

Ph: 040 - 2318 2145

E-mail of Purchase Executive: manoj.kotakonda@bhel.in

**BHARAT HEAVY ELECTRICALS LIMITED**

**RAMACHANDRAPURAM, HYDERABAD – 32**

**(A GOVERNMENT OF INDIA UNDERTAKING)**

**PURCHASE DEPARTMENT (CG / CMM)**

**TENDER SCHEDULE**

Procurement of "SPIN TEST SYS FOR LIGHT AND MED IMPELLERS as per BHEL requirement ".

TENDER NO: M2A1V04380 dt.22.04.2022

DESCRIPTION: SPIN TEST SYS FOR LIGHT AND MED IMPELLERS as per BHEL requirement

QUANTITY: 1

DELIVERY SCHEDULE FOR SUPPLY FROM THE DATE OF PURCHASE ORDER-

NOT EARLIER THAN : **NOT APPLICABLE**

NOT LATER THAN : **12 Months**

GRACE DELIVERY PERIOD WITH LOADING FACTOR : **3 Months**

MAXIMUM ACCEPTABLE DELIVERY PERIOD: **15 Months**

DELIVERY SCHEDULE FOR INSTALLATION FROM THE DATE OF READINESS OF SITE (WHICH IS TO BE INTIMATED BY BHEL) : **60 Days**

E&C CHARGES AS PERCENTAGE OF TOTAL VALUE :**5%**

LAST DATE FOR SALE OF DOCUMENTS : **21.05.2022**

DUE DATE : **21.05.2022**

COST OF TENDER DOCUMENTS: Rs.1000/- Not refundable.

EARNEST MONEY DEPOSIT(EMD): Rs.200000/- should submitted by the supplier in favour of BHEL R C Puram hyderabad .

DD may be sent to below address.

Ajay Pekde

DGM/CMM/Purchase

Administrative building, 4th floor,

BHEL R.C Puram,Hyderabad-32,Telangana

Performance Bank Guarantee (PBG): **Applicable**

CONTRACT EXECUTION BANK GUARANTEE (CEBG):- **Applicable**

Supplier Signature with Stamp

**Preliminary Registration For Down Loading The Tender Documents**  
**[To Be Filled-in and E-mailed to Purchase officer who has tendered In-advance]**

To:

DGM, Purchase (Pur-CG)

B.H.E.L., R.C. Puram,  
Hyderabad - 502 032.

Dear Sir,

We wish to participate in the tender for Supply and installation of SPIN TEST SYS FOR LIGHT AND MED IMPELLERS against Enquiry No.: **TENDER NO:M2A1U04380 Dt.22.04.2022**

**Address of Principal / Manufacturer:**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Phone: \_\_\_\_\_

Fax: \_\_\_\_\_

E-mail: \_\_\_\_\_

Contact Person: \_\_\_\_\_

**Address of Indian Agent (if any):**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Phone: \_\_\_\_\_

Fax: \_\_\_\_\_

E-mail: \_\_\_\_\_

Contact Person: \_\_\_\_\_

**Tender Document Payment Detail:**

D.D. No.: \_\_\_\_\_ Date: \_\_\_\_\_ Bank Name: \_\_\_\_\_

**NOTE:**

In case of down loading of the tender documents the same must be intimated with in due date of submission by forwarding complete filled up format as mentioned above.

BHEL reserves the right to extend the due date of tender opening for want of adequate response and also at the request of the vendor who procured the tender with in the last date for sale of tender documents / down loading. In case of extension and corrigendum the same will be uploaded onto the BHEL Website. No separate intimation / publication will be issued. Supplier need to forward this document after duly authentication.

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**Signature of Vendor / Supplier**

<b>INSTRUCTIONS TO BE COMPLIED BY THE SUPPLIER</b>	
<b>STANDARD TERMS &amp; CONDITIONS FOR PROCUREMENT OF</b>	
<b>CAPITAL EQUIPMENT</b>	
<b>A</b>	<b>QUOTATIONS:</b>
1	<p>BHEL's requirement is for capital use. Signed &amp; Sealed offers are invited for the Scope of Supply of goods and Services or both as detailed in the enquiry. Relevant enclosures/supporting documents / catalogue, if any shall be enclosed to the technical offer. Bidder can also submit offer through email at their own risk. The offer is to be submitted in two parts. Technical offer to be submitted to mail ID technicalbid_hyd@bhel.in, and price bid to be submitted to mail ID pricebid_hyd@bhel.in as an attachment only. Interchanging the information in the mails may lead to rejection of the offer. Supplier shall have no claim on e-mail offers sent on any other e-mail ID. In case of e-mail offers, the mail subject should contain Enquiry No. Due date and Supplier name, Supplier address including contact details shall be mentioned in the content of the mail. Without these details offer is liable for rejection.</p> <p>Offers addressed to DGM/CMM, Vendor Complex, BHEL, Hyderabad must be sent in a sealed cover on which tender enquiry number and the due date shall be super subscribed and sent by appropriate mode to above address or dropped in tender box located at vendor complex on or before the specified time and date of submission of offers, preferably in the bidder's envelope. For e-mail offers please follow the procedure: Two part bid consisting of i) Techno-commercial Bid - ( Part-I), with all technical specification &amp; scope including bill of material etc., EMD (where applicable) and unpriced bid with all applicable Commercial Terms and Conditions, rates of agency commission , duties, taxes and other charges, except the price, super scribing enquiry No. (Techno-Commercial Bid) and due date Signed and Stamped Terms and conditions of contract, if any is required to be attached along with Techno-commercial Bid - (Part-1) AND ii) Price Bid (Part-II), containing ONLY the price (including agency commission, if any) and the applicable duties/taxes/other charges shall be kept in a separate sealed cover super subscribing Enquiry no. (Price bid) &amp; due date. Both these covers shall be kept in a Third cover super subscribing Enquiry no. &amp; due date. All techno commercial terms &amp; conditions mutually agreed prior to price bid opening shall prevail and supersede any terms and conditions specified otherwise in price bid.</p>
2	<p>Cover - I TENDER COST AND E.M.D.: Tender Cost &amp; EMD, as specified in the tender schedule and if called for are to be deposited in the form of Cash*(as permissible under Income Tax Act)/Demand Draft/Pay Order, in favour of M/s. Bharat Heavy Electricals Ltd., Ramachandrapuram, Hyderabad - 502 032 for value of tender document &amp; EMD along with a covering letter. These are to be submitted in a sealed cover. D.D. towards Tender Cost is non-refundable. In case of foreign bidders e-payment for EMD/tender cost is acceptable i) EMD by the tenderer will be forfeited as per the tender document s(schedule), if the successful bidder/vendor refuses to honor the order after award of the same on him and/or withdraws his bid and/or unilaterally changes the offer and/or any of its terms&amp; conditions within the validity period or fails to submit CEBG even within 60 days from the date of PO. ii) EMD given by all unsuccessful tenderers shall be refunded on acceptance of award/LOI/PO by successful tenderer. EMD of successful bidder shall be returned after submission of Contract Execution Bank Guarantee.(CEBG). iii) EMD shall not carry any interest. *Cash shall be submitted by prospective vendor only at BHEL-RC Puram cash office and receipt shall be kept in the envelop. iv) The EMD may be waived in following cases</p> <p>a) Central / State - PSUs / Government departments( Only EMD is exempted, Tender Cost to be submitted)</p> <p>b) Micro and Small Enterprises (Tender documents cost &amp; EMD are exempted)</p> <p><b>NOTE: All MSME/SSI Units are exempted from the payment of EMD &amp; Tender documents cost. MSME/SSI units shall enclose in their Techno-Commercial bid a) attested Valid NSIC Certificate (or) b) attested Entrepreneurs Memorandum (EM) part II certificate (with deemed validity of five years from the date of issue of acknowledgement in EM II) (or) c) attested EM II certificate with Chartered Accountant certificate applicable for the year, certifying that investment in Plant &amp; Machinery is within the permissible limits as per MSME act for relevant status (Micro or Small), where the deemed validity of EM II is over. If Bidder fails to submit/enclose above specified certificates, their Offer will be considered as non MSME/SSI unit and failure to non-submission of DD towards EMD &amp; Tender cost will leads to rejection of their Offer.</b></p>
	<p>**Beneficiary Name: Bharat Heavy Electricals Ltd. Beneficiary Address: Ramachandrapuram, Hyderabad, 502032, Beneficiary Ph. No: (+91 40)23182235, Name Of the Bank: State Bank of Hyderabad, Branch Address: Ramachandrapuram, Hyderabad, 502032, Branch Code: 075, A/C No: 00000062048154115, A/C Type: Current Account, IFSC No (For NEFT &amp; RTGS): SBIN0020075, MIRC: 500002370, Bank's Telephone No: (+91 40)23022210, Bank's Fax No: (+91 40)23022210</p>
	<p><b>Soft copy of the DD towards EMD and Tender Fees shall be uploaded in e-tender portal and hard copy shall be submitted to Dy.GM/CMM-Pur, Admin building 4th floor ,BHEL Ramachandrapuram, Hyderabad, 502032</b></p>
3	<b>Cover - II (Part-I) : TECHNICAL-CUM-COMMERCIAL AND UN-PRICED BID:</b>
(a)	This consists of complete technical details, catalogues, drawings and all commercial terms. Money values must not be indicated i.e. <u>un-priced bid</u> . These are to be submitted in a sealed cover.

(b)	The following formats / documents are to be filled up and submitted: (i) Filled in Technical Specification (Format enclosed), (ii) Filled in Standard Terms & Conditions for Procurement of Equipment (Format enclosed), (iii) Un-Priced Bid [In the formats of Technical Specification / Scope and typical Annexures, confirming that the prices are quoted in price bid], (iv) Declaration with regard to Registration with BHEL (Supplier Registration Form to be filled and submitted online through our website www.bhel.com), (v) The rating of the company by an international credit rating agency (As per point no 3 of important instructions while preparing techno-commercial ), (vi) All relevant enclosures of above documents / formats, (vii) Complete technical / commercial details along with catalogues / instructions and (viii) Shipping weight and cubage (length, width & height) size of packing.
4	<b>Cover - III (Part-II) : PRICE BID:</b>
(a)	Prices are to be indicated as per Un-Priced Bid as per detail as well as in conformity with terms as submitted in Part-I. Bidders are required to quote as per enclosed format. All applicable taxes and duties are to be indicated clearly in the offer. The comparison between indigenous and foreign bids shall be done based on landed (FOR DESTINATION) price basis. Processing of any optional item is at the discretion of BHEL. <b>Offer with any preconditions for price will be rejected.</b>
(b)	The bidders should submit their best price at this stage itself. They will not be allowed to revise the price during validity period.
<b>B</b>	<b>GUIDELINES:</b>
1	Soft copy of DD superscribing TENDER FEE & EMD along with Tender Number, Tender Due Date & Name of the Supplier. and technical part, including all commercial terms (except price) and un-priced bid.
2	The cost of tender documents as well as techno-commercial bid, will be opened first. Non-receipt of D.D. for the tender cost and EMD will lead to rejection of offer.
3	The Technical-cum-Commercial offer will be discussed, finalised and only then the price bid of the technically acceptable offers will be opened.
4	<b>If a Supplier submits only one soft copy containing either techno-commercial bid or price bid or one combined soft copy bid i.e. techno-commercial bid &amp; price bid together, the offer is liable to be rejected. Non-receipt of D.D., for tender cost &amp; EMD is likely to lead to rejection of the offer.</b>
5	If a Supplier is not interested to participate in a tender for which enquiry was either forwarded or purchased by them, supplier has to inform the same through a "REGRET LETTER" before opening date, by e-mail or letter. <b>If not complied the concerned Supplier may not be considered for future requirements.</b>
6	BHEL reserves its right to reject / load any offer which is having deviations to BHEL Specifications, Standard Terms & Conditions.
7	All the bidders are to submit their offers by filling in the format of the BHEL tender documents.
8	Tenders should be duly signed and stamped and free from Corrections and Erasures. Corrections, if any, must be attested.
9	Tenderers are to know the applicable laws of Government of India and applicable taxes and duties.
10	In case of price bid, price break-up should be in line with technical specification / scope of the tender.
11	In case of Technical-Cum-Commercial bid, un-priced bid has to be used to indicate relevant commercial implications without indicating price. Terms & Conditions of Letter of Credit (L/C) are indicated herein for acceptance.
12	The equipment offered shall be strictly conforming to the specification and for complete unit including accessories (if any) and spares as per Tender.
13	No offer for individual accessories or part of equipment will be accepted.
14	<b>Supplier shall bear the L/C confirmation charges in case of confirmed L/C amended on his request.</b>
15	Bank charges out side India are to the Supplier's account.
16	In case of L/C extension caused by delays, attributable to the Supplier, the L/C extension charges are to be borne by the Supplier.
17	Any free replacement due to short supply or warranty replacement will attract customs duty etc. All such extra expenditure to BHEL will be recovered from Supplier. Otherwise the same will be recovered from 20% balance payment, from agency commission, etc.

18	Quotation for recommended spare parts as per O&M with break-up for two years should be indicated in the offer as essential spares. <b>In order to arrive at the lowest offer, BHEL will include cost of essential spares in the total cost unless specified otherwise in Technical Specification / Approved Scope.</b>
19	In the event that if any essential spares are not quoted though the same has been asked for and subsequent it is found that this is required, then BHEL reserves its right to recover any consequential loss due to the machine failure during 2 years from the Equipment Supplier.
20	Supplier will have to ensure deputation of their Engineers for Erection & Commissioning or for attending to any complaint during warranty / guarantee period within 15 days' of intimation. In case of delay BHEL reserves the right to get the job completed at the risk and cost of the Supplier. This does not amount to breach in contract clause by BHEL.
21	BHEL reserves its right to reject an offer due to unsatisfactory past performance during tender finalisation / execution of a contract at any of BHEL projects / units. BHEL will do the performance evaluation as mentioned at Clause:13 in the Standard Format.
22	Income tax which is to be deducted at source on E & C Charges / Services Charges / Technical Fees are to be borne by the Supplier / Service Provider.
23	BHEL will have the option to pre-inspect the machine / equipment at Supplier's works by BHEL's own inspector or by third party agency appointed by BHEL but that does not absolve the Supplier from giving the performance as agreed upon. The final inspection will, however, be carried out at BHEL's works at Hyderabad.
24	Pre - inspection & Training to BHEL Staff : Travel & other local stay cost for the Engineers sent by BHEL will be to BHEL account. Any training charges either at Suppliers' works or any other place will be borne by the Suppliers.
25	The manufacturing progress will have to be furnished to BHEL periodically in the form and manner required by BHEL.
26	Supplier must submit with their offer, list of Customers [with their full address including detail of contact person with phone no., fax no. & e-mail ID (if any)] to whom they have supplied same / similar machine in the past five years. The date of supply should also be indicated. This is applicable unless specified otherwise in Technical Specification.
27	The quotation should be valid at least for a period of 180 days from the tender opening date. Price quoted should be on firm price basis. Price Variation Clause within this period will not be entertained.
28	The quotations including the price bids of technically qualified tenderers will not be returned back under any circumstances.
29	<b>Tenders will be received upto 11.00 Hours on the said due date and will be opened on the same day at 13 .00 Hours.</b>
31	Tenders received after due date and time of tender opening shall be treated as LATE tenders (irrespective of the mode of dispatch) and will not be considered for evaluation.
32	Five (5) sets of Operation & Maintenance Manual shall be supplied along with the equipment.
33	Complete Technical-cum-Commercial offer should be submitted in two sets, one original and another copy. The offer should invariably contain Signature & Office Stamp of the Supplier.
34	The Suppliers are responsible for design of the foundation and ensuring correctness of the foundation prior to Erection & Commissioning of the equipments.
<b>35</b>	
<b>C</b>	<b>BASIS OF EVALUATION OF LOWEST BIDDER:</b>
1	Evaluation of lowest bidder will be made considering the price of the basic equipment, cost of accessories, essential spares, training charges, erection and commissioning charges, component prove-out charges, CIF charges (if any), applicable taxes and duties, applicable freight and insurance charges (Insurance upto BHEL Hyderabad) and charges associated with any other items / services mentioned specifically in the tender. Optional items / services will not be considered for the purpose of evaluation unless or otherwise these are mentioned / communicated to the participating qualified Suppliers.

2	<b>For the purpose of comparing prices, tender prices shall be converted to Indian rupees . For evaluation, exchange rate (TT Selling Rate of SBI) as on scheduled date of tender opening (Part - I bid in case of two part bid) shall be considered. This exchange rate will be followed till placement of order.</b>
3	<b>Placement of order will be considered only for lowest offer on Total Cost to BHEL basis.</b>
4	With respect to conformance to BHEL's tender document, if any Supplier's offer is found to be incomplete in respect of quoting against any items / services, BHEL will have the option of loading such offer with the highest quote submitted by other participating Supplier in the tender. For example, if the offer of a Supplier does not include cost for Spares / FOB Charges / Training Charges, etc., highest price offered by others will be loaded to evaluate the lowest bidder. But the order will be placed on the price quoted by the party without affecting the scope of supply.
<b>D</b>	<b>TERMINATION CLAUSES:</b>
1	BHEL has a right to cancel the order for delay in supply beyond penalty period without any monetary or legal obligations.
2	Obtaining the Export Licence, if required, is the responsibility of the Supplier. In case of delay in supplying the equipment in time, due to this reason, BHEL has a right to cancel the order without any monetary / legal obligation. To this extent Supplier has to give the undertaking and BHEL has a right to encash Contract Execution Bank Guarantee(CEBG).
<b>E</b>	<b>INDIAN AGENT:</b>
1	BHEL shall deal directly with foreign vendors, wherever, for procurement of goods, However, if the foreign principal desires to avail of the services of an Indian agent, then the foreign principal should ensure compliance to regulatory guidelines which require mandatory submission of an Agency Agreement.
2	It shall be incumbent on the Indian agent and the foreign principal to adhere to the relevant guidelines of Government of India, issued from time to time
3	The Agency Agreement should specify the precise relationship between the foreign OEM/foreign principal and their Indian agent and their mutual interest in the business. All services to be rendered by agent/associate, whether of general nature or in relation to the particular contract, must be clearly stated by the foreign supplier/Indian agent. Any payment , which the agent or associate receives in India or abroad from the OEM, whether as commission or as a general retainer fee should be brought on record in the Agreement and be made explicit in order to ensure compliance to laws of the country .
4	Any agency commission to be paid by BHEL to the Indian agent shall be in Indian currency only.
5	Tax deduction at source is applicable to the agency commission paid to the Indian agent as per prevailing rules.
6	In the absence of any agency agreement, BHEL shall not deal with any Indian agent (authorized representatives/ associate/ consultant, or by whatever name called) and shall deal directly with the foreign principal only for all correspondence and business purposes.
7	The "Guidelines for Indian Agents of Foreign Suppliers" enclosed .
8	The supply and execution of the Purchase Order(including indigenous supplies/service) shall be in the scope of the OEM/ foreign principal. The OEM/foreign principal should submit their offer inclusive of all indigenous supplies/services and evaluation will be based on 'total cost to BHEL '. In case OEM/foreign principal recommends placement of order(s) towards indigenous portion of supplies/services on Indian supplier(s) agent on their behalf , the credentials/ capacity/capability of the indian supplier(s)/agent to make the supplies/services shall be checked by BHEL before opening of the price bids as per the extant guidelines of Supplier Evaluation, Approval & Review Procedure (SEARP), before opening of price bids. It will be the responsibility of the OEM/foreign principal to get acquainted with the evaluation requirement of Indian supplier/agent as per SEARP available on www.bhel.com.
<b>F</b>	<b>BANNED VENDORS</b>
	The offers of the bidders who are on the banned list as also the offer of the bidders, who engage the services of the banned firms shall be rejected. The list of banned firms is available on BHEL web site www.bhel.com.

<b>G</b>	<b>CONTRACT EXECUTION BANK GUARANTEE (CEBG):-</b>
1	The CEBG shall be for the due and faithful performance of the Contract and shall remain binding notwithstanding such variations, alternations or extensions of time as may be made, given, conceded or agreed to between the Supplier / Vendor and BHEL under these Terms & Conditions or otherwise.
2	The CEBG furnished by the tenderer will be subject to the terms and conditions of the Contract finally concluded between the parties and the BHEL will not be liable for payment of any interest on the CEBG or any depreciation thereof.
3	Non-acceptance of CEBG is liable to reject the offer. The successful bidder shall be required to furnish CEBG within two months of the acceptance of LOI/P.O.
	Note : In case of non submission of CEBG within two months, BHEL shall charge @ 1.5% per month on the CEBG amount for the delayed period portion beyond 2 months and deduct the same in the final bill.
4	The CEBG should be furnished as per proforma enclosed in Annexure-BG. The CEBG shall be in the currency of the purchase order. The CEBG from foreign suppliers should be from any Bank of international repute. same should be confirmed by our consortium bank in India and are payable in India.. The CEBG shall be refunded / bank guarantee released on application by contractor after commissioning of the equipment and after it has discharged all his obligations under the contract and produced a certificate from BHEL, certifying due completion of the work and submitted a 'No Demand Certificate'.
<b>H</b>	<b>PERFORMANCE BANK GUARANTEE:</b>
1	Performance Bank Guarantee should be as per proforma enclosed in Annexure-PG. The PBG shall be submitted along with joint protocol as per Annexure-V for effecting the balance 20% payment.
2	Performance Bank Guarantee of foreign suppliers should be confirmed by our consortium bank in India and are payable in India..
3	Performance bank guarantee shall be released on application by the Contractor after commissioning of the equipment and after he has discharged all his obligations under the Contract and produced a certificate from BHEL, certifying due completion of the work.
<b>I</b>	<b>GUIDELINES FOR ACCEPTING BANK GUARANTEES</b>
1	As far as possible the Bank Guarantee should be from any of the BHEL Consortium Banks (Annexure-VI)
2	BGs of PSU Banks in addition to consortium banks only are acceptable for indigenous suppliers.
3	In case of BGs issued by non-consortium PSU Banks the same are to be enforceable at Hyderabad
4	In case of Bank Guarantees issued by Foreign Banks, the same should be confirmed by our consortium bank in India and are payable in India. In exceptional cases where no consortium Banks are available the Bank Guarantee should be attested by Indian Embassy and to be registered in India.
5	Bank Guarantees to be submitted by the suppliers towards CEBG or performance bank guarantee should be sent to BHEL, Hyderabad directly by the issuing Bank under Registered Post (A/D) only.
<b>J</b>	<b>TERMS &amp; CONDITIONS FOR LETTER OF CREDIT (L/C):</b>
1	Signed Commercial invoice in quadruplicate, for a value not exceeding the draft amount, quoting the above import Licence No and certifying goods evidencing shipment / airfreight of the above 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 calculated based on the conversion rate on the date of opening the tender.
2	Certificate of Country of Origin, issued by an independent third party like Chamber of Commerce.
3	One set of Original and two sets of Non-negotiable copies of 'signed', 'clean on board' Ocean Bill of Lading of a Conference Line Vessel, showing Government of India Account M/s. Bharat Heavy Electrical Ltd, Unit:HPEP, Ramachandrapuram, Hyderabad as consignee (The opening bank should not be notified as consignee), marked freight prepaid / payable at destination, OR Airway Bills / Air consignment notes / House Airway Bills showing the applicant as the consignee and marked freight prepaid / payable at destination, indicating flight number and date.

4	Packing list in 4 copies in English, indicating dimensions of each case / bundle / piece shipped, with weight and number of items it contains.
5	Certified copy of the cable / fax sent by the beneficiary to the applicant (Fax No. 0091-40-23183282) 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 No & date / Airway Bill No & dated and Flight no & date; (c) Name of vessel; (d) Port of Loading; (e) No of case / pieces and weight; (f) Invoice no, date and value (g) Purchase Order item number's despatched. The cable / fax is to be sent within 3 days of shipment.
6	Beneficiary's certificate showing the relevant airmail / courier reference no and date that the following clauses have been complied with :
7	(a) Beneficiary should forward by Registered Airmail / Courier one complete set of original documents and one set of non-negotiable documents within 3 days of obtaining shipping documents to Regional Manager (ROD), Bharat Heavy Electricals Ltd, World Trade Centre, Cuffe Parade, Colaba, Mumbai - 400 005, India (Fax No. <b>0091-22-22187850 / 22180748</b> )
	(b) Beneficiary should forward 3 copies of complete set of non-negotiable documents to the Officer who released the Purchase Order.
8	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.
9	Manufacturer's Inspection / Test certificate in triplicate.
10	Manufacturer's Normal Guarantee / Warrantee certificate as per Purchase Order. The material should be guaranteed for a period of 24 months after putting into service.
11	Certificate from Shipping company or its agent that carrying steamer is seaworthy and approved by Lloyds / Classification Societies / General Insurance Corporation of India from time to time.
12	Inspection / Test Certificate issued by M/s Lloyds Register of Industrial Services or as specified in the Purchase Order.
<b>K</b>	<b>CONDITIONS FOR TRANSPORTATION:</b>
1	All documents must show the Purchase Order No & Date, Import Licence No & Date, Letter of Credit No & Date.
2	Transshipment is Prohibited.
3	Loading on deck not permitted.
4	A transport document which is produced or appearing to have been produced by reprographic, automated or computerised systems or as carbon copy will be accepted as an original document provided that it is marked as original and where necessary, appears to be signed.
5	The transport document must contain all the conditions of carriage on the original document.
6	The transport document must not indicate the place of destination as being different from the port of discharge.
7	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.
8	The transport document must be issued by the carrier or his agent and not by any freight forwarder.
9	The transport document must not contain a provision that goods may be carried on deck.
10	Transport documents bearing reference by stamp or otherwise to costs additional to the freight charges are not acceptable.
11	The Bills of Exchange must be dated and presentation of documents for negotiation must not be later than 21 days after the date of shipment / airfreight and in any case not later than the expiry date of the Credit.
12	Each case / bundle / piece should be painted with 4 " wide yellow colour strip around it for facilitating easy identification at port of discharge.
13	In case of consignments where individual items are listed in the packing list / Invoice, the price and values for each & every item should be indicated.
<b>L</b>	<b>REVERSE AUCTION (RA) / ON LINE BIDDING ON INTERNET:</b>

1	“BHEL shall be resorting to Reverse Auction (RA) (Guidelines as available on www.bhel.com) for this tender. RA shall be conducted among the techno commercially qualified bidders. Price bids of all techno-commercially qualified bidders shall be opened and same shall be considered for RA. In case any bidder(s) do(es) not participate in online Reverse Auction, their sealed envelope price bid along with applicable loading, if any, shall be considered for ranking.”. The General Terms & Conditions for RA are attached.
2	For the proposed reverse auction, technically and commercially accepted bidders shall be eligible to participate.
3	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.
4	BHEL will inform the Supplier in writing in case of reverse auction, the details of Service Provider to enable them to contact & get trained.
5	Business rules like event date, time, Start price, bid decrement, extensions etc. also will be communicated through service provider for compliance.
6	Suppliers have to fax the Compliance form in the prescribed format (provided by Service provider) before start of Reverse auction. Without this, the vendor will not be eligible to Participate in the event.
7	Based on the accepted commercial 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, Service Tax for Services, loading factors (for non-compliance to BHEL Standard Terms & Conditions), etc. for each of the Supplier to enable them to fill-in the price and keep it ready for keying in during the Auction. Suppliers have to confirm acceptance of the working sheet before the commencement of RA.
8	Reverse auction will be conducted on scheduled date & time.
9	At the end of Reverse Auction event, the lowest bidder value will be known on the network.
10	The lowest bidder has to Fax the duly signed Filled-in prescribed format as provided on case-to-case basis to BHEL through Service provider within 24 hours of Auction without fail.
11	Any variation between the on-line bid value and the signed document will be considered as sabotaging the tender process and will invite disqualification of Supplier to conduct business with BHEL as per prevailing procedure.
12	In case BHEL decides not to go for Reverse Auction procedure for this tender enquiry, the Price bids and price impacts, if any, already submitted and available with BHEL shall be opened as per BHEL's standard practice.

