

BHARAT HEAVY ELECTRICALS LIMITED TIRUCHIRAPALLI

CAPITAL PURCHASE

Annexure-A

ACCEPTANCE OF COMMERCIAL TERMS AND CONDITIONS BY THE INDIGENOUS VENDORS.

(This should be essentially filled in and sent along with the techno-commercial offer without fail. If this check list is not filled and submitted along with techno-commercial offer (Part I) or if the vendor does not confirm acceptance to the terms and conditions proposed, BHEL reserves the right to reject such offer)

CHECK-LIST FOR INDIAN VENDORS

Sl. No.	DESCRIPTION
1.	❖ The Bidders shall submit their offer through E-Procurement website only www.bheleps.buyjunction.in. ❖ <u>Part I - Technical and Commercial Bid</u>: This should contain all the copies of technical bid together with un-priced commercial bid. ❖ <u>Part II - Price Bid</u>: This part should contain the schedule of price particulars and must be co-related to the technical details provided in Part I. Offers will be accepted & received till 14.00 Hr. on the due date. Therefore Vendors shall ensure to submit the offers before this time. Late offers will not be considered. Bidders are requested to refer to attached “DSC Guidelines” & “e Proc Vendor Communication” for submission of tender through EPS. Offers should be in ENGLISH and accompanied by detailed technical literature, catalogue and detailed dimensional drawings in ENGLISH or otherwise, the offers will not be considered. In case of necessity BHEL reserves the right to go for a reverse auction (RA) instead of opening the submitted sealed bid, which will be decided after technical evaluation. Information and general terms and conditions covering RA are given in this Annexure- A (Point No.19).
2.	<u>OPENING OF TENDERS:</u> The Part I - Technical & commercial bid alone would be opened on the Tender opening date through EPS. The Part II - Price bid of technically suitable Bidders alone would be opened through EPS. The Technically Suitable Bidders would be informed about the Price Bid opening date through e-mail / EPS. Clarifications if any required by BHEL for Technical evaluation would be sought from bidders before opening of Part II - Price bid.
3.	<u>Taxes and Duties</u> All Taxes and Duties payable as extra to the quoted price should be specifically stated in offers along with CST & TIN No / Tariff No. etc., failing which the purchaser will not be liable for payment of such Taxes and Duties. Our TIN No. 33243560005, TNGST No. 3560005, CST. No. 239383 Dt. 11-06-1991 & BHEL ECC No. AAACB4146PXM012, Service Tax Registration No (STC)- AAACB4146PST006. Assessment circle Tiruverambur.
4.	<u>Special Provisions for Micro and Small Enterprises (MSE)</u> 20% of the tendered quantity is earmarked for MSE suppliers in this tender. - Out of the 20% tendered quantity reserved for MSE suppliers, 4% shall be earmarked for procurement from MSE owned by SC/ST entrepreneurs. - In case MSE vendor participating in the tender quotes within the price band of L1+15%, they will be allowed to supply the portion of the requirement subject to acceptance of L1 price by MSE vendor. In case of more than one such MSE, the supply shall be shared proportionately. - MSE suppliers can avail the intended benefits only if they submit along with offer, attested copies of either EM II (Entrepreneur Memorandum Part II) certificate having deemed validity (five years from the date of issue of acknowledgement in EM II) or valid NSIC certificate or EM II certificate along with attested copy of a CA certificate (Format enclosed as per Annexure - C) applicable for the relevant financial year (latest audited), certifying quantum of investment in plant and machinery within the permissible limit as per the act for relevant status (Micro or small) where the deemed validity of EM II is over. Date to be reckoned for determining the deemed validity will be the last date of technical bid submission. Offer/s received without these documents will lead to consideration of their offer at par with other bidders and MSE status of such suppliers shall be shifted to Non MSE supplier.

