY PLAN FOR LT MOTOR (FROM 30KW TO 200KW) Of ESP & FAN Application						SQP:QP:E:LT:M:813 REV. NO: 02 DATE: 27 09 2014 Page 8 of 15				
Ranipet			CHARACTE - RISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE STANDARD	FORMAT OF REC	AGENCY			REMARKS
Sl. No.	COMPONENT / ASSEMBLY / OPERATION/TESTS	D								M	B		
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.		
1.9	Aluminum Ingots	1.Chemical Composition	Major	Chemical	1 sample/lot	BHEL Spec & Apprd Datasheet	BHEL Spec & Apprd Datasheet	Supplier TC	P		V		
2.0	Casting: Body& End shields	1.Grade of casting 2.Surface defects	Major	Chemical	1 sample/lot	--do--	--do--	Supplier TC	P		V		
			Major	Visual	100%	--do--	--do--	Inspection record	P		V		
		3.Hardness	Major	Mechanical	1 sample/lot	--do--	--do--	Supplier TC	P		V		
		4.Tensile strength	Major	Mechanical	1 sample/lot	--do--	--do--	Supplier TC	P		V		
		5.Dimensions	Major	Mechanical	1 sample/lot	--do--	--do--	Inspection record	P		V		
2.1	FAN(Cast Iron)	1.Dimensions	Major	Mechanical	1 sample/lot	--do--	--do--	Inspection record	P		V		
		2.Protective paint	Major	Visual	100%	--do--	--do--	Inspection record	P		V		
2.2	FAN	1.Diameter(ID &OD)	Major	Meas.	Sample	--do--	--do--	Insp. Report	P		V		
		2.Paint,casting defects	Major	Visual	100%	--do--	--do--	Insp. report	P		V		
2.4	Terminal Box & Covers	1.Dimensions	Major	Mechanical	1 sample/lot	--do--	--do--	Inspection record	P		V		
2.5	Bearings(SKF or FAG)	1.Type & Make	Major	Visual	100%	--do--	--do--	Inspection record	P		V		
		2.Dimensions-ID,OD & width	Major	Mechanical	1 sample/lot	--do--	--do--	Inspection record	P		V		
2.6	Earthing bolts & Nuts with washer	Dimensions	Major	Measurement	100%	--do--	--do--	Inspection report	P		V		

 BHARAT HEAVY ELECTRICALS LTD BOILER AUXILIARIES PLANT, RANIPET – 632 406.			STANDARD QUALITY PLAN FOR LT MOTOR (FROM 30KW TO 200KW) Of ESP & FAN Application							SQP:QP:E:LTM:813 REV. NO: 02 DATE: 27 09 2014 Page 9 of 15			
Sl. No.	COMPONENT / ASSEMBLY / OPERATION/TESTS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE STANDARD	FORMAT OF REC	AGENCY			REMARKS	
									D	M	B		
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.		12.	

2.7	Paints	1. Viscosity at 32C 2. Drying time 3. Dry film property	Major	Mechanical	1 sample/lot 1 sample/lot 1 sample/lot	BHEL Spec & Apprd Datasheet --do--	BHEL Spec & Apprd Datasheet --do--	Insp. recoed Supplier TC	P	V	
2.8	Gasket	1. Dimensions 2. Neoprene test 3. Hardness 4. Ageing test 5. Tensile	Major	Visual Visual Meas. Phy. Mech. Phy. Meas.	As per IS / Plant std. As per IS / Plant std. As per IS / Plant std. As per IS / Plant std.	--do-- --do-- --do-- --do-- --do-- --do-- --do--	--do-- --do-- --do-- --do-- --do-- --do-- --do--	Insp. report / Supplier Tc Insp. Report / Supplier Tc Insp. report / Supplier Tc Insp. Report / Supplier Tc Insp. Report / Supplier Tc	P P P P P P P	V V V V V V V	
	Terminal Block	6. Elongation 1. Dimensions 2. Proof voltage test	Major	Meas. Meas. Elect.	As per IS / Plant std. Plant std. Plant std.	--do-- --do-- --do--	--do-- --do-- --do--	Insp. Report / Supplier Tc Insp. Report / Supplier Tc Insp. Report / Supplier Tc	P P P	V V V	

 Bharat Heavy Electricals Ltd Boiler Auxiliaries Plant, Ranipet – 632 406.			STANDARD QUALITY PLAN FOR LT MOTOR (FROM 30KW TO 200KW) Of ESP & Fan Application							SQP:QP:E:LT:M:813 REV. NO: 02 DATE: 27 09 2014 Page 10 of 15			
Ranipet			CLASS	CHARACTE - RISTICS	COMPONENT / ASSEMBLY / OPERATION/TESTS	TYPE-OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE STANDARD	FORMAT OF REC	AGENCY REMARKS		
Sl. No.											D	M	B
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.		