M	<b>Arbitration &amp; conciliation clause and Interest clause :</b>
	<p>(1).Except as provided elsewhere in this contract, in case amicable settlement is not reached between the parties, in respect of any dispute or difference; arising out of the formation, breach, termination, validity or execution of the contract; or, the respective rights and liabilities of the parties; or, in relation to interpretation of any provision of the contract; or, in any manner touching upon the contract, then, either party may, by a notice in writing to the other party refer such dispute or difference to the sole arbitration of an arbitrator appointed by head of the BHEL unit issuing the contract.</p> <p>The Arbitrator shall pass a reasoned award and the award of the Arbitrator shall be final and binding upon the parties. Subject as aforesaid, the provisions of Arbitration and Conciliation Act 1996 (India) or statutory modifications or re-enactments thereof and the rules made thereunder and for the time being in force shall apply to the arbitration proceedings under this clause, the seat of arbitration shall be at Hyderabad.</p> <p>The cost of arbitration shall be borne as per the award of the Arbitrator.</p> <p>Subject to the arbitration in terms of clause 55, the courts at Sangareddy, Telangana State shall have exclusive jurisdiction over any matter arising out of or in connection with this contract.</p> <p>Notwithstanding the existence or any dispute or differences and / or reference for the arbitration, the contractor shall proceed with and continue without hindrance the performance of its obligations under this contract with due diligence and expedition in a professional manner except where the contract has been terminated by either party in terms of this contract.</p> <p>In case of contract with Public Sector Enterprise (PSE) or a Government Department, the following shall be applicable: In the event of any dispute or difference relating to the interpretation and application of the provisions of the contract, such dispute or difference shall be referred by either party for arbitration to the sole arbitrator in the Department of Public Enterprises to be nominated by the secretary to the Government of India in-charge of the Department of Public Enterprises. The Arbitration and Conciliation Act, 1996 shall not be applicable to arbitration under this clause. The award of the arbitrator shall be binding upon the parties to the dispute, provided, however, any party aggrieved by such award may make further reference for setting aside or revision of the award to the Law Secretary, Department of Legal Affairs, Ministry of Law and justice, Government of India. Upon such reference the dispute shall be decided by the Law secretary or the special Secretary or Additional secretary when so authorized by the Law secretary, whose decision shall bind the parties hereto finally and conclusively. The parties to the dispute will share equally the cost of arbitration as intimated by the arbitrator.</p> <p>(2) INTEREST CLAUSE: “No interest shall be payable by BHEL on earnest money or security deposit or any money due to the contractor by BHEL.”</p>
N	<b>Force Majeure</b>
	<p>The supplier shall not be considered in default if delay occurs due to causes beyond their control such as Acts of God, Natural calamities, Fire, Frost, Flood, Civil War, civil commotion, riot, Government Restrictions.</p> <p>Only those causes that have duration of more than seven days shall be considered cause of force majeure.</p> <p>Notification to this effect duly certified by local chamber of commerce/statutory authorities with supporting documents shall be given by the supplier to BHEL by registered letter/courier service immediately within 14 days time.</p> <p>In the event of delay due to such causes the delivery schedule shall be extended for a length of time equal to the period of Force Majeure or at the option of BHEL the order may be cancelled. Such cancellation would be without any liability whatsoever on the part of BHEL.</p> <p>In the event of such cancellation the supplier shall refund any amount advanced or paid to the supplier by BHEL and deliver back any material issued to him by BHEL and release facilities, if any provided by BHEL.</p>
	<b>Note : The bidders should comply with the above Terms &amp; Conditions. Non-adherence may lead to rejection.</b>
	Framework Confidentiality Agreement Cum Undertaking as per Annexure II attached.



**STANDARD TERMS & CONDITIONS FOR PROCUREMENT OF CAPITAL EQUIPMENT  
[FORMAT TO BE FILLED-UP BY THE SUPPLIER]**

**VENDORS HAVE TO OFFER THEIR TERMS IN THE ALLOTTED COLUMN AND SHALL IDENTIFY DEVIATIONS DISTINCTLY.**

S/N	BHEL Standard Terms	Supplier Confirmation	Deviation
01	<b>Terms of Delivery:</b>		
(a)	<b>Indigenous Supplies :</b> FOR - Destination means FOR - B.H.E.L. Hyderabad stores. (Packing & Forwarding, Freight & Insurance are in Supplier's scope i.e. included in the quoted prices) . <b>Ex-works is not acceptable.</b>		
(b)	<b>Foreign Supplies :</b> Foreign supplies have to be made on Incoterm CIF basis (i.e. Inclusive of Sea/Air worthy packing and inclusive of all freight and Insurance upto Mumbai Sea Port . Foreign supplies will be loaded with 2.1% towards inland freight & insurance from Mumbai to BHEL Hyderabad stores for tender evaluation purpose. Notes: i)Offer with terms of delivery other than CIF are liable for rejection. ii)Trans-shipment strictly not permitted, please refer instructions point no:K-2 in this regard.		
(c)	In case,any shortage is noticed viz-viz PO requirement in the main equipment/spares,such shortage shall be replenished by supplier on FOR destination basis without any cost implication to BHEL i.e. Custom Duty and freight charges etc.upto destination for such short supplies shall be borne by the supplier. Please also note that any short supply will attract imposition of penalty on the total P.O. value.(Supply+Installation).		
02	<b>Delivery Period:</b>		
	The Bidder should quote their earliest schedule for Supply and Installation against the schedule indicated in the Tender schedule of the NIT. Bidder should quote time period separately for "Supply", "Installation" of equipment. BHEL, however, reserves the right not to accept an offer not meeting the NIT schedule. The supply period indicated by bidder should include reasonable time required for approval of drawings and other inputs from BHEL. Relevant Drawings & QAP shall be submitted within 10 days of issue of PO, for BHEL approval. Manufacturing shall be started only after getting approval from the BHEL.		
	Any offer beyond the "max.acceptable delivery period" shall be rejected. All offers which do not confirm to the specified delivery period mentioned in tender schedule , but are within the "max. acceptable delivery period" shall be loaded for the delayed delivery beyond 'X' @ 0.5% per week or part thereof subject to a maximum of 10% of the supply value.		
03	<b>Payment Terms &amp; CEBG Clause:</b> Offer with deviations to BHEL Payment Terms will be loaded as under.a)Bench Mark Prime Lending Rate (BPLR) of SBI as applicable on the scheduled date of Tender Opening +2%, for the amount and period of relaxation sought by the bidder.b)On account of payment through LC, if insisted by bidder, bank charges shall also be loaded for the deviation in i)opening of LC by BHEL ii)period and amount of LC w.r.t NIT norms, as per the prevailing bank rates. Offers with non-acceptance of CEBG Clause and insistence of advance payment are liable to be rejected. In no case BHEL shall accept liability towards interest. Payment terms mentioned here under for Indigenous and Imported Offers.		
(a)	<b>Terms of payment for Indigenous Offer:(Supply and E&amp;C to be done by vendor)</b>		
	80% payment of supply value will be made on 45th day from the date of receipt of material at BHEL (date of goods receipt (GR) ). Balance 20% of supply value + 100% Installation portion of P.O. value will be paid after successful commissioning of the equipment and subjected to submission & acceptance of Performance Bank Guarantee of 10% of contract value valid for 30 days beyond the guarantee/Warranty period.		
(b)	<b>Terms of Payment for Foreign Offers:(Supply and E&amp;C Only)</b>		
(i)	Total supplies are to be from Foreign Source. Where the payments are through L.C (L.C opening charges are to be loaded) payment of supply value shall be 80% on dispatch and 20% on issue of Installation certificate.Payment of Installation value shall be made against Installation certificate issued by BHEL. Installation certificate shall be issued on satisfactory completion of Erection, Commissioning, Job proving, Performance tests, Training to operators etc. as envisaged in PO. The L.C. shall be opened by BHEL as per the following. 1) Within 30 days of receipt of acceptable CEBG, an irrevocable unconfirmed L/C will be opened for 30% of the payment towards supply, due on shipment i.e. 24% of the supply value of the P.O.(30% of 80%). Not earlier than 60 days before the shipment date, the value of this irrevocable unconfirmed L/C would be enhanced from 24% to 80% of the supply value of the P.O. The above L/C can be negotiated after the shipment against submission of B/L or AWB, and such other documents, as mentioned in the P.O.or L/C and submission of Pre Dispatch Inspection Report of BHEL. This L/C will be valid for a period extending 21 days beyond the shipment date for negotiation of documents.		

S/N	BHEL Standard Terms	Supplier Confirmation	Deviation
(ii)	When ever there is an Indian Agent to represent a Supplier, it is essential 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 the tender opening. This is payable on satisfactory completion of the contract. <b>Note: In order to maintain sanctity of the tender system, it is essential 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 the offers associated with the Agent will be rejected.</b>		
(iii)	The second irrevocable & unconfirmed letter of credit for 20% & Installation Charges will be opened 15 days prior to the scheduled and confirmed arraival of the technicians of supplier with their names The validity of this L/C would be sufficient to cover the period required for the completion of Installation + 21 days as negotiation period. This L.C can be negotiated i)after completion of the Installation of the equipment in BHEL. This is subject to the submission of Performance Bank Guarantee for 10% of contract value valid for 30 days beyond the Guarantee / Warranty period of 24 months from the date of commissioning. The bank guarantee is to be attested by Indian Embassy & to be registered in India. PBG confirmation charges shall be borne by vendor.		
4	CONTRACT EXECUTION BANK GUARANTEE(CEBG) The successful vendor shall have to furnish a CONTRACT EXECUTION BANK GUARANTEE(CEBG) for 10% (TEN percent) of the Total PO value in the prescribed format within 30 days from the date of PO but before LC opening. CEBG shall be from the one of the consortium banks of BHEL or from a reputed bank and confirmed by any consortium banks of BHEL. All bank charges on account of issuance and confirmation of CEBG whether incurred in India or outside India will have to be borne by the vendor. CEBG shall be kept valid until 30 days after the date of Installation certificate, which will be issued on completion of Installation of equipment which includes Erection, Commissioning, Job proving, Performance tests, Training to operators etc. as prescribed in PO.Under all circumstances, CEBG shall be kept valid, till the PBG becomes operational. If the supplier fails to submit the CEBG even within 60 days from the date of PO, BHEL reserves the right to cancel the PO and forfeit EMD given by the supplier. In addition, in such case, action will be initiated in line with extant guidelines for Suspension of Business Dealings with suppliers.		
i	CEBG may be given in the form of Cash/Demand Draft, to be deposited in favour of BHEL Ramachandrapuram		
ii	Note : In case of non submission of CEBG within two months, BHEL shall charge @ 1.5% per month on the CEBG amount for the delayed period portion beyond 2 months and deduct the same in the final bill.		
5	<b>Warranty / Guarantee Period: Equipments shall be guaranteed against workmanship, materials used, design and performance should be for a period of 24 months from the date of Commissioning of the equipment, unless otherwise stipulated in the specification.</b>		
	<b>Loading Factor for non-acceptance of Guarantee Period:</b> Less than 12 months from commissioning will attract loading of AMC charges for difference of quote with warranty / guarantee period. Example : If a Supplier provides 6 months guarantee period, in place of 12 months, then the difference of 6 months will be loaded with AMC charges of 4% per annum for difference period of 6 months i.e. 2 % of total cost will be loaded for evaluating lowest bidder.		
6	Penalty for Delay in "Supply" & "Installation": For the purpose of penalty for delay in "Installation" of the equipment, the duration will be reckoned from the date of intimation by BHEL to vendor for readiness of site. Penalty for Delay in "Supply" and / or "Installation" will be applicable for the delays attributable to vendor. Penalty will be considered separately for "Supply" & "Installation". Rate of penalty for delayed supply shall be at the rate 0.5% per week of delay of total PO value (supply + Installation) in supply subject to max. of 10% of total PO value (supply + Installation). The Rate of penalty for delayed Installation shall be at the rate 0.5% per week of delay of total PO value (supply + Installation) in Installation subject to max. of 10% of total PO value (supply + Installation). Max. penalty for delay in "Supply" & "Installation" together shall be limited to 15% of total PO value (supply + Installation). In case PO includes more than one machine, the penalty shall be at the rate 0.5% per week of delay on total PO value (supply + Installation) for the delayed machine. Loading on account of non acceptance of penalty for delayed supply and / or Installation shall be as under: In case any bidder is not accepting the above penalty for delayed supply and / or Installation, the offer the bidder shall be loaded to the extent to which it is not agreed by the bidder.		

S/N	BHEL Standard Terms	Supplier Confirmation	Deviation
	<p><b>Loading Factor for non-acceptance of Penalty Clause:</b> It will attract maximum 10% loading on the offer and accordingly proportionate percentage will be loaded for accepting less percentage of penalty clause. Example : If the Supplier has accepted for maximum 5% penalty clause, then balance 5% will be loaded on supply value for evaluating lowest bidder.</p> <p><b>Penalty amount so determined along with applicable GST thereon shall be recovered.</b></p>		
7	<p><b>Performance Bank Guarantee (PBG):</b> The Supplier shall submit a PBG for 10% of the contract value valid for 30 days beyond Warranty / Guarantee period. Please refer clause: H of Instructions.</p> <p>Offers with non-acceptance of Performance Bank Guarantee clause are liable to be rejected. Offers with less acceptance of PBG than the specified period and or value shall be loaded proportionately, during evaluation of the lowest bidder.</p>		
8	<p><b>Erection &amp; Commissioning (Installation) Schedule:</b> Supplier to specify clearly the time period for erection &amp; commissioning of the equipment starting with date of intimation by BHEL regarding site readiness. The bidders should quote their earliest schedule against the schedule indicated in the NIT(Tender Schedule)</p>		
9	<p><b>Erection &amp; Commissioning (Installation) Charges:</b> Erection &amp; Commissioning value will include services to be rendered at BHEL like Erection, Commissioning, Job proving, performance testing, training to operators etc. Installation value should be quoted separately by bidders. Only in case where quoted value is less than the value (in %) specified in the NIT or separate Installation values are not mentioned in the offer, value for Installation portion shall be deemed to be considered as the value indicated in NIT and accordingly supply value will be adjusted from that quoted value and balance will be released as Installation payment.</p>		
10	<p><b>Essential / Mandatory Spares:</b> Supplier to specify clearly the charges of Essential / Mandatory Spares in the form of <b>Extra</b> only (Itemized break-up shall be given). Requirement of technical specification need to be complied with.</p>		
11	<p><b>Validity:</b> Supplier to mention clearly the validity of the offer [Minimum 180 days from tender opening date].</p>		
12	<p><b>Risk Purchase:</b> If the vendor fails to deliver the goods beyond penalty period specified in the Purchase Order, BHEL will be entitled to terminate the contract and to purchase elsewhere at the risk and cost of the supplier either the whole of the goods or any part which the supplier has failed to deliver or dispatch within the delivery period mentioned in the Purchase Order. <u>BHEL reserves the right not to consider offers from vendors not accepting the above Risk Purchase terms.</u></p>		
13	<p><b>Reverse Auction:</b> BHEL intends to Finalize the Tender through Reverse Auction. Please furnish the details as requested below along with the confirmation to RA. BHEL reserves the right to decide the tender through Reverse Auction (RA) route. BHEL will decide (after technical bid opening), at its discretion, to process the tender through Reverse Auction or by opening price bids. Vendors are advised not to quote higher prices in price bid, presuming that there will be an opportunity to reduce the same during Reverse Auction. In case BHEL decides to process the tender by opening the price bids instead of Reverse Auction, there is no provision for revising the quoted prices and vendors may lose the opportunity in view of the higher prices, if any, quoted by them. BHEL reserves right to reject the offers not accepting for RA.</p>		
13.1	Name of the Representative participating in the RA:		
13.2	Address of the Company:		
13.3	Landline No.:		
13.4	Fax No.:		
13.5	Mobile No.:		
13.6	E-Mail Id		
14	DECLARATION: VENDORS SHALL GIVE A DECLARATION THAT PARTICULAR COLUMNS GIVEN IN THE NIT DOCUMENTS HAVE NOT BEEN ALTERED BY THEM		
15	<p><b>PDI inspection :-</b> PDI Invitation shall be given before the Purchase order delivery date and PDI shall be completed 15 days before the P.O. delivery date. Vendor to Confirm.</p>		

S/N	BHEL Standard Terms	Supplier Confirmation	Deviation
16	<p>Price, invoicing and payment:-</p> <p>The agreed prices are fixed prices in the currency as specified in the Purchase Order. They shall include packing, forwarding , loading and carriage to the place specified by the purchaser and are exclusive of all applicable taxes, duties etc., except for those specifically agreed by the Purchaser. Invoices shall be submitted bearing the Purchase Order number &amp; date, item number/s and supporting documents as called for in the Purchaser order.</p> <p>The direct payments (including LC/documents through Bank on collection basis), shall be made by E-payment mode and not by cheque /bank drafts except in special circumstances. Vendors shall furnish the E-payment particulars in the prescribed formats duly authenticated by their respective Bankers, If not got registered earlier with the Buyer.</p> <p>. Invoice has to be raised quoting HSN Code of Goods or Accounting Code of Services. Invoice should mention BHEL-HPEP-HYDERABAD GSTIN: 36AAACB4146P1ZG or GSTIN of BHEL Nodal Agency as mentioned in PO.</p>		

S/N	BHEL Standard Terms	Supplier Confirmation	Deviation
17	<b>Taxes &amp; Duties (RATE TO BE INDICATED by the bidder against the space provided )</b>		
i	Indigenous Purchase:		
ii	The Taxes as applicable shall be quoted in the following manner.		
iii	<b>IGST/CGST/SGST/UTGST: Rate of Tax to be quoted as extra in %</b>		
iv	<b>Vendor to indicate HSN of Goods or SAC of Services.</b>		
v	NOTE: Bidders to ensure correct applicability of <b>IGST/CGST/SGST/UTGST</b> based on the Inter / Intra state movement of goods.		
vi	Taxes prevalent on the contractual delivery date or the actual delivery date (incase of delay) which ever is lower shall be applicable paid. <b>In case Bidder has opted for GST Composition Scheme, the same may be stated explicitly both in their technical and price bids.</b>		
vii	Any other taxes & duties not covered anywhere above may be indicated separately.		
viii	Taxes deducted at source:		
ix	TDS as per the extant statute shall be recovered. In case vendor does not provide PAN details/concessional certificates, the TDS deduction shall be at the maximum percentage stipulated as per the provisions of Income Tax Act.		
x	Foreign Purchase ( Imports ):		
xi	The offered price shall be inclusive of all the Taxes and duties as applicable in country of bidder / country of dispatch for the quoted CIP price.		
xii	Taxes deducted at source:		
xiii	TDS as per the extant statute shall be recovered. In case vendor does not provide PAN details/concessional certificates, the TDS deduction shall be at the maximum percentage stipulated as per the provisions of Income Tax Act.		
18	<b>RIGHT OF REJECTION /NON- PLACEMENT OF PO:</b>		
i	BHEL reserves the right to accept or reject any or all bid/s in full or part without assigning any reason whatsoever		
19	If Bidder is distributor/dealer of the OEM (Original Equipment Manufacturer), please enclose valid Authorisation letter issued by the OEM in the techno-commercial bid.	Vendor to Enclose & write Enclosed. (If Bidder is OEM, write "Not Applicable-OEM" here)	
20	Un-Priced Bid	Vendor to Enclose enclose Un-Priced bid and shall write "Enclosed" here	
21	Address on which PO is to be relased	Vendor to specify the complete Address along with the Land line number and Fax number	
22	Contact Details	Vendor to furnish the name, E-mail ID and mobile number of the person for correspondance	
23	EMD & TENDER FEE	Vendor to enclose the Xerox copies of DDs of Tender Fee & EMD along with the Original DDs. In case of SSI /NSIC regstered Units, Bidders shall enclose relevant certificates.	
	<b>Note : The bidders should comply with the above Terms &amp; Conditions. Non-adherence may lead to rejection. Also refer Annexure -A for important general instructions and also do's &amp; don'ts before submitting the offer.</b>		

**Annexure - A**

<b>Guidelines for Indian Agents of Foreign Suppliers</b>	
1.0	Wherever the Indian representatives have communicated on behalf of their principals and the foreign parties have stated that they are not paying any commission to the Indian agents, and the Indian representative is working on the basis of salary or as retainer, a written declaration to this effect should be submitted by the party (i.e.Principal) before finalizing the order.
2.0	<b>Disclosure of particulars of agents/representative in India, if any</b>
2.1	Tenders of Foreign nationality shall furnish the followign details in their offers:
2.1.1	A. the Bidder(s)/Contractor(s) of foreign origin shall disclose the name and address of the agents/representatives in India if any and the extent of authorization and authority given to commit the Principals. In case the agent /representative be a foreign company, it shall be confirmed wether it is existing company and details of the same shall be furnished.
2.1.2	B. The amount of commission/remuneration included in the quoted price(s) for such agents/ representatives in India.
2.1.3	C. Confirmation of the Tender that the commission/ remuneration, if any, payable to his agent/ representatives in India, may be paid by BHEL in Indian Rupees only.
2.2	Tenders of India Nationality shall furnish the following details in their offers:
2.2.1	A. The Bidder(s)/Contractor(s) of Indian Nationality shall furnish the name and address of the foreign principals, if any, indicatig their nationality as well as their status, i.e. whether manufacturer or agents of manufacturer holding the Letter of Authority of the Principal specifically authorizing the agent to make an offer in India in response to tender either directly or through the agents/representatives.
2.2.2	B. The amount of commission/remuneration included in the price(S) quoted by the Tenderer for himself.
2.2.3	C.Confirmation of the foreign principals of the Tender that the commission/remuneration, if any, reserved for the Tenderer in the quoted price(s), may be paid by BHEL in India in equivalent Indian Rupees on satisfactory completion of the Project or suppliers of stores and spares in case of operation items.
2.3	In either case, in the event of contract materializing, the terms of payment will provide for payment of the commission/remuneraion, if any payable to the agents/representatives in India in Indian Rupees on expiry of 90 days after the discharge of the obligations under the contract.
2.4	Failure to furnish correct and detailed information as called for in paragraph 1 above will render the concerned tender liable to rejection or in the event of a contract materializing, the same liable to termination by BHEL. Besides this there would be a penalty of banning business dealings with BHEL or damage or payment of named sum.

## Annexure-B

This format is applicable only to Indian Suppliers/Agents supplying indigenous portion of  
 \* In all other cases, extant guidelines of SEARP,2010 are to be followed.

SEARP (SRF) Clause No	Detail
	Name & address of the firm
1.0	Products/Systems/Services being considered for
2.0	General Information
2.2	Name of Chief Executive
2.3	Details of authorized signatory
3.0	Ownership Information
3.1	Type of firm
3.2	Nature of Business 1. Attach <b>authorization letter</b> and <b>agency agreement</b> from Principal (from whom capital equipmet is procured) 2. Attach copy of declaration from Foreign Principal for total <b>guarantee/warranty of indigenous supplies</b>
3.3	Year of establishment
3.4	Year of commencement of business
4.0	<b>Registation particulars</b>
4.1	Permanet Account No.
4.2/4.3	Sales Tax /Tin No
4.6	Service Tax No.(in case of E&C)
5.0	<b>Organisation strength</b>
6.0	<b>Other particulars</b>
6.1	If the company is already registered with other units
6.2	Directors/Partners, if related to any BHEL Employee
6.9	If any Ex BHEL Personnel employed by the Company
6.1	Details of pending legal issues with BHEL
6.1	Bank Account information
9.0	<b>Financial information</b>
9.6	Sales/Turnover details of last 3 years (or from the date of incorporation whichever is less)

## DO's & DON'T's (INDICATIVE LIST only)

### Dos

1.	Dos	Consequence of non compliance
2.	Ensure that tender cost is submitted along with offer	Offer will be summarily rejected without notice.
3.	Sign on the covering letter	Offer will be treated as invalid and rejected
4.	Adopt the format given in the tender document for specification and commercial terms.	It will delay evaluation of tender and leads to a lot of avoidable correspondence
5.	Reference details, wherever sought, are to be given	This is very important for pre-qualification clause of the specification. Please ensure all related enclosures are attached.
6.	Use the format of Technical specification cum Compliance Certificate given in the tender documents only	May lead to wrong capture of document details. It may lead may also lead to rejection of the offer.
7.	Enclose Valid agency agreement copies along with the offer in case the foreign vendor wants to avail their services	Absence of / Invalid agency agreement will violate regulatory guidelines. Hence the offer will not be considered
8.	Submit the tender well with in the tender due date	Request for extension will be given at the sole discretion of BHEL.
9.	Accept Reverse Auction (RA) as it gives the vendor to fine tune their price offers	BHEL reserves the right to reject the offer, if RA is not accepted.
10.	Accept Standard BHEL commercial terms	Non acceptance will result in invocation of loading factors.
11.	All local vendors have to give statutory levies like ED/CST/VAT / Service tax/ Works contract tax clearly.	In the absence of these details vatable credits, which will have a bearing on tender priorities, will not be considered.
12.	Foreign vendors have to clearly understand the statutory levy clause in the commercial terms and conditions and note that Services rendered in India are subjected to service tax and Tax deduction at source clauses.	If the same is not accepted by vendor, it will be included in the landed cost of the vendor.

### Dont's

1.	Dont's	Consequence of doing
2.	Please do not give price in techno-commercial offer when the tender is a two part bid	It will undermine bidder's competitive position and also affects transparency.
3.	Don't enter into agency agreements with Indian agents after submission of offer.	Such agreements are invalid as per regulatory guidelines.
4.	While healthy comparative evaluation emphasizing the strengths of your product over other products available in market is acceptable, don't evaluate the technical offers of your competitor in an accusatory tone.	Such correspondence will be perceived as litigious in nature and can be perceived as hindering the tender evaluation process.
5.	Don't give price of main equipment under optional items head, except when specifically asked in the specification.	Optional items will not be considered for tender priority evaluation.

**Important General Instructions :**

1. Please read the instructions CAREFULLY.
2. BHEL <b>strongly believes</b> / prefers to <b>deal directly</b> with <b>OEM Vendors</b> . In the event prospective vendor desires to avail the services of Indian Agent, then the principal should ensure the compliance of regulatory guidelines, which require mandatory submission of
A copy of the agreement between principal and agent. (NOTE: In the absence of this agreement, Indian Agent status can not be accorded and the foreign vendor has to deal directly with BHEL).
Such agreement SHOULD fulfill the following:
a. Agreement should be in place well before the enquiry date.
b. It should clearly stipulate the services that are rendered and commercial consideration between them.
c. It is the responsibility of principal to ensure that your Indian Agent is not representing any other Original Equipment Manufacturer (OEM) in this Tender i.e (Equipment) and to this extent they have to forward an undertaking. This is required because at any stage, if it is found, that your Indian Agent is employee of a banned agency or an employee of banned agent or representing more than one OEM in the same tender then your offer will be disqualified.
d. Indian Agent will be paid in INR.
The above listed requirements are only indicative and any other conditions stipulated by regulatory agency will be sought while finalizing the tender. Only after meeting all the above requirement your Indian Agent will be recognised by BHEL. Or else it is not possible to accept any agent as your representative. And Correspondence will be directly held with you as far as this tender is concerned.
4. BHEL encourages prospective vendors to download the tender documents directly from the web as it is simple and time effective.
5. Please submit your offer well in time without SEEKING time extensions. As this enquiry is a part of tight schedule project (with monitoring by the ministry), tender due date extension will be an EXCEPTION & not a norm. Vendor has to give valid justification for their plea for extension and BHEL reserves the right to reject the request without any correspondence on the issue.
6. Tender due date extension / corrigendum, if any, will be published on the web-site of the company only. No separate communications will be sent to any body.
7. For any clarifications on the specifications or tender please email to :dsandeep@bhel.in.
8. Please accept BHEL commercial terms. In the event they are not acceptable please note that <b>LOADING factors will be included in your price while finalizing tender priorities.</b>
<b>Important Instructions while preparing the techno commercial offer:</b>
1. Please note that open tender is a two part enquiry and the techno commercial offer will be evaluated first.
2. Please note that Pre Qualification criteria are the most important clause in the specification cum compliance certification. Ensure that all details as sought in the said clause are given along with documentary proof wherever required. NOTE: BHEL will make independent verification with the information given under this clause.
<b>3. Please forward a copy of Business Information Report incorporating the rating by an international credit rating agencies like DUN and Bradstreet or Credit Reform, which is a requirement under clause 11 of BHEL standard Terms and conditions for procurement of Capital Goods.</b>
4. Please ensure that Page numbers are given to your offer and the covering letter is duly signed.
5. Please DO NOT give PRICE DETAILS in the techno commercial offer, as the offer will be liable for rejection.
6. Please ensure that offers to technical & commercial terms are given in the format given by BHEL only. Please do not make any changes in the format, but only give your offers in the "Supplier confirmation" column. <b>Any remarks are to be given in "Deviations" column only.</b>
7. If any changes are noticed subsequently to the format itself, the same shall be construed as derailing the tender process, and will be dealt accordingly.