No row shall be left blank. Please indicate NA, in case the item is "Not Applicable"		Vendor's confirmation
5.	Validity: Validity of the offer should be 120 days from the date of tender opening.	
6.	Release of Purchase Order: - Purchase Orders will be released on successful L-1 vendor on single package basis. - Separate orders for supply & service will be released on the successful L-1 vendor. (Service order released only in the case of, Installation / erection / commissioning portion are applicable on tender scope & quoted separate charge for same by vendor).	
7.	Payment Terms for supply Portion: a) 80% of payment will be released after receipt & acceptance of supplied material. b) Balance 20% of payment will be released within 45-90 days after receipt, acceptance & commissioning of supply materials against submission of 10% PBG for a Warrantee period of 18 Months.	
	Installation & Commissioning Portion (if applicable only): 100% of the installation / commissioning charges (in case contract involves erection / installation / commissioning) shall be paid only on completion of such erection / commissioning at BHEL, Tiruchirapalli.	
	Any deviation in the above payment term will attract loading as mentioned below. "Base rate of SBI (as applicable on the date of bid opening. Techno commercial bid opening in case of two part bids) + 6% shall be considered for loading for the period of relaxation sought by bidders.	
8.	Performance Bank Guarantee (PBG): The bidder in the event of an order, should furnish a Bank Guarantee from an Indian Bank approved by BHEL, at no extra cost in a format prescribed by BHEL, along with the order, for an amount equivalent to 10% (Ten percent) of the value of the contract. The PBG shall be valid for a period of 18 months from the date of despatch or 12 months from the date of receipt / acceptance / commissioning of equipment at BHEL, Tiruchirapalli whichever is more, with a claim period of two months. The Performance Bank Guarantee shall be obtained from any one of the following banks which is a member bank in our consortium of Banks: List of Consortium Banks DEUTSCHE BANK, HDFC BANK, ANZ GRINDLAYS BANK, CITI BANK, STANDARD CHARTERED BANK, BANK OF AMERICA, ABN AMRO BANK, IDBI LTD, ICICI BANK LTD, THE HONGKONG & SHANGHAI BANKING CORPORATION LTD. List of Nationalised Banks ALLAHABAD BANK, ANDHRA BANK, BANK OF INDIA, BANK OF BARODA, BANK OF MAHARASTHRA, BHARAT OVERSEAS BANK, CANARA BANK, CENTRAL BANK OF INDIA, CORORATION BANK, DENA BANK, INDIAN BANK, INDIAN OVERSEAS BANK, ORIENTAL BANK OF COMMERCE, PUNJAB NATIONAL BANK, PUNJAB & SINDH BANK, STATE BANK OF INDIA, STATE BANK OF TRAVANCORE, STATE BANK OF MYSORE, STATE BANK OF BIKANER & JAIPUR, STATE BANK OF HYDERABAD, STATE BANK OF PATIALA, STATE BANK OF MAHARASTHRA, STATE BANK OF SOURASTHRA (SBI-13.09.08), SYNDICATE BANK, UCO BANK, UNION BANK OF INDIA, UNITED BANK INDIA, VIJAYA BANK. <u>If PBG is issued by foreign counter part of the BHEL consortium Indian Bank, in case of claim against the PBG, it will be lodge in any one of the Indian counters of the Foreign Bank which issued the PBG.</u>	
9.	Liquidated Damages (LD): The delivery of the goods specified in the purchase order should be made within the time prescribed. LD for delay in 'Supply' and/or 'E&C' will be applicable to the delays attributed to vendor. LD will be considered separately for 'Delivery' and 'E&C'. Where the seller supplies or dispatches the goods, beyond the delivery period Liquidated damages shall be applicable 0.5% of the total order value per week or part thereof subject to a maximum of 10% of the total order value. Detail of LD mode are shown below Single Delivery Date (Material Dispatched after Due date) Once the delivery due date is crossed, bills have to be clubbed till final despatch and forwarded for processing of payment as a single bunch. LD percentage will be calculated from Delivery due date to final despatch date. (100% Order should be completed for processing the bill) Staggered Delivery LD shall be 0.5% of the undelivered portion per week of the delay or part thereof subject to a maximum of 10% of the total order value. PO Pending value (each Bill Value) up to Max 10 % of Total PO value) Any deviation from the above LD clause, loading will be applied to the extent to which it is not agreed by the bidder (at offered value).For the purpose of Imposing LD, the FOB delivery (B/L date) shall be considered. Bidder should indicate the LD mode (single delivery or staggered delivery) on the confirmation column, otherwise single delivery date will be considered for further evaluation	
10.	Risk Purchase: Alternatively the purchaser at his option will be entitled to terminate the contract and to purchase elsewhere at the risk and cost of the seller either the whole of the goods or any part which the supplier has failed to deliver or despatch within the time stipulated as aforesaid or if the same were not available from the best and the nearest available substitute. The supplier shall be liable for any loss which the Purchaser may sustain by reason of such risk purchases.	
11.	Delivery Terms and evaluation process: Indian Bidders should submit their offer for FOR-BHEL, Tiruchirapalli basis . Packing & Forwarding and Freight & Insurance charges from works to BHEL, Tiruchirapalli to be indicated separately if extra from basic rate. Applicable % of GST, GSTIN No. & HSN Code should be clearly indicated. Evaluation of offers shall be on the basis of delivered cost (Net cash outflow to BHEL-Trichy).	