II	INPROCESS INSPECTION:	1.Blow holes/cracks	Major	Visual	100%	BHEL Spec & Apprd Datasheet	BHEL Spec & Apprd Datasheet	Insp. Record	P	V	
2.1	Machined Cast iron body	2.Surface finish	Major	Visual	100%	--do--	--do--	Insp. Record	P	V	
		3.Bore ID and other Dimensions	Major	Mechanical	100%	--do--	--do--	Insp. Record	P	V	
		1.Blow holes/cracks	Major	Visual	100%	--do--	--do--	Insp. Record	P	V	
2.2	Machined End shields	2.Dimensions	Major	Mechanical	100%	--do--	--do--	Insp. Record	P	V	
		1.Permissible unbalance	Major	Visual	1 sample	--do--	--do--	Insp. Report	P	V	
		1.Pressure withstand capacity	Major	Mechanical	100%	--do--	--do--	Ledger	P	V	
2.3	Balancing(Rotor & Fan)	1.Core length dia	Major	Mechanical	100%	--do--	--do--	Insp. Record	P	V	
	Hydraulic Pressure Testing	2. Core locking	Major	Visual	100%	--do--	--do--	Insp. Record	P	V	
2.4	Stator core	3. Rigidity of core.	Major	Mechanical	100%	--do--	--do--	Insp. Record	P	V	
		1.Core length	Major	Mechanical	100%	--do--	--do--	Insp. Record	P	V	
		2.Blow holes	Major	Visual	100%	--do--	--do--	Insp. Record	P	V	
2.5	Die cast Rotor	1.Resistance	Major	Electrical	100%	--do--	--do--	Insp. Record	P	V	
		2.H.V Test	Major	Electrical	100%	--do--	--do--	Insp. Record	P	V	

BHARAT HEAVY ELECTRICALS LTD BOILER AUXILIARIES PLANT, RANIPET – 632 406.				STANDARD QUALITY PLAN FOR LT MOTOR (FROM 30KW TO 200KW) Of ESP & FAN Application				SQP:QP:E:LTM:813 REV. NO: 02 DATE: 27 09 2014 Page 11 of 15					
Ranipet.		Sl No.	COMPONENT / ASSEMBLY / OPERATION/TESTS	CHARACTE - RISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE STANDARD	FORMAT OF REC	AGENCY		REMARKS
		1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
2.6	Wound stator(if applicable)	3. Insulation resistance 4. Polarity	Major	Electrical	100%	BHEL Spec & Apprd Datasheet --do--	BHEL Spec & Apprd Datasheet --do--	Insp. Record	P		V		
		1. Dip & bake cycles as per OA requirement	Major	Electrical	100%	--do--	--do--	Insp. Record	P		V		
		1. Rotor OD	Major	Process parameter	100%	--do--	--do--	Insp. Record	P		V		
2.7	Impregnation	2. Balancing	Major	Mechanical	100%	--do--	--do--	Insp. Record	P		V		
		1. Insulation resistance	Major	Mechanical	100%	--do--	--do--	Insp. Record	P		V		
2.8	Rotor machining	2. H.V. Test 3. Resistance	Major	Electrical	100%	--do--	--do--	Insp. Record	P		V		
		4. Wattage test	Major	Electrical	100%	--do--	--do--	Insp. Record	P		V		
2.9	Space Heater(if applicable)	1. Completeness	Major	Visual	100%	--do--	--do--	Insp. Record	P		V		
		2. Runout in case of flanged motors	Major	Mechanical	100%	--do--	--do--	Insp. Record	P		V		
3.0	Final Assembly	3. Mounting dimension	Major	Mechanical	100%	--do--	--do--	Insp. Record	P		V		