**ANNEXURE – VI**

**LIST OF CONSORTIUM BANKS:(OMI-219)**

1. State Bank of India
2. ABN Amro Bank N.V.
3. Bank of Baroda
4. Canara Bank
5. Citi Bank N.A.
6. Corporation Bank
7. Deutsche Bank
8. HDFC Bank Ltd.,
9. The Hongkong and Shanghai Banking Corporation Ltd.
10. ICICI Bank Ltd.
11. IDBI Ltd.
12. Punjab National Bank
13. Standard Chartered Bank
14. State Bank of Travancore
15. State Bank of Hyderabad
16. Syndicate Bank.
17. Allahabad Bank
18. Andhra Bank
19. Bank of India
20. Bank of Maharashtra
21. Central Bank of India
22. Dena Bank
23. Indian Bank
24. Indian Overseas Bank
25. Oriental Bank of Commerce
26. Punjab & Sind Bank
27. UCO Bank
28. Union Bank of India
29. United Bank of India
30. Vijaya Bank
31. State Bank of Bikaner & Jaipur
32. State Bank of Indore (merged with SBI)
33. State Bank of Mysore
34. State Bank of Saurashtra

<b>Bharat Heavy Electricals Limited</b> <b>Heavy Power Equipment Plant,</b> <b>Ramachandrapuram -502032, Telangana, INDIA.</b>	<b>Enquiry No. &amp; Dt.:</b>	
	<b>Due Date :</b>	
	<b>Supplier's Ref.:</b>	
	<b>Date :</b>	

**Specification cum Compliance Certificate for SPIN TEST SYSTEM for Light and Medium weight Centrifugal Compressor impellers**

**Note:-**  
**1. The 'Offered' Column and where applicable, the 'Deviations' & 'Remarks' Column of this format shall be filled in by the Vendor and submitted along with the offer. Inadequate / incomplete, ambiguous or unsustainable information against any of the clauses of the specifications / requirements shall be treated as non-compliance.**

**2. The offer and all documents enclosed with offer should be in English language only.**

<b>Name &amp; Address of the supplier:</b>	<b>Name &amp; Address of the Indian Agent:</b>
<b>Telephone No.</b>	<b>Telephone No.</b>
<b>Fax No.</b>	<b>Fax No.</b>
<b>e-mail :</b>	<b>e-mail :</b>

**Scope: Supply, Erection & Commissioning of SPIN TEST SYSTEM complying with specification as below.**

S. No.	DESCRIPTION FOR BHEL REQUIREMENT	SPECIFIED / TO BE CONFIRMED BY	Offered by Supplier	REMARKS																																			
	<b>Scope</b>																																						
i)	This specification is intended to cover the design, manufacture, assembly, inspection, erection and commissioning of SPIN TEST SYSTEM for Light and Medium weight Centrifugal Compressor impellers in all respects for successful and trouble free operation of systems.	Information																																					
ii)	It shall be the responsibility of the vendor to inform the purchaser of any errors, ambiguities, inconsistencies or discrepancies which may be found to exist in any document, specification or drawing submitted by the purchaser. Vendor shall be responsible for rectifying at their own cost, any errors and oversights in the system. Any work shown on the reference drawings and not particularly given in the specification or vice versa, shall be included by the Vendor. The omission from the specification of any items essential to the correct functioning of any part of the specified equipment shall be brought to the attention of the purchaser. Failure to do this shall not absolve the vendor from supply, installation and commissioning of any equipment or services required to achieve the full functioning of the system to the intent of this specification.	Vendor to comply																																					
<b>1.0</b>	<b>Pre- Qualification Criteria</b>																																						
1.0.1	Only those vendors are eligible to quote who have supplied and commissioned at least one similar or higher size/rating Spin Test equipment to meet the criteria as per 1.0.2 in the past ten years (on the date of enquiry) to centrifugal compressor manufacturers.	Vendor to comply																																					
1.0.2	Spin test equipment shall be capable of spinning impellers (weight of impeller excluding mandrel ) with operating conditions mentioned in the below table under vacuum (1 torr or better)	Vendor to comply																																					
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">M/C type</th> <th colspan="2">DIAMETER (MM)</th> <th colspan="2">WEIGHT, KG</th> <th colspan="2">SPEED (RPM)</th> <th colspan="2">HUB WIDTH, MM</th> </tr> <tr> <th>MAX</th> <th>MIN</th> <th>MAX</th> <th>MIN</th> <th>MAX</th> <th>MIN</th> <th>MAX</th> <th>MIN</th> </tr> </thead> <tbody> <tr> <td>MCL/BCL</td> <td>800</td> <td>250</td> <td>300</td> <td>4.64</td> <td>29000</td> <td>9000</td> <td>225</td> <td>25</td> </tr> <tr> <td>SRL</td> <td>800</td> <td>160</td> <td>300</td> <td>2.67</td> <td>50000</td> <td>9000</td> <td>226</td> <td>56</td> </tr> </tbody> </table>	M/C type	DIAMETER (MM)		WEIGHT, KG		SPEED (RPM)		HUB WIDTH, MM		MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MCL/BCL	800	250	300	4.64	29000	9000	225	25	SRL	800	160	300	2.67	50000	9000	226	56			
M/C type	DIAMETER (MM)		WEIGHT, KG		SPEED (RPM)		HUB WIDTH, MM																																
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1.0.3	Minimum Technical Requirement for spin test equipment is that spin test shall be capable of spinning below impellers at respective speed mentioned in the below table under vacuum (1 Torr or better). Spin test equipment shall meet both the weight and respective speed criteria for the impeller mentioned below.																																						
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Impeller Diameter (mm)</th> <th>Impeller Weight excluding Mandrel (kg)</th> <th>Impeller Spin Speed (mm)</th> <th>Impeller Hub Width (mm)</th> <th>Impeller Material</th> </tr> </thead> <tbody> <tr> <td>Impeller-1</td> <td>800</td> <td>300</td> <td>9000</td> <td>225</td> <td>BHEL specification</td> </tr> <tr> <td>Impeller-2</td> <td>250</td> <td>5</td> <td>29000</td> <td>25</td> <td>BHEL specification</td> </tr> <tr> <td>Impeller-3</td> <td>160</td> <td>2.67</td> <td>50000</td> <td>56</td> <td>BHEL specification</td> </tr> </tbody> </table>		Impeller Diameter (mm)	Impeller Weight excluding Mandrel (kg)	Impeller Spin Speed (mm)	Impeller Hub Width (mm)	Impeller Material	Impeller-1	800	300	9000	225	BHEL specification	Impeller-2	250	5	29000	25	BHEL specification	Impeller-3	160	2.67	50000	56	BHEL specification														
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S. No.	DESCRIPTION FOR BHEL REQUIREMENT	SPECIFIED / TO BE CONFIRMED BY	Offered by Supplier	REMARKS
1.0.4	The supplied equipment should have been working satisfactorily for more than two years after commissioning (on date of enquiry).	Vendor to comply		
1.0.5	The vendor shall furnish details and satisfactory performance certificate of such customer to whom such equipments have been supplied. This is required from all the vendors for qualification of the offer.	Vendor to comply		
	<b>Details of previous supplied equipment.</b>			
1.1	Name of the customer / company where Similar equipment is installed.	Vendor to provide details		
1.2	Complete postal address of the customer	Vendor to provide details		
1.3	Month and Year of commissioning:	Vendor to provide details		
1.4	Parameters of supplied spin facility : 1. Maximum weight of Centrifugal Compressor impeller with fixture and its spinning speed 2. Minimum weight of Centrifugal Compressor impeller with fixture and its spinning speed 3. Vacuum Level ( in Torr. )	Vendor to provide details		
1.5	Name and Designation of the contact of the customer	Vendor to provide details		
1.6	Phone, Fax no., and E-mail address of the contact person of the customer.	Vendor to provide details		
1.7	Performance certificate from the customers regarding satisfactory operation of the equipment.	Vendor to provide details		
1.8	BHEL Reserves the right to verify the information provided by the vendor. In case the information provided by the vendor is found to be false / in-correct, the offer shall be rejected.	Vendor to comply		
<b>2.0</b>	<b>PURPOSE &amp; WORK PIECE DETAILS</b>			
2.1	This specification is intended for spinning of Centrifugal Compressor Impellers mentioned vide cl 2.2 at ambient temperature (10°C to 50 °C) at specified speeds under vacuum of less than 1 torr.	Vendor to comply		
<b>2.2</b>	<b>Impeller details</b>			
a	Maximum Impeller : 300 Kg (Weight excluding mandrel)	Vendor to comply		
b	Minimum Impeller weight: 2.67 Kg (Weight excluding mandrel)	Vendor to comply		
c	Maximum Dia of the impeller: 800 mm	Vendor to comply		
d	Minimum dia of the impeller: 160 mm	Vendor to comply		
e	Minimum hub width of the Job : 25 mm	Vendor to comply		
f	Maximum hub width of the Job : 225 mm	Vendor to comply		
g	Maximum Spin Test Speed: 50,000 (Fifty Thousand) RPM for impeller dia 160mm and weight of 2.67 kg	Vendor to comply		
h	Maximum Spin Test Speed : 9000 (Nine Thousand) RPM for impeller dia 800 mm and weight 300 kg	Vendor to comply		
i	Speed range of impeller with dia 800 mm and 300 kg impeller: 6000-9000 RPM	Vendor to comply		
<b>2.3</b>	<b>Spin Test Requirements</b>			
	1. Centrifugal Compressor impellers shall be assembled on the impeller assembly stand of the spin test equipment with tooling suitable to carry spin test. 2. Impeller will be dynamically balanced along with required tooling on a low speed balancing machine before spin testing. 3. Chamber Lid shall be lifted from Spin Chamber by Lid Vertical Lift Mechanism and aligned with Centrifugal Compressor impeller on the assembly stand by Lid Swivel Arrangement. 4. The Centrifugal Compressor impeller shall be coupled with spin test equipment and secured with lid spindle. 5. The Chamber Lid shall be swiveled back and aligned to Spin Chamber and secured and sealed with Automatic Lid Locking Device. 6 Vacuum System shall be switched on once lid is properly sealed. All auxiliaries equipment like oil and air shall be kept in operation. 7.The impeller will be accelerated by Drive System to the required speed and run for a minimum time span of 2 minutes and then de-cclerated to zero speed.	Vendor to comply		

S. No.	DESCRIPTION FOR BHEL REQUIREMENT	SPECIFIED / TO BE CONFIRMED BY	Offered by Supplier	REMARKS
2.4	The total time for following activities shall be furnished (for impellers and disc mentioned vide clause number 3.10.1, 3.10.2) a. Assembly of all spinning and other fixtures on Impeller at assembly stand. b. Assembly of impeller to drive spindle. c. Removal of impeller from spindle and unloading at assembly stand. d. Removal of all fixture.	Vendor to provide details		
2.5	The maximum permissible residual unbalance in gm-mm/kg in static and dynamic condition of the job to be spin tested.	Vendor to provide details		
<b>3.0</b>	<b>TECHNICAL SPECIFICATION</b>			
<b>3.1</b>	<b>SPIN SYSTEM CONFIGURATION</b>			
3.1.1	The spin test system shall consist of the following : <b>Computerized data acquisition and an integral test chamber with automated lid lifting is required. The entire facility along with all auxiliaries shall be mounted on the production floor.</b>  1. Spin chamber with Electrical and Mechanical drive system as per vendor design. 2. Chamber Lid with swivel arrangement for loading/unloading of impeller and with automatic locking and vacuum sealing system. 3. Data Acquisition system. 4. Control System 5. Vacuum System 6. Lubrication System 7. Impeller Assembly Stand with height adjustment. 8. Safety contact ring for protection of the operating personnel during operation . 9. Manually operated adjustment device for the height of the lower pivot(if rotor guided on lower pivot bearing). 10. Design and manufacture of impeller tooling for spinning . 11. In addition to above, vendor to propose and add to scope of supply if necessary for safe operation of equipment.	Vendor to provide details		
<b>3.2</b>	<b>VACUUM CHAMBER</b>			
3.2.1	Working capacity ( Diameter x height)	Vendor to specify		
3.2.2	Material of construction and construction details	Vendor to specify		
3.2.3	Vacuum capability less than 1 torr.	Vendor to comply		
3.2.4	Pressure withstanding capability	Vendor to specify		
3.2.5	The Spin Chamber shall be designed to withstand the impact of test impeller in the event of failure under spinning ( Burst proof system)	Vendor to comply and provide details		
<b>3.3</b>	<b>CHAMBER LID</b>			
3.3.1	Shall have 2 openings closed with blind plates .	vendor to comply		
3.3.2	Lid locking device shall have safety features to avoid unexpected opening of the chamber lid by fragments during rotor burst as well as by over pressure by metallic dust or oil mist explosion.	Vendor to comply and provide details		
3.3.3	Vacuum seal mounted on chamber lid	Vendor to comply and provide details		
3.3.4	Guide and support column for supporting chamber lid	Vendor to comply and provide details		
3.3.5	Chamber lid vertical lift mechanism Vendor to specify maximum lift	Vendor to comply and provide details		
3.3.6	Chamber lid rotary swivel mechanism Vendor to specify maximum swivel angle	Vendor to comply and provide details		
3.3.7	Safety contact ring for protection of the operating personnel during operation of spin test .	Vendor to comply and provide details		

S. No.	DESCRIPTION FOR BHEL REQUIREMENT	SPECIFIED / TO BE CONFIRMED BY	Offered by Supplier	REMARKS
3.3.8	Electro mechanically operated lifting device to lower and lift the chamber lid	Vendor to comply		
<b>3.4</b>	<b>DRIVE SYSTEM</b>			
3.4.1	Vendor shall provide variable frequency drive in combination with Gear Box OR high speed flat belt transmission (2 step design). The drive shall be assembled on the chamber lid and suitable to handle jobs mentioned vide clause 2.2 and capable of handling the jobs mentioned in Annexure-I, considering both speed and weight of Impellers (excluding fixture weight).	Vendor to comply & provide details		
3.4.2	If supplier is quoting multiple drives, supplier shall inform time required to change the drive and assembly checks to be carried out.	Vendor to provide details		
3.4.3	The drive shall have suitable (preferably regenerative) braking for gradual reduction in speed for Normal stop, Emergency stop and Power failure.	Vendor to comply		
3.4.4	The drive shall have provision for Normal and Emergency stop.	Vendor to comply		
3.4.5	The direction of rotation of the drive shall be bi-directional and direction shall be selected by a selector switch.	Vendor to comply		
3.4.6	Drive power (continuous duty) suitable for acceleration of jobs to rated speeds. Typical SPIN cycle time expected and speed-time curve to be given. <b>The acceleration time for any job shall not be more than 60 minutes.</b> The complete cycle includes acceleration up to required speed, (test duration at impeller test speed shall be minimum 2 minute ) and deceleration up to zero speed.	Vendor to comply and provide details		
3.4.7	The speed shall be regulated within $\pm 10$ rpm from set point.	Vendor to comply and provide details		
<b>3.5</b>	<b>Centrifugal Compressor impeller Assembly stand &amp; Mounting Stand .</b>			
3.5.1	Supplier shall design and supply Mounting Stand with suitable height adjustment for simplification of the loading/unloading of the job and its tooling on to the lid cover.	Vendor to comply and provide details		
3.5.2	Supplier shall design and supply separate Assembly Stand (in addition to Mounting stand ) for assembly & dis-assembly of impellers for balancing before spinning.	Vendor to comply and provide details		
3.5.3	Necessary tools & fixtures required for mouting of impellers in stands shall be supplied for the entire range of impellers specified in Annexure-I .	Vendor to comply and provide details		
<b>3.6</b>	<b>OIL SUPPLY CONSOLE</b>			
3.6.1	The oil supply console shall supply the complete spin test system with lubrication as well as with seal and damping oil .	Vendor to comply and provide details		
3.6.2	Lube Oil Tank capacity	Vendor to specify		
3.6.3	Motor driven oil pump shall be provided.	Vendor to comply		
3.6.4	Filters and valves and mist elimination system	Vendor to comply and provide details		
3.6.5	Heat exchanger to cool lube oil. Heat exchanger shall be designed to cater oil temperature rise when ambient temperature is 50 Deg C.	Vendor to comply		
3.6.6	Emergency oil supply system in case of power failure. (Air powered pump not acceptable).	Vendor to comply		
3.6.7	Monitoring and control equipment for oil level, oil temperatures, pressures, flow and other parameters.	Vendor to comply		
3.6.8	Necessary interlock in control shall be provided to safe guard the machine and job in case of failure in lube oil supply.	Vendor to comply		
3.6.9	Schemes, equipment technical data sheets and lube oil specification to be submitted with the offer	Vendor to comply		
3.6.10	Lube oil specifications shall be submitted to BHEL. First fill shall be supplied by the supplier.	Vendor to comply		
<b>3.7</b>	<b>VACUUM SYSTEM</b>			

S. No.	DESCRIPTION FOR BHEL REQUIREMENT	SPECIFIED / TO BE CONFIRMED BY	Offered by Supplier	REMARKS
3.7.1	Vacuum System shall be capable to create & maintain required vacuum 1 torr or better (suitable for the given range of impellers) in spin chamber for the entire duration of spinning for smooth operation of all ranges/types of impeller mentioned in Annexure-I	Vendor to comply and provide details		
3.7.2	Local display unit of vacuum level shall be provided.	Vendor to comply		
3.7.3	System shall have vacuum release valve for the chamber.	Vendor to comply		
3.7.4	All piping and conduit works between spin chamber and vacuum system shall be under vendor's scope.	Vendor to comply		
3.7.5	Air filter in suction and oil separator in the exhaust pipe of vacuum pump	Vendor to confirm		
3.7.6	Anti-suck back protection for the pump in the event of power failure.	Vendor to comply		
3.8	<b>CONTROL SYSTEM</b>			
	The control system shall have following control features:			
3.8.1	Electrical interlocking of the drive with chamber lid and auxiliaries controlled by the control system.	Vendor to comply		
3.8.2	Up / Down & Swivel movement control of chamber lid Lube oil pump ON/OFF switches with indicator.	Vendor to comply		
3.8.3	Vacuum control (ON/OFF) and Vacuum killing	Vendor to comply		
3.8.4	User Programmable drive speed control system to control speed within given speed time characteristics, ramp rate selection and selection / programming of spin cycle.	Vendor to comply		
3.8.5	Data Acquisition System for continuous monitoring of parameters like speed, vibration level, lube oil pressure and temperature, Vacuum and Drive parameters, etc. during operation shall be provided.	Vendor to comply and provide details		
3.8.6	Start up Interlocks for Vacuum, lube oil pressure, Lid close etc.	Vendor to comply and provide details		
3.8.7	Shutdown interlocks: Motor overload, lube low pressure, lube oil high temperature, high vibration, Loss of phase, under voltage etc. shall be included.	Vendor to comply and provide details		
3.8.8	Alarms (To be configured in HMI): Motor overload, lube low pressure, lube oil high temperature, high vibration, loss of phase, under voltage or over voltage.	Vendor to comply and provide details		
3.8.9	Industrial computer to be provided along with the following features: a) Analysis software which can display/store trends of Drive data b) Licensed windows software of the latest version suitable. c) Ethernet interface	Vendor to comply and provide details		
3.8.10	Provision for Auto and Manual mode operation.	Vendor to comply		
3.8.11	Panel shall have bottom entry for electrical cables. Suitable no. of cable glands (weather proof) shall be supplied by the Vendor .	Vendor to comply		
3.8.12	UPS (for control system) shall be provided.	Vendor to comply		
3.8.13	Control system shall derive supply from main supply only	Vendor to comply		
3.8.14	Air compressor required for control system or equipment shall be supplied with air drier and filter/regulator.	Vendor to comply		
3.8.15	Licensed version of control system Software with life time validity shall be provided along with PC/HMI. Back up copy of PC/HMI software shall be provided in CD/USB along with necessary software and accessories for the restoration of the back up.	Vendor to comply		
3.8.16	PC Operating system CD/pendrive shall be given to BHEL along with license. Ready to replace hard disk with all back up software shall be provided.	Vendor to comply		
3.8.17	PC/HMI device drivers shall be given to BHEL along with applicable license.	Vendor to comply		
3.8.18	All other softwares required for restoration of PC/HMI shall be given to BHEL along with license.	Vendor to comply		
3.8.19	Cabinet wiring schedule/diagrams shall be provided .	Vendor to comply		
3.9	<b>ELECTRICAL SYSTEM</b>			
3.9.1	415V ± 10% , 50 Hz ±3 Hz, 3 Phase AC Power Supply will be provided by BHEL at a single point near the machine, as per layout recommended by Vendor. All types of switches, cables, connections, circuit breakers etc. required for connecting BHEL's power supply point to different parts of the machine/control cabinets including UPS shall be supplied by the vendor.	Vendor to comply		
3.9.2	Tropicalisation: All electrical / electronic equipment shall be tropicalized.	Vendor to comply		
3.9.3	All electrical & electronic control cabinets & panels should be dust and vermin proof.	Vendor to comply		

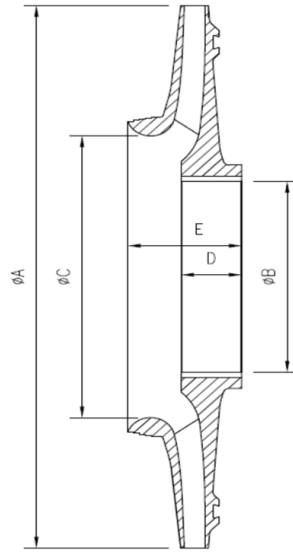
S. No.	DESCRIPTION FOR BHEL REQUIREMENT	SPECIFIED / TO BE CONFIRMED BY	Offered by Supplier	REMARKS
3.9.4	All electrical / electronic panels to be provided with adequate door locks. All electrical & electronic panels including operator's panel should have sufficient illumination and power receptacles/plug points of 220Volts, 5/15 Amp AC with on/off switch. All electrical adapters/receptacles, fittings, consumables etc. should be Indian or should have compatibility with Indian equivalents.	Vendor to comply		
3.9.5	All motors shall conform to IEC/NEMA standard	Vendor to comply		
3.9.6	All cables moving with traversing axes should be installed in Caterpillar/ Drag chain . Additionally, all the cable trays required for laying of cables should be included in the offer.	Vendor to comply		
3.9.7	Vendor should ensure the proper earthing for the machine and its peripherals/accessories. Requirements for the earthing shall be informed with foundation design/drawings.	Vendor to comply		
3.9.8	All the equipment / cards / modules shall be identified with appropriate permanent name plates with equipment description and designation in English .	Vendor to comply		
3.9.9	All electrical cables shall be identified by cable makers on terminal boards and at the panel mounted equipment. All the control, power and signal cable shall separately run to protect from induced voltages.	Vendor to comply		
3.9.10	There shall be separate conduit for power cable and control cables	Vendor to comply		
3.9.11	UPS for Control system during emergency shall be provided by the vendor .	Vendor to comply		
<b>3.10</b>	<b>MANUFACTURING OF SPIN TOOLING AND SUPPORT FOR TOOLING</b>			
3.10.1	Data for optimum number of fixtures required to carry spin on spectrum of impellers provided vide annexure I shall be provided by the supplier (i.e. verifying possibility of single fixture to be used for multiple diameter impellers and hub width).	Vendor to comply		
3.10.2	Impeller material specification will be provided by BHEL.			
3.10.3	Optimum number of fixtures for entire spectrum of impellers (specified in Annexure-I) required shall be decided, manufactured and supplied by the supplier along with the equipment.	Vendor to comply		
3.10.4	Supplier shall manufacture simulated discs required for proof testing of spin test equipment. Necessary tools required for manufacturing simulated disc is in the supplier's scope. Simulated discs meeting the following criteria shall be designed, manufactured and supplied by supplier. <b>I. Disc 1</b> a. Diameter of the disc : 800 mm. b. Weight of the disc: 300 kg. c. Speed of the disc: 9000 RPM. d. hub width: 225 mm Material Specification: As per BHEL impeller specification <b>II. Disc 2</b> a. Diameter of the disc : 160 mm. b. Weight of the disc: 2.67kg. c. Speed of the disc: 50000 RPM. d. hub width : 56 mm Material Specification: As per BHEL impeller specification <b>III. Disc 3</b> a. Diameter of the disc : 250 mm. b. Weight of the disc: 5 kg. c. Speed of the disc: 29000 RPM. d. hub width : 25 mm Material Specification: As per BHEL impeller specification Manufacturing drawing of each tooling along with manufacturing process shall be submitted.	Vendor to comply		
3.10.5	The impeller with tooling assembly shall be suitable for balancing on horizontal balancing machine. Successful bidder shall provide complete details of all ordered fixtures and fasteners for approval of BHEL within 90 days of placement of purchase order.	Vendor to comply		

S. No.	DESCRIPTION FOR BHEL REQUIREMENT	SPECIFIED / TO BE CONFIRMED BY	Offered by Supplier	REMARKS
3.10.6	Supplier shall design and provide manufacturing drawings for new tooling ( in additon to tooling for range of impellers in Annexure-I) on Payment basis any if required, for new impellers for atleast 15 years from the date of commissioning the equipment.	Vendor to comply		
3.10.7	Detailed BOM and manufacturing drawing shall be provided for all the tooling supplied . Detailed manufacturing procedure of tooling shall be mentioned in the manufacturing drawing.	Vendor to comply		
3.10.8	Supplier to define clear instructions in regards to balancing procedure, impeller balancing with the tooling set up and define allowable residual unbalance in the impeller set up.	Vendor to comply		
3.10.9	Tooling required for impellers and simulated disc set as mentioned vide caluse 3.10.1, 3.10.2, 3.10.3, 3.10.4 shall be manufactured by supplier.	Vendor to comply		
3.10.10	Storage boxes required for storing & upkeep of impeller tooling shall be supplied .	Vendor to comply		
3.10.11	Assembly drawing of tooling shall be submitted to BHEL	Vendor to comply		
3.10.12	Manufacturing quaility plan of simulated discs and tooling shall be submitted to BHEL	Vendor to comply		
<b>3.11</b>	<b>SPARES</b>			
3.11.1	Necessary mechanical, electrical, electronic and hydraulic spares parts for Two(2) years of trouble free operation after warranty period shall be supplied .	Vendor to comply, provide list of spares and quote item wise		
3.11.2	Itemized breakup price of each spare supplied shall be quoted in the price bid and the list of spares shall be attached to technical bid	vendor to comply		
3.11.3	Spares & services shall be available for 15 years from the date of commissioning for mechanical components and 10 years in case of electronic/electrical components.	vendor to comply		
<b>4.0</b>	<b>AMBIENT CONDITIONS &amp; THERMAL STABILITY</b>			
4.1	Total system including all supplied items should work trouble free and should give specified performance under existing power supply and ambient operating conditions, as mentioned below at Sl. No. 4.2	Vendor to accept & comply		
4.2	Ambient Operating Conditions: Temperature = <u>10 to 50</u> degree Celsius Relative <u>Humidity = 95% max.</u> Weather conditions are tropical. Atmosphere may be dust laden during some part of the year.	Vendor to comply		
4.3	Supplier shall recommend/specify the working conditions and necessary enclosures required for safe operation and maintanance of the spin test equipment.	Vendor to specify		
<b>5.0</b>	<b>FOUNDATION:</b>			
5.1	Vendor to provide general layout drawing of equipment and auxiliary system being offered at the time of enquiry.			
5.2	The vendor shall supply 3 copies of equipment detailed General Arrangement and foundation drawings within 60 days of placement of purchase order. In case any special foundation is required for installing the system, detailed foundation design/drawings to be supplied by the vendor. BHEL will provide the foundation as per vendor design. Vendor shall also indicate detailed specifications of grouting compound & grouting procedure if any specifically desired.	Vendor to comply and provide details		
<b>6.0</b>	<b>SAFETY ARRANGEMENTS</b>			
	Following safety features in addition to other standard safety features should be provided on the equipment:			
6.1	All the rotating parts used on equipment should be statically & dynamically balanced to avoid undue vibrations & noise.	Vendor to comply		
6.2	Emergency Switches at suitable locations should be provided.	Vendor to comply		
6.3	Automatic over load protection	Vendor to comply		
6.4	Adequate protection for all moving and rotating parts to be ensured.	Vendor to comply		
<b>7.0</b>	<b>ENVIRONMENTAL PERFORMANCE OF THE MACHINE</b>			
	The machine should confirm to following factors related to environment:			
7.1	Maximum noise level shall be <b>85 dB (A) at 1</b> meter away from the equipment with correction factor for back ground noise.	Vendor to comply		
7.2	No hazardous chemicals shall be used in the equipment.	Vendor to comply		