12.	Guarantee: Vendors shall provide a guarantee for a period of 12 months from the date of commissioning of the equipment or 18 months from date of supply, whichever is earlier. The date of B/L or AWB shall be taken as the date of supply. <u>Offers from vendors not accepting the requested guarantee period will be rejected.</u>	
13.	Short shipment / Warranty replacement: In case of any short shipment in the main equipment / spares, customs duty levied on such supplies, shall be borne by the supplier. Any warranty replacement during the warrantee period shall be on FOR-BHEL, Tiruchirappalli basis.	
14.	Inspection & Testing: All goods shall be subject to inspection by BHEL or its authorized representatives at supplier's works or at BHEL stores or at any other place in India indicated by BHEL as the case may be. The supplier will not charge for the facilities provided for inspection of goods. In case of machine tools, the machine would be inspected and proved at supplier's works prior to dispatch however, final inspection and acceptance of the machine will be carried after installation of the machine at BHEL, Tiruchirappalli.	
15.	Test certificates / Operating and Maintenance manuals : The Bidders shall clearly mention in their offer, that Test Certificates and Operating Maintenance Manuals, etc., as called for in the Technical Specification, in the required number of copies will be provided at no extra cost.	
16.	Payment through Bank is not preferred. In case of Payment through Bank is opted by Supplier, BHEL prefers documents submission through bank with copy of LR and door delivery of Goods to Site/Stores with Consignee copy attached. In this case Loading will be 3% on the offered value. Offers of indigenous Suppliers with payment terms as LC/Advance Payment are liable for rejection.	
17.	BHEL will consider the ranking after the loading is applied as referred above wherever deviations are observed.	
18.	If offers are received from both OEM/ Manufacturer and authorized Dealer or Agent, then offer submitted by OEM/ Manufacturer will only be considered, offer of Dealer or Agent will be ignored.	
19.	Reverse Auction (RA): 1. BHEL reserves the right to go for Reverse Auction (RA) (Guidelines as available on www.bhel.com) instead of opening the sealed envelope price bid, submitted by the bidder. This will be decided after techno-commercial evaluation. Bidders to give their acceptance with the offer for participation in RA. Non-acceptance to participate in RA may result in non-consideration of their bids, in case BHEL decides to go for RA. Techno-commercially acceptable Bidders shall only be eligible to participate in the Reverse Auction. 2. Those bidders who have given their acceptance to participate in Reverse Auction will have to necessarily submit 'Process compliance form' (to the designated service provider) as well as 'Online sealed bid' in the Reverse Auction. Non-submission of 'Process compliance form' or 'Online sealed bid' by the agreed bidder(s) will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines for suspension of business dealings with suppliers/ contractors (as available on www.bhel.com). 3. The bidders have to necessarily submit online sealed bid less than or equal to their envelope sealed price bid already submitted to BHEL along with the offer. The envelope sealed price bid of successful L1 bidder in RA, if conducted, shall also be opened after RA and the order will be placed on lower of the two bids (RA closing price & envelope sealed price) thus obtained. The bidder having submitted this offer specifically agrees to this condition and undertakes to execute the contract on thus awarded rates. 4. If it is found that L1 bidder has quoted higher in online sealed bid in comparison to envelope sealed bid for any item(s), the bidder will be issued a warning letter to this effect. However, if the same bidder again defaults on this count in any subsequent tender in the unit, it will be considered as fraud and will invite action by BHEL as per extant guidelines for suspension of business dealings with suppliers/ contractors (as available on www.bhel.com). 5. As a reminder to the bidders, system will flash following message (in RED Colour) during the course of 'online sealed bid' - "Bidders to submit online sealed bid less than or equal to their envelope sealed bid already submitted to BHEL". 6. BHEL shall engage the services of a Service Provider, who shall extend all necessary training and assistance before commencement of ON-LINE-BIDDING through Internet, at NO extra-cost to the Bidders. Eligible Bidders shall be informed in writing, about the details of Service Provider, to enable Vendors to contact the Service Provider and get trained. Event Date, Time, Start Price, Bid Decrement, Time-Extensions, etc. shall also be communicated through the Service Provider for compliance by Bidders. 7. BHEL shall provide the calculation sheet through the Service Provider, which shall be helpful to arrive at "TOTAL COST to BHEL", like Packing and Forwarding Charges, Taxes and Duties, Freight Charges, Insurance, Service Tax and other loading factors (for non-compliance to BHEL Standard Commercial Terms and Conditions), for each of the Bidder, to enable them to fill in the price and keep it ready for inputting data during the RA. 8. Successful bidder shall be required to submit the final prices (L1) in prescribed format for price breakup including that of line items, if required, quoted during the Online Reverse Auction, duly signed and stamped as token of acceptance without any new condition to the Service Provider, within 2 working days of RA without fail. 9. 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). 10. If the Bidder or any of his representatives are found to be involved in Price manipulation / cartel formation of any kind, directly or indirectly by communicating with other bidders, action as per extant BHEL guidelines shall be initiated by BHEL and results of the RA scrapped / aborted. 11. In case BHEL decided to go for Reverse auction, the H-1 bidder(s) (whose quote is highest in the online sealed bid) may not be allowed to participate in further Reverse Auction.	
20.	ARBITRATION: All disputes or differences whatsoever which may arise at any time during execution of the Contract shall be mutually settled by BHEL and Contractor as per provision of the Contract. However, in the event such disputes cannot be settled mutually, such disputes shall be settled as per the Arbitration and reconciliation Act, 1996 of the Govt. of India and it's subsequent amendments. In case of disputes with the Central PSUs, the same shall be settled at Tiruchirappalli as per the Guidelines of the Govt. of India. However, during the period such disputes are settled either by mutual discussions between the parties or by legal means, Contractor shall continue to do the work as per terms & conditions of Contract.	