 BHARAT HEAVY ELECTRICALS LTD BOILER AUXILIARIES PLANT, RANIPET – 632 406.			STANDARD QUALITY PLAN FOR LT MOTOR (FROM 30KW TO 200KW) Of ESP & FAN Application							SQP:QP:E:LTM:813 REV. NO: 02 DATE: 27 09 2014 Page 13 of 15		
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									D	M B		
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	

3.2	Type Test	7.2 Three equally spread starts pre hour. 7.3 Two hot restart from hot condition. 8. Vibration test 9. Name plate verification 10. Paint shade, thickness & adhesion 11. Mountings & Overall dimensions 1. Measuring of resistance of winding of stator and wound rotor (if applicable) 2. No load test at rated voltage to determine input current , power and speed. 3. Open circuit voltage ratio of wound rotor motor (in case slip ring motors	Major	Electrical	100%	BHEL Spec & Apprd Datasheet	BHEL Spec & Apprd Datasheet	Test report	P	W	
			Major	Electrical	100%			Test report	P	W	
			Major	Mechanical	100%	--do--	--do--	Insp. Record	P	W	
			Major	Visual	100%	--do--	--do--	Insp. Record	P	W	
			Major	Vis/Meas	100%	--do--	--do--	Insp. Record	P	W	
			Major	Vis/Meas	100%	--do--	Apprd Drawing	Insp. Record	P	W	
			Major	Electrical	1 motor in a batch	--do--	--do--	Insp. Record	P	V	*Identical design type test report shall be submitted to BHEL/TPI agency during inspection for review and acceptance.. The validity of type test report shall be 5 years from date of release of purchase order. Otherwise vendor has to conduct these test in presence of BHEL/TPI.
			Major	Electrical	1 motor in a batch	--do--	--do--	Insp. Record	P	V	
			Major	Electrical	1 motor in a batch	--do--	--do--	TC	P	V	

 भारत भारती BHEL BHARAT HEAVY ELECTRICALS LTD BOILER AUXILIARIES PLANT, RANIPET – 632 406.			STANDARD QUALITY PLAN FOR LT MOTOR (FROM 30KW TO 200KW) Of ESP & FAN Application							SQP:QP:E:LTM:813		
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									D	M	B	
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	

		4. Locked rotor reading of voltage, current and power input at a suitable educed voltage	Major	Electrical	1 motor in a batch	--do--	BHEL Spec & Apprd Datasheet	TC	P	V	
		5. Full load test to determine efficiency power factor and slip	Major	Electrical	1 motor in a batch	--do--	BHEL Spec & Apprd Datasheet	TC	P	V	To determine Efficiency, power factor & slip
		6. Temperature rise test.	Major	Electrical	1 motor in a batch	--do--	BHEL Spec & Apprd Datasheet	TC	P	V	
		7. Momentary overload test	Major	Electrical	1 motor in a batch	--do--	BHEL Spec & Apprd Datasheet	TC	P	V	
		8. Insulation resistance test	Major	Electrical	1 motor in a batch	--do--	BHEL Spec & Apprd Datasheet	TC	P	V	
		9. High voltage test	Major	Mechanical	1 motor in a batch	do--	BHEL Spec & Apprd Datasheet	TC	P	V	
		10. Test for vibration severity of motor	Major	Mechanical	1 motor in a batch	--do--	BHEL Spec & Apprd Datasheet	TC	P	V	
		11. Test of noise levels of moto	Major	Visual	1 motor in a batch	--do--	BHEL Spec & Apprd Datasheet	TC	P	V	

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									D	M	B	
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	

3.3	Preservation and Packing	12. Over speed test	Major	Mechanical	batch 1 motor in each frame size 100%	BHEL Spec & Apprd Datasheet	BHEL Spec & Apprd Datasheet	TC	P		V
		13. Degree of Protection Tests	Major	Visual		--do--	--do--	TC	P		V
		1. Completeness	Major	Review	100%	--do--	--do--	Insp. Record	P		V
		2. Mounting & over all Dimensions	Major	Visual	100%	--do--	--do--	Insp. Record	P		V
		3. Painting(label)	Major	Visual	100%	--do--	--do--	Insp. Record	P		V
		4. Motors located on rubber mats.	Major	Visual	100%	--do--	--do--	Insp. Record	P		V
		5. Motors covered with polythene sheets.	Major	Visual	100%	--do--	--do--	Insp. Record	P		V
		6. Packing	Major	Visual	100%	--do--	--do--	--do--	P		V