S. No.	DESCRIPTION FOR BHEL REQUIREMENT	SPECIFIED / TO BE CONFIRMED BY	Offered by Supplier	REMARKS
7.3	If any safety /environmental protection enclosure is required it should be built in the equipment by the vendor.	Vendor to comply		
7.4	Paint of the equipment should be oil/ coolant resistant and should not get peeled off and mixed up with coolant.	Vendor to comply		
<b>8.0</b>	<b>DOCUMENTATION:</b>			
<b>8.1</b>	Vendor shall submit following documents along with offer.			
8.1.1	Technical description of complete system, working methodology with detailed write ups/sketches/figures wherever necessary.	Vendor to comply and provide details		
8.1.2	All catalogues of different sub-systems wherever applicable.	Vendor to comply and provide details		
<b>8.2</b>	Vendor shall submit following documents after award of purchase order.			
8.2.1	Final GA drawings, Foundation drawings & Quality Plan shall be submitted for approval within 60 days from the date of order placement .	Vendor to comply		
8.2.2	Data sheets, schematics, circuit diagrams, electrical system write-up, bill of materials (BOM) indicating all loose items, component detail drawings, catalogues etc. Cable schedules, Interconnection diagrams, termination details shall be supplied along with the equipment.	Vendor to comply		
8.2.3	2-sets of Operation & Maintenance Manuals in English language in hard copy and one set in soft copy shall be supplied along with the equipment. The manuals shall contain all drawings, sub-vendors catalogues, O&M instructions, DO's & Don'ts, PLC /controller interlocking software documentation, warnings & the spares information duly identified.	Vendor to comply		
8.2.4	O & M instructions shall include a. Checklist for start up, running, stopping, b. Detailed Maintenance schedule, checklist and instructions. c. Limits for all parameters like vibration, pressure and temperatures etc. for safe operation of spin test equipment d. Mandatory spares with the part numbers .	Vendor to comply		
8.2.5	Vendor shall submit the test procedure along with acceptable limits 2 months prior to the testing date.	Vendor to comply		
8.2.6	Test reports and quality document set to be provided in soft copy and hard copy(two copies)	Vendor to comply		
<b>9.0</b>	<b>MACHINE ACCEPTANCE:</b>			
<b>9.0.1</b>	Vendor shall offer the equipment for inspection and proveout at vendor's workplace before despatch. BHEL representatives will witness the proveout of the equipment at vendor's works place. The vendor shall intimate the witness test dates to BHEL at least two(2) months prior to the confirmed date of the witness test.			
<b>9.1</b>	<b>ACTIVITIES AT VENDORS' WORKS BEFORE DISPATCH OF EQUIPMENT</b>			
9.1.1	Demonstration of all features of equipment			
9.1.2	Review of test reports of all sub systems.	Vendor to comply		
9.1.3	1. Spin test shall be carried out at room temperature with simulated discs meeting the spin test requirements of impellers mentioned vide clause 3.10.4 for 10 times each. 2. Speed holding time shall be minimum 2 minutes at maximum speed. 3. The simulated discs set as mentioned vide clause 3.10.4 shall be designed and manufactured by the vendor along with suitable tooling/fixtures.	Vendor to comply		
9.1.4	Test log sheets with permissible limits of parameters like vibration, pressure and temperatures etc.	Vendor to provide the details		
<b>9.2</b>	<b>ACTIVITIES AT BHEL WORKS AFTER ERECTION &amp; COMMISSIONING</b>			
9.2.1	Proveout of Spin test equipment shall be demonstrated with three(3) simulated discs at BHEL works.	Vendor to comply		
9.2.2	Vendor shall conduct proveout of spin test equipment for at least two(2) impellers ( to be selected and mutually agreed from the list of jobs indicated in Annexure-I) at BHEL works.	Vendor to comply		
9.2.3	Training of BHEL personnel on complete system and accessories by supplier experts at BHEL works (7 training mandays after commissioning and proveout)	Vendor to comply		

S. No.	DESCRIPTION FOR BHEL REQUIREMENT	SPECIFIED / TO BE CONFIRMED BY	Offered by Supplier	REMARKS
<b>10.0</b>	<b>ERECTION &amp; COMMISSIONING</b>			
10.1	Vendor to take full responsibility for carrying out the erection, start-up, testing of the system, its control & all types of other supplied equipment / accessories etc. Service requirements like Power & water shall be provided by BHEL at only one point to be indicated by vendor in their foundation / layout drawings. Other requirements like crane shall also be provided by BHEL.	Vendor to comply		
10.2	Successful spinning of BHEL components by the vendor shall be considered as part of commissioning of the machine. Necessary tools , tackles & fixtures required for erection & commissioning shall be supplied by vendor.	Vendor to comply		
10.3	Broad Schedule of Erection and Commissioning shall be submitted with the offer.	Vendor to comply and provide details		
10.4	Charges , Terms & conditions for Erection & Commissioning should be furnished in detail separately by vendor along with offer.	Vendor to comply and provide details		
10.5	Portion, if any, of the equipment, accessories and other supplied items where paint got rubbed or peeled off during transit or erection should be repainted and matched with the original adjoining paint by the vendor before final acceptance.	Vendor to comply		
<b>11.0</b>	<b>PACKING</b>			
11.1	Sea worthy & rigid packing shall be provided for system, control and all other supplied items to avoid any damage/loss in transit. All small loose items should be suitably packed in boxes.	Vendor to offer & comply		
<b>12.0</b>	<b>GENERAL :</b>			
12.1	1. Total connected load (KVA) 2. Max Drive System Load (KVA)	Vendor to provide details		
12.2	Floor area required (Length, Width, Height) for complete system & accessories.	Vendor to provide details		
12.3	Painting of Complete system / Electrical Panels : Colour as per vendor standard	Vendor to provide details		
12.4	Total weight of the system	Vendor to provide details		
12.5	Weight of heaviest part of equipment	Vendor to provide details		
12.6	Weight of the heaviest assembly/ subassembly of the equipment	Vendor to provide details		
12.7	Dimensions of largest part/ subassembly/ assembly of the equipment	Vendor to provide details		
12.8	Detailed catalogues, sketch/ photographs of the system & its accessories/ attachments should be submitted with the offer.	Vendor to provide details		
12.9	Hydraulic, Pneumatic & oil pipings should be preferably metallic except places where flexible pipings are essential. All the pipes required for the same shall be included in the standard scope of the equipment.	Vendor to provide details		

## ANNEXURE I



Impeller	Impeller Dia	Shaft Dia	Eye Dia	Hub Len	Total Len	Weight	Speed	Polar MR2 (kg-cm <sup>2</sup> )
G-8-250	250	105	129.5	25	68	4.64	28648	351
G-9-250	250	105	128.5	25	69.5	4.71	28648	354
G-11-250	250	105	127.5	25	69.5	4.73	28648	351
G-10-250	250	105	127.5	25	69.5	4.77	28648	355
G-13-250	250	105	127	25	71	4.77	28648	351
G-12-250	250	105	127	25	71	4.79	28648	353
G-5-250	250	105	134.5	25	72	4.82	28648	373
G-6-250	250	105	133	25	72	4.89	28648	372
F-8-300	300	112	142	30	76	7.32	23873	747
B-9-300	300	112	159	31	72.5	7.34	23873	767
H-8-300	300	112	142	30	76	7.36	23873	753
B-11-300	300	112	151.5	30	69.5	7.37	23873	756
Q-8-300	300	112	154	31	67.5	7.42	23873	766
L-5-300	300	112	163	30	69	7.46	23873	794
Q-10-300	300	112	151.5	30	69.5	7.46	23873	767
Q-11-300	300	112	150.5	30	69.5	7.47	23873	761
F-3-300	300	112	153	30	84	7.5	23873	792
B-10-300	300	112	156.5	31	72.5	7.53	23873	776
L-3-300	300	112	169	30	70.5	7.53	23873	808
Q-6-300	300	112	161.5	30	76	7.53	23873	795
F-9-300	300	112	140	30	78	7.54	23873	758
L-9-300	300	112	156.5	30	65.5	7.54	23873	792
Q-9-300	300	112	153	31	67.5	7.54	23873	772
F-10-300	300	112	139.5	30	78	7.56	23873	757
H-9-300	300	112	140	30	77.5	7.56	23873	762

	Impeller Dia	Shaft Dia	Eye Dia	Hub Len	Total Len	Weight	Speed	Polar MRZ (kg-cm <sup>2</sup> )
B-12-300	300	112	150	30	69.5	7.57	23873	771
H-10-300	300	112	139.5	30	77.5	7.63	23873	766
F-4-300	300	112	151.5	30	84	7.66	23873	801
L-7-300	300	112	157	30	68.5	7.66	23873	796
F-5-300	300	112	149	30	79	7.7	23873	797
F-7-300	300	112	143.5	30	80	7.71	23873	782
L-10-300	300	112	150.5	30	65.5	7.71	23873	794
L-2-300	300	112	171	30	70.6	7.71	23873	830
Q-2-300	300	112	175.5	33	77.5	7.71	23873	835
Q-7-300	300	112	157.5	30	76	7.73	23873	801
F-11-300	300	112	137	30	78	7.74	23873	763
F-12-300	300	112	137	30	79.5	7.77	23873	763
H-11-300	300	112	137.5	30	78	7.77	23873	770
H-12-300	300	112	137.5	30	78	7.77	23873	768
L-6-300	300	112	161	30	70.5	7.77	23873	817
Q-4-300	300	112	166.5	32	79	7.78	23873	824
F-6-300	300	112	147	30	79	7.82	23873	802
L-4-300	300	112	167	30	72.5	7.82	23873	830
H-5-300	300	112	149.5	30	84.5	7.85	23873	814
Q-5-300	300	112	164	32	79	7.85	23873	820
B-7-300	300	112	168	35	79	7.88	23873	828
H-7-300	300	112	144	30	88	7.9	23873	799
L-8-300	300	112	160	30	68.5	7.93	23873	840
Q-3-300	300	112	171.5	33	77.5	8	23873	857
B-8-300	300	112	165.5	35	79	8.07	23873	839
H-6-300	300	112	147	30	86	8.08	23873	825
L-0-300	300	112	174	30	72.6	8.1	23873	#N/A
L-1-300	300	112	171	30	69.1	8.1	23873	#N/A
L-99-300	300	112	177	30	77.6	8.1	23873	#N/A
Q-1-300	300	112	177.5	36	81	8.11	23873	874
B-5-300	300	112	184	37	86	8.12	23873	880
B-6-300	300	112	174.5	37	81	8.56	23873	906
B-3-300	300	112	204	44	92.5	9.31	23873	1039
B-2-300	300	112	212.5	47	92.5	9.53	23873	1068
B-4-300	300	112	194	44	92.5	9.97	23873	1105
B-12-320	320	118	161	32	69	8.62	22381	1007
B-11-320	320	118	160	32	69	8.65	22381	1012
Q-10-320	320	118	160.5	32	69	8.7	22381	1022
Q-11-320	320	118	159.5	32	69	8.72	22381	1014
F-8-320	320	118	151.5	32	78.5	8.79	22381	1029
H-8-320	320	118	152	32	79.5	8.93	22381	1050
Q-6-320	320	118	169	32	76	8.95	22381	1066
F-9-320	320	118	149.5	32	80.5	9	22381	1036
L-5-320	320	118	173	32	70.5	9.02	22381	1099
Q-8-320	320	118	162.5	33	72	9.03	22381	1053
Q-9-320	320	118	162	33	72	9.05	22381	1050
F-10-320	320	118	148	32	80.5	9.08	22381	1035
Q-4-320	320	118	175.5	34	78.5	9.08	22381	1093
Q-7-320	320	118	166.5	32	76	9.1	22381	1073
H-9-320	320	118	149.5	32	81	9.11	22381	1053
B-9-320	320	118	166.5	33	77	9.13	22381	1081
L-7-320	320	118	167	32	71.5	9.14	22381	1082
L-9-320	320	118	165	32	68	9.16	22381	1097
H-10-320	320	118	148.5	32	81	9.21	22381	1056

	Impeller Dia	Shaft Dia	Eye Dia	Hub Len	Total Len	Weight	Speed	Polar MRZ (kg-cm <sup>2</sup> )
Q-5-320	320	118	173	34	78.5	9.24	22381	1101
F-11-320	320	118	146	32	80.5	9.25	22381	1038
F-12-320	320	118	146	32	82	9.25	22381	1033
L-10-320	320	118	159.5	32	68	9.27	22381	1089
L-3-320	320	118	179.5	32	72.5	9.27	22381	1135
L-4-320	320	118	177	32	74	9.28	22381	1122
B-10-320	320	118	164	33	77	9.29	22381	1084
F-5-320	320	118	159.5	32	80.5	9.29	22381	1111
H-12-320	320	118	146.5	32	82	9.35	22381	1053
L-6-320	320	118	170	32	72	9.35	22381	1122
L-8-320	320	118	169	32	71.5	9.39	22381	1140
F-6-320	320	118	157.5	32	80.5	9.4	22381	1109
H-11-320	320	118	146	32	82	9.43	22381	1064
L-0-320	320	118	185.5	32	73.2	9.5	22381	#N/A
L-1-320	320	118	182.5	32	73.8	9.5	22381	#N/A
L-99-320	320	118	189	32	78.2	9.5	22381	#N/A
Q-2-320	320	118	184.5	36	81.5	9.52	22381	1170
L-2-320	320	118	181	32	78.4	9.55	22381	1167
B-7-320	320	118	177	37	83.5	9.57	22381	1141
Q-3-320	320	118	180.5	36	81.5	9.68	22381	1171
F-7-320	320	118	153.5	32	82.5	9.7	22381	1116
H-5-320	320	118	159.5	32	79.5	9.73	22381	1167
B-5-320	320	118	196	39	85	9.83	22381	1223
F-3-320	320	118	164	32	78.5	9.83	22381	1189
H-7-320	320	118	153.5	32	83.5	9.86	22381	1142
F-4-320	320	118	162.5	32	78.5	9.89	22381	1186
B-8-320	320	118	173.5	37	83.5	9.91	22381	1163
H-6-320	320	118	158	32	81	9.91	22381	1170
Q-1-320	320	118	188	39	85	9.93	22381	1219
B-6-320	320	118	185	39	85	10.25	22381	1237
B-3-320	320	118	216.5	47	95.5	11.53	22381	1467
B-4-320	320	118	206	47	95.5	12.19	22381	1539
B-2-320	320	118	225.5	51	100.5	12.23	22381	1573
N-10-320	320	118	196.5	61	81	13.08	22381	#N/A
N-11-320	320	118	195	59	79	11.64	22381	#N/A
N-12-320	320	118	189	50	70	11.06	22381	#N/A
N-1-320	320	118	232	93	113	22.05	22381	#N/A
N-13-320	320	118	186	45	65	10.51	22381	#N/A
N-14-320	320	118	182	50	70	9.98	22381	#N/A
N-2-320	320	118	225.5	89	109	20.61	22381	#N/A
N-3-320	320	118	220	91	111	19.26	22381	#N/A
N-4-320	320	118	216	83	103	18	22381	#N/A
N-5-320	320	118	213.5	76	96	16.82	22381	#N/A
N-6-320	320	118	212	79	99	16.82	22381	#N/A
N-7-320	320	118	211.5	74	94	15.87	22381	#N/A
N-8-320	320	118	211.5	68	88	14.97	22381	#N/A
N-9-320	320	118	200.5	64	84	13.86	22381	#N/A
G-8-300	300	130	156.5	30	81	7.12	23873	767
G-6-300	300	130	160	30	77	7.23	23873	790
G-9-300	300	130	155.5	30	83	7.26	23873	777
G-10-300	300	130	154	30	83	7.34	23873	780

	Impeller Dia	Shaft Dia	Eye Dia	Hub Len	Total Len	Weight	Speed	Polar MRZ (kg-cm <sup>2</sup> )
G-11-300	300	130	153.5	30	83	7.36	23873	777
G-13-300	300	130	153.5	30	84.5	7.38	23873	774
G-12-300	300	130	153	30	84.5	7.42	23873	779
G-7-300	300	130	158	30	78	7.48	23873	806
G-5-300	300	130	161.5	30	77	7.63	23873	837
B-9-350	350	130	183.5	36	78	10.59	20463	1506
B-11-350	350	130	177	35	75	10.63	20463	1495
Q-11-350	350	130	174	35	75	10.76	20463	1490
B-10-350	350	130	181	36	78	10.81	20463	1515
Q-10-350	350	130	175	35	75	10.81	20463	1511
B-12-350	350	130	174.5	35	75	10.85	20463	1505
Q-6-350	350	130	185.5	36	81	10.86	20463	1545
F-10-350	350	130	162	35	78.5	11.03	20463	1506
L-3-350	350	130	197	35	76.5	11.04	20463	1609
Q-4-350	350	130	192	38	84	11.04	20463	1585
F-8-350	350	130	165.5	35	76	11.07	20463	1534
Q-8-350	350	130	179	36	78	11.08	20463	1553
L-0-350	350	130	203	35	83.1	11.1	20463	#N/A
L-1-350	350	130	199.5	35	79.8	11.1	20463	#N/A
L-7-350	350	130	183	35	75	11.1	20463	1566
L-99-350	350	130	206.5	35	88.1	11.1	20463	#N/A
H-8-350	350	130	166	35	76.5	11.14	20463	1554
L-9-350	350	130	182	35	73	11.15	20463	1600
F-11-350	350	130	159.5	35	78.5	11.19	20463	1507
Q-5-350	350	130	189.5	38	84	11.19	20463	1590
F-12-350	350	130	159.5	35	80	11.2	20463	1500
L-5-350	350	130	189.5	35	76	11.22	20463	1622
Q-9-350	350	130	176.5	36	78	11.28	20463	1565
Q-7-350	350	130	181	36	81	11.29	20463	1588
L-6-350	350	130	187	35	78	11.3	20463	1615
H-12-350	350	130	160	35	79	11.31	20463	1527
H-11-350	350	130	160	35	79	11.32	20463	1534
F-5-350	350	130	174	35	84.5	11.36	20463	1616
L-10-350	350	130	175	35	73	11.37	20463	1593
F-9-350	350	130	163	35	78.5	11.4	20463	1552
H-9-350	350	130	163.5	35	78	11.44	20463	1569
L-4-350	350	130	194.5	35	79	11.46	20463	1650
H-5-350	350	130	174	35	85.5	11.51	20463	1654
F-6-350	350	130	171.5	35	84.5	11.54	20463	1621
H-10-350	350	130	162.5	35	78	11.54	20463	1571
B-7-350	350	130	192.5	41	89	11.57	20463	1636
L-2-350	350	130	199.5	35	81.6	11.62	20463	1694
Q-2-350	350	130	202.5	40	87	11.62	20463	1693
F-3-350	350	130	179	35	87.5	11.64	20463	1681
H-6-350	350	130	172	35	87	11.75	20463	1659
L-8-350	350	130	185.5	35	75	11.77	20463	1700
B-8-350	350	130	190	41	89	11.79	20463	1645
F-4-350	350	130	177	35	87.5	11.79	20463	1684
F-7-350	350	130	167.5	35	86	11.88	20463	1629

	Impeller Dia	Shaft Dia	Eye Dia	Hub Len	Total Len	Weight	Speed	Polar MRZ (kg-cm <sup>2</sup> )
Q-1-350	350	130	203.5	43	90	11.89	20463	1721
Q-3-350	350	130	197	40	87	12.03	20463	1727
H-7-350	350	130	168	35	89.5	12.04	20463	1660
B-5-350	350	130	214.5	42	95	12.33	20463	1822
B-6-350	350	130	203	42	90	12.51	20463	1797
B-3-350	350	130	236	51	101	14.12	20463	2121
B-2-350	350	130	247.5	57	106	14.6	20463	2199
B-4-350	350	130	224.5	51	101	14.9	20463	2218
N-10-350	350	130	215	66	86	16.81	20463	#N/A
N-11-350	350	130	213.5	63	83	14.96	20463	#N/A
N-12-350	350	130	207	53	73	14.21	20463	#N/A
N-13-350	350	130	203	48	68	13.5	20463	#N/A
N-1-350	350	130	254	100	120	28.34	20463	#N/A
N-14-350	350	130	199	53	73	12.83	20463	#N/A
N-2-350	350	130	247	96	116	26.49	20463	#N/A
N-3-350	350	130	240.5	98	118	24.76	20463	#N/A
N-4-350	350	130	236.5	89	109	23.14	20463	#N/A
N-5-350	350	130	233.5	82	102	21.63	20463	#N/A
N-6-350	350	130	232	85	105	21.63	20463	#N/A
N-7-350	350	130	231.5	79	99	20.41	20463	#N/A
N-8-350	350	130	231.5	73	93	19.25	20463	#N/A
N-9-350	350	130	219.5	69	89	17.82	20463	#N/A
G-13-320	320	135	161.5	32	79	8.66	22381	1030
G-12-320	320	135	161.5	32	79	8.72	22381	1039
G-8-320	320	135	166	32	75.5	8.73	22381	1070
G-9-320	320	135	164.5	32	77.5	8.98	22381	1089
G-11-320	320	135	163.5	32	77.5	9.02	22381	1083
G-10-320	320	135	162.5	32	77.5	9.12	22381	1093
G-5-320	320	135	171.5	32	76.5	9.21	22381	1155
G-6-320	320	135	169.5	32	76.5	9.33	22381	1155
G-7-320	320	135	167.5	32	78.5	9.44	22381	1149
H-11-370	370	135	169	37	85	12.1	19357	1857
H-12-370	370	135	169	37	85	12.11	19357	1852
H-8-370	370	135	175	37	85	12.16	19357	1905
L-7-370	370	135	193.5	37	77.5	12.19	19357	1923
B-12-370	370	135	187	37	80	12.24	19357	1883
F-11-370	370	135	169	37	82	12.31	19357	1862
L-5-370	370	135	200.5	37	82	12.33	19357	1981
B-9-370	370	135	194	39	83	12.36	19357	1935
F-12-370	370	135	168.5	37	84	12.38	19357	1859
H-9-370	370	135	172.5	37	87	12.43	19357	1916
L-2-370	370	135	210	37	83.3	12.43	19357	2013
L-8-370	370	135	197	37	77.5	12.45	19357	2015
B-11-370	370	135	186	37	80	12.49	19357	1929
H-10-370	370	135	172	37	87	12.49	19357	1917
F-8-370	370	135	174.5	37	83.5	12.52	19357	1930
Q-10-370	370	135	185.5	37	80	12.52	19357	1934
L-3-370	370	135	208.5	37	83.5	12.53	19357	2024
Q-8-370	370	135	189.5	39	78	12.54	19357	1951
Q-11-370	370	135	185	37	80	12.56	19357	1928
B-10-370	370	135	191.5	39	83	12.57	19357	1941
Q-6-370	370	135	197.5	38	81.5	12.61	19357	1908
L-9-370	370	135	192.5	37	79.5	12.65	19357	2006
L-6-370	370	135	197.5	37	84	12.72	19357	2012
F-9-370	370	135	172.5	37	86	12.73	19357	1934
Q-9-370	370	135	187	39	78	12.79	19357	1971
F-10-370	370	135	171	37	86	12.82	19357	1930
Q-2-370	370	135	214.5	41	87	12.9	19357	2086
Q-7-370	370	135	193	38	81.5	12.9	19357	2009
Q-4-370	370	135	204	40	84.5	12.92	19357	2059

	Impeller Dia	Shaft Dia	Eye Dia	Hub Len	Total Len	Weight	Speed	Polar MR2 (kg-cm2)
L-4-370	370	135	205	37	85.5	12.93	19357	2056
F-7-370	370	135	177	37	85.5	12.97	19357	1996
F-6-370	370	135	181.5	37	83.5	13.06	19357	2038
F-4-370	370	135	187	37	81.5	13.09	19357	2086
L-0-370	370	135	214.5	37	84.6	13.2	19357	#N/A
L-1-370	370	135	211	37	81.5	13.2	19357	#N/A
L-99-370	370	135	218.5	37	89.6	13.2	19357	#N/A
L-10-370	370	135	185	37	79.5	13.24	19357	2041
H-6-370	370	135	181.5	37	83.5	13.28	19357	2086
Q-5-370	370	135	199.5	40	84.5	13.33	19357	2094
F-3-370	370	135	189	37	81.5	13.36	19357	2136
F-5-370	370	135	183.5	37	83.5	13.36	19357	2094
Q-3-370	370	135	209	41	87	13.4	19357	2136
Q-1-370	370	135	218	44	90.5	13.41	19357	2160
B-7-370	370	135	205.5	43	89.5	13.47	19357	2121
H-5-370	370	135	183.5	37	81.5	13.57	19357	2151
H-7-370	370	135	177.5	37	86	13.59	19357	2085
B-5-370	370	135	226.5	46	95.5	13.92	19357	2258
B-8-370	370	135	200.5	43	89.5	13.95	19357	2156
B-6-370	370	135	213.5	46	95.5	14.73	19357	2324
B-3-370	370	135	251	55	105	16.26	19357	2679
B-2-370	370	135	261	58	110	16.97	19357	2823
B-4-370	370	135	238.5	55	105	17.25	19357	2831
N-10-370	370	135	227	69	89	19.64	19357	#N/A
N-11-370	370	135	225.5	66	86	17.48	19357	#N/A
N-12-370	370	135	218.5	55	75	16.61	19357	#N/A
N-13-370	370	135	215	50	70	15.78	19357	#N/A
N-1-370	370	135	268.5	105	125	33.13	19357	#N/A
N-14-370	370	135	210	55	75	14.99	19357	#N/A
N-2-370	370	135	261	101	121	30.96	19357	#N/A
N-3-370	370	135	254.5	103	123	28.93	19357	#N/A
N-4-370	370	135	250	94	114	27.04	19357	#N/A
N-5-370	370	135	247	86	106	25.27	19357	#N/A
N-6-370	370	135	245	89	109	25.27	19357	#N/A
N-7-370	370	135	244.5	83	103	23.84	19357	#N/A
N-8-370	370	135	244.5	76	96	22.49	19357	#N/A
N-9-370	370	135	232	72	92	20.82	19357	#N/A
G-13-350	350	152	176	35	86	10.63	20463	1511
G-12-350	350	152	176	35	86	10.69	20463	1522
G-8-350	350	152	181	35	82	10.74	20463	1572
G-5-350	350	152	188	35	82.5	10.92	20463	1643
G-9-350	350	152	179.5	35	84.5	10.93	20463	1585
G-11-350	350	152	178.5	35	84.5	11.01	20463	1578
G-6-350	350	152	186	35	82.5	11.03	20463	1638
G-10-350	350	152	178	35	84.5	11.06	20463	1588
G-7-350	350	152	183.5	35	84	11.32	20463	1653
B-12-400	400	152	202.5	40	81.5	14.2	17905	2583
F-12-400	400	152	184	40	91.5	14.22	17905	2546
F-11-400	400	152	184	40	89.5	14.23	17905	2558
B-11-400	400	152	203	40	81.5	14.34	17905	2636
Q-10-400	400	152	202	40	81.5	14.41	17905	2644
Q-11-400	400	152	201.5	40	81.5	14.48	17905	2643
L-7-400	400	152	210.5	40	80	14.62	17905	2707