21.	➤ Point to point confirmation for the Technical Specification enclosed to be provided. If there are any deviations, the same should be clearly specified. Offers received without confirmation to our specifications will be liable for rejection. If needed additional sheets shall be used. ➤ Equipment offered shall be "New". Re-built / Re-conditioned / Used equipment's will not be accepted. Incomplete offers will not be considered for further processing. ➤ BHEL reserves its right to reject a tender due to unsatisfactory past performance in the execution of a contract at any of BHEL projects / units. ➤ BHEL shall be at liberty to reject or accept any tender, part or in full, at their own discretion and any such action is not liable for any question or claim against BHEL. ➤ The vendor shall provide necessary drawings, Test Certificates and Operating Maintenance Manuals etc., as called for in the Technical Specification, in the required number of copies at no extra cost ➤ The Supplier shall arrange for securely protecting and packing the stores to avoid loss or damages during transit.		
22.	Company Details & Contact		
	Full Address of the company for future correspondence / placing order. (Copy of address proof & PAN card shall be attached along with Part-I)		
	Company Email ID:	Phone No.:	
	Fax No	Pan No with copy	
	GSTIN No	HSN Code	
	Name of the contact person:	Mobile No.:	
	e-mail ID		
23.	TO BE CONFIRMED BY VENDOR		
	Country of origin:		
	Station of dispatch / Port Of Shipment		
	Delivery Terms: FOR Destination basis		
	Packing & Forwarding Charges in % or Lump sum, if extra from basic rate		
	% of GST		
	(If applicable only) Installation & Commissioning charge is inclusive (or) exclusive on basic rate.		
	GST % (Service Portion) extra or Not		
	Freight & Transit insurance charges (if any, in Lumpsum (or) percentage) from Dispatching station to BHEL Tiruchirappalli.		
24.	DELIVERY SCHEDULE: Supply Portion: Delivery schedule from the date of Letter of Intent / Purchase Order. (This should be inclusive of Order acceptance, drawing approval and time period required for receiving goods at BHEL Trichy etc.) Time period required for Installation / Erection & Commissioning from date of site clearance given by BHEL, Trichy.		
25.	Weight & Cubage of package: Approximate Net weight of the total consignment: Approximate Gross weight of the total consignment: Approximate volume of the total consignment:		
For any queries / clarifications the bidders may contact us through our FAX NO. +91 431 2520719 or through e-mail <akumar@bheltry.co.in>			

NOTE:-

- a) Your specific acceptances to our Payment terms, LD, Risk Purchase Clause are essential for consideration of your offer. Otherwise your offer is liable for rejection.
- b) No row shall be left blank. Please indicate NA, in case the item is "Not Applicable"

Declaration:-

We have gone through and understood the 'General guidelines & instructions to bidders for submitting offer' enclosed as a part of the Tender and confirm that our offer has been made in line with the same.