Legends:

TC = Test Certificates : **Drp** = Drawing : **IR** = Insulation Resistance : **BOM** = Bill of Material **HV** = High Voltage **P** = Perform/ V=verification/ Review of TC/Test Report **W** = Witness CHP=Customer Hold Point **M**: Manufacturer **B**=Contractor/BHEL /TPI agency

Note : *Type test clearance from BHEL/TPI to be obtained during Inspection at vendor works.

TERMS AND CONDITIONS FOR INDIGENOUS OFFERS

- a) **Quotations :** Each Tender should be sent in duplicate in a sealed cover. Inner cover should be sealed with tender's distinctive seal and superscribed with correct Tender No., item of supply and due date of opening. Tender should not be addressed to any individual's names but only by designation and shall be addressed to Manager/Purchase, BHARAT HEAVY ELECTRICALS LIMITED, BOLIER AUXILIARIES PLANT, INDIRA GANDHI INDUSTRIAL COMPLEX, RANIPET, VELLORE DISTRICT - 632406, INDIA.
- b) Tenders should be neatly typewritten and should be free from CORRECTION AND ERASURES. Corrections, if any, must be attested. All amount shall be indicated both in words as well as in figures. Where there is difference between amount quoted in words and figures, amount quoted in words shall prevail.
- c) Price should be net F.O.R. destination inclusive of risk in transit and remain valid for 90 days from the due date.
- d) If any Sales Tax is payable as extra to the quoted price it should be specifically stated in quotation failing which the purchaser will not be liable for payment of Sales Tax. Our TIN No. 33024364741 & CST Number 1141686.
- e) Products with I.S.I certification marks will be preferred.
- f) The applicable rate of excise duty shall be clearly indicated in the quote itself.
- g) The tenderer shall fill up the specification Deviation Disposition Report either NIL or the deviation taken by the tenderer against the Tender specification.
2. **Samples :** Wherever possible samples should be submitted separately whether specifically requested or not, so as to reach the purchase on or before the due date of the enquiry. They should be clearly marked with the Enquiry No. and the date on the outside cover to facilitate identification.
3. **Packing and Marking :** The supplier shall arrange for securely protecting and packing the stores to avoid loss or damages during transit.
4. **Terms of Payment :** Payment will be made within 45 days for MSME (Small / Micro) Vendors and 90 days for others after receipt and acceptance of materials at BHEL Stores or receipt of site acknowledgment in case of direct to site items of satisfactory receipt of materials at site. Where required by the purchase, the successful tenderer must send the operation and maintenance manuals, test certificates, drawings, etc., as called for, for the materials ordered. These should be sent immediately after despatch of the materials and a statement to that effect should be made in the invoice. Failure to comply with this provision will result in delay in payment of the bills. Goods despatched either by V.P.P. or by the documents presented through bank will not be accepted unless agreed to by the Purchaser.
5. **Liquidated Damages :** It is clearly understood among the parties to the contract that "Time is the essence of the contract". Therefore, the delivery of the goods specified in the purchase order should be made within the time limit prescribed. Where the seller supplies or despatches the goods, beyond the delivery period specified, the Purchaser will have no obligation to accept the goods. If accepted, liquidated damages at the rate of 1/2% of the value of goods delayed for each week of delay or part thereof will be levied without prejudice to any other relief or compensation due to the purchaser under any other condition of this contract.
6. **Risk Purchase :** Alternatively, the purchaser at his option will be entitled to purchase elsewhere at the risk and cost of the seller either the whole of the goods or any part which the supplier has failed to deliver or despatch within the time stipulated as aforesaid or if the same were not available, the best and the nearest available substitute therefor. The supplier shall be liable for any loss which the purchaser may sustain by reason of such risk purchases in addition to penalty at the rate mentioned in Clause 5 above.
7. **Preferential Delivery :** It should be noted that if a contract is placed on higher tenderer as a result of this invitation to tender in preference to the lowest acceptable offer in consideration to the earlier delivery, the seller will be liable to pay to the purchaser the difference between the contract rate and that of the lowest acceptable tender on the basis of final price F.O.R. destination including all elements of freights, sales tax, duties and other incidentals in case of failure to complete supplies in terms of such contract within the date of delivery specified in the tender and incorporated in the contract.
8. **MODVAT CREDIT :** If any Excise duty is payable, the chapter head/sub - head reference and the rate of duty should be quoted. If the tenderer is availing MODVAT credit for his input materials, the effect of proforma credit should be passed on the purchaser. Tender under "MODVAT" shall be preferred.
9. **General :** a) The Purchaser reserves the right to split up the tender and place for individual items with different tenderers and also increase the quantity.