	Impeller Dia	Shaft Dia	Eye Dia	Hub Len	Total Len	Weight	Speed	Polar MRZ (kg-cm <sup>2</sup> )
Q-6-400	400	152	213.5	41	87	14.65	17905	2720
L-5-400	400	152	219	40	85.5	14.66	17905	2775
H-11-400	400	152	184	40	85	14.69	17905	2637
Q-8-400	400	152	207	42	84	14.69	17905	2703
H-8-400	400	152	190.5	40	84.5	14.71	17905	2699
Q-9-400	400	152	205	42	84	14.73	17905	2675
L-9-400	400	152	209	40	78	14.74	17905	2768
H-12-400	400	152	184	40	85	14.75	17905	2637
L-2-400	400	152	228.5	40	87.5	14.78	17905	2817
L-8-400	400	152	215	40	80	14.84	17905	2829
L-3-400	400	152	226	40	86.5	14.91	17905	2827
B-9-400	400	152	210.5	42	89	14.92	17905	2735
F-8-400	400	152	190.5	40	82	14.94	17905	2711
H-9-400	400	152	188	40	86.5	15.01	17905	2711
Q-7-400	400	152	209.5	41	87	15.04	17905	2756
B-10-400	400	152	208.5	42	89	15.09	17905	2736
H-10-400	400	152	187.5	40	86.5	15.09	17905	2716
L-6-400	400	152	215	40	87.5	15.18	17905	2824
L-4-400	400	152	224	40	89	15.27	17905	2863
F-9-400	400	152	188	40	84.5	15.31	17905	2732
Q-4-400	400	152	222	44	95	15.35	17905	2870
Q-5-400	400	152	219	44	95	15.35	17905	2837
L-0-400	400	152	232	40	89.5	15.4	17905	#N/A
L-1-400	400	152	228	40	86.5	15.4	17905	#N/A
L-99-400	400	152	236	40	94.5	15.4	17905	#N/A
F-10-400	400	152	186.5	40	84.5	15.41	17905	2727
L-10-400	400	152	202	40	78	15.43	17905	2826
F-5-400	400	152	200	40	89	15.54	17905	2880
F-3-400	400	152	205.5	40	87	15.57	17905	2933
B-7-400	400	152	223.5	47	95	15.72	17905	2913
Q-1-400	400	152	237.5	50	96	15.78	17905	2982
B-8-400	400	152	220.5	47	95	15.79	17905	2879
F-6-400	400	152	197.5	40	89	15.79	17905	2890
F-7-400	400	152	192.5	40	91	15.79	17905	2841
F-4-400	400	152	203.5	40	87	15.83	17905	2953
H-7-400	400	152	193.5	40	93.5	15.89	17905	2881
Q-2-400	400	152	232.5	46	98	16.01	17905	3028
H-6-400	400	152	197.5	40	91	16.08	17905	2958
Q-3-400	400	152	228.5	46	98	16.35	17905	3059
H-5-400	400	152	200	40	89	16.37	17905	3036
B-5-400	400	152	247.5	49	106	16.59	17905	3181
B-6-400	400	152	233	49	101	17.02	17905	3157
B-3-400	400	152	272.5	59	114	19.13	17905	3703
B-2-400	400	152	284	65	119	19.86	17905	3834
B-4-400	400	152	258	59	114	20.37	17905	3913
N-10-400	400	152	245.5	73	93	24.43	17905	#N/A
N-11-400	400	152	244	70	90	21.74	17905	#N/A
N-12-400	400	152	236.5	59	79	20.65	17905	#N/A
N-13-400	400	152	232	53	73	19.62	17905	#N/A
N-1-400	400	152	290	113	133	41.2	17905	#N/A
N-14-400	400	152	227	58	78	18.64	17905	#N/A
N-2-400	400	152	282	108	128	38.5	17905	#N/A
N-3-400	400	152	275	110	130	35.98	17905	#N/A
N-4-400	400	152	270	100	120	33.63	17905	#N/A

	Impeller Dia	Shaft Dia	Eye Dia	Hub Len	Total Len	Weight	Speed	Polar MRZ (kg-cm2)
N-5-400	400	152	267	92	112	31.43	17905	#N/A
N-6-400	400	152	265	95	115	31.43	17905	#N/A
N-7-400	400	152	264.5	89	109	29.65	17905	#N/A
N-8-400	400	152	264.5	81	101	27.97	17905	#N/A
N-9-400	400	152	250.5	77	97	25.9	17905	#N/A
G-11-370	370	163	190.5	37	86	11.65	19357	1899
G-13-370	370	163	188	37	88	11.75	19357	1882
G-12-370	370	163	188	37	88	11.79	19357	1894
G-8-370	370	163	193.5	37	86.5	11.94	19357	1964
G-9-370	370	163	192	37	89	12.15	19357	1980
G-10-370	370	163	190	37	89	12.32	19357	1985
G-7-370	370	163	195.5	37	85.5	12.39	19357	2039
G-5-370	370	163	200.5	37	83.5	12.42	19357	2099
G-6-370	370	163	198	37	83.5	12.55	19357	2084
B-12-430	430	163	219	43	88	16.95	16656	3552
H-11-430	430	163	198	43	90	17.23	16656	3576
H-12-430	430	163	198	43	90	17.24	16656	3568
B-9-430	430	163	227	45	90	17.31	16656	3671
Q-11-430	430	163	217	43	88	17.34	16656	3628
B-11-430	430	163	218	43	88	17.35	16656	3650
Q-10-430	430	163	217	43	88	17.37	16656	3646
F-12-430	430	163	198	43	90	17.45	16656	3557
Q-6-430	430	163	230	45	93	17.48	16656	3718
F-11-430	430	163	197	43	88	17.53	16656	3579
F-8-430	430	163	204	43	88	17.56	16656	3670
Q-9-430	430	163	220	45	90	17.59	16656	3660
L-9-430	430	163	224	43	83	17.6	16656	3780
B-10-430	430	163	224	45	90	17.64	16656	3689
Q-8-430	430	163	222	45	90	17.67	16656	3716
H-8-430	430	163	205	43	89	17.7	16656	3718
L-5-430	430	163	235	43	90	17.76	16656	3839
L-2-430	430	163	246	43	91.7	17.77	16656	3877
Q-7-430	430	163	226	45	93	17.82	16656	3749
L-7-430	430	163	226	43	86	17.83	16656	3768
F-9-430	430	163	202	43	91	17.85	16656	3682
L-3-430	430	163	244	43	91	17.88	16656	3889
H-9-430	430	163	202	43	91	18	16656	3724
F-10-430	430	163	200	43	91	18.02	16656	3680
L-8-430	430	163	230	43	86	18.11	16656	3927
H-10-430	430	163	201	43	91	18.17	16656	3741
F-5-430	430	163	215	43	89	18.22	16656	3897
L-10-430	430	163	217	43	83	18.35	16656	3851
L-6-430	430	163	231	43	92	18.37	16656	3905
Q-2-430	430	163	251	51	102	18.42	16656	3977
L-4-430	430	163	240	43	93	18.48	16656	3960
F-6-430	430	163	212	43	89	18.57	16656	3911
F-7-430	430	163	207	43	91	18.58	16656	3853
Q-4-430	430	163	238	47	100	18.58	16656	3968
F-3-430	430	163	220	43	91	18.6	16656	4007
Q-5-430	430	163	234	47	100	18.7	16656	3937
H-5-430	430	163	215	43	93	18.78	16656	4030
F-4-430	430	163	218	43	91	18.85	16656	4020
B-7-430	430	163	241	51	100	18.88	16656	4009
L-0-430	430	163	249.5	43	92.4	18.9	16656	#N/A
L-1-430	430	163	245	43	94.5	18.9	16656	#N/A
L-99-430	430	163	253.5	43	101.4	18.9	16656	#N/A
H-7-430	430	163	208	43	98	18.94	16656	3940
Q-1-430	430	163	255	54	106	19.04	16656	4103

	Impeller Dia	Shaft Dia	Eye Dia	Hub Len	Total Len	Weight	Speed	Polar MRZ (kg-cm2)
H-6-430	430	163	212	43	95	19.12	16656	4035
Q-3-430	430	163	246	51	102	19.14	16656	4099
B-8-430	430	163	236	51	100	19.22	16656	3998
B-5-430	430	163	266	53	111	19.9	16656	4353
B-6-430	430	163	250	53	106	20.48	16656	4336
B-3-430	430	163	293	64	118	22.86	16656	5044
B-4-430	430	163	279	64	118	23.92	16656	5243
B-2-430	430	163	305	70	123	24.04	16656	5296
N-10-430	430	163	264	77	97	29.91	16656	#N/A
N-11-430	430	163	262.5	74	94	26.62	16656	#N/A
N-12-430	430	163	254	62	82	25.29	16656	#N/A
N-13-430	430	163	249.5	55	75	24.03	16656	#N/A
N-1-430	430	163	312	120	140	50.42	16656	#N/A
N-14-430	430	163	244	62	82	22.83	16656	#N/A
N-2-430	430	163	303	115	135	47.12	16656	#N/A
N-3-430	430	163	295.5	117	137	44.04	16656	#N/A
N-4-430	430	163	290.5	106	126	41.16	16656	#N/A
N-5-430	430	163	287	97	117	38.47	16656	#N/A
N-6-430	430	163	285	100	120	38.47	16656	#N/A
N-7-430	430	163	284	94	114	36.29	16656	#N/A
N-8-430	430	163	284	86	106	34.24	16656	#N/A
N-9-430	430	163	269.5	81	101	31.7	16656	#N/A
F-11-450	450	168	204	45	89	19.29	15915	4310
B-12-450	450	168	226	45	92	19.35	15915	4380
F-12-450	450	168	204	45	91	19.36	15915	4302
L-5-450	450	168	244	45	89.5	19.61	15915	4623
Q-6-450	450	168	238	46	96.5	19.64	15915	4537
B-11-450	450	168	226	45	92	19.69	15915	4492
B-9-450	450	168	235	47	93.5	19.69	15915	4529
Q-11-450	450	168	225	45	92	19.69	15915	4461
Q-10-450	450	168	225	45	92	19.71	15915	4479
H-11-450	450	168	204	45	90.5	19.74	15915	4419
L-7-450	450	168	235	45	85.5	19.74	15915	4553
H-12-450	450	168	204	45	90.5	19.75	15915	4410
L-3-450	450	168	253	45	90.5	19.77	15915	4681
F-8-450	450	168	211	45	88	19.79	15915	4490
Q-9-450	450	168	228	47	93.5	19.87	15915	4478
B-10-450	450	168	232	47	93.5	19.97	15915	4529
Q-8-450	450	168	230	47	93.5	19.97	15915	4553
L-8-450	450	168	239	45	85.5	20	15915	4730
H-8-450	450	168	212	45	90	20.01	15915	4554
Q-7-450	450	168	234	46	96.5	20.03	15915	4574
L-9-450	450	168	233	45	88	20.04	15915	4663
L-2-450	450	168	255	45	96.4	20.12	15915	4762
F-9-450	450	168	209	45	91	20.19	15915	4514
L-4-450	450	168	250	45	92.5	20.29	15915	4746
L-6-450	450	168	240	45	91.5	20.31	15915	4711
F-10-450	450	168	207	45	91	20.33	15915	4503
F-5-450	450	168	222	45	94	20.36	15915	4714
H-9-450	450	168	209	45	92	20.37	15915	4568
Q-2-450	450	168	260	52	106	20.63	15915	4838
Q-4-450	450	168	248	49	103.5	20.72	15915	4813
F-6-450	450	168	219	45	94	20.74	15915	4737
H-10-450	450	168	207	45	92	20.74	15915	4617
F-3-450	450	168	228	45	91	20.79	15915	4875
Q-5-450	450	168	244	49	103.5	20.8	15915	4765
H-5-450	450	168	223	45	91	20.95	15915	4875
L-10-450	450	168	224	45	88	21.02	15915	4755

	Impeller Dia	Shaft Dia	Eye Dia	Hub Len	Total Len	Weight	Speed	Polar MRZ (kg-cm <sup>2</sup> )
F-4-450	450	168	226	45	91	21.06	15915	4893
Q-1-450	450	168	265	56	109	21.12	15915	4939
B-7-450	450	168	250	53	103.5	21.17	15915	4885
F-7-450	450	168	214	45	96	21.26	15915	4752
Q-3-450	450	168	255	52	106	21.37	15915	4973
H-7-450	450	168	214	45	96	21.51	15915	4838
H-6-450	450	168	219	45	93	21.59	15915	4939
B-8-450	450	168	244	53	103.5	21.68	15915	4894
L-0-450	450	168	261	45	96.9	21.8	15915	#N/A
L-1-450	450	168	256.5	45	94.2	21.8	15915	#N/A
L-99-450	450	168	265.5	45	101.9	21.8	15915	#N/A
B-5-450	450	168	276	55	114	22.05	15915	5241
B-6-450	450	168	260	55	114	23.13	15915	5313
B-3-450	450	168	305	66	126	26.13	15915	6280
B-2-450	450	168	318	73	126	26.21	15915	6221
B-4-450	450	168	290	66	126	27.55	15915	6577
N-10-450	450	168	276.5	80	100	33.97	15915	#N/A
N-11-450	450	168	274.5	77	97	30.23	15915	#N/A
N-12-450	450	168	266	64	84	28.72	15915	#N/A
N-13-450	450	168	261	57	77	27.28	15915	#N/A
N-14-450	450	168	255.5	64	84	25.92	15915	#N/A
N-1-450	450	168	326.5	125	145	57.27	15915	#N/A
N-2-450	450	168	317.5	119	139	53.52	15915	#N/A
N-3-450	450	168	309.5	122	142	50.02	15915	#N/A
N-4-450	450	168	304	111	131	46.75	15915	#N/A
N-5-450	450	168	300.5	101	121	43.69	15915	#N/A
N-6-450	450	168	298	104	124	43.69	15915	#N/A
N-7-450	450	168	297.5	98	118	41.22	15915	#N/A
N-8-450	450	168	297.5	89	109	38.89	15915	#N/A
N-9-450	450	168	282	84	104	36.01	15915	#N/A
G-8-400	400	175	207.5	40	85	14.33	17905	2747
G-11-400	400	175	204.5	40	84.5	14.38	17905	2702
G-13-400	400	175	201.5	40	86.5	14.61	17905	2696
G-12-400	400	175	201.5	40	86.5	14.63	17905	2708
G-9-400	400	175	206	40	87.5	14.66	17905	2785
G-10-400	400	175	204	40	87.5	14.8	17905	2781
G-6-400	400	175	213	40	87	15.15	17905	2924
G-7-400	400	175	210	40	89	15.48	17905	2927
G-5-400	400	175	215	40	87	15.49	17905	3010
B-12-470	470	175	237	47	95.5	21.68	15238	5329
B-9-470	470	175	246	49	97.5	21.94	15238	5482
B-11-470	470	175	237	47	95.5	22.07	15238	5471
Q-6-470	470	175	250	48	100	22.09	15238	5581
F-11-470	470	175	213	47	98.5	22.18	15238	5330
F-12-470	470	175	213	47	100.5	22.19	15238	5309
Q-11-470	470	175	235	47	95.5	22.2	15238	5459
Q-10-470	470	175	235	47	95.5	22.21	15238	5476
L-9-470	470	175	244	47	92	22.35	15238	5652
B-10-470	470	175	243	49	97.5	22.38	15238	5509
Q-7-470	470	175	245	48	100	22.43	15238	5566
Q-9-470	470	175	238	49	97.5	22.43	15238	5482
Q-8-470	470	175	240	49	97.5	22.54	15238	5573
L-5-470	470	175	254	47	98.5	22.57	15238	5736
F-8-470	470	175	221	47	98.5	22.76	15238	5556
H-11-470	470	175	213	47	94	22.76	15238	5475
L-2-470	470	175	267	47	99.2	22.77	15238	5849

	Impeller Dia	Shaft Dia	Eye Dia	Hub Len	Total Len	Weight	Speed	Polar MRZ (kg-cm <sup>2</sup> )
H-12-470	470	175	213	47	94	22.8	15238	5469
L-3-470	470	175	265	47	99	22.9	15238	5864
H-8-470	470	175	221	47	98.5	22.91	15238	5612
F-9-470	470	175	218	47	101.5	23.18	15238	5576
L-7-470	470	175	245	47	93.5	23.23	15238	5756
L-0-470	470	175	272.5	47	104.5	23.25	15238	#N/A
L-1-470	470	175	268	47	101.9	23.25	15238	#N/A
L-99-470	470	175	277.5	47	109.5	23.25	15238	#N/A
Q-4-470	470	175	259	51	107.5	23.26	15238	5866
L-6-470	470	175	250	47	100.5	23.31	15238	5833
H-9-470	470	175	218	47	100.5	23.32	15238	5633
F-10-470	470	175	216	47	101.5	23.36	15238	5571
F-5-470	470	175	232	47	97	23.39	15238	5833
L-8-470	470	175	250	47	93.5	23.41	15238	5955
Q-5-470	470	175	254	51	107.5	23.42	15238	5816
L-10-470	470	175	235	47	92	23.5	15238	5787
H-10-470	470	175	217	47	100.5	23.53	15238	5656
Q-2-470	470	175	271	54	109.5	23.58	15238	5994
B-7-470	470	175	261	55	107.5	23.62	15238	5913
L-4-470	470	175	260	47	101	23.75	15238	5985
F-6-470	470	175	229	47	97	23.92	15238	5889
F-7-470	470	175	223	47	99.5	24.04	15238	5814
Q-1-470	470	175	276	58	112.5	24.06	15238	6096
H-5-470	470	175	232	47	94	24.15	15238	6050
H-7-470	470	175	224	47	99.5	24.21	15238	5906
B-8-470	470	175	255	55	107.5	24.25	15238	5946
H-6-470	470	175	229	47	96.5	24.27	15238	6022
F-3-470	470	175	238	47	100	24.43	15238	6149
Q-3-470	470	175	266	54	109.5	24.44	15238	6162
F-4-470	470	175	235	47	100	24.78	15238	6163
B-5-470	470	175	288	57	117.5	24.8	15238	6405
B-6-470	470	175	272	57	117.5	25.58	15238	6392
B-3-470	470	175	319	69	129	29.5	15238	7706
B-2-470	470	175	332	75	134	30.09	15238	7826
B-4-470	470	175	303	69	129	30.83	15238	7972
N-10-470	470	175	288.5	88	108	38.37	15238	#N/A
N-11-470	470	175	286.5	85	105	34.15	15238	#N/A
N-12-470	470	175	278	71	91	32.44	15238	#N/A
N-13-470	470	175	273	64	84	30.82	15238	#N/A
N-14-470	470	175	267	71	91	29.28	15238	#N/A
N-1-470	470	175	341	135	155	64.69	15238	#N/A
N-2-470	470	175	331.5	129	149	60.46	15238	#N/A
N-3-470	470	175	323	132	152	56.5	15238	#N/A
N-4-470	470	175	317.5	120	140	52.8	15238	#N/A
N-5-470	470	175	313.5	110	130	49.35	15238	#N/A
N-6-470	470	175	311.5	113	133	49.35	15238	#N/A
N-7-470	470	175	310.5	106	126	46.56	15238	#N/A
N-8-470	470	175	310.5	98	118	43.92	15238	#N/A
N-9-470	470	175	294.5	92	112	40.67	15238	#N/A
G-11-430	430	183	218	43	86	17.13	16656	3678
G-8-430	430	183	222	43	85	17.51	16656	3802
G-12-430	430	183	216	43	88	17.55	16656	3729
G-10-430	430	183	218	43	88	17.59	16656	3774
G-13-430	430	183	215	43	88	17.64	16656	3727
G-6-430	430	183	228	43	85	17.75	16656	3919
G-5-430	430	183	230	43	85	17.96	16656	3988

	Impeller Dia	Shaft Dia	Eye Dia	Hub Len	Total Len	Weight	Speed	Polar MRZ (kg-cm <sup>2</sup> )
G-9-430	430	183	220	43	88	17.99	16656	3870
G-7-430	430	183	224	43	87	18.18	16656	3924
B-12-500	500	183	251	50	96	25.25	14324	6978
B-11-500	500	183	251	50	96	25.56	14324	7127
B-9-500	500	183	261	52	103	25.93	14324	7252
F-11-500	500	183	226	50	101.5	26.06	14324	7015
Q-11-500	500	183	250	50	96	26.2	14324	7222
F-12-500	500	183	225	50	104	26.28	14324	7022
L-3-500	500	183	281	50	100.5	26.33	14324	7554
Q-10-500	500	183	249	50	96	26.37	14324	7270
Q-9-500	500	183	253	52	98	26.39	14324	7227
B-10-500	500	183	257	52	103	26.4	14324	7271
Q-6-500	500	183	266	51	105	26.42	14324	7458
Q-8-500	500	183	254	52	98	26.53	14324	7343
H-8-500	500	183	234	50	96.5	26.56	14324	7310
L-5-500	500	183	270	50	101.5	26.63	14324	7581
F-8-500	500	183	234	50	101.5	26.76	14324	7310
Q-7-500	500	183	260	51	105	26.8	14324	7427
L-9-500	500	183	258	50	96	26.89	14324	7572
L-7-500	500	183	260	50	97	26.95	14324	7488
H-11-500	500	183	226	50	98.5	26.98	14324	7261
H-12-500	500	183	226	50	98.5	27.01	14324	7245
F-3-500	500	183	252	50	105	27.11	14324	7705
H-9-500	500	183	231	50	99	27.14	14324	7359
F-9-500	500	183	231	50	104.5	27.2	14324	7330
L-8-500	500	183	265	50	97	27.21	14324	7759
L-4-500	500	183	277	50	103	27.24	14324	7712
L-2-500	500	183	283	50	107.4	27.3	14324	7815
H-10-500	500	183	230	50	99	27.39	14324	7394
F-10-500	500	183	229	50	104.5	27.45	14324	7328
F-5-500	500	183	245	50	101	27.46	14324	7653
L-6-500	500	183	266	50	104	27.47	14324	7710
Q-2-500	500	183	289	56	113	27.49	14324	7831
F-4-500	500	183	250	50	105	27.5	14324	7748
Q-1-500	500	183	293	60	117	27.72	14324	7861
L-0-500	500	183	290	50	107.4	27.8	14324	#N/A
L-1-500	500	183	285	50	104.9	27.8	14324	#N/A
L-99-500	500	183	295	50	112.4	27.8	14324	#N/A
Q-4-500	500	183	274	55	112	27.84	14324	7816
Q-5-500	500	183	270	55	112	27.89	14324	7727
F-6-500	500	183	242	50	101	28.03	14324	7711
B-7-500	500	183	278	59	112	28.08	14324	7863
L-10-500	500	183	249	50	96	28.11	14324	7718
H-5-500	500	183	245	50	98	28.55	14324	8008
Q-3-500	500	183	283	56	113	28.62	14324	8095
F-7-500	500	183	237	50	103.5	28.77	14324	7756
B-5-500	500	183	306	62	122	28.78	14324	8265
B-8-500	500	183	271	59	112	28.81	14324	7885
H-6-500	500	183	242	50	100.5	29.19	14324	8044
H-7-500	500	183	237	50	103.5	29.19	14324	7901
B-6-500	500	183	288	62	122	30.51	14324	8479
B-3-500	500	183	339	75	134	34.71	14324	10051
B-2-500	500	183	353	79	139	35.81	14324	10381
B-4-500	500	183	322	75	134	36.44	14324	10507
N-10-500	500	183	307	93	113	45.63	14324	#N/A
N-11-500	500	183	305	89	109	40.61	14324	#N/A
N-12-500	500	183	295.5	75	95	38.58	14324	#N/A
N-13-500	500	183	290.5	67	87	36.65	14324	#N/A
N-14-500	500	183	284	74	94	34.82	14324	#N/A
N-1-500	500	183	362.5	142	162	78.93	14324	#N/A

	Impeller Dia	Shaft Dia	Eye Dia	Hub Len	Total Len	Weight	Speed	Polar MRZ (kg-cm <sup>2</sup> )
N-2-500	500	183	352.5	136	156	71.9	14324	#N/A
N-3-500	500	183	344	139	159	67.2	14324	#N/A
N-4-500	500	183	337.5	126	146	62.8	14324	#N/A
N-5-500	500	183	334	116	136	58.69	14324	#N/A
N-6-500	500	183	331.5	119	139	58.69	14324	#N/A
N-7-500	500	183	330.5	112	132	55.37	14324	#N/A
N-8-500	500	183	330.5	103	123	52.24	14324	#N/A
N-9-500	500	183	313.5	97	117	48.37	14324	#N/A
G-11-450	450	195	228	45	92	18.57	15915	4403
G-13-450	450	195	225	45	94	19.02	15915	4448
G-12-450	450	195	225	45	94	19.08	15915	4471
G-8-450	450	195	232	45	91	19.49	15915	4639
G-7-450	450	195	235	45	94	19.96	15915	4742
G-9-450	450	195	230	45	94	19.97	15915	4714
G-5-450	450	195	240	45	92	20.03	15915	4872
G-10-450	450	195	228	45	94	20.14	15915	4711
G-6-450	450	195	238	45	92	20.32	15915	4887
G-11-470	470	205	239	47	94.5	22.01	15238	5608
G-8-470	470	205	243	47	100.5	22.14	15238	5713
G-13-470	470	205	237	47	96.5	22.39	15238	5641
G-12-470	470	205	237	47	96.5	22.43	15238	5666
G-9-470	470	205	241	47	103.5	22.64	15238	5793
G-6-470	470	205	249	47	96	22.77	15238	5963
G-10-470	470	205	239	47	103.5	22.85	15238	5796
G-5-470	470	205	252	47	96	23.01	15238	6092
G-7-470	470	205	246	47	98.5	23.38	15238	6030
B-12-540	540	205	273	54	111	31.31	13263	10021
B-9-540	540	205	283	56	113	31.5	13263	10247
B-11-540	540	205	272	54	111	32	13263	10305
B-10-540	540	205	280	56	113	32.12	13263	10317
Q-6-540	540	205	289	56	116	32.26	13263	10583
L-5-540	540	205	293	54	115	32.57	13263	10768
Q-10-540	540	205	272	54	111	32.58	13263	10439
Q-11-540	540	205	271	54	111	32.73	13263	10437
Q-9-540	540	205	275	56	113	32.83	13263	10432
L-7-540	540	205	284	54	111	32.85	13263	10638
L-9-540	540	205	281	54	110	32.9	13263	10785
L-3-540	540	205	305	54	115.5	32.92	13263	10959
F-11-540	540	205	246	54	119.5	32.93	13263	10192
F-8-540	540	205	254	54	121.5	32.93	13263	10419
Q-7-540	540	205	282	56	116	32.99	13263	10615
F-12-540	540	205	246	54	121.5	33	13263	10177
Q-8-540	540	205	277	56	113	33.01	13263	10603
H-8-540	540	205	254	54	120.5	33.15	13263	10534
Q-2-540	540	205	313	63	124	33.26	13263	10992
L-2-540	540	205	307	54	120.9	33.28	13263	11090
L-8-540	540	205	288	54	111	33.36	13263	11069
F-9-540	540	205	251	54	124.5	33.57	13263	10478
H-9-540	540	205	251	54	122.5	33.68	13263	10553
Q-4-540	540	205	298	59	123	33.68	13263	11054
L-10-540	540	205	271	54	110	33.84	13263	10846
Q-5-540	540	205	293	59	123	33.84	13263	10942
F-10-540	540	205	249	54	124.5	33.85	13263	10473
L-6-540	540	205	288	54	118	33.88	13263	11017
L-0-540	540	205	313	54	120.5	33.9	13263	#N/A
L-1-540	540	205	308	54	118.2	33.9	13263	#N/A
L-99-540	540	205	318.5	54	125.5	33.9	13263	#N/A
L-4-540	540	205	301	54	118	33.99	13263	11175
H-10-540	540	205	250	54	122.5	34.01	13263	10615