(AFFIX OFFICIAL SEAL HERE)

Signature with date:

Name:

Designation:

Department:

(Please Affix Your Signature with Seal on Each Page)

Certificate by Chartered Accountant

This is to Certify that M/s., hereinafter referred to as 'company') having its registered office at is registered under MSMED Act 2006, Entrepreneur Memorandum No (Part - II) dtd:....., Category :.....(Micro / Small)). (Copy enclosed).

Further verified from the Books of Accounts that the investment of the company as on date as per MSMED Act 2006 is as follows:

1. For Manufacturing Enterprises: Investment in plant and machinery (i.e. original cost excluding land and building and the items specified by the Ministry of Small Scale Industries vide its notification No.5.0.1722(E) dated October 5, 2006:

Rs.....Lacs

2. For Service Enterprises: Investment in equipment (original cost excluding land and building and furniture, fittings and other items not directly related to the service rendered or as may be notified under the MSMED Act, 2006:

Rs.....Lacs

The above investment of Rs..... Lacs is within permissible limit of Rs.....Lacs for Micro / Small (Strike off which is not applicable) Category under MSMED Act 2006.

Date:

(Signature)

Name -

Membership Number -

Seal of Chartered Accountant

Annexure-B**Bharat Heavy Electricals Limited TIRUCHIRAPPALLI/CAPITAL PURCHASE****MODEL PRICE BID FORMAT FOR INDIAN BIDDERS**

Enquiry No. & Date:

Bidder's Offer No. & Date:

Sl. No.	Description of item	Unit (Set / No.)	QTY.	Basic Rate per Qty. (in Rs.)	Total Value for full tender Qty. (in Rs.)	GST in %	Total Value in Rs. (Including all taxes & duties)
10	Supply Portion						
10.a	Installation and Commissioning Charges for Sl. No: 10 (if available in tender scope and exclusive from basic rate for supply portion)						
	Total Value in Words:						
	Packing & Forwarding charges (if any) in percentage (or) Lump sum						
	FOR Dispatching station value in Rs.						
	Percentage of Freight & Transit insurance charges, if any (Lump sum or %) from Dispatching station to HPBP-BHEL, Trichy.						
	Approximate Net weight of the total consignment						
	Approximate Gross weight of the total consignment						
	Approximate Dimensions of the Consignment						

Signature & Seal of Vendor

The price bid should be submitted only as per the above format. No row shall be left blank. Please indicate NA, in case the item is "Not Applicable".

Annexure - PART-A		
Supply, Fabrication, Erection and Commissioning of Forced Draft (FD) Fan Assembly of 2 x 6,500 Nm ³ /Hr capacity with VFD for High Temperature Furnace (HTF) in bay 3/50		
PRE QUALIFICATION CRITERIA		
S.No	Description	Vendor to confirm
1	Only ISO 9001 certified industrial fan manufacturers, who have experience and carried out the following activities specified in Sl.No.1.1,1.2,1.3 and submitting the requested documents are eligible to participate in the tender and further evaluation. If not meeting the qualifying criteria,the tender is liable for rejection:	
1.1	Vendors who have manufactured and supplied either Forced draft fan or Induced draft fan of capacity above 5,500 Nm³/Hr at a static pressure of 1000 mmwc and above , for industrial process application, to at least two companies in the past 05 years from the original date of tender opening; either (i) In at least one country other than the country of origin of the vendor to establish vendor's global business activity OR (ii) In India, and the referred machines are presently working satisfactorily for more than one year from the date of commissioning (as on the original date of tender opening), for which required purchase order copy (unpriced) is to be submitted along with the offer.	
1.2	The vendor should submit performance certificate as per annexure I; from minimum one customer for the satisfactory performance of the fan that is supplied against order submitted for the above Sl.No.1.1 in the customer's letter head.	
1.3	Self attested copy of the currently valid ISO 9001 certificate , obtained on the tender participating company's name and strictly pertaining to this tender related business activity shall be submitted along with the offer, else the offer shall be rejected.	
2	The vendor should submit the following details of the customer specified in the order submitted for the above Sl.No.1.1. a)Postal address of the customer,Name & Designation of the contact person of the customer. b)Phone number and email address of the contact person of the customer.	
3	BHEL will verify the above information provided by the bidder. In case the information provided by vendor is found to be false / incorrect, the offer shall be rejected.	
4	BHEL reserves the right to visit the vendor's works if required for verifying the manufacturing facilities and any other credential furnished by the vendor. In case the information furnished alongwith the offers is found to be false/incorrect, the offer shall be rejected.	