TERMS AND CONDITIONS FOR FOREIGN OFFERS

Offer : Offer in ENGLISH LANGUAGE AND IN TRIPLICATE IN A SEALED COVER superscribing the enquiry number and due date shall be submitted addressed to : THE MANAGER / PURCHASE, BHARAT HEAVY ELECTRICALS LIMITED, BOILER AUXILIARIES PLANT, INDIRA GANDHI INDUSTRIAL COMPLEX, RANIPET - 632 406, TAMIL NADU, INDIA.

Offers should be firm for net FOB / FCA nearest Sea / air port price and C & F Chennai Port Price indicating the shipping specifications and the earliest delivery in the respect of others from overseas suppliers.

Documents :

- (i) Offers should be accompanied by detailed technical literature, catalogue and detailed dimensional drawing in ENGLISH and in DUPLICATE, or otherwise the offers will not be considered.
- (ii) In case overseas suppliers route their accredited selling agents, a letter of authority should be furnished mentioning the name and address of their selling agents, who are authorised to bid, negotiate and conclude a contract on their behalf.

Agency Commission : In respect of offers from overseas suppliers, agency commission, if any, payable to their agents in India shall invariably be shown separately in the proforma invoice and this will be paid by us in India, in Indian Rupees, on satisfactory completion of the contract.

Spares : The tenderer should quote separately for spares that are required for two years trouble free operation. The spares offer should accompany the offer of main equipment, otherwise the quotation will be overlooked.

Validity : The offers for main equipment and spares shall be kept open for acceptance for 90 days (Ninety days) for the date of opening of the tender.

Test Certificates, Operating and Maintenance Manuals : The tenderer shall clearly mention in their offer that Test Certificates and Operating and Manuals, etc., as called for in technical specification, in the required number of copies will be provided at no extra cost. If any amount is payable as extra, the same shall be indicated separately in the offer.

Terms and payment : In the event of an order the purchaser will arrange for an unconfirmed irrevocable letter of credit against presentation of documents. Under, no circumstances confirmed irrevocable letter of credit will be established by the purchaser.

General :

- (i) Preference will be given to suitable indigenous or ex-stock imported offers, failing which imported offers from incoming consignment against the indigenous supplies "Stock and sale Licence" will be accepted, if Stock and sale licence is not available with the indigenous suppliers, the same shall be indicated in their offer.
- (ii) The offer should reach us on or before 14.00 Hours of date of tender opening. The offer will be opened at 14.30 hours on the due date in the presence of the tenderers who may like to be present.
- (iii) **BANK GUARANTEE** (if applicable) : The supplier in the event of an order, should furnish a Bank Guarantee from an approved Bank at no extra cost in a proforma which will be supplied to the supplier, along with the order, for an amount equivalent to 10% of the value of the contract. The Bank Guarantee should remain in full force and effect during the period that would be taken of successful completion of the contract and shall continue to be enforceable till 12 months from the date of receipt of consignment at purchaser's site or 18 months from the date of last shipment at the port of Delivery, whichever is earlier.
- (iv) **INCOTERMS :** The definition for terms shall be as per Incoterms 2010
- (V) **PLEASE QUOTE YOUR RATE FOR ALL THE FOLLOWING CONDITIONS.**
- (a) FOB on at sight L.C.
- (b) On C & F Chennai Port India with at sight L.C.
- (c) Rate on credit basis with rate of interest and period of credit.
- (d) Rates with suppliers credit.