	Impeller Dia	Shaft Dia	Eye Dia	Hub Len	Total Len	Weight	Speed	Polar MRZ (kg-cm <sup>2</sup> )
H-12-540	540	205	246	54	114.5	34.11	13263	10535
H-11-540	540	205	245	54	114.5	34.25	13263	10577
Q-1-540	540	205	319	67	131	34.38	13263	11361
F-5-540	540	205	266	54	120	34.42	13263	11057
H-6-540	540	205	263	54	119.5	34.49	13263	11121
H-5-540	540	205	266	54	124	34.54	13263	11238
F-3-540	540	205	274	54	122	34.56	13263	11320
B-7-540	540	205	301	63	128	34.8	13263	11315
Q-3-540	540	205	307	63	124	34.86	13263	11449
B-5-540	540	205	332	66	136	35.22	13263	11809
F-6-540	540	205	263	54	120	35.23	13263	11190
F-4-540	540	205	271	54	122	35.24	13263	11415
F-7-540	540	205	257	54	122.5	35.47	13263	11077
B-8-540	540	205	294	63	128	35.61	13263	11324
H-7-540	540	205	258	54	122.5	35.62	13263	11210
B-6-540	540	205	314	66	136	37.77	13263	12332
B-3-540	540	205	367	79	147	41.86	13263	14176
B-2-540	540	205	382	87	152	43.42	13263	14630
B-4-540	540	205	349	79	147	44.15	13263	14886
N-10-540	540	205	331.5	98	118	56.6	13263	#N/A
N-11-540	540	205	329.5	94	114	50.37	13263	#N/A
N-12-540	540	205	319	79	99	47.85	13263	#N/A
N-13-540	540	205	313.5	71	91	45.46	13263	#N/A
N-14-540	540	205	306.5	79	99	43.19	13263	#N/A
N-1-540	540	205	391.5	152	172	95.44	13263	#N/A
N-2-540	540	205	380.5	145	165	89.2	13263	#N/A
N-3-540	540	205	371.5	148	168	83.36	13263	#N/A
N-4-540	540	205	364.5	135	155	77.91	13263	#N/A
N-5-540	540	205	360.5	124	144	72.81	13263	#N/A
N-6-540	540	205	358	127	147	72.81	13263	#N/A
N-7-540	540	205	357	119	139	68.69	13263	#N/A
N-8-540	540	205	357	109	129	64.8	13263	#N/A
N-9-540	540	205	338.5	103	123	60	13263	#N/A
G-11-500	500	220	256	50	98.5	24.93	14324	7208
G-8-500	500	220	260	50	98.5	25.45	14324	7440
G-13-500	500	220	253	50	101	25.77	14324	7351
G-12-500	500	220	253	50	101	25.81	14324	7378
G-5-500	500	220	269	50	99	26.02	14324	7796
G-9-500	500	220	258	50	101.5	26.13	14324	7580
G-6-500	500	220	267	50	99	26.38	14324	7810
G-10-500	500	220	255	50	101.5	26.58	14324	7627
G-7-500	500	220	263	50	101.5	27.22	14324	7918
B-12-600	600	220	300	60	117.5	41.25	11937	15998
F-11-600	600	220	269	60	126	42.17	11937	15984
B-11-600	600	220	299	60	117.5	42.23	11937	16474
F-12-600	600	220	269	60	128.5	42.4	11937	15991
Q-11-600	600	220	297	60	117.5	42.45	11937	16460
Q-10-600	600	220	297	60	117.5	42.48	11937	16519
F-8-600	600	220	278	60	125.5	42.81	11937	16458
B-9-600	600	220	314	63	124	42.94	11937	16950
Q-6-600	600	220	318	62	126	43.1	11937	17059
Q-9-600	600	220	302	63	119	43.11	11937	16586
Q-8-600	600	220	304	63	119	43.32	11937	16856
L-5-600	600	220	324	60	125	43.33	11937	17348
L-3-600	600	220	335	60	124	43.59	11937	17531
B-10-600	600	220	307	63	124	43.61	11937	16906
L-9-600	600	220	308	60	120	43.71	11937	17277
F-9-600	600	220	274	60	129	43.94	11937	16628
L-2-600	600	220	338	60	130.2	43.94	11937	17703
Q-7-600	600	220	310	62	126	44.06	11937	17091

	Impeller Dia	Shaft Dia	Eye Dia	Hub Len	Total Len	Weight	Speed	Polar MRZ (kg-cm <sup>2</sup> )
Q-4-600	600	220	329	65	132	44.11	11937	17514
L-0-600	600	220	348	60	129.2	44.2	11937	#N/A
L-1-600	600	220	342	60	127.2	44.2	11937	#N/A
L-99-600	600	220	354	60	134.2	44.2	11937	#N/A
L-7-600	600	220	312	60	120.5	44.24	11937	17273
F-10-600	600	220	272	60	129	44.27	11937	16614
H-8-600	600	220	278	60	119	44.52	11937	17010
Q-2-600	600	220	345	69	139	44.64	11937	17812
H-11-600	600	220	269	60	121.5	44.68	11937	16790
L-8-600	600	220	316	60	120.5	44.7	11937	17851
Q-5-600	600	220	323	65	132	44.74	11937	17503
F-5-600	600	220	293	60	130	44.78	11937	17525
Q-1-600	600	220	351	74	141	44.79	11937	17806
H-12-600	600	220	269	60	121.5	44.8	11937	16798
H-5-600	600	220	293	60	126	44.85	11937	17731
L-10-600	600	220	297	60	120	44.99	11937	17378
L-4-600	600	220	330	60	127	45.21	11937	17931
L-6-600	600	220	317	60	127.5	45.24	11937	17788
B-7-600	600	220	330	70	137	45.5	11937	17863
H-6-600	600	220	288	60	121.5	45.56	11937	17743
F-6-600	600	220	289	60	130	45.61	11937	17575
H-9-600	600	220	274	60	121.5	45.65	11937	17182
B-8-600	600	220	327	70	137	46.06	11937	17918
H-10-600	600	220	273	60	121.5	46.2	11937	17314
F-3-600	600	220	300	60	124	46.25	11937	18297
Q-3-600	600	220	338	69	139	46.56	11937	18446
F-4-600	600	220	297	60	124	47.09	11937	18450
H-7-600	600	220	282	60	125	47.13	11937	17919
F-7-600	600	220	282	60	132.5	47.24	11937	17783
B-5-600	600	220	365	73	151	47.25	11937	19099
B-6-600	600	220	346	73	146	49.25	11937	19399
B-3-600	600	220	405	89	165	56.06	11937	22750
B-2-600	600	220	422	95	170	58.09	11937	23534
B-4-600	600	220	383	89	165	59.99	11937	24314
N-10-600	600	220	368.5	107	127	76.03	11937	#N/A
N-11-600	600	220	366	103	123	67.67	11937	#N/A
N-12-600	600	220	354.5	85	105	64.29	11937	#N/A
N-13-600	600	220	348.5	76	96	61.08	11937	#N/A
N-14-600	600	220	341	85	105	58.03	11937	#N/A
N-1-600	600	220	435	166	186	128.21	11937	#N/A
N-2-600	600	220	423	159	179	119.82	11937	#N/A
N-3-600	600	220	412.5	163	183	111.98	11937	#N/A
N-4-600	600	220	405	148	168	104.65	11937	#N/A
N-5-600	600	220	400.5	135	155	97.8	11937	#N/A
N-6-600	600	220	397.5	139	159	97.8	11937	#N/A
N-7-600	600	220	396.5	130	150	92.26	11937	#N/A
N-8-600	600	220	396.5	119	139	87.04	11937	#N/A
N-9-600	600	220	376	112	132	80.59	11937	#N/A
Q-10-630	630	241	320	63	126.5	47.53	11368	20464
B-12-630	630	241	320	63	126.5	47.77	11368	20486
B-9-630	630	241	332	66	132.5	48.28	11368	20989

	Impeller Dia	Shaft Dia	Eye Dia	Hub Len	Total Len	Weight	Speed	Polar MRZ (kg-cm <sup>2</sup> )
L-3-630	630	241	355	63	129	48.68	11368	21781
B-11-630	630	241	319	63	126.5	48.7	11368	21028
Q-6-630	630	241	337	66	134	48.86	11368	21447
Q-8-630	630	241	324	66	127.5	48.91	11368	21136
Q-9-630	630	241	322	66	127.5	49	11368	20944
Q-11-630	630	241	317	63	126.5	49.11	11368	21065
F-11-630	630	241	287	63	133	49.32	11368	20538
L-2-630	630	241	361	63	134.4	49.42	11368	22208
F-12-630	630	241	287	63	135.5	49.43	11368	20509
B-10-630	630	241	327	66	132.5	49.46	11368	21187
F-8-630	630	241	297	63	131.5	49.57	11368	21036
L-5-630	630	241	344	63	130	49.63	11368	22070
Q-4-630	630	241	351	70	140	49.95	11368	21927
L-4-630	630	241	353	63	132.5	50.01	11368	22187
Q-7-630	630	241	330	66	134	50.04	11368	21559
L-9-630	630	241	328	63	125	50.11	11368	22005
L-0-630	630	241	365.5	63	133.1	50.2	11368	#N/A
L-1-630	630	241	359	63	131.3	50.2	11368	#N/A
L-99-630	630	241	371.5	63	143.1	50.2	11368	#N/A
H-8-630	630	241	297	63	132	50.29	11368	21382
L-7-630	630	241	333	63	125.5	50.38	11368	21950
L-8-630	630	241	339	63	125.5	50.52	11368	22523
L-10-630	630	241	316	63	125	50.84	11368	21867
H-12-630	630	241	288	63	129.5	50.87	11368	21185
H-11-630	630	241	287	63	129.5	51	11368	21239
F-9-630	630	241	293	63	135	51.05	11368	21330
F-10-630	630	241	292	63	135	51.14	11368	21265
H-6-630	630	241	307	63	135.5	51.27	11368	22255
H-9-630	630	241	293	63	134.5	51.38	11368	21543
F-5-630	630	241	312	63	135	51.52	11368	22332
Q-1-630	630	241	374	79	149	51.61	11368	22957
Q-2-630	630	241	366	74	147	51.62	11368	22850
L-6-630	630	241	338	63	132.5	51.66	11368	22614
Q-5-630	630	241	343	70	140	51.82	11368	22438
H-5-630	630	241	312	63	132	51.86	11368	22649
H-10-630	630	241	292	63	134.5	51.92	11368	21681
B-7-630	630	241	352	74	145	51.97	11368	22678
F-3-630	630	241	319	63	137	51.98	11368	22853
F-4-630	630	241	316	63	137	52.6	11368	22904
H-7-630	630	241	301	63	139	52.68	11368	22379
F-6-630	630	241	307	63	135	52.91	11368	22553
B-6-630	630	241	366	78	149	52.93	11368	23079
B-8-630	630	241	344	74	145	53.36	11368	22792
F-7-630	630	241	300	63	137.5	53.51	11368	22425
Q-3-630	630	241	359	74	147	53.88	11368	23729
B-5-630	630	241	388	82	159	54.61	11368	24416
B-4-630	630	241	408	92	171	61.99	11368	27743
B-3-630	630	241	429	94	176	65.51	11368	29915
B-2-630	630	241	447	102	181	67.56	11368	30848
N-10-630	630	241	387	111	131	87.16	11368	#N/A
N-11-630	630	241	384.5	107	127	77.57	11368	#N/A

	Impeller Dia	Shaft Dia	Eye Dia	Hub Len	Total Len	Weight	Speed	Polar MRZ (kg-cm <sup>2</sup> )
N-12-630	630	241	372.5	89	109	73.69	11368	#N/A
N-13-630	630	241	365.5	79	99	70.01	11368	#N/A
N-14-630	630	241	358	88	108	66.51	11368	#N/A
N-1-630	630	241	457	174	194	146.98	11368	#N/A
N-2-630	630	241	444	166	186	137.36	11368	#N/A
N-3-630	630	241	433	170	190	128.37	11368	#N/A
N-4-630	630	241	425.5	154	174	119.97	11368	#N/A
N-5-630	630	241	420.5	141	161	112.12	11368	#N/A
N-6-630	630	241	417.5	145	165	112.12	11368	#N/A
N-7-630	630	241	416.5	136	156	105.77	11368	#N/A
N-8-630	630	241	416.5	124	144	99.78	11368	#N/A
N-9-630	630	241	394.5	117	137	92.39	11368	#N/A
Q-10-700	700	265	352	70	141	63.49	10231	33188
F-11-700	700	265	316	70	138	63.61	10231	32536
F-12-700	700	265	316	70	141.5	64.15	10231	32640
B-12-700	700	265	350	70	146	64.4	10231	33388
F-8-700	700	265	327	70	135	64.7	10231	33576
L-5-700	700	265	379	70	139	64.79	10231	35167
B-11-700	700	265	352	70	146	65	10231	34137
L-9-700	700	265	364	70	134.5	65.1	10231	35047
Q-11-700	700	265	350	70	141	65.28	10231	34110
Q-9-700	700	265	354	73	147	65.39	10231	33931
L-3-700	700	265	392	70	142.5	65.4	10231	35570
Q-8-700	700	265	356	73	147	65.48	10231	34388
F-5-700	700	265	343	70	144	65.95	10231	35019
L-2-700	700	265	398	70	146.1	66.01	10231	36067
L-7-700	700	265	367	70	134.5	66.13	10231	35122
L-6-700	700	265	375	70	142	66.51	10231	35667
L-8-700	700	265	373	70	134.5	66.56	10231	36310
F-9-700	700	265	322	70	139	66.72	10231	34073
B-9-700	700	265	368	73	157	66.76	10231	35378
Q-6-700	700	265	372	73	158.5	66.85	10231	35572
L-4-700	700	265	389	70	145.5	67.19	10231	36238
F-10-700	700	265	320	70	139	67.2	10231	34061
L-10-700	700	265	349	70	134.5	67.22	10231	35321
F-3-700	700	265	352	70	145	67.25	10231	36180
Q-4-700	700	265	387	77	164	67.55	10231	35971
F-6-700	700	265	338	70	144	67.67	10231	35341
B-10-700	700	265	360	73	157	67.74	10231	35062
Q-7-700	700	265	364	73	158.5	68.07	10231	35532
F-4-700	700	265	348	70	145	68.28	10231	36367
Q-2-700	700	265	407	82	169	68.5	10231	37082
B-7-700	700	265	389	81	169	68.53	10231	36202
L-0-700	700	265	406	70	154.1	68.6	10231	#N/A
L-1-700	700	265	399	70	147.6	68.6	10231	#N/A
L-99-700	700	265	413	70	159.1	68.6	10231	#N/A
Q-1-700	700	265	414	88	172	69.51	10231	37604
F-7-700	700	265	331	70	147	69.89	10231	35762
Q-5-700	700	265	377	77	164	70.08	10231	36747
B-6-700	700	265	403	85	172	70.33	10231	37284
B-8-700	700	265	382	81	169	71.8	10231	37565
B-5-700	700	265	429	91	182	72.12	10231	39204

	Impeller Dia	Shaft Dia	Eye Dia	Hub Len	Total Len	Weight	Speed	Polar MRZ (kg-cm <sup>2</sup> )
Q-3-700	700	265	396	82	169	72.85	10231	39004
F-8-720	720	265	335	72	142	74.68	9947	41855
F-11-720	720	265	324	72	143	74.92	9947	41247
B-12-720	720	265	362	72	143	75	9947	42450
F-12-720	720	265	324	72	146.5	75.16	9947	41219
B-11-720	720	265	362	72	143	75.92	9947	43378
F-9-720	720	265	331	72	146	76.49	9947	42284
Q-10-720	720	265	359	72	143	76.49	9947	43486
Q-11-720	720	265	360	72	143	76.69	9947	43479
F-10-720	720	265	329	72	146	76.97	9947	42271
L-5-720	720	265	390	72	144	77.28	9947	45486
F-5-720	720	265	352	72	143	77.4	9947	43951
Q-6-720	720	265	383	73	155.5	77.57	9947	45036
L-3-720	720	265	404	72	147	77.69	9947	45913
Q-9-720	720	265	366	74	149	77.95	9947	43960
L-2-720	720	265	408	72	146.9	78.01	9947	46218
L-9-720	720	265	373	72	134.5	78.29	9947	45570
F-3-720	720	265	361	72	150	78.3	9947	45084
B-9-720	720	265	379	74	154	78.79	9947	45449
L-7-720	720	265	376	72	138.5	78.79	9947	45250
Q-8-720	720	265	367	74	149	78.86	9947	44851
L-10-720	720	265	359	72	134.5	78.99	9947	45150
Q-7-720	720	265	375	73	155.5	79.06	9947	45070
F-4-720	720	265	358	72	150	79.11	9947	45216
F-6-720	720	265	347	72	143	79.43	9947	44496
L-6-720	720	265	384	72	147	79.75	9947	46276
L-8-720	720	265	382	72	138.5	79.91	9947	47055
B-10-720	720	265	371	74	154	80	9947	45109
L-4-720	720	265	398	72	151	80.24	9947	46759
Q-4-720	720	265	396	77	166	81.8	9947	47529
Q-2-720	720	265	419	81	171	82.07	9947	48479
F-7-720	720	265	339	72	146	82.16	9947	45078
Q-5-720	720	265	389	77	166	82.24	9947	47028
L-0-720	720	265	417.5	72	154.7	82.6	9947	#N/A
L-1-720	720	265	410.5	72	153.3	82.6	9947	#N/A
L-99-720	720	265	425	72	164.7	82.6	9947	#N/A
B-7-720	720	265	400	84	166	83.01	9947	47826
B-4-700	700	265	450	102	191	83.05	10231	45199
Q-1-720	720	265	426	87	174	84.38	9947	49607
B-6-720	720	265	416	88	174	85.1	9947	49024
B-8-720	720	265	391	84	166	85.24	9947	48029
Q-3-720	720	265	408	81	171	85.27	9947	49615
B-3-700	700	265	475	104	196	86.82	10231	48212
B-5-720	720	265	441	91	184	87.91	9947	52098
B-2-700	700	265	497	113	206	90.79	10231	50582
B-4-720	720	265	464	106	193	99.86	9947	58886
B-3-720	720	265	488	106	198	102.73	9947	61674
B-2-720	720	265	508	114	208	106.67	9947	63984
N-10-700	700	265	430	127	147	117.06	10231	#N/A
N-11-700	700	265	427	121	141	104.18	10231	#N/A
N-12-700	700	265	413.5	101	121	98.97	10231	#N/A
N-13-700	700	265	406.5	91	111	94.02	10231	#N/A
N-14-700	700	265	397.5	101	121	89.32	10231	#N/A
N-1-700	700	265	507.5	196	216	197.37	10231	#N/A
N-2-700	700	265	493.5	187	207	184.46	10231	#N/A
N-3-700	700	265	481.5	191	211	172.39	10231	#N/A
N-4-700	700	265	472.5	174	194	161.11	10231	#N/A
N-5-700	700	265	467.5	159	179	150.57	10231	#N/A

	Impeller Dia	Shaft Dia	Eye Dia	Hub Len	Total Len	Weight	Speed	Polar MRZ (kg-cm <sup>2</sup> )
N-6-700	700	265	464	164	184	150.57	10231	#N/A
N-7-700	700	265	462.5	154	174	142.05	10231	#N/A
N-8-700	700	265	462.5	141	161	134.01	10231	#N/A
N-9-700	700	265	438.5	133	153	124.08	10231	#N/A
N-10-720	720	265	442	129	149	126.67	9947	#N/A
N-11-720	720	265	439	124	144	112.74	9947	#N/A
N-12-720	720	265	425.5	103	123	107.1	9947	#N/A
N-13-720	720	265	418	93	113	101.75	9947	#N/A
N-14-720	720	265	409	103	123	96.66	9947	#N/A
N-1-720	720	265	522	201	221	213.57	9947	#N/A
N-2-720	720	265	507.5	192	212	199.6	9947	#N/A
N-3-720	720	265	495	196	216	186.54	9947	#N/A
N-4-720	720	265	486	178	198	174.34	9947	#N/A
N-5-720	720	265	480.5	163	183	162.93	9947	#N/A
N-6-720	720	265	477	168	188	162.93	9947	#N/A
N-7-720	720	265	476	157	177	153.71	9947	#N/A
N-8-720	720	265	476	144	164	145.01	9947	#N/A
N-9-720	720	265	451	136	156	134.27	9947	#N/A
F-9-750	750	275	347	75	168.5	81.1	9549	#N/A
Q-10-750	750	275	378	75	149	84.02	9549	51432
B-12-750	750	275	377	75	149	84.55	9549	51514
B-11-750	750	275	377	75	149	86.04	9549	52864
B-9-750	750	275	392	78	155	86.23	9549	53361
Q-11-750	750	275	375	75	149	86.4	9549	52722
Q-9-750	750	275	380	78	155	87.1	9549	52860
L-5-750	750	275	406	75	158	87.17	9549	55065
Q-8-750	750	275	383	78	155	87.67	9549	53821
B-10-750	750	275	387	78	155	87.7	9549	53526
Q-6-750	750	275	399	77	162	87.87	9549	54861
L-7-750	750	275	391	75	153	88.17	9549	54456
L-3-750	750	275	420	75	162	88.22	9549	55959
L-9-750	750	275	388	75	153	88.8	9549	55397
Q-4-750	750	275	413	81	167	88.95	9549	55898
F-11-750	750	275	340	75	157.5	89.1	9549	#N/A
F-12-750	750	275	341	75	160.5	89.18	9549	#N/A
Q-7-750	750	275	390	77	162	89.32	9549	54723
L-2-750	750	275	425	75	167.5	89.35	9549	56833
L-0-750	750	275	435	75	164.5	89.6	9549	#N/A
L-1-750	750	275	427.5	75	164	89.6	9549	#N/A
L-99-750	750	275	442.5	75	174.5	89.6	9549	#N/A
Q-5-750	750	275	406	81	167	89.71	9549	55463
Q-2-750	750	275	434	84	172	89.74	9549	56826
L-8-750	750	275	398	75	153	89.94	9549	56900
L-10-750	750	275	375	75	153	90.08	9549	55167
F-3-750	750	275	379	75	162	90.2	9549	#N/A
L-6-750	750	275	400	75	161	90.28	9549	56245
F-4-750	750	275	376	75	162	90.3	9549	#N/A
L-4-750	750	275	416	75	166	90.53	9549	56795
Q-1-750	750	275	441	91	175	91.18	9549	57463
F-6-750	750	275	364	75	162	91.2	9549	#N/A
F-5-750	750	275	369	75	162	91.3	9549	#N/A
F-10-750	750	275	345	75	168.5	91.8	9549	#N/A
B-7-750	750	275	416	88	172	92.07	9549	57213
B-6-750	750	275	433	93	175	93.95	9549	58215
Q-3-750	750	275	425	84	172	94.06	9549	59146
B-8-750	750	275	407	88	172	94.27	9549	57276
F-7-750	750	275	356	75	165.5	95.1	9549	#N/A
F-8-750	750	275	351	75	163.5	95.1	9549	#N/A
B-5-750	750	275	460	94	185	95.96	9549	61294
B-4-750	750	275	483	111	199	110.95	9549	70413

	Impeller Dia	Shaft Dia	Eye Dia	Hub Len	Total Len	Weight	Speed	Polar MRZ (kg-cm <sup>2</sup> )
B-3-750	750	275	508	111	204	115.83	9549	75112
B-2-750	750	275	529	118	209	118.43	9549	76402
N-10-750	750	275	460.5	134	154	142.01	9549	#N/A
N-11-750	750	275	457.5	128	148	126.39	9549	#N/A
N-12-750	750	275	443.5	107	127	120.07	9549	#N/A
N-13-750	750	275	435.5	96	116	114.07	9549	#N/A
N-14-750	750	275	426	106	126	108.37	9549	#N/A
N-1-750	750	275	544	208	228	239.43	9549	#N/A
N-2-750	750	275	529	199	219	223.77	9549	#N/A
N-3-750	750	275	515.5	203	223	209.13	9549	#N/A
N-4-750	750	275	506.5	184	204	195.45	9549	#N/A
N-5-750	750	275	500.5	169	189	182.66	9549	#N/A
N-6-750	750	275	497	174	194	182.66	9549	#N/A
N-7-750	750	275	495.5	163	183	172.32	9549	#N/A
N-8-750	750	275	495.5	149	169	162.57	9549	#N/A
N-9-750	750	275	470	140	160	150.53	9549	#N/A
B-12-800	800	290	400	80	153	99.55	8952	68459
Q-10-800	800	290	402	80	153	99.77	8952	68859
B-11-800	800	290	401	80	153	100.55	8952	69933
Q-11-800	800	290	399	80	153	102.73	8952	70697
F-11-800	800	290	360	80	164.5	102.91	8952	68926
Q-6-800	800	290	425	83	168	102.95	8952	72536
F-12-800	800	290	361	80	167.5	102.96	8952	68740
Q-8-800	800	290	407	84	158	103.47	8952	71639
L-9-800	800	290	412	80	157	103.6	8952	73069
Q-9-800	800	290	403	84	158	103.6	8952	70703
Q-7-800	800	290	415	83	168	104.54	8952	72242
L-3-800	800	290	448	80	167	104.69	8952	74930
B-9-800	800	290	420	84	168	105.11	8952	73513
Q-4-800	800	290	439	87	173	105.3	8952	74420
F-8-800	800	290	374	80	167	105.49	8952	71820
L-5-800	800	290	432	80	166	105.53	8952	75043
L-7-800	800	290	416	80	161	105.53	8952	73244
L-10-800	800	290	398	80	157	105.75	8952	73159
B-10-800	800	290	412	84	168	105.81	8952	72484
Q-5-800	800	290	431	87	173	106.49	8952	74112
L-8-800	800	290	423	80	161	106.5	8952	75887
L-0-800	800	290	464	80	173	106.6	8952	#N/A
L-1-800	800	290	456	80	172	106.6	8952	#N/A
L-99-800	800	290	472	80	183	106.6	8952	#N/A
L-2-800	800	290	453	80	176	106.7	8952	76469
L-4-800	800	290	442	80	172	107.08	8952	75771
L-6-800	800	290	426	80	170	107.55	8952	75459
Q-2-800	800	290	463	90	184	108.01	8952	77351
F-9-800	800	290	369	80	173.5	108.02	8952	72379
B-7-800	800	290	443	94	178	108.83	8952	76249
F-10-800	800	290	366	80	173.5	109.04	8952	72367
Q-1-800	800	290	472	96	186	109.35	8952	78039
B-8-800	800	290	434	94	178	111.01	8952	76095
F-7-800	800	290	378	80	170	111.27	8952	75129
F-5-800	800	290	392	80	167	111.54	8952	77097

	Impeller Dia	Shaft Dia	Eye Dia	Hub Len	Total Len	Weight	Speed	Polar MRZ (kg-cm <sup>2</sup> )
Q-3-800	800	290	452	90	184	112.08	8952	79224
F-6-800	800	290	386	80	167	112.09	8952	76703
B-6-800	800	290	460	99	186	112.11	8952	78158
F-4-800	800	290	398	80	166	112.18	8952	78191
F-3-800	800	290	402	80	166	112.3	8952	78814
B-5-800	800	290	489	100	196	114.48	8952	82214
B-4-800	800	290	515	120	210	132.24	8952	94012
B-3-800	800	290	541	120	215	137.42	8952	99697
B-2-800	800	290	564	127	225	143.07	8952	103900
N-10-800	800	290	491	146	166	170.14	8952	#N/A
N-11-800	800	290	488	140	160	151.42	8952	#N/A
N-12-800	800	290	473	117	137	143.85	8952	#N/A
N-13-800	800	290	464.5	105	125	136.66	8952	#N/A
N-14-800	800	290	454.5	117	137	129.83	8952	#N/A
N-1-800	800	290	580	225	245	286.88	8952	175475
N-2-800	800	290	564	215	235	268.11	8952	#N/A
N-3-800	800	290	550	220	240	250.57	8952	#N/A
N-4-800	800	290	540	200	220	234.18	8952	#N/A
N-5-800	800	290	534	183	203	218.86	8952	#N/A
N-6-800	800	290	530	189	209	218.86	8952	#N/A
N-7-800	800	290	529	177	197	206.47	8952	#N/A
N-8-800	800	290	529	162	182	194.78	8952	#N/A
N-9-800	800	290	501	153	173	180.35	8952	#N/A



## DETAILS OF COMPANY PERFORMANCE

### A. Capacity Details:

Manufacturing Capacity (Major machines with Qty.)	Type of Major Machines	Qty.
Machines supplied during last 5 years (Year-wise with Qty.)	Scheduled Supply Period	Actual Supply Period
Outstanding Order Book position (Type of Machine with Qty. & name of customers*)		
Liquidation Plan of all machines including BHEL machines under consideration for ordering		

\* If any bidder is unable to give name of ALL the customer(s) due to confidentiality restrictions, they may give details without disclosing such customer's identity.

### B. Performance of supplies to BHEL:

Details of POs to be considered in last 5 years shall include (i) Last 5 POs fully executed and (ii) all POs overdue for supply and/or E&C. Details of all machines in the POs to be given.

Sl. No.	Name of M/c with broad specs.	Name of BHEL Unit	P.O. No. & Date	P.O. Value	Supply Date		Erection & Commissioning		Reason of delay, if any
					As per P.O.	Actual/ Likely	E&C period incl. job prove out as agreed (in days)	Actual / Likely period of E&C completion (in days)	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1.									
2.									
3.									
4.									

Note: 1. In case bidder has not received any Purchase Order in the last 5 years from any of the Units of BHEL, then 'NIL' should be indicated.

2. Reasons for delay to be explained in details.

3. BHEL reserves the right to reject the offer, if past performance of the bidder is evaluated to be unsatisfactory and/or false information is given by the bidder.