Asalwa
19.08.14

ABDUL SALEEM .
Maintenance Eng.
Maintenance & Services
BHEL, TRICHY - 620 014.

R. Mohan 19/6/17

R. MOHAN
Sr. Engineer
Maintenance & Services
BHEL, TRICHY - 620 014.

TECHNICAL SPECIFICATION FOR FORCED DRAFT (FD) FAN ASSEMBLY - 2 x 6500 Nm³/Hr CAPACITY

Annexure - PART-B				
Supply, Fabrication, Erection and Commissioning of Forced Draft (FD) Fan Assembly of 2 x 6,500 Nm ³ /Hr capacity with VFD for High Temperature Furnace (HTF) in bay 3/50				
Sl.No.	DESCRIPTION	BHEL SPECIFICATION	VENDOR'S OFFER	DEVIATIONS IF ANY
1	Specification of FD Fan:			
1.1	Design capacity	6,500 Nm ³ /Hr		
1.2	Rating/Service	Continuous operation (24 x 7)		
1.3	Operating Flow range	6,000 - 6500 Nm ³ /Hr (at discharge side)		
1.4	Working media	Air		
1.5	Working temperature	40 deg.C		
1.6	Outlet velocity	25 -28 m/s		
1.7	Operating Suction Pressure	Atmospheric		
1.8	Design static pressure	1300 mm water column (MMWC)		
1.9	Operating Static Pressure	1200 -1300 mm water column (MMWC)		
1.10	Suction control	Damper with 05 intermittent manual controls		
1.11	Discharge control	Damper with 05 intermittent manual controls		
1.12	Suction Position	To be observed during site visit		
1.13	Delivery position	To be observed during site visit		
1.14	Suction Silencer	Vendor to confirm		
1.15	Suction filter Efficiency	90 to 95 % down to 20 microns		
1.16	Delivery expansion bellows	Vendor to confirm		
1.17	Flow and Pressure Control	VFD Control		
1.18	Drive	Direct driven with foot mounted motor		
1.18	Material of construction for Forced Draft Fan:			
1.18.1	Casing	Vendor to specify		
1.18.2	Impeller	Vendor to specify		
1.18.3	Drive Shaft	Vendor to specify		
2	Specification of Electric Motor:			
2.1	Make of Motor	ABB/Siemens/Kirloskar/Crompton/Bharat Bijlee/Hindustan/NGEF/Alstom(Marathon)/Any other BHEL approved Makes		
2.2	General Description	Flame proof Squirrel cage type induction motor		

Asalm
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Maintenance Engineer
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19/6/17

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Sr. Engineer
Maintenance & Services
BHEL, TRICHY - 620 014.

TECHNICAL SPECIFICATION FOR FORCED DRAFT (FD) FAN ASSEMBLY - 2 x 100 Nm³/Hr CAPACITY

2.3	Energy Efficiency Class	Energy efficient motor - EFF1 or equivalent		
2.4	Duty Cycle	Continuous rating, S1		
2.5	Power rating	37kW or more - To be mentioned by vendor		
2.6	Rated Voltage and tolerance	415 V +/- 10% , 3 Ph AC		
2.7	Rated Frequency and tolerance	50 Hz , +/- 5%		
2.8	Type of Enclosure	Totally enclosed Fan Cooled (TEFC), IP 55 as per IS/IEC -60529 & Flameproof Ex-'d' as per IS/IEC -60079.		
2.9	Area of classification	Group IIA, IIB		
2.10	RPM	around 3000 rpm/2 pole motor		
2.11	Class of Insulation	Class F		
2.12	Motor Efficiency	To be mentioned by vendor		
3	Supply & Commissioning of Variable frequency drive with control panel for above Fan motor:			
3.1	Make	Mitsubishi / Yaskawa / Siemens / ABB / Danfoss / Any other BHEL approved Makes		
3.2	Rating	37kW or more - As required for above motor		
3.3	Duty Cycle	Continuous - S1 duty for fan application		
3.4	IP protection	Electrical control panel shall be of dust proof. (IP 64)		
3.5	Control panel	1. Electrical control panel shall be fully wired with suitable rating contactors with VFD, Analog Type Output RPM Meter, Lower/ Raise, ON/OFF & Fault reset push buttons. 2. Fluorescent tube light fittings or CFL fittings shall be provided inside the panels for sufficient illumination during maintenance. 3. A 230volt, 5 amps, 3 pin, flush type switched wall socket shall be provided in the panel. 4. Suitable rating of Control transformer for 230V and 24V power supply. 5. Suitable panel Air cooler for panel shall be provided. 6. The complete electrical shall be designed to suit 3 phase, 3 wire system (No neutral connection). 7. MCCB of suitable rating for incoming supply, MCBs for control circuits and MPCBs at incoming supply for protection of motor.		

Asad
19.06.17
ABDUL SALEEM KOTALKARA
Maintenance Engineer
Maintenance & Services
BHEL, TRICHY - 620 014.

R. Mohan
19/6/17

R. MOHAN
Sr. Engineer
Maintenance & Services
BHEL, TRICHY - 620 014.

TECHNICAL SPECIFICATION FOR FORCED DRAFT (FD) FAN ASSEMBLY - 2 x 6,00 Nm³/Hr CAPACITY

3.6	Features	It shall be Microprocessor based Digital Control System with following protection: 1. Electronic thermal over load. 2. Current limiting. 3. Stall prevention. 4. Instantaneous over current trip. 5. Earth Fault. 6. Digital Display for setting and Adjustment. 7. Input MCCB and Input AC Reactor. 8. Instantaneous Power Failure Protection i.e., power fail save 9. Seven segment digital display for speed, actual frequency, load current, setting data (function and data codes) actual power consumed and error messages. 10. Programming module should be detachable for loading parameters of drive. 11. Supply should include commissioning of drive at BHEL		
3.7	Accessories for installation	All accessories required for installation of motor and drive are under vendor scope. (like glands, PVC pipe, cables, base bolt/nuts, wiring work).		
4.0	Other details of FD Fan Assembly for HTF bay 3/50:			
4.1	The combined overall dimensions of both the FD fan assembly with motor and base frame shall be limited within the available floor space in the HTF area at bay 3 building 50. The vendor may visit BHEL, Trichy to assess the site conditions before submission of the offer.			
4.2	STATUTARY REQUIREMENT: Noise level at distance of 01 metre from fan is to be strictly within 85 Decibels. Suitable sound proof enclosures for acoustic insulation or material of construction for the fan components shall be provided by the supplier. The noise will be checked by BHEL after erection of the fan. Hence without the satisfactory results, the commissioning of the FD fans shall not be completed.			
4.3	01 set of Forced Draft Fan Assembly consists of the 1. Fan with Acoustic enclosure; 2. VFD control panel; 3. Expansion bellow at discharge sides; 4. Base frame for fan and motor; 5. Suction damper with flange matching the suction filter and silencer; 6. Discharge damper with flange matching the existing discharge line of 12 inch; 7. Suction silencer; 9. Suction filter; 10. Motor. Also, suitable vibration isolator, foundation bolts and inlet / outlet flanges are to be provided.			
4.4	Suitable Electric Motor for the FD fan shall be provided. It is to be noted that the motor will be connected to the Variable Frequency Drive.			

Abdul Saleem Kotalkara
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R. Mohan
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R. MOHAN
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BHEL, TRICHY - 620 014.