**INTEGRITY PACT****Between**

Bharat Heavy Electricals Ltd. (BHEL), a company registered under the Companies Act 1956 and having its registered office at "BHEL House", Siri Fort, New Delhi - 110049 (India) hereinafter referred to as "The Principal", which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the ONE PART

**and**

\_\_\_\_\_, (description of the party along with address), hereinafter referred to as "The Bidder/ Contractor" which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the OTHER PART

**Preamble**

The Principal intends to award, under laid-down organizational procedures, contract/s for \_\_\_\_\_

\_\_\_\_\_ (hereinafter referred to as "Contract"). The Principal values full compliance with all relevant laws of the land, rules and regulations, and the principles of economic use of resources, and of fairness and transparency in its relations with its Bidder(s)/ Contractor(s).

In order to achieve these goals, the Principal will appoint panel of Independent External Monitor(s) (IEMs), who will monitor the tender process and the execution of the contract for compliance with the principles mentioned above.

**Section 1- Commitments of the Principal**

- 1.1 The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles: -
  - 1.1.1 No employee of the Principal, personally or through family members, will in connection with the tender for, or the execution of a contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.
  - 1.1.2 The Principal will, during the tender process treat all Bidder(s) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential/ additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.
  - 1.1.3 The Principal will exclude from the process all known prejudiced persons.
- 1.2 If the Principal obtains information on the conduct of any of its employees which is a penal offence under the Indian Penal Code 1860 and Prevention of Corruption Act 1988 or any other statutory penal enactment, or if there be a substantive suspicion in this regard, the Principal will inform its Vigilance Office and in addition can initiate disciplinary actions.

**Section 2 - Commitments of the Bidder(s)/ Contractor(s)**

- 2.1 The Bidder(s)/ Contractor(s) commit himself to take all measures necessary to prevent corruption. The Bidder(s)/ Contractor(s) commits himself to observe the following principles during participation in the tender process and during the contract execution.



- 2.1.1 The Bidder(s)/ Contractor(s) will not, directly or through any other person or firm, offer, promise or give to the Principal or to any of the Principal's employees involved in the tender process or the execution of the contract or to any third person any material, immaterial or any other benefit which he/ she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.
- 2.1.2 The Bidder(s)/ Contractor(s) will not enter with other Bidder(s) into any illegal or undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.
- 2.1.3 The Bidder(s)/ Contractor(s) will not commit any penal offence under the relevant Indian Penal Code (IPC) and Prevention of Corruption Act; further the Bidder(s)/ Contractor(s) will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.
- 2.1.4 Foreign Bidder(s)/ Contractor(s) shall disclose the name and address of agents and representatives in India and Indian Bidder(s)/ Contractor(s) to disclose their foreign principals or associates. The Bidder(s)/ Contractor(s) will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.
- 2.2 The Bidder(s)/ Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.
- 2.3 The Bidder(s)/ Contractor(s) shall not approach the Courts while representing the matters to IEMs and shall await their decision in the matter.

### Section 3 - Disqualification from tender process and exclusion from future contracts

If the Bidder(s)/ Contractor(s), before award or during execution has committed a transgression through a violation of Section 2 above, or acts in any other manner such as to put his reliability or credibility in question, the Principal is entitled to disqualify the Bidder(s)/ Contractor(s) from the tender process, terminate the contract, if already awarded, exclude from future business dealings and/ or take action as per the separate "Guidelines on Banning of Business dealings with Suppliers/ Contractors", framed by the Principal.

### Section 4 - Compensation for Damages

- 4.1 If the Principal has disqualified the Bidder (s) from the tender process before award / order acceptance according to Section 3, the Principal is entitled to demand and recover the damages equivalent to Earnest Money Deposit/ Bid Security.
- 4.2 If the Principal is entitled to terminate the Contract according to Section 3, or terminates the Contract in application of Section 3 above, the Bidder(s)/ Contractor (s) transgression through a violation of Section 2 above shall be construed breach of contract and the Principal shall be entitled to demand and recover from the Contractor an amount equal to 5% of the contract value or the amount equivalent to Security Deposit/ Performance Bank Guarantee, whichever is higher, as damages, in addition to and without prejudice to its right to demand and recover compensation for any other loss or damages specified elsewhere in the contract.



**Section 5 - Previous Transgression**

- 5.1 The Bidder declares that no previous transgressions occurred in the last 3 (three) years with any other company in any country conforming to the anti-corruption approach or with any other Public Sector Enterprise in India that could justify his exclusion from the tender process.
- 5.2 If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason or action can be taken as per the separate "Guidelines on Banning of Business dealings with Suppliers/ Contractors", framed by the Principal.

**Section 6 - Equal treatment of all Bidder (s)/ Contractor (s) / Sub-contractor (s)**

- 6.1 The Principal will enter into Integrity Pacts with identical conditions as this Integrity Pact with all Bidders and Contractors.
- 6.2 In case of Sub-contracting, the Principal Contractor shall take the responsibility of the adoption of Integrity Pact by the Sub-contractor(s) and ensure that all Sub-contractors also sign the Integrity Pact.
- 6.3 The Principal will disqualify from the tender process all Bidders who do not sign this Integrity Pact or violate its provisions.

**Section 7 - Criminal Charges against violating Bidders/ Contractors /Subcontractors**

If the Principal obtains knowledge of conduct of a Bidder, Contractor or Subcontractor, or of an employee or a representative or an associate of a Bidder, Contractor or Subcontractor which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the Vigilance Office.

**Section 8 -Independent External Monitor(s)**

- 8.1 The Principal appoints competent and credible panel of Independent External Monitor (s) (IEMs) for this Integrity Pact. The task of the IEMs is to review independently and objectively, whether and to what extent the parties comply with the obligations under this Integrity Pact.
- 8.2 The IEMs are not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the CMD, BHEL.
- 8.3 The IEMs shall be provided access to all documents/ records pertaining to the Contract, for which a complaint or issue is raised before them as and when warranted. However, the documents/records/information having National Security implications and those documents which have been classified as Secret/Top Secret are not to be disclosed.
- 8.4 The Principal will provide to the IEMs sufficient information about all meetings among the parties related to the Contract provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the IEMs the option to participate in such meetings.



- 8.5 The advisory role of IEMs is envisaged as that of a friend, philosopher and guide. The advice of IEMs would not be legally binding and it is restricted to resolving issues raised by a Bidder regarding any aspect of the tender which allegedly restricts competition or bias towards some Bidders. At the same time, it must be understood that IEMs are not consultants to the Management. Their role is independent in nature and the advice once tendered would not be subject to review at the request of the organization.
- 8.6 For ensuring the desired transparency and objectivity in dealing with the complaints arising out of any tendering process or during execution of Contract, the matter should be examined by the full panel of IEMs jointly, who would look into the records, conduct an investigation, and submit their joint recommendations to the Management.
- 8.7 The IEMs would examine all complaints received by them and give their recommendations/ views to the CMD, BHEL at the earliest. They may also send their report directly to the CVO, in case of suspicion of serious irregularities requiring legal/ administrative action. Only in case of very serious issue having a specific, verifiable Vigilance angle, the matter should be reported directly to the Commission. IEMs will tender their advice on the complaints within 30 days.
- 8.8 The CMD, BHEL shall decide the compensation to be paid to the IEMs and its terms and conditions.
- 8.9 IEMs should examine the process integrity, they are not expected to concern themselves with fixing of responsibility of officers. Complaints alleging mala fide on the part of any officer of the Principal should be looked into by the CVO of the Principal.
- 8.10 If the IEMs have reported to the CMD, BHEL, a substantiated suspicion of an offence under relevant Indian Penal Code / Prevention of Corruption Act, and the CMD, BHEL has not, within reasonable time, taken visible action to proceed against such offence or reported it to the Vigilance Office, the IEMs may also transmit this information directly to the Central Vigilance Commissioner, Government of India.
- 8.11 After award of work, the IEMs shall look into any issue relating to execution of Contract, if specifically raised before them. As an illustrative example, if a Contractor who has been awarded the Contract, during the execution of Contract, raises issue of delayed payment etc. before the IEMs, the same shall be examined by the panel of IEMs. Issues like warranty/ guarantee etc. shall be outside the purview of IEMs.
- 8.12 However, the IEMs may suggest systemic improvements to the management of the Principal, if considered necessary, to bring about transparency, equity and fairness in the system of procurement.
- 8.13 The word 'Monitor' would include both singular and plural.

#### Section 9 - Pact Duration

- 9.1 This Integrity Pact shall be operative from the date this Integrity Pact is signed by both the parties till the final completion of contract for successful Bidder, and for all other Bidders 6 months after the Contract has been awarded. Any violation of the same would entail disqualification of the bidders and exclusion from future business dealings.
- 9.2 If any claim is made/ lodged during currency of this Integrity Pact, the same shall be binding and continue to be valid despite the lapse of this Pact as specified above, unless it is discharged/ determined by the CMD, BHEL.



**Section 10 - Other Provisions**

- 10.1 This Integrity Pact is subject to Indian Laws and exclusive jurisdiction shall be of the competent Courts as indicated in the Tender or Contract, as the case may be.
- 10.2 Changes and supplements as well as termination notices need to be made in writing.
- 10.3 If the Bidder(s)/ Contractor(s) is a partnership or a consortium or a joint venture, this Integrity Pact shall be signed by all partners of the partnership or joint venture or all consortium members.
- 10.4 Should one or several provisions of this Integrity Pact turn out to be invalid, the remainder of this Integrity Pact remains valid. In this case, the parties will strive to come to an agreement to their original intentions.
- 10.5 Only those bidders / contractors who have entered into this Integrity Pact with the Principal would be competent to participate in the bidding. In other words, entering into this Integrity Pact would be a preliminary qualification.
- 10.6 In the event of any dispute between the Principal and Bidder(s)/ Contractor(s) relating to the Contract, in case, both the parties are agreeable, they may try to settle dispute through Mediation before the panel of IEMs in a time bound manner. In case, the dispute remains unresolved even after mediation by the panel of IEMs, either party may take further action as the terms & conditions of the Contract. The fees/expenses on dispute resolution through mediation shall be shared by both the parties. Further, the mediation proceedings shall be confidential in nature and the parties shall keep confidential all matters relating to the mediation proceedings including any settlement agreement arrived at between the parties as outcome of mediation. Any views expressed, suggestions, admissions or proposals etc. made by either party in the course of mediation shall not be relied upon or introduced as evidence in any further arbitral or judicial proceedings, whether or not such proceedings relate to the dispute that is the subject of mediation proceedings. Neither of the parties shall present IEMs as witness in any Alternative Dispute Resolution or judicial proceedings in respect of the dispute that was subject of mediation.



For & On behalf of the Principal

(Office Seal) कडे

Ajay Pekde

Place उप महा प्रबंधक / सी एम एम - क्रय

Date Dy. General Manager / CMM - Purchase

बी.एच.ई.एल. हैदराबाद, BHEL-HYD-32

Witness: \_\_\_\_\_

(Name & Address) \_\_\_\_\_



अधीनस्थ - बी. बिस्वास  
B. Biswas  
अपर महा प्रबंधक / सी एम एम - क्रय  
Addl General Manager / CMM - Purchase  
बी.एच.ई.एल. हैदराबाद, BHEL-HPEP-HYD-32

For & On behalf of the Bidder/ Contractor

(Office Seal)

Witness: \_\_\_\_\_

(Name & Address) \_\_\_\_\_

Clause on IP in the tender**“Integrity Pact (IP)**

- (a) 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. Following Independent External Monitors (IEMs) on the present panel have been appointed by BHEL with the approval of CVC to oversee implementation of IP in BHEL.

SI	IEM	Email
1.	Shri Arun Chandra Verma, IPS (Retd.)	<a href="mailto:acverma1@gmail.com">acverma1@gmail.com</a>
2.	Shri Virendra Bahadur Singh, IPS (Retd.)	<a href="mailto:vbsinghips@gmail.com">vbsinghips@gmail.com</a>

- (b) The IP as enclosed with the tender is to be submitted (duly signed by authorized signatory) along with techno-commercial bid (Part-I, in case of two/ three part 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.
- (c) 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 any of the above IEM(s). All correspondence with the IEMs shall be done through email only.

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's officials whose contact details are provided below:*

Details of contact person(s):

(1)  
 Name: Ajay Pekde  
 Deptt: CMM Purchase  
 Address: BHEL Hyderabad  
 Phone: (Landline/ Mobile)  
+91 040 2318 2410  
 Email: ajaypekde@bhel.in  
 Fax: \_\_\_\_\_

(2)  
 Name: Biswajit Biswas  
 Deptt: CMM Purchase  
 Address: BHEL Hyderabad  
 Phone: (Landline/ Mobile)  
+91 040 2318 5182  
 Email: biswajitbiswas@bhel.in  
 Fax: \_\_\_\_\_

# Guidelines for Reverse Auction – 2021

Doc. No. AA:SSP:RA:05  
Dated: 08.03.2021

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## 1.0 Scope

This document describes the guidelines to be followed by each Unit/ Division/ Region for conducting Reverse Auction (RA) for procurement of material/ works/ services. These guidelines will be applicable for all purchases/ contracts to be awarded under Purchase/ Works policy and the RA shall follow the philosophy of English Reverse (No ties). Based on these guidelines, Units/ Divisions/ Regions (hereinafter referred as 'units') may issue their own Departmental Procedures without changing the intent and spirit of the guidelines contained in this document. These guidelines will supersede earlier guidelines issued vide AA:SSP:RA:04 dated 04.03.2020.

English Reverse (No ties) is a type of auction where the starting price and bid decrement are announced before start of online reverse auction. The interested bidders can thereupon start bidding in an iterative process wherein the lowest bidder at any given moment can be displaced by an even lower bid of a competing bidder, within a given time frame. The bidding is with reference to the current lowest bid in the reverse auction. All bidders will see the current lowest quoted price and their rank. The term 'No ties' is used since more than one bidder cannot give an identical price, at a given instant, during the reverse auction. In other words, there shall never be a tie in the bids.

## 2.0 Intent of Reverse Auction

To derive maximum benefit in cost savings through competitive bidding.

## 3.0 Upfront declaration in NIT

Wherever it is felt that procurement may be done through Reverse Auction, the bids shall be invited in two parts/ three parts or single part bid (Price Bid) where Techno-Commercial MoU already exists. Wherever, the evaluation is done for individual line item, separate sealed envelope price bid for each line item shall be taken.

Decision to go for RA would be taken before floating of the tender. In case it is decided to go for RA, same shall be declared upfront in NIT by inserting the following **clause**:

*"BHEL shall be resorting to Reverse Auction (RA) (Guidelines as available on [www.bhel.com](http://www.bhel.com)) for this tender. RA shall be conducted among the techno-*

## Guidelines for Reverse Auction – 2021

Doc. No. AA:SSP:RA:05  
Dated: 08.03.2021

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*commercially qualified bidders.*

*Price bids of all techno-commercially qualified bidders shall be opened and same shall be considered for RA. In case any bidder(s) do(es) not participate in online Reverse Auction, their sealed envelope price bid along with applicable loading, if any, shall be considered for ranking."*

### 4.0 Aspects to be considered for RA

Following aspects may be considered by the competent authority (empowered to approve the ordering) to decide before floating of the tender if RA is to be conducted for that particular tender:

- a) Number of techno-commercially qualified bidders in previous tender for same/ similar class of item
- b) Price volatility of the item(s) under consideration
- c) Past purchase experience of similar item(s)
- d) Tender Value of the item(s) under procurement
- e) Any other aspect which may be specific to tender

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

### 5.0 RA Committee

Purchase/ Tender committee, if already in place, shall also act as RA committee. Purchase representative will be the convener. In case Purchase/ Tender committee has not been formed, the Product Manager/ MM Head/ Department Head, shall constitute RA committee consisting of representatives (*rank as per DoP of tender/ negotiation committee*) from departments of Engineering/ Indenter/ User, Purchase and Finance. This committee will work for a specific tender. The role of RA committee shall be as below:

- To vet the comparative statement comprising sealed envelope price bids received, MSE status, qualification against Public Procurement (Preference to Make in India), Order 2017 (PPP-MII, Order 2017) of all techno-commercially qualified bidders, loading etc. before sending it to the service provider for RA.
- To decide and record the 'Start-Price' and 'Bid Decrement'.
- To observe the RA process and declare RA as successful.

# Guidelines for Reverse Auction – 2021

Doc. No. AA:SSP:RA:05  
Dated: 08.03.2021

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## 6.0 Business rules for RA

Model Business rules (annexure I) and other annexures II to VI are attached. MM shall prepare and fill in the required details in the annexures at appropriate places like:

- Enquiry/ Request for Quotation (RFQ) number
- Name and Addresses of the bidders
- Items description, quantities/ weight, Specification
- Date and time of opening and closing of RA
- Extension conditions
- Loading Criteria/ Formulae
- Foreign Exchange (FE) rates for evaluation
- Taxes & Duties
- Freight & Insurance
- Bidders' training, if required, etc.

The calculation sheet e.g. excel sheet (which will help to arrive at 'Total Cost to BHEL') which is communicated to respective bidders of RA, will be prepared by MM and vetted by Finance. This calculation sheet will be finalized based on the evaluation criteria specified in the NIT and will be same based on which sealed envelope price bids have been evaluated.

MM shall issue a mandate (annexure II) to the service provider covering business rules etc. and inform about event, calculation sheet etc. to all techno-commercially accepted bidders.

## 7.0 Role of Service Provider

- Acknowledge the receipt of mandate from BHEL.
- Contact the bidders, provide business rules and train them, as required.
- Get the process compliance form (annexure III) signed by all the participating bidders before RA event.
- Conduct the event as per the contract and business rules.
- Submit the Login Reports, Results, History sheet and authorized final bid from the bidders.
- To obtain price breakup from successful bidder and submit the same to BHEL.

## 8.0 Start price for RA shall be lowest of sealed envelope price bid.

Note: Wherever more than one lowest sealed envelope price bids are identical, RA committee shall declare the start price by reducing the lowest sealed envelope price bid by maximum of one decrement.

# Guidelines for Reverse Auction – 2021

Doc. No. AA:SSP:RA:05

Dated: 08.03.2021

amdt01 dated 10.03.2021

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## 9.0 Witnessing Auction

Access to witness the RA shall be available to the concerned officials of BHEL (Indenter/ Finance Officials/ Purchase Officials), nominated by Head MM/ Purchase/ Contracts.

## 10.0 Reverse Auction Process

10.1 Reverse Auction will be conducted if two or more bidders are techno-commercially qualified. In case of two or three qualified bidders, there shall be no elimination of H1 bidder (whose quote is highest in sealed envelope price bid). In case of four qualified bidders, the H1 bidder shall be eliminated whereas in case of five qualified bidders, H1 & H2 bidders shall be eliminated. However, in case of six or more qualified bidders are available, RA would be conducted amongst first 50% of the bidders arranged in the order of prices from lowest to highest. Number of bidders eligible for participating in RA would be rounded off to next higher integer value if number of qualified bidders is odd (e.g. if 7 bids are qualified, then RA will be conducted amongst lowest four bidders). However, there will be no elimination of qualified bidders who are MSE or qualifying under PPP-MII, Order 2017, irrespective of the number of bidders qualifying techno-commercially.

In case of multiple H1 bidders, all H1 bidders (excluding MSEs and bidders qualifying under PPP-MII, Order 2017) shall be removed provided minimum two bidders remain in fray, else no H1 removal.

10.2 The lowest bidder in sealed envelope price bid shall be shown as current L1 automatically by the system. System shall have the provision to indicate this bid as current L1 for further bidding. This price can be displaced by an even lower bid of a competing bidder.

If the start price is lower than the lowest sealed envelope price bid (in line with clause 8.0), on acceptance of such start price by any bidder this bid would be indicated as current L1 for further bidding. However, if no bidder accepts the start price, RA shall be treated as cancelled for the respective line item(s) and the tender shall be processed accordingly.

In case of no further bidding, RA will be deemed to have been successful with current L1 bidder. During RA, all bidders will see their rank and current L1 price on the screen. Once the RA is done, the ranking status would be based on the last quoted price of the bidder(s) irrespective of the quote received in RA or sealed envelope price bid.

## Guidelines for Reverse Auction – 2021

Doc. No. AA:SSP:RA:05  
Dated: 08.03.2021

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- 10.3 No bidder shall be allowed to lower its bid below the current L1 by more than 5 decrements at one go.

### 11.0 Processing of case after RA

- 11.1 Wherever the evaluation is done on total cost basis, after Reverse Auction, prices of individual line items shall be reduced on pro-rata basis.
- 11.2 In case of splitting requirement, bidders who were removed from participation in RA may also 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 shall be maintained in line with extant Purchase Policy/ Work Policy.
- 11.3 Reasonability of rates received through RA to be ascertained as per extant Policy provisions.

### 12.0 Payment to the Service Provider

Payment shall be made as per the agreed terms of the Framework Agreement with the service provider based on the mandate issued and service provider's invoice certified by the respective MM. If the RA event is conducted as per the mandate given by BHEL and agreed procedure, payment shall be made to the service provider irrespective of the auction outcome.

### 13.0 Others

- 13.1 If RA is being conducted for multiple line items and L1 is to be decided for individual items, number of items in single screen be restricted to 10 (ten) to avoid scrolling by the bidders.
- 13.2 In case of enquiry through e-Procurement, the sealed electronic price bid (e-bid) is to be treated as sealed envelope price bid.
- 13.3 BHEL will inform bidders the details of service provider who will provide business rules, all necessary training and assistance before commencement of online bidding.
- 13.4 Bidders will be advised to read the 'Business Rules' indicating details of RA event carefully, before reverse auction event.
- 13.5 Model annexures are enclosed. However, to suit specific requirement of the Units changes in the annexures may be done with the approval of respective MM Head of Unit. Such changes shall specifically be communicated to the service provider before the RA event.

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# GUIDELINES FOR REVERSE AUCTION – 2021

Doc. No. AA:SSP:RA:05  
DATED: 08.03.2021

## Business Rules for Reverse Auction

### Annexure – I

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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. Price bids of all techno-commercially qualified bidders shall be opened.
- ii. **Reverse Auction:** The 'bid decrement' will be decided by BHEL.
- iii. The lowest bidder in sealed envelope price 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. However, no bidder shall be allowed to lower its bid below the current L1 by more than 5 decrements at one go.
- v. After the completion of the reverse auction, the Closing Price shall be available for further processing.
- vi. Wherever the evaluation is done on total cost basis, after Reverse Auction, prices of individual line items shall be reduced on pro-rata basis.

**2. Schedule for reverse auction:** The Reverse Auction is tentatively scheduled on *{date}*: *:{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,

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# GUIDELINES FOR REVERSE AUCTION – 2021

Doc. No. AA:SSP:RA:05  
DATED: 08.03.2021

## Business Rules for Reverse Auction

### Annexure – I

---

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 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, taxes, duties, freight and insurance as specified in tender document, 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.

# GUIDELINES FOR REVERSE AUCTION – 2021

Doc. No. AA:SSP:RA:05  
DATED: 08.03.2021

## Business Rules for Reverse Auction

### Annexure – I

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7. **Lowest bid of a bidder:** In case the bidder submits more than one bid, the lowest bid at the end of Reverse Auction will be considered as the bidder's final offer to execute the work.
  8. Unique user IDs shall be used by bidders during bidding process. 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 separately intimated to respective 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 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. 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.

In order to ward-off contingent situation of connectivity failure 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.

# GUIDELINES FOR REVERSE AUCTION – 2021

Doc. No. AA:SSP:RA:05

DATED: 08.03.2021

## Business Rules for Reverse Auction

### Annexure – I

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- 12.** Proxy bids: Proxy bidding feature is a pro-bidder feature to safe guard 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
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# GUIDELINES FOR REVERSE AUCTION – 2021

Doc. No. AA:SSP:RA:05  
DATED: 08.03.2021

## Business Rules for Reverse Auction

### Annexure – I

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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, quoted during the 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](http://www.bhel.com)).
17. Bidders' bid will be taken as an offer to execute the work/ supplies 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](http://www.bhel.com)).
18. Bidders shall be able to view the following on their screen along with the necessary fields during 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

# GUIDELINES FOR REVERSE AUCTION – 2021

Doc. No. AA:SSP:RA:05  
DATED: 08.03.2021

## **Business Rules for Reverse Auction**

### **Annexure – I**

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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](http://www.bhel.com)), shall be initiated by BHEL.

# GUIDELINES FOR REVERSE AUCTION – 2021

Doc. No. AA:SSP:RA:05  
DATED: 08.03.2021

## Mandate to Service Provider

## Annexure – II

**Ref :**

To,

M/s. {Service provider}

Sub: Providing of Services for Reverse Auction.

Ref: No {...} date {...}

**Date :**

Dear Sir,

Please conduct Reverse Auction as per the following details:

- **Scope:** Auction event management with training of BHEL and its bidders.
- Seek process compliance form from all the bidders provided by BHEL before start of RA event. In case of postponement of event to some other date, ensure acknowledgement from each bidder.
- Price: Rs. {.....}/- . No other duties, Taxes, levies etc. except service tax @ {.....}% shall be payable for conducting reverse auction. This price is firm.
- Payment Terms: 100% payment after successful completion of Auction.
- Start Price: L1 as per the CST (Comparative statement) of the envelope sealed bid shall be marked as L1 automatically by the system at the start of the auction, provided the L1 bidder participates in the RA by submitting the process compliance form. In case the Process Compliance form is not submitted by the L1 bidder, still its price has to be mapped as start price of RA for further bidding in RA.

Wherever there are more than one L1 in CST, the start price shall be the L1 price reduced by one decrement and the same shall be accepted by the interested bidder(s) for start of RA process.

- Completion of Auction Process: The auction process shall be deemed to have been successfully completed on receipt and acceptance of final report including hard copy/ email of the final bid with price break up, duly signed by the successful bidder who has participated in the reverse auction. The bill shall be submitted along with the completion report to the undersigned.
- Business Rules of the Reverse Auction are as per Annexure – I.
- The list of bidders with their contact details is given in Annexure – IV. and the details of the item (s) to be Reverse Auctioned are as per Annexure – V.
- Please acknowledge receipt of this letter order and also confirm that final report (duly signed and stamped by M/s. {Service provider}) including hard copy/ email of the final bid with breakup of prices duly signed by the successful bidder (duly endorsed by M/s. {Service provider}) shall be submitted within **four** working days of conclusion of auction.

**Yours sincerely,**

(for and on behalf of BHEL)

# GUIDELINES FOR REVERSE AUCTION – 2021

Doc. No. AA:SSP:RA:05  
DATED: 08.03.2021

## Mandate to Service Provider

## Annexure – II

**Note:**

If the event has been conducted as per mandate, you shall be paid irrespective of RA outcome.

<b>Buyer Name</b>	<ul style="list-style-type: none"><li>- Name of BHEL Unit</li><li>- Full postal address</li><li>- Fax:</li><li>- Phone:</li><li>- Email:</li><li>- Contact person name:</li><li>- Phone:</li><li>-</li></ul>
<b>Auction to be conducted by</b>	<ul style="list-style-type: none"><li>- Name of Service provider</li><li>- Full postal address</li><li>- Fax:</li><li>- Phone:</li><li>- Email:</li><li>- Contact person name:</li><li>- Phone:</li><li>-</li></ul>
<b>Date of Auction</b>	<ul style="list-style-type: none"><li>- Date of Auction</li><li>- Reverse auction time:</li><li>- Auction website:</li><li>-</li></ul>
<b>Documents Attached: (To be sent to the bidders)</b>	<ol style="list-style-type: none"><li>1) Business rules for Reverse Auction (<u>Annexure-I</u>)</li><li>2) Process Compliance Form (<u>Annexure-III</u>)</li><li>3) Details of item (s) to be Reverse Auctioned (<u>Annexure-V</u>)</li><li>4) Post RA Price confirmation by bidder (<u>Annexure-VI</u>)</li></ol>

# GUIDELINES FOR REVERSE AUCTION – 2021

Doc. No. AA:SSP:RA:05  
DATED: 08.03.2021

## Process Compliance Form

## Annexure – III

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**(The bidders are required to print this on their company's letterhead and sign, stamp before RA)**

To

- M/s. {Service provider}
- Postal address}

### **Sub: Agreement to the Process related Terms and Conditions**

Dear Sir,

This has reference to the Terms & Conditions for the Reverse Auction mentioned in the RFQ document for {Items} against BHEL enquiry/ RFQ no.{.....} dt. {.....} This letter is to confirm that:

- 1) The undersigned is authorized official/ representative of the company to participate in RA and to sign the related documents.
- 2) We have studied the Reverse Auction guidelines (as available on www.bhel.com), and the Business rules governing the Reverse Auction as mentioned in your letter and confirm our agreement to them.
- 3) We also confirm that we have taken the training on the auction tool and have understood the functionality of the same thoroughly.
- 4) We also confirm that, in case we become L1 bidder, we will FAX/ email the price confirmation & break up of our quoted price as per Annexure - VI within **two** working days (of BHEL) after completion of RA event, besides sending the same by registered post/ courier both to M/s. BHEL and M/s. {Service provider.}

We, hereby confirm that we will honor the Bids placed by us during the auction process.