TECHNICAL SPECIFICATION FOR FORCED DRAFT (FD) FAN ASSEMBLY - 2 x 1000 Nm³/Hr CAPACITY

4.5	Necessary primer coat and finishing coat for the Forced Draft Fan Assembly shall be carried out as per industrial practise. The finishing coat to be of apple green shade confirming to IS 5:2007 standard .		
4.6	The Impeller assembly has to be balanced dynamically as per IS 1940 Gr.2.5 & Q 6.3 The balancing of impeller assembly shall be carried out before the installation of impeller assembly as well after the installation/erection of the Forced Draft Fan Assembly if required.		
5.0	Scope of Supply and Work by Vendor		
5.1	FD Fan assembly with, acoustic enclosure, motor and VFD, suction and discharge dampers, delivery expansion bellow, anti vibration pads and base frame for fan and motor, suction silencer and suction filter : 02 Sets.		
5.2	Fabrication, Erection and Commissioning of both the FD fans within the available floor space at HTF area in bay 3 building 50, as per BHEL requirement and instructions.		
5.3	The Fabrication, Erection and Commissioning of the FD fan assembly. with motor is in the scope of the vendor. During the erection of the fan, inter-connecting the new FD fan with the existing piping system is to be done by the vendor. In this regard, metallic air duct of required size and thickness to be provided by the vendor, which has to be accomodated within the space available. The vendor may visit BHEL, Trichy to assess the site condition, before subission of the offer. The required flanges,fastners, gaskets,foundation bolts required during the erection is in the scope of vendor.		
5.4	The vendor shall compulsorily do the FD fan proveout tests for the design flow rate and static pressure, at BHEL site after the erection of the FD fan assembly for which the required instruments,tools etc are in the scope of the vendor. Without the satifactory proveout tests and submission of the necessary documents, the commissiing of the FD fans shall not be completed.		
6	General points		
6.1	General Arrangement Drawing of the FD Fan assembly and technical data sheet is to be submitted along with offer.		
6.2	The successful vendor has to visit the site after placement of order, to ascertain the exact dimensions of the existing FD Fan assembly and get approval from BHEL Engineer before manufacturing.		
6.3	Vendor shall note that there is no approach of the overhead crane facility at the erection site and also there is no provision to use any mobile crane at the erection site. Vendor shall plan to carry the erection work accordingly after the concurrence of the BHEL Engineer.		

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19.06.17

ABDUL SALEEM KOTALKARA
Maintenance Engineer
Maintenance & Services
BHEL, TRICHY - 620 014.

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19/6/17

R. MOHAN
Sr. Engineer
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TECHNICAL SPECIFICATION FOR FORCED DRAFT (FD) FAN ASSEMBLY - 2 x 1,00,000 Nm³/Hr CAPACITY

6.4	The entire erection, commissioning and prove out of the new fan assembly in the existing available floor space is to be carried out by the vendor and is to be completed within ONE Week from the date of handing over of the site to the vendor by BHEL. BHEL shall dismantle the existing FD fan assembly only.			
6.5	It is in the scope of vendor to arrange the required tools and tackles and the required manpower to complete the work within the specified time.			
6.6	Minor civil works if any required during the erection will be carried out by BHEL.			
6.7	Required electrical connection for the motor and connection from the motor to existing VFD will be carried out by BHEL including cabling.			
7	Fan routine tests as per standards	The following fan test are to be conducted and test reports to be furnished along with the fan supply. 1. Performance test as per IS 4894-1987 / AMCA 210; 2. Vibration test as per ISO 14694:2003 (E); 3. Dynamic balancing as per ISO 1940 Q 2.5 & Q 6.3; 4. Inspection report. 5. Sound level test report. 6. Bearing temperature report. 7. Motor test reports.		
8	Pre-despatch inspection	Complete FD fan assembly shall be offered for inspection at supplier's works to BHEL official before despatch.		
9	Warantee	Warranty for FD Fan with Motor assembly shall be given for a period of 12 months from the date of commissioning or 18 months from the date of supply which ever is earlier, against deficiency in performance and failure in materials and workmanship.		
10	Submission of Performance Bank Guarantee(PBG)	10% PBG to be submitted by vendor after placing order(vendor to confirm in technical offer)		
11	Delivery Period	a)The vendor shall submit the drawings for approval to BHEL within 2 weeks from the date of purchase order. b)The delivery Period has to be maximum of 16 Weeks from the date of drawing approval by BHEL.		
12	Documentation	3 Sets of Hard copies and 1 Softcopy of O and M manuals including drawings, required material test certificates, dynamic balancing certificates and other applicable certificates for the FD with motor assembly are to be submitted along with the supply.		

Asalw
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