With regards

Signature with company seal

Name –

Company / Organization

Designation within Company / Organization

Address of Company / Organization

- **Sign this document and FAX/ email it to M/s {Service provider} at {.....} prior to start of the Event.**

# GUIDELINES FOR REVERSE AUCTION – 2021

Doc. No. AA:SSP:RA:05

DATED: 08.03.2021

## List of bidders and their address/ contact person details

### Annexure – IV

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<b>Sl. No.</b>	<b>Address</b>	<b>Contact Person</b>
1	<ul style="list-style-type: none"><li>- Name of bidder</li><li>- Full postal address</li><li>- Fax:</li><li>- Phone:</li><li>- Email:</li></ul>	<ul style="list-style-type: none"><li>- Contact person name:</li><li>- Phone:</li><li>- Email:</li></ul>
2		
3		
..		
..		

# GUIDELINES FOR REVERSE AUCTION – 2021

Doc. No. AA:SSP:RA:05  
DATED: 08.03.2021

## Details of item (s) for Reverse Auction

Annexure – V

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1. *{Details of items including quantity, specification, Enquiry no. & date*

- 1.
- 2.
- ..
- ..
- ..
- ..
- }

GUIDELINES FOR REVERSE AUCTION – 2021

Doc. No. AA:SSP:RA:05  
DATED: 08.03.2021

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

**Annexure – VI**

**To**

- M/s. Service provider
- Postal address

CC: M/s BHEL  
{Unit-  
Address-}

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, E.D., C.S.T., freight and insurance charges up to {.....} District,{.....} State and Type Test Charges etc., (exclusive of service tax), 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 is as given below.

	=====
Total	- Rs. <b>in value &amp; in words</b>
	=====

Yours sincerely,

For \_\_\_\_\_

**Name:**  
**Company:**  
**Date:**  
**Seal:**

(To be executed on Non- Judicial Stamp Paper for an appropriate value.  
To be stamped as an agreement)

(For Suppliers on Unit's / Division's PMD)

**ANNEXURE-II**

**Framework Confidentiality Agreement Cum Undertaking**

This Agreement made on this the \_\_\_\_\_ day of (month) \_\_\_\_\_ 20 \_\_\_\_ (“Effective Date”) by and between M/s. BHARAT HEAVY ELECTRICALS LIMITED, having registered office at “BHEL House”, Siri Fort, New Delhi – 110049 (India), acting through its \_\_\_\_\_ Unit (hereinafter may be referred to as “BHEL” or “the company”).

And

M/s. \_\_\_\_\_ (address) \_\_\_\_\_  
represented by authorized representative Sri \_\_\_\_\_ (herein after referred to as the “Supplier”).

The supplier and the company may, unless the context otherwise requires, hereinafter be collectively referred to as “Parties” or singly as the “Party”.

**RECITALS**

Whereas, BHEL is engaged in the design, engineering, manufacturing, construction, testing, commissioning and servicing of a wide range of products, systems and services for the core sectors of the economy, viz. Power, Transmission, Industry, Transportation, Renewable energy, Oil & Gas and Defence and providing associated services to varied customers in relation to which BHEL / its affiliates own valuable information of a secret and confidential nature.

Whereas the Company may, in connection with contract(s) (as defined hereunder) placed or to be placed upon the supplier, or otherwise, from time to time, make available, Technical Information as is defined hereunder.

And Whereas BHEL is willing to provide such Technical Information to the Supplier from time to time and the Supplier understands and acknowledges that such Technical Information is valuable for the Company and as such is willing to protect confidentiality of such information, subject to the terms and conditions set out hereunder.

Now therefore, in view of the foregoing premises and in consideration of the mutual covenants and agreements hereinafter set forth, the parties agree as under:

**1. Definitions:**

Unless the context so requires, in this Agreement, the following terms will bear the meaning ascribed to the said term in this clause.

- A. **“Contract”** means the contract entered into with a supplier and includes a Purchase Order, or a Work Order for procurement of any goods or for provision of any services.
- B. **“Effective Date”** means the date of this Agreement as mentioned in the preamble of this Agreement.
- C. **“Supplier”** includes a Contractor or a Vendor of the Company whether for supplying of goods or for providing any services under a Contract or both.
- D. **“Technical Information”** includes Drawings, and / or Product Standards and / or Specifications and / or Corporate / Plant Specifications and / or Technological Process Sheets and / or Technical Data Sheets and / or Jigs & Fixtures and / or Pattern & Dies and / or Special Gauges and / or Tools etc. Belonging to or wherein the Company has acquired from a third party a right of user and includes any improvement thereto from time to time whether carried out by the Company or by the Suppliers.
- E. **“Intended Purpose”** means the purpose for which the Technical Information is provided to the supplier under or in connection with a contract.
- F. **“Improvement”** includes any modification made to, or adaptation of, the Technical Information which enhances or is calculated to enhance the performance (Whether in terms of effectiveness or in terms of efficiency or both) of the product and / or the service to be provided by the Supplier under a Contract.

2. This Agreement shall come into force / deemed to have come into force, as the case may be, on the Effective Date; or, on the first date when the Technical Information or any part thereof is provided by BHEL to the supplier; whichever is earlier.

3. **Agreement deemed to be incorporated in each contract:** Unless and to the extent otherwise stipulated in the Contract, the conditions of this Agreement are deemed to be incorporated in all Contracts which may be entered into between the Company and the Supplier. Further, unless otherwise stipulated, the obligations under this Agreement are and will be independent of the obligations under the Contracts and such obligations of the Supplier hereunder will remain of full effect and validity notwithstanding that the period of validity of the Contract has expired by efflux of time stipulated therein; or, the contract has been discharged by performance or breach; or, the termination of the Contracts for any reason whatsoever.

#### 4. **Ownership:**

4.1 The Company may, from time to time, make available to the Supplier, Technical Information on a non-exclusive basis by way of loan.

4.2 The Supplier acknowledges and agrees that all Technical Information and copies thereof that are or may be provided by the Company to the Supplier, are and shall remain the property of

BHEL or that of the concerned entity from whom BHEL has obtained the Technical Information and such Technical Information are and shall constitute trade secrets of the BHEL. Nothing in this Agreement or in any disclosures made hereunder by or on behalf of the Company shall be construed as granting upon the Supplier any patent, copyright or design or any other intellectual property rights of whatsoever description that subsists or may hereinafter exist in the Technical Information. Furthermore, nothing in this Agreement or in any disclosures made hereunder by or on behalf of the Company shall be construed as granting upon the supplier any license or right of use of such patent, copyright or design or any other intellectual property rights of whatsoever description which may now or hereafter exist in the Technical Information except for use of the Technical Information strictly in accordance with this Agreement and the contract and / or as directed in writing by the Company, solely for the Intended Purpose under the Contract.

4.3 Neither party is obligated by or under this Agreement to purchase from or provide to the other party any service or product and that any such purchase / sale of any product and / or service by one party to the other party will be governed by the Contract if any, that may be entered into by and between the Company and the Supplier.

4.4 The Supplier is / has been made well aware and acknowledges that the Technical Information being / which may be shared with it by the Company has been either generated by the Company by incurring huge investment and cost or obtained from foreign collaborators under Technical Collaboration Agreement (TCA) with stringent confidentiality conditions.

4.5 The supplier agrees and undertakes to adhere to confidentiality requirements as applicable to BHEL under a TCA and also ensure that the confidentiality requirements are adhered to by all its concerned employees or sub-contractors /suppliers (where permitted to be engaged by BHEL). Any damages, losses, expenses of any description whatsoever, arising out of or in connection with a breach of the confidentiality requirements under a TCA owing to any act or omission on the part of the supplier or its employees or sub-contractors / suppliers that is claimed by a foreign collaborator from the Company shall be wholly borne by the Supplier and it shall keep BHEL fully indemnified in this behalf. The demand by the Company shall be conclusive upon the Supplier who shall thereupon forthwith pay to the Company without demur, dispute or delay the amount as demanded without demanding any further proof thereof.

4.6 The Supplier agrees and undertakes that unless so decided and advised by the Company in writing all rights / title to any Improvement to the Technical Information shall vest in the Company. The Supplier undertakes and agrees to inform forthwith to the Company of any such Improvement made to the Technical Information and transfer all drawings / documents or other materials connected with such Improvement to the Company and also agrees to fully cooperate with the Company for protecting the Company's interests in such Improvements

in the Technical Information including but not limited to obtaining necessary protection for the intellectual property rights in such improvement, if so desired by the Company. If a question arises whether a modification amounts to improvement to the Technical Information, the same shall be decided by the Company and such decision shall be final and binding upon the supplier.

## **5. Use and Non – Disclosure:**

5.1 Unless otherwise stipulated by the Company, all Technical Information made available to the supplier, by the Company shall be treated as Confidential irrespective of whether the same is marked or otherwise denoted to be Confidential or not.

5.2 The Supplier undertakes and agrees that the Technical Information in its possession shall be held in strict confidence and will be used strictly in accordance with this Agreement and solely for the Intended Purpose under the Contract. Use of the Technical Information for any other purpose other than Intended Purpose is prohibited.

5.3 In particular, the Supplier shall not use Technical Information or any Improvement in its possession for the manufacture or procurement of the product(s) or components or parts thereof or use the Technical Information or any portion thereof or any modification or adaptation thereof in any form to provide any product and / or service to any third party, without the prior written consent of the Company.

5.4 The Supplier shall not disclose any of such Technical Information to any third party without the prior written consent of the Company. The Supplier agrees that without prior written consent of the Company, the supplier shall not disclose to a third party about the existence of this Agreement, or of the fact that it is / was in possession of or has experience in the use of any Technical Information nor shall the Supplier share in any manner whatsoever, with a third party, the name or details of any Contract(s) awarded by the Company to it or performed by the Supplier or the scope of work thereof or share any document or correspondence by and between the Company and the supplier in or in connection with this Agreement or such Contract(s). Notwithstanding what is stated elsewhere, the overall responsibility of any breach of the confidentiality provisions under this Agreement shall rest with the Supplier.

5.5 This Supplier undertakes and agrees not to make copies or extracts of and not to disclose to other any or all of the Technical Information in its possession, except as follows:

(a) The Supplier may disclose the Technical Information to such of its officers and employees strictly to the extent as is necessary for such officer or employee for the Intended Purpose, provided that the Confidential Information (or copies thereof) disclosed shall be marked

clearly as the confidential and proprietary information of Company and that such officers and employees shall similarly be bound by undertakings of confidence, restricted use and non-disclosure in respect of the Technical Information. The Supplier shall be responsible for any breach of such confidentiality provisions by such officers and employees.

- (b) With the prior written consent of Company, the supplier may disclose for the Intended Purpose such Technical Information as is provided for in such consent to such of its professional advisers: consultants, insurers and subcontractors who shall be similarly bound by undertakings of confidence, restricted use and non-disclosure in respect of such Technical Information.
- (c) The Supplier shall not be prevented to make any disclosure required by (i) order of a court of competent jurisdiction or (ii) any competent regulatory authority or agency where such disclosure is required by law, provided that where the supplier intends to make such disclosure, it shall first consult Company and take all reasonable steps requested by it to minimize the extent of the Technical Information disclosed and to make such disclosure in confidence and also shall cooperate with the Company in seeking any protective order or any other remedy from proper authority in this matter.

## **6. Exceptions:**

The Obligations of the Supplier pursuant to the provisions of this agreement shall not apply to any Confidential Information that:

- a) was / is known to, or in the possession of the Supplier prior to disclosure thereof by the Company;
- b) is or becomes publicly known, otherwise than as a result of a breach of this agreement by the Supplier.
- c) is developed independently of the Disclosing party by the Supplier in circumstances that do not amount to a breach of the provisions of this Agreement or the Contract;
- d) is received from a third party in circumstances that do not result in a breach of the provisions of this Agreement.

- 7. The Obligation of maintaining confidentiality of the Technical Information on each occasion, shall subsist for the entire duration during which the Technical Information / equipment is in possession of the Supplier and shall thereafter subsist for a further period of \_\_\_\_\_ years from the date when the complete Technical Information has been returned in portions on different dates, the period of \_\_\_\_ years will be reckoned from the date when the last portion of the Technical Information has been returned. Notwithstanding the expiry of the confidentiality obligation, the obligation of the Supplier under clause 5.4 shall continue to subsist for a further period of \_\_\_\_\_ years.

## **8. Warranties & Undertakings:**

- a) The Supplier undertakes to ensure the due observance of the undertakings of confidence, restricted use and non-disclosure by its persons to whom it discloses or releases copies or extracts of the Technical Information.
- b) The Supplier shall keep the Technical Information or improvement made therein properly segregated and not mix up the same with any other material / documents belonging to him / it or to any other third party.
- c) The Supplier further undertakes that he / it shall not hypothecate or give on lease or otherwise alienate or do away with any of the Technical Information and / or equipment of the Company, made available to him / it, and undertakes that he / it shall hold the same as a trustee, in capacity of custodian thereof and use / utilise the same solely for the purpose of executing the contract awarded by the Company.
- d) The Supplier further undertakes that he / it shall return all the equipment and / or Technical Information as far as practicable in the same condition in which the same was made available to him / it by the Company together with any Improvement thereon and the documents connected with such Improvement, to the Company forthwith upon completion of the scope of work or contract for which such Technical Information was provided by the Company to it or as directed by the Company together with a confirmation by way of an affidavit or in such manner as directed by the Company that it has not retained any equipment and / or Technical Information / improvement thereof. In case any such equipment and / or Technical Information or thereof shall remain in his possession or is not capable of being returned, the retention and use of such Technical Information or improvement thereto shall continue to be governed by this Agreement.
- e) The Supplier undertakes to indemnify the Company for all the direct, indirect and / or consequential losses, damages, expenses whatsoever including any consequential loss of business, profits suffered by the Company owing to breach by the Supplier of its obligations under this Agreement and / or the confidentiality requirements, if any, contained in the Contract and that the Supplier hereby agrees that the decision of the Company in all such or any such matter/s shall be final and binding on the Supplier. On mere written demand of the Company, the Supplier shall forthwith and without demur or delay pay to the Company any such sum as determined by the Company as the amount of loss or damage or expense which has been suffered by the Company. The Supplier agrees that the Company shall be entitled to withhold and appropriate any amount payable to the Supplier under any Contract then existing between the Company and the Supplier, in case the Supplier fails to make payment, in terms of the written demand, within 7 days thereof. Without prejudice to the forgoing actions, in respect to any breach of this Agreement, the Company shall be entitled to take

any other action against the Supplier as per applicable laws, the Contract, Company's applicable policies, guidelines rules, procedures, etc.

9. Without prejudice to any other mode of recovery as may be available to the Company for recovery of the amount determined as due as per Clause 9 (f) hereinabove, the Company shall have a right to withhold, recovery and appropriate the amount due towards such losses, damages, expenses, from any amount due to the Supplier in respect of any other Contract (s) placed on him / it by any department / office / unit/ division of the said Company.

#### **10. Arbitration & Conciliation:**

1. Except as provided elsewhere in this contract, in case amicable settlement is not reached between the parties, in respect of any dispute or difference; arising out of the formation, breach, termination, validity or execution of the contract; or, the respective rights and liabilities of the parties; or, in relation to interpretation of any provision of the contract; or, in any manner touching upon the contract, then, either party may, by a notice in writing to the other party refer such dispute or difference to the sole arbitration of an arbitrator appointed by head of the BHEL unit issuing the contract.

The Arbitrator shall pass a reasoned award and the award of the Arbitrator shall be final and binding upon the parties.

Subject as aforesaid, the provisions of Arbitration and Conciliation Act 1996 (India) or statutory modifications or re-enactments thereof and the rules made thereunder and for the time being in force shall apply to the arbitration proceedings under this clause, the seat of arbitration shall be at Hyderabad.

The cost of arbitration shall be borne as per the award of the Arbitrator.

Subject to the arbitration in terms of clause 55, the courts at Sangareddy, Telangana State shall have exclusive jurisdiction over any matter arising out of or in connection with this contract.

Notwithstanding the existence or any dispute or differences and / or reference for the arbitration, the contractor shall proceed with and continue without hindrance the performance of its obligations under this contract with due diligence and expedition in a professional manner except where the contract has been terminated by either party in terms of this contract.

#### **In case of contract with Public Sector Enterprise (PSE) or a Government Department, the following shall be applicable:**

In the event of any dispute or difference relating to the interpretation and application of the provisions of the contract, such dispute or difference shall be referred by either party for arbitration to the sole arbitrator in the Department of Public Enterprises to be nominated by the secretary to the Government of India in-charge of the Department of Public Enterprises. The Arbitration and Conciliation Act, 1996 shall not be applicable to arbitration under this clause. The award of the arbitrator shall be binding upon the parties to the dispute, provided, however, any party aggrieved by such award may make further reference for setting aside or revision of the award to the Law Secretary, Department of Legal Affairs, Ministry of Law and

justice, Government of India. Upon such reference the dispute shall be decided by the Law secretary or the special Secretary or Additional secretary when so authorized by the Law secretary, whose decision shall bind the parties hereto finally and conclusively. The parties to the dispute will share equally the cost of arbitration as intimated by the arbitrator.

2. INTEREST CLAUSE:

In order to bring uniformity in all the contracts / agreements entered between BHEL and its contractors / vendors / suppliers / service providers etc., it is hereby advised to incorporate the following clause in all tenders and agreements.

**“No interest shall be payable by BHEL on earnest money or security deposit or any money due to the contractor by BHEL.”**

**11. Governing Law & Jurisdiction:**

This agreement shall be construed and interpreted in accordance with the laws of India and shall have exclusive jurisdiction of Sangareddy/Hyderabad courts, Telangana, India.

**SIGNATURE**

**WITNESSES**

**1**

**Name:**

**Address:**

**2**

**Name:**

**Address:**



HY/ FIN/CM/ 2017-18

DATE: 08/06/2017


**BANK ACCOUNT DATA FOR RTGS/NEFT MODE OF PAYMENT**

1. Party Code

2. Option : RTGS/NEFT

**3. Beneficiary Details:**

A) Name of Beneficiary : BHARAT HEAVY ELECTRICALS LIMITED  
B) Address : RAMACHANDRAPURAM, HYDERABAD- 502032.  
C) Bank Name : STATE BANK OF INDIA  
D) BRANCH NAME : BHELTOWNSHIP, HYDERABAD- 502032.  
E) Account No. : 62048154115  
F) Account type : Current A/c  
G) Bank IFSC Code : SBIN0020075  
H) Bank MICR Code : 500002370

Signature of Party :   
Name : (D.SRINIVASA RAO)  
Designation : Sr. Accounts Officer/Cash Mgmt.

डी. श्रीनिवास राव  
D. SRINIVASA RAO  
सुपरीक लेखा अधिकारी/ वित्त एवम लेखा  
Officer/ Finance & Accounts  
बी.एच.ई.एल. हैदराबाद BHEL, HYD-32

**TO WHOM SO EVER IT MAY CONCERN**

*Certified that the above particulars are found to be correct and matching with our records in respect of the above Beneficiary. This account is utilized for the purpose of collections through **RTGS /NEFT** only and the account is not having a valid **Cheque Facility**.*

(Signature of the Bank Manager)  
Seal of Bank:



**PROFORMA OF BANK GUARANTEE (in lieu of SECURITY DEPOSIT)**

In consideration of Bharat Heavy Electricals Limited (hereinafter referred to as the 'Employer' which expression shall unless repugnant to the context or meaning thereof, include its successors and permitted assigns) incorporated under the Companies Act, 1956 and having its registered office at \_\_\_\_\_<sup>1</sup> through its Unit at.....(name of the Unit) having agreed to exempt (Name of the Vendor / Contractor / Vendors) with its registered office at \_\_\_\_\_<sup>2</sup> (hereinafter called the said "Contractor" which term includes vendors), from demand under the terms and conditions of the Contract reference No. \_\_\_\_\_ dated \_\_\_\_\_<sup>3</sup> valued at Rs. ....<sup>4</sup> ( Rupees \_\_\_\_\_)<sup>4</sup> (hereinafter called the said Contract), of Security Deposit for the due fulfilment by the said Contractor of the terms and conditions contained in the said Contract, on production of a Bank Guarantee for Rs. \_\_\_\_\_<sup>5</sup> (Rupees \_\_\_\_\_ only),

we \_\_\_\_\_ (indicate the name and address of the Bank) having its Head Office at \_\_\_\_\_ (address of the head Office) (hereinafter referred to as the Bank), , at the request of \_\_\_\_\_ [Contractor(s)], being the Guarantor under this Guarantee, do hereby irrevocably and unconditionally undertake to forthwith and immediately pay to the Employer, , an amount not exceeding Rs. \_\_\_\_\_ without any demur, immediately on demand from the Employer and without any reservation, protest, and recourse and without the Employer needing to prove or demonstrate reasons for its such demand

Any such demand made on the bank, shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. \_\_\_\_\_.

We undertake to pay to the Employer any money so demanded notwithstanding any dispute or disputes raised by the Contractor(s) in any suit or proceeding pending before any Court or Tribunal or Arbitrator or any other authority, our liability under this present being absolute and unequivocal.

The payment so made by us under this guarantee shall be a valid discharge of our liability for payment hereunder and the Contractor(s) shall have no claim against us for making such payment.

We, further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Contract and that it shall continue to be enforceable till all the dues of the Employer under or by virtue of the said Contract have been fully paid and its claims satisfied & the Employer certifies that the terms and conditions of the said Contract have been fully and properly carried out by the said contractor(s) or acceptance of the final bill or discharge of this guarantee by the Employer, whichever is earlier. This guarantee shall initially remain in force upto and including \_\_\_\_\_<sup>6</sup> and shall be extended from time to time for such period as may be desired by the Employer. Unless a demand or claim under this guarantee

is made on us in writing on or before the \_\_\_\_\_<sup>7</sup>, we shall be discharged from all the liability under this guarantee thereafter.

We, \_\_\_\_\_ (indicate the name of the Bank) further agree with the Employer that the Employer shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Contract or to extend time of performance by the said contractor(s) from time to time or to postpone for any time or from time to time any of the powers exercisable by the Employer against the said contractor(s) and to forbear or enforce any of the terms and conditions relating to the said Contract and we shall not be relieved from our liability by any reason of any such variation or extension being granted to the said contractor(s) or for any forbearance, act or omission on the part of the Employer or any indulgence by the Employer to the said contractor(s) or by any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so relieving us.

The Bank also agrees that the Employer at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor, in the first instance without proceeding against the Contractor and notwithstanding any security or other guarantee that the Employer may have in relation to the Contractor's liabilities.

This Guarantee shall not be determined or affected by liquidation or winding up, dissolution or change of constitution or insolvency of the Contractor but shall in all respects and for all purposes be binding and operative until payment of all money payable to the Employer in terms thereof. This guarantee will not be discharged due to the change in the constitution of the Bank or the Contractor(s).

We,..... BANK lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Employer in writing.

Notwithstanding anything to the contrary contained hereinabove:

- a) The liability of the Bank under this Guarantee shall not exceed.....<sup>5</sup>
- b) This Guarantee shall be valid up to .....<sup>6</sup>
- c) Unless the Bank is served a written claim or demand on or before \_\_\_\_\_<sup>7</sup> all rights under this guarantee shall be forfeited and the Bank shall be relieved and discharged from all liabilities under this guarantee irrespective of whether or not the original bank guarantee is returned to the Bank.

We, \_\_\_\_\_ Bank, have power to issue this Guarantee under law and the undersigned as a duly authorized person has full powers to sign this Guarantee on behalf of the Bank.

Date \_\_\_\_\_ Day of \_\_\_\_\_

for \_\_\_\_\_ (indicate the name of the Bank)

(Signature of Authorised signatory)

## BANK GUARANTEE FOR PERFORMANCE SECURITY

Bank Guarantee No:

Date:

To  
NAME  
& ADDRESSES OF THE BENEFICIARY

Dear Sirs,

In consideration of Bharat Heavy Electricals Limited (hereinafter referred to as the 'Employer' which expression shall unless repugnant to the context or meaning thereof, include its successors and permitted assigns) incorporated under the Companies Act, 1956 and having its registered office at \_\_\_\_\_<sup>1</sup> through its Unit at.....(name of the Unit) having awarded to (Name of the Vendor / Contractor / Supplier) with its registered office at \_\_\_\_\_<sup>2</sup> hereinafter referred to as the 'Vendor / Contractor / Supplier', which expression shall unless repugnant to the context or meaning thereof, include its successors and permitted assigns), a contract Ref No.....dated .....<sup>3</sup> valued at Rs.....<sup>4</sup> ( Rupees -----) /FC.....(in words.....) for .....<sup>5</sup> (hereinafter called the 'Contract') and the Vendor / Contractor / Supplier having agreed to provide a Contract Performance Bank Guarantee, equivalent to .....% (.... Percent) of the said value of the Contract to the Employer for the faithful performance of the Contract,

we, ....., (hereinafter referred to as the Bank), having registered/Head office at ..... and inter alia a branch at ..... being the Guarantor under this Guarantee, hereby, irrevocably and unconditionally undertake to forthwith and immediately pay to the Employer any sum or sums upto a maximum amount of Rs – .....<sup>5</sup> ( Rupees -----) without any demur, immediately on first demand from the Employer and without any reservation, protest, and recourse and without the Employer needing to prove or demonstrate reasons for its such demand.

Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. \_\_\_\_\_.

We undertake to pay to the Employer any money so demanded notwithstanding any dispute or disputes raised by the Vendor / Contractor / Supplier in any suit or proceeding pending before any Court or Tribunal, Arbitrator or any other authority, our liability under this present being absolute and unequivocal.

The payment so made by us under this Guarantee shall be a valid discharge of our liability for payment thereunder and the Vendor / Contractor / Supplier shall have no claim against us for making such payment.

We the .....bank further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Contract/satisfactory completion of the performance guarantee period as per the terms of the Contract and that it shall continue to be enforceable till

all the dues of the Employer under or by virtue of the said Contract have been fully paid and its claims satisfied or discharged.

We .....BANK further agree with the Employer that the Employer shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Contract or to extend time of performance by the said Vendor / Contractor / Supplier from time to time or to postpone for any time or from time to time any of the powers exercisable by the Employer against the said Vendor / Contractor / Supplier and to forbear or enforce any of the terms and conditions relating to the said Contract and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Vendor / Contractor / Supplier or for any forbearance, act or omission on the part of the Employer or any indulgence by the Employer to the said Vendor / Contractor / Supplier or by any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so relieving us.

The Bank also agrees that the Employer at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor, in the first instance without proceeding against the Vendor / Contractor / Supplier and notwithstanding any security or other guarantee that the Employer may have in relation to the Vendor / Contractor / Supplier 's liabilities.

This Guarantee shall remain in force upto and including.....<sup>7</sup> and shall be extended from time to time for such period as may be desired by Employer.

This Guarantee shall not be determined or affected by liquidation or winding up, dissolution or change of constitution or insolvency of the Vendor / Contractor / Supplier but shall in all respects and for all purposes be binding and operative until payment of all money payable to the Employer in terms thereof.

Unless a demand or claim under this guarantee is made on us in writing on or before the .....<sup>8</sup>we shall be discharged from all liabilities under this guarantee thereafter.

We, ..... BANK lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Employer in writing.

Notwithstanding anything to the contrary contained hereinabove:

- a) The liability of the Bank under this Guarantee shall not exceed.....<sup>6</sup>
- b) This Guarantee shall be valid up to .....<sup>7</sup>
- c) Unless the Bank is served a written claim or demand on or before .....<sup>8</sup> all rights under this guarantee shall be forfeited and the Bank shall be relieved and discharged from all liabilities under this guarantee irrespective of whether or not the original bank guarantee is returned to the Bank.

We, \_\_\_\_\_ Bank, have power to issue this Guarantee under law and the undersigned as a duly authorized person has full powers to sign this Guarantee on behalf of the Bank.

For and on behalf of  
(Name of the Bank)

Dated.....

Place of Issue